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Don't miss previous issues!

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9.9 billion in federal funding is available to support public transportation throughout the country, the latest tranche of support made possible thanks to the Bipartisan Infrastructure Law (BIL).

On the front cover:

The nearly 150-year-old Frederick Douglass Tunnel is the single point of failure due to curves for both MARC and Amtrak trains. This \$6b megaproject involving the construction of two parallel, single-track 2-mile tunnels essentially eliminating the 30-mph speed restrictions in the current tunnel. Construction is scheduled to begin in 2026; other B&P Tunnel Replacement Program activities already are underway with the overall Program is scheduled for completion in 2035 through 3 planned contracts.

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SPEEDLINES is published in cooperation with:
AMERICAN PUBLIC TRANSPORTATION ASSOCIATION
1300 I Street NW, Suite 1200 East
Washington, DC 20005

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A MESSAGE FROM THE CHAIR: CHRIS BRADY



HS&IPR *Committee & Friends*

Spring is here. For a guy from Augusta, GA, that means it's time for The Masters. For our High Speed and Intercity Passenger Rail Committee, it means -

- We are halfway through the historic Bipartisan Infrastructure Law (BIL) signed by President Biden in November 2021.
- Congress is wrapping up the FY2024 annual appropriations process and with it the Transportation-HUD Appropriations bill.
- The start of the FY2025 appropriations process with the receipt of President Biden's FY25 Budget Proposal.
- The start of the 2024 FRA NOFO season with new opportunities for CRISI, and the Fed-State programs.
- The kick-off of dozens of new and existing projects which received awards last Fall from FRA under the Fed-State and Corridor Identification programs.
- And starting the moves to ensure that reauthorization of the BIL continues and expands upon the historic investments in passenger rail.

Importantly it's also time to get ready for terrific conferences that will showcase high-speed and intercity passenger rail: APTA's annual Legislative Conference in Washington, DC (where else?) on April 7th-9th 2024. Our HS&IPR Committee will meet - as we traditionally do - Sunday morning. Grab your coffee, come hear from experts in the field and put your thinking caps on and bring your comments and questions.

Highlights of the Conference are an FRA Update by Administrator Amit Bose, and separate transit and passenger rail authorizing and appropriations discussions. And a Political Perspective keynote by Face The Nation host Margaret Brennan, who will enlighten us on what went on, what's going on and what's next in our Nation's Capital - not a simple task.

This year's Legislative Conference promises to be one of APTA's most successful in terms of content and participation. Two days later, APTA and co-sponsor JITTI - the Japan International Transport & Tourism Institute will co-host a Rail Symposium 2024 on April 11th. The Symposium will begin with welcoming remarks from Japan's Ambassador to the United States, the Honorable Shigeo Yamada and feature keynote speeches by FRA Administrator Amit Bose and MLIT Deputy Director General Masako Osano, and an all-star panel of leading voices on High-Speed Rail from Japan and the US.

Finally, APTA's Rail Conference this year is in Cleveland, Ohio, on June 2nd-5th, 2024. If golf in Augusta isn't your thing, maybe baseball is. The Cleveland Guardians host the Washington Nationals and the Kansas City Royals while we are in town. 2024 promises to be a banner year for high-speed and intercity passenger rail, with great projects getting underway with long-awaited federal support, and the 'pipeline of projects' that our Committee has supported for these many years finally getting built.

We look forward to seeing you at the conferences and on Capitol Hill, making the case for safe, fast, environmentally friendly and energy efficient HSR in America.

Transportation

U.S. DEPARTMENT OF TRANSPORTATION

ANNOUNCES MORE THAN \$8B FOR HIGH-SPEED FRA MAKES MORE THAN \$2.4 BILLION IN CRISI GRANT FUNDING AVAILABLE TO IMPROVE AMERICA'S FREIGHT AND INTERCITY PASSENGER RAIL NETWORK

The U.S. Department of Transportation's Federal Railroad Administration (FRA) has recently announced a Notice of Funding Opportunity (NOFO) for the Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program, providing over \$2.4 billion in funding. This program aims to enhance America's rail infrastructure, promoting safety, efficiency, and reliability for both freight and intercity passenger transportation. With funding allocated for Fiscal Years 2023 and 2024 as part of President Biden's Bipartisan Infrastructure Law, this initiative builds on the success of previous CRISI grants, which have supported various projects across the country.

The history of rail transportation in the United States can be traced back to the early 19th century when the first railroad was constructed, revolutionizing the movement of people and goods across the country. Over the years, the development of the rail network played a crucial role in the economic growth and expansion of the nation. The FRA was established in 1966 to oversee and regulate the safety and efficiency of the U.S. railroad system, ensuring compliance with federal laws and standards. Since then, the FRA has been at the forefront of promoting advancements in rail infrastructure and safety through initiatives like the CRISI Program.

Key figures in the field of rail transportation have played a significant role in shaping the industry and advocating for improvements in infrastructure. One such influential individual is President Biden, whose administration has prioritized investing in transportation infrastructure, including rail projects. By allocating substantial funding to the CRISI Program, President Biden has demonstrated a commitment to modernizing the country's rail system and promoting sustainable transportation options. Additionally, transportation policymakers, industry leaders, and rail advocates have contributed to the advancement of rail infrastructure and safety, emphasizing the importance of investing in these essential resources for the overall well-being of the nation.

The impact of the CRISI Program on communities across the country has been substantial, with projects ranging from bridge repairs to the expansion of intercity passenger rail corridors. These initiatives have not only improved the safety and efficiency of rail transportation but have also created job opportunities and stimulated economic growth in various regions. Moreover, the focus on rural communities through CRISI grants has addressed the unique transportation needs of these areas, enhancing connectivity and accessibility for residents and businesses.

Despite the positive aspects of the CRISI Program, there are also challenges and considerations to be addressed moving forward. The allocation of funding for rail projects must be strategic and prioritize the most critical infrastructure needs to maximize the impact of investments. Additionally, ensuring that projects are completed on time and within budget, while meeting the highest safety standards, is essential for the long-term sustainability of the rail system. Furthermore, addressing environmental concerns and promoting sustainability in rail transportation should be key considerations in future initiatives.

In conclusion, the CRISI Program represents a significant investment in the modernization of America's rail infrastructure, with the potential to enhance safety, efficiency, and reliability for rail transportation. By building on past successes and addressing the diverse needs of communities, the FRA's initiatives will continue to play a vital role in shaping the future of rail transportation in the United States. With a focus on collaboration, innovation, and sustainability, the CRISI Program has the potential to power the nation's rail network forward, benefiting both current and future generations.



UAE *United Arab Emirates, Middle East*

ETIHAD RAIL INTENDS TO DEVELOP A HIGH-SPEED RAIL LINE CONNECTING ABU DHABI AND DUBAI THE FIRST PASSENGER TRAIN STATION WILL BE BUILT IN SAKAMKAM, FUJAIRAH, AT THE HEART OF FUJAIRAH CITY.



The high-speed rail project in the UAE is a major infrastructure development aimed at connecting the country's two largest cities, Dubai and Abu Dhabi, and reducing travel times between them. Separate from the Etihad Rail passenger service, which operates at 200 km/h on the freight rail network, the high-speed project is set to revolutionize transportation in the region. The early works for the high-speed network involve clearing and preparing sites for construction, including earthmoving and infrastructure diversion. Companies like Matcon Testing Laboratory and Engineering in Dubai and Abu Dhabi are already involved in preliminary site testing.

Historically, the UAE has always been at the forefront of innovation and development, and this high-speed rail project is another testament to the country's commitment to progress. Key figures in the project include government officials, engineers, and urban planners who have worked tirelessly to bring this vision to life. Their expertise and dedication have been instrumental in moving the project forward. Additionally,



private sector companies involved in the construction and testing phases have played a crucial role in ensuring the success of the high-speed rail network.

The impact of the high-speed project on the UAE's economy and society cannot be overstated. By slashing journey times between Dubai and Abu Dhabi, the project will facilitate easier and faster commuting for residents, as well as boost economic activity between the two cities. Businesses will benefit from reduced travel times for logistics and meetings, while individuals will have more flexibility in choosing where to live and work. The environmental benefits of shifting towards rail transport are also significant, as the high-speed network will help reduce traffic congestion and carbon emissions. On the downside, some critics may argue that the high-speed rail project comes at a high cost and diverts resources from other important sectors. There may also be concerns about the environmental impact of construction and operation of the rail network. However, proponents of the project argue that the long-term benefits will

outweigh the initial costs, and that sustainable infrastructure development is key to the country's future growth.

The latest step in the development of the UAE's first passenger train from Dubai to Abu Dhabi comes in the form of a massive partnership with Dubai's Roads and Transport Authority (RTA). The MOU was signed between His Highness Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum, First Deputy Ruler of Dubai, and Deputy Prime Minister and Minister of Finance of the UAE, and His Highness Sheikh Theyab bin Mohamed bin Zayed Al Nahyan, Chairman of Etihad Rail, at the World Governments Summit, in Dubai.

Looking ahead, the future developments related to the high-speed project are promising. As construction progresses and the network becomes operational, there will likely be more investments in urban development around the rail stations. This will lead to further economic growth and job creation in the region. The success of the high-speed rail project could also inspire similar infrastructure projects in other parts of the UAE, further enhancing connectivity and accessibility within the country.



This UAE high-speed rail project is a significant and transformative initiative that will have far-reaching impacts on the country's economy, society, and environment. With key figures driving the project forward and a commitment to sustainability and innovation, the future looks bright for the UAE's transportation sector. Despite some challenges and criticisms, the overall outlook for the high-speed network is positive, and it is poised to revolutionize travel in the region.



BRIGHTLINE WEST

President Joe Biden joined elected officials from Nevada and California to formally announce that the Nevada Department of Transportation (NDOT) received \$3 billion in funding from the Federal-State Partnership for Intercity Passenger Rail Grant Program for Brightline West. Upon receipt of the grant funding, Brightline West commenced field investigation work in Southern California and Nevada within the proposed Interstate 15 rail corridor right-of-way. Field work began in January to advance final stages of design in preparation for a groundbreaking. Field investigation work includes geotechnical borings and samplings, utility potholing and land surveying. Work will take place primarily during daytime hours, with some work at night to minimize disruption to traffic. In some instances, short term closures of freeway shoulders will be required. All work will be done in compliance with applicable environmental regulations and in coordination with Caltrans and the Nevada Department of Transportation.



DUTCH HYPERLOOP PROTOTYPE UNVEILED

The concept of the Hyperloop, a high-speed transportation system that involves capsules traveling through low-pressure tubes at speeds of around 435 mph, has been a topic of fascination for many since it was first proposed by Elon Musk. The new European Hyperloop Center in the Northern Netherlands is set to be a significant milestone in the development and testing of this innovative technology. Historically, the idea of high-speed transportation has always captured the imagination of inventors and engineers. From the early days of locomotives and steam engines to the development of high-speed rail, the goal has always been to transport people and freight more efficiently and quickly. The Hyperloop takes this concept to the next level by using magnetic fields to propel capsules through tubes, potentially revolutionizing the way we think about transportation. While progress has been slower than initially anticipated, the opening of the European Hyperloop Center signifies a significant step forward in the development and testing of this technology. As we continue to push the boundaries of what is possible, the Hyperloop could indeed usher in a new era in the transportation of people and freight.



RAIL SYMPOSIUM 2024 -JITTI / APTA - THURSDAY, APRIL 11TH

In recent years, the passenger rail industry has seen significant milestones that have shaped the way people travel and think about transportation. The Biden administration in the U.S. has made investments through the Infrastructure Investment and Jobs Act (IIJA), enacted in November 2021. This marks a generational shift towards sustainable and efficient modes of transportation, with a focus on reducing greenhouse gas emissions and improving overall infrastructure. In Japan, high-speed rail projects like the Hokuriku Shinkansen extension

opening in March 2024 have been making remarkable progress. These projects not only improve connectivity and accessibility for commuters and travelers but also stimulate economic growth in the regions they serve. The development projects around terminal stations in major cities like Shibuya in Tokyo and Umeda in Osaka are contributing to urban revitalization and creating vibrant, sustainable communities. Cities face increasingly frequent natural disasters and climate-related challenges, the importance of resilient urban infrastructure has become more apparent.

In this symposium, experts from Japan and the U.S. will come together to discuss the evolving role and value of passenger rail in the context of sustainability, resilience, and economic development. By sharing best practices, innovative solutions, and success stories, they aim to highlight the benefits of investing in passenger rail and encourage further collaboration and progress in the industry. Ultimately, the symposium serves as a platform for dialogue and cooperation, driving the passenger rail industry towards a more sustainable, resilient, and efficient future.

BRIGHTLINE ADDED STOP IN COCOA FOR THE ORLANDO-TO-MIAMI PASSENGER RAIL SERVICE

High-speed rail company Brightline just announced a new stop on Florida's Space Coast, which will make it easier than ever to access Cape Canaveral.

Brightline is a private company that started operating in Florida six years ago with a route connecting Fort Lauderdale to West Palm Beach. Later in 2018, service began between Miami and Fort Lauderdale. Since then, other stations have popped up in Aventura, Boca Raton, and Orlando. The new stop will be located in Cocoa, about 10 miles from Cape Canaveral.

Russia to build first 'VSM-1' HSR

Russia has always been known for its vast landscapes, historical cities, and rich cultural heritage. With the announcement of the VSM-1 project, the country is set to embark on a new era. The High-Speed Railway line-1, or HSR-1, is a groundbreaking initiative that aims to revolutionize the way people travel between Russia's major urban hubs. The Moscow –

St. Petersburg high-speed rail line is set to be the first of its kind in Russia, with a planned travel time of just 2 hours and 15 minutes between the two major cities. This significant reduction in travel time will make it easier for commuters, tourists, and business travelers to move between the two urban centers, boosting connectivity and productivity.

U.S. CONGRESS MEMBERS INTRODUCE NATIONAL HIGH-SPEED RAIL PROPOSAL

A new congressional bill introduced this month calls for billions of dollars of investments into high-speed rail access across the United States. U.S. Representatives Seth Moulton (D-Massachusetts) and Suzan DelBene (D-Washington) introduced March 8, 2024 - H.R.7600, dubbed the American High-Speed Rail Act. The Bill proposes a \$205 billion investment into high-speed rail operations, with the hopes of creating at least 2.6 million American jobs over the course of a five-year period.

“High-speed rail is faster, cleaner, safer, and better for our economy. It will connect people to more jobs in new places, give Americans freedom and choice in how they travel, and put us on par with the rest of the world. This bill is the plan that will get us there. We spend vast amounts of money subsidizing planes, which are delayed by weather, and roads, which are crumbling nationwide. We have the chance to think big and think differently. Let's not waste the opportunity.”
U.S. REP. SETH MOULTON (MA-06)

KOREA UNVEILS NEXT-GENERATION BULLET TRAIN

President Yoon Suk Yeol announced the fastest model of the Korea Train Express (KTX) train will enter service in May 2024 and enable people to move from one end of Korea to the other in just about two hours. Yoon had a ceremony marking the 20th anniversary of the KTX trains at the Korea Railroad headquarters in Daejeon. He was referring to train lines connecting Seoul to Busan and Daejeon to Mokpo, respectively.



The KTX-Cheongnyong was named through a public contest to mean “blue dragon” in the Year of the Blue Dragon - at Daejeon Station in the city 139 kilometers (86 miles) south of Seoul. Yoon added that the KTX Cheongryong trains will run more frequently

between Seoul and Busan once more railways are added between Pyeongtaek, Gyeonggi Province and Osong, North Chungcheong Province, by 2028. The KTX Cheong-ryong can travel between Seoul and Busan in about 2 hours and 10 minutes, and between Yongsan Station in Seoul and Gwangju in 1 1/2 hours, with fewer stops in between than the KTX-Sancheon.

Morocco has issued a tender for a high-speed rail link as part of its \$37 billion strategy to connect more of its cities, ports and airports by train.



MOROCCAN National Railways (ONCF) has announced an allocation of Dirhams 695m (\$US 69m) for civil works on the project to build the 492km high-speed line between Kénitra and Marrakech. Trains will operate at up to 320km/h on the new line, which will be designed for maximum speed of 350 km/h. It will serve major urban centres including Rabat, Salé and Casablanca, and the project includes the construction of a new station in Marrakesh, as well as a rolling stock maintenance facility at Kénitra. Connections with the existing ONCF network are planned at Rabat-Agdal, Ain Sebaa, Bouskoura, Nouaceur, Settlat, Ben Guerir and Sidi Ghanem. ONCF has begun tendering for a Dirhams 10.4m contract to provide environmental and social compliance services for the project.

2024 CONFERENCES

MOBILITY CONFERENCE

April 28 - May 1, 2024

Portland, OR

INTERNATIONAL BUS ROADEO

April 26-30, 2024

Portland, OR

RAIL CONFERENCE

June 2-5, 2024

Cleveland, OH

APTATECH

August 4-7, 2024

Philadelphia, PA

SUSTAINABILITY OPERATIONS PLANNING AND SCHEDULING

August 18-21, 2024

Washington, DC

WORKFORCE SUMMIT

August 21-23, 2024

Washington, DC

TRANSFORM CONFERENCE

September 29-October 2, 2024

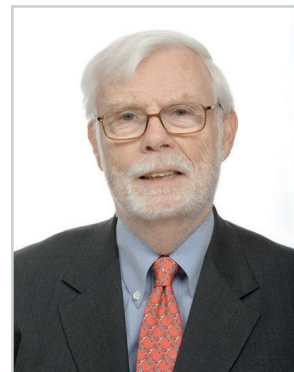
Anaheim, CA



Transportation Leader and Infrastructure Advocate

IN MEMORIAM

MORTIMER ("MORT") L. DOWNEY III



He devised innovative financing to revive New York City's subway. In Washington, as a U.S. Department of Transportation leader with six decades of knowledge, he bolstered Amtrak and secured federal funds for public transit.

August 9, 1936-November 2, 2023

Mortimer Leo Downey III was a prominent figure in American government, known for his long and extraordinary career in transportation administration. Born on August 9, 1936, in Springfield, Massachusetts, Downey was a man of great ambition and intelligence from a young age.

Downey's education played a significant role in shaping his future career. After attending the prestigious Phillips Academy, he went on to study at Yale University and later New York University. It was during his time at these institutions that Downey honed his skills and knowledge in transportation and finance, setting the stage for his future successes.

In 1986, Downey was appointed executive director and chief financial officer of the New York Metropolitan Transportation Authority, a position he held until 1993. During his time there, he implemented several key initiatives that improved the efficiency and functionality of the transportation system in New York City, earning him a reputation as a skilled and dedicated leader.

In 1993, Downey was appointed Deputy Secretary of Transportation by President Bill Clinton. Over the next eight years, he would go on to become the longest-serving person to hold that position, a testament to his expertise and commitment to public service. During his time as Deputy Secretary, Downey worked tirelessly to improve the nation's transportation infrastructure, advocating for innovative solutions and pushing for greater investment in critical projects.

One of Downey's most notable achievements came in 2001, when he served as the acting U.S. Secretary of Transportation for the first four days of the Bush administration. During this brief but impactful period, Downey demonstrated his leadership skills and ability to navigate complex political landscapes, earning him the respect and admiration of his colleagues and peers.

In addition to his work at the federal level, Downey also served as chairman of the Washington Metropolitan Area Transit Authority from 2015 to 2016, further solidifying his reputation as a dedicated and effective transportation leader.

Mortimer Leo Downey III passed away on November 2, 2023, leaving behind a lasting legacy of service and dedication to the field of transportation administration. His contributions to the industry will continue to be felt for years to come, as future generations build upon the foundation he helped to create.



CALIFORNIA HSR

REACHING OUT TO STUDENTS EARNS RECOGNITION

Contribution By: Yaqeline Castro

THE CALIFORNIA HIGH-SPEED RAIL AUTHORITY'S I WILL RIDE PROGRAM WINS AWARDS FOR EFFORTS IN CONNECTING STUDENTS WITH OPPORTUNITIES, AND THE TRANSIT INDUSTRY.

I Will Ride, the California High-Speed Rail Authority's award-winning student outreach program, opens doors to possibilities of transportation-oriented careers. The program recently earned recognition by APTA for 2023's Best Comprehensive Marketing and Communications Educational Campaign for Workforce Development Ad Wheel Award. This came on the heels of I Will Ride having received the Rosa Parks Diversity Leadership Award from the Women's Transportation Seminar (WTS) Sacramento chapter in 2023. This recognition reflects years of outreach with a focus on inspiring students to find their passion by exploring public service, education, and career paths – not only on California's transformative high-speed rail program but in all types of mobility and transportation-related fields.

Originally founded by Central Valley students, the Authority relaunched the program in 2020, building education partnerships throughout California and beyond to connect students of all ages to news, events, networking, mentorship, and opportunities on high-speed rail. We work with students of many backgrounds because our system will touch the lives of people of all walks of life, around California and

beyond.

We are intentional about our outreach, focusing first on under-resourced groups historically underrepresented in the field of transportation. To reach these students, we proudly partner with programs like Los Angeles Metro's Transportation Career Academy Program, Society of Hispanic Professional Engineers, Women's Transportation Seminar, Society of Women Engineers, American Society of Civil Engineers, DIY Girls and many others. In 2023 alone, we participated in 66 student outreach events, reaching more than 4,000 students in a collaborative effort with our subject matter experts, regional teams and education partners.

We want the program to be comprehensive, so we are always exploring new ways to engage with students. While we do routine classroom presentations, bringing in subject matter experts like engineers, directors, and planners, we also continually explore new outreach opportunities such as partnering with Merced's first-of-its-kind children's museum, Kids Discovery Station which now features a high-speed rail exhibit. Over the last few years, we've hosted student project groups and

capstones, judged student competitions, sponsored student-organized conferences and more. Our most popular and impactful events so far are in-person site visits to cities like Fresno with active construction sites where the project is well underway. Most recently, we've organized visits to see the white mockup train exhibit at Sacramento's Cal Expo.

To complement in-person events, we do many virtual events too. These events are accessible and break down barriers, helping us reach students who may not live in California or might not be able to travel. Last year, we did webinars, virtual classroom presentations, and more. We also handle student inquiries, helping them with many types of school projects including, essays, capstone projects, thesis research and student newspaper articles. Additionally, we send out a monthly newsletter keeping our students updated on Authority news, job and internship opportunities and open scholarship applications.

Want to learn more? Email us at iwillride@hsr.ca.gov or take a look at our webpage and sign up for our newsletter here: <https://hsr.ca.gov/i-will-ride/>

Yaqeline Castro is the Authority's student engagement and outreach coordinator.

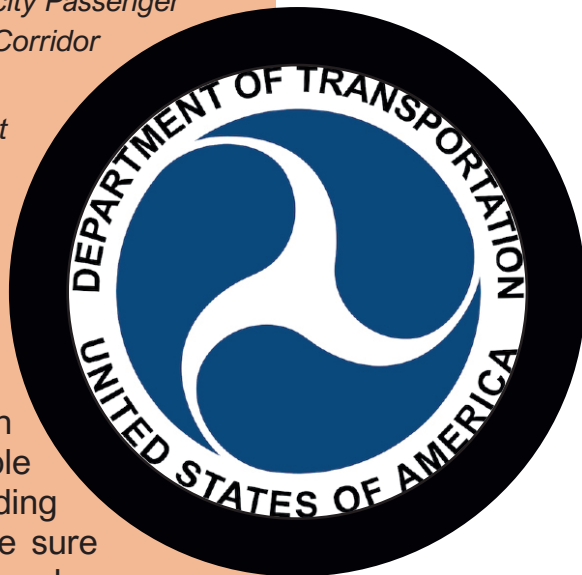


NEW GRANTS RESOURCES FROM THE FEDERAL RAILROAD ADMINISTRATION

Is your agency or organization planning to pursue federal funding for railroad projects in 2024? Well, the Federal Railroad Administration (FRA) recently released some new resources related to the grant programs that they administer that may help. The current FRA administered programs include:

- *Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program*
- *Federal-State Partnership for Intercity Passenger Rail Grant Program (Both Northeast Corridor and the National Network)*
- *Railroad Crossing Elimination Grant Program*

The new grant resources include a CY23 Lessons Learned Video and an updated Corridor ID Scope Of Work Template. These resources are in addition to many others available through the FRA website including a CY2024 grants calendar. Be sure to check out these resources and many more at the FRA website.

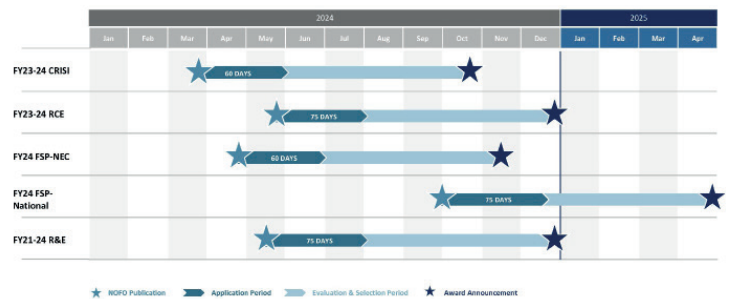


NEW RESOURCES FOR GRANTEEES:

- [Preparing for Upcoming FRA Funding Opportunities: Lessons Learned from CY23 - VIDEO](#)
- [Corridor ID Program Step 2 Service Development Plan Draft Statement of Work Framework – Version 2](#)

Other FRA and U.S. Department of Transportation (DOT) Resources for Grantees:

- [FRA's Updated Terms and Conditions](#)
- [FRA CY24 Grants Calendar](#)
- [Justice40 Rail Explorer Mapping Tool](#)
- [Locomotive Emissions Comparison Tool](#)
- [FRA Grant Programs](#)
- [FRA Grants Tool](#)
- [FRA Resources for Rural Communities](#)
- [DOT Discretionary Grants Dashboard](#)



Coming Soon!

- [Webinar: Consolidated Rail Infrastructure and Safety Improvements \(CRISI\) Grant Program NOFO – April 2024](#)
- [Rail Delivery Workshop – July 30–31, 2024](#)

BALTIMORE & POTOMAC

HIGH-SPEED RAIL'S IMPACT ON THE ECONOMY AND ENVIRONMENT

Contribution By: Andrew Horton, Amtrak Government Affairs

Amtrak owns the existing 2-track railroad tunnel, which is currently used by Amtrak, Maryland Area Rail Commuter (MARC), and Norfolk Southern Railway (NS). The existing tunnel was built in 1873 and is one of the oldest structures on the Northeast Corridor (NEC). It is also a bottleneck for the operations of MARC and Amtrak passenger trains. The 1.4-mile tunnel, connecting Amtrak's Penn Station to MARC's West Baltimore station, is impacted by various age-related issues, including excessive water infiltration, a deteriorating structure, and a sinking floor. The tunnel does not include any modern fire and life safety systems that help keep passengers safe in the event of emergencies, and extensive maintenance is required.

Inside Amtrak's Transformative Frederick Douglass Tunnel Project
By Andrew Horton, Amtrak Government Affairs

Passengers traveling on the Northeast Corridor (NEC) between Washington D.C. and Baltimore have long endured frequent delays while passing through the 150+ year old Baltimore & Potomac (B&P) Tunnel. With the Frederick Douglass Tunnel Program, Amtrak, in partnership with the State of Maryland, is determined to redefine the story.

The B&P Tunnel, dating back to the Civil War, stands as the oldest tunnel in Amtrak's network and poses a significant risk as a single point of failure for 12 million annual Amtrak and MARC customers on the NEC. Stretching over 1.4 miles, the existing tunnel is safe for operation, but unable to accommodate future expanded service. Challenges such as extensive water infiltration, structural deterioration, a sinking floor, and insufficient fire and life safety systems create persistent delays. The tunnel's limited capacity and tight curvature force trains to operate at reduced speeds of 30 mph, creating a significant bottleneck between Washington and New York. With growing ridership necessitating modern standards, now is the time

to provide millions of riders with a new, more reliable tunnel and upgraded rail infrastructure.

Enter the Frederick Douglass Tunnel Program, a transformation of the NEC that will replace the aging B&P Tunnel and upgrade 10-miles of rail infrastructure. The centerpiece of the Program is the Frederick Douglass Tunnel, named in honor of civil rights leader and abolitionist Frederick Douglass, a Maryland native. This brand new, state-of-the-art passenger rail tunnel will feature two new high-capacity tubes, serving electrified Amtrak and MARC passenger trains. The Program will also include five new roadway and railroad bridges, new rail systems, track and railroad infrastructure, and modern fire and life safety systems. This work includes a new ADA-accessible West Baltimore MARC station, improving service commuter rail service for the Baltimore community.

These upgrades will allow customers to experience the full benefits of Amtrak's fleet and station improvements, while promising time savings, sustainability, and safety enhancements. The new, electrified high-capacity tunnel tubes will allow trains to reach speeds up to 100 mph, reducing

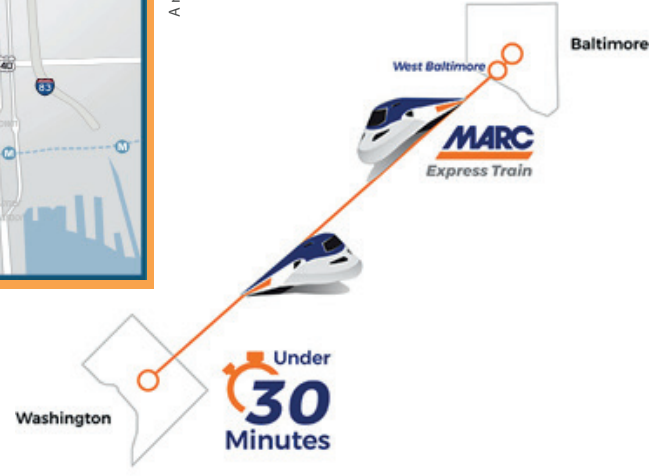
travel time between DC and Baltimore to under 30 minutes. The new tunnels are designed for electrified passenger trains; freight trains will continue to use the existing B&P Tunnel during normal operations. The program will also include solar power generation at multiple locations, making the Northeast Corridor even greener. Finally, the project will create thousands of new, good-paying union jobs in the Baltimore area.

The Frederick Douglass Tunnel Program would not be possible without the Infrastructure Investment & Jobs Act. A majority of the \$6B project is funded by a \$4.7B FRA grant through the Federal-State Partnership for Intercity Passenger Rail Program. Out of any single-project in the entire FY22-23 Federal-State Partnership grand distribution, the Frederick Douglass Tunnel Program received the largest single grant funding. Amtrak and the State of Maryland have committed to covering the remaining costs. This commitment is further underscored by similar Amtrak investments across Maryland, like Baltimore Penn Station Redevelopment, Susquehanna Rail River Bridge Replacement, and numerous other infrastructure projects along the entirety of the NEC.

Early work on the Frederick Douglass Tunnel Program began in late 2023



A map displaying the planned FDT project improvements.



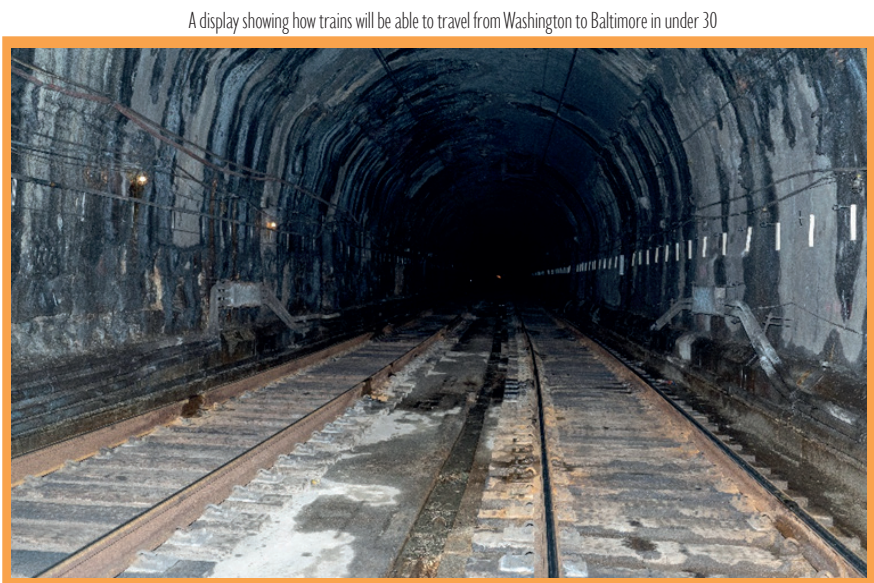
when Amtrak completed initial track upgrades, in advance of for major construction. Shortly after, Amtrak awarded both major construction contracts for the new tunnel and Southern Approach. In February 2024, Amtrak started demolition activities in Baltimore, preparing for the start of major construction later this year. Tunneling is set to start in 2026, with Program completion expected in 2035. Amtrak is committed to consistent and transparent community updates and will continue to preview the program’s next steps, hosting bimonthly community meetings and providing opportunities for all to stay informed throughout construction.

The Frederick Douglass Tunnel Program tackles the challenges of the B&P Tunnel head-on, paving the way for a rail travel revolution across the NEC. It’s not just about fixing a tunnel; it’s about elevating the journey for Amtrak and MARC riders between Baltimore and Washington, while creating thousands of jobs during that process and building lasting change for millions of passenger rail riders. This bold infrastructure investment marks a pivotal step in realizing Amtrak’s New Era of Rail.

For more information, check out <https://www.amtrak.com/neweraofrail>



An Amtrak train passing through the current B&P tunnel.



The current B&P tunnels.

A display showing how trains will be able to travel from Washington to Baltimore in under 30

Passengers traveling on the Northeast Corridor (NEC) between Washington D.C. and Baltimore have long endured frequent delays while passing through the 150+ year old Baltimore & Potomac (B&P) Tunnel. With the Frederick Douglass Tunnel Program, Amtrak, in partnership with the State of Maryland, is determined to re-define the story.

The B&P Tunnel, dating back to the Civil War, stands as the oldest tunnel in Amtrak's network and poses a significant risk as a single point of failure for 12 million annual Amtrak and MARC customers on the NEC. Stretching over 1.4 miles, the existing tunnel is safe for operation, but unable to accommodate future expanded service. Challenges such as extensive water infiltration, structural deterioration, a sinking floor, and insufficient fire and life safety systems create persistent delays. The tunnel's limited capacity and tight curvature force trains to operate at reduced speeds of 30 mph, creating a significant bottleneck between Washington and New York. With growing ridership necessitating modern standards, now is the time to provide millions of riders with a new, more reliable tunnel and upgraded rail infrastructure.

Enter the Frederick Douglass Tunnel Program, a transformation of the NEC that will replace the aging B&P Tunnel and upgrade 10-miles of rail infrastructure. The centerpiece of the Program is the Frederick Douglass Tunnel, named in honor of civil rights leader and abolitionist Frederick Douglass, a Maryland native. This brand new, state-of-the-art passenger rail tunnel will feature two new high-capacity tubes, serving electrified Amtrak and MARC passenger trains. The Program will also include five new roadway and

railroad bridges, new rail systems, track and railroad infrastructure, and modern fire and life safety systems. This work includes a new ADA-accessible West Baltimore MARC station, improving service commuter rail service for the Baltimore community.

These upgrades will allow customers to experience the full benefits of Amtrak's fleet and station improvements, while promising time savings, sustainability, and safety enhancements. The new, electrified high-capacity tunnel tubes will allow trains to reach speeds up to 100 mph, reducing travel time between DC and Baltimore to under 30 minutes. The new tunnels are designed for electrified passenger trains; freight trains will continue to use the existing B&P Tunnel during normal operations. The program will also include solar power generation at multiple locations, making the Northeast Corridor even greener. Finally, the project will create thousands of new, good-paying union jobs in the Baltimore area.

The Frederick Douglass Tunnel Program would not be possible without the Infrastructure Investment & Jobs Act. A majority of the \$6B project is funded by a \$4.7B FRA grant through the Federal-State Partnership for Intercity Passenger Rail Program. Out of any single-project in the entire FY22-23 Federal-State Partnership grand distribution, the Frederick Douglass Tunnel Program received the largest single grant funding. Amtrak and the State of Maryland have committed to covering the remaining costs. This commitment is further underscored

by similar Amtrak investments across Maryland, like Baltimore Penn Station Redevelopment, Susquehanna Rail River Bridge Replacement, and numerous other infrastructure projects along the entirety of the NEC.

Early work on the Frederick Douglass Tunnel Program began in late 2023 when Amtrak completed initial track upgrades, in advance of for major construction. Shortly after, Amtrak awarded both major construction contracts for the new tunnel and Southern Approach. In February 2024, Amtrak started demolition activities in Baltimore, preparing for the start of major construction later this year. Tunneling is set to start in 2026, with Program completion expected in 2035. Amtrak is committed to consistent and transparent community updates and will continue to preview the program's next steps, hosting bimonthly community meetings and providing opportunities for all to stay informed throughout construction.

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For more information, check out <https://www.amtrak.com/neweraofrail>



SPAIN HSR NETWORK

RECENT DEVELOPMENTS AND TECHNICAL OVERVIEWS

Contributed By: Joaquín Botella Malagón, MSc Civil Engineer, PE SENER Mobility
Roberto Rodríguez Illanes, MSc Civil Engineer, PE, SENER Mobility USA

CURRENT SITUATION OF THE SPANISH HIGH-SPEED RAIL NETWORK

Spain's high-speed rail network stands as a pinnacle of rail transport innovation and efficiency, reflecting the country's commitment to sustainable and fast connectivity. With over 3,400 km (2,100 mi) of high-speed rail tracks, Spain holds the distinction of having the largest high-speed rail network in Europe and the second largest in the world, trailing only behind China. The network's trains operate at a maximum speed of up to 320 km/h, (198.8 mph) making it one of the fastest ways to travel across the country.

A notable ambition of Spain's high-speed rail policy is the criteria aimed at ensuring that all Spanish provincial capitals are connected by high-speed rail, ideally with travel times not exceeding two hours. This ambitious goal underlines Spain's commitment to reducing regional disparities, enhancing economic opportunities, and promoting sustainable modes of transport across the entire country. This expansive network and strategic development goals not only highlight Spain's leadership in high-speed rail technology but also underscore a national vision for a more connected and sustainable future. Through continuous expansion, innovative technology adoption, and policies aimed at inclusivity and accessibility, Spain's high-speed rail network sets a benchmark for high-speed rail systems worldwide.

Each of these extensions embodies Spain's commitment to enhancing its high-speed rail network, underscoring the nation's focus on sustainable development, regional cohesion, and the provision of efficient, high-quality transport services. Through these ambitious projects, Spain continues to solidify its position as a leader in high-speed rail, offering models of connectivity that have significant economic, social, and environmental benefits.

Figure 1: Spanish High Speed Rail network in November 2023. Source: Wikipedia



Technical Design Driven by European Technical Specifications for Interoperability (TSI)

The design and operation of Spain's high-speed rail network is governed by the Technical Specifications for Interoperability (TSI), ensuring compatibility, safety, and efficiency across Europe's interoperable rail network. Key technical aspects of this interoperability include:

- **Power Supply:** The network uses a 2x25kV AC electrification system for traction power, ensuring efficient power delivery to trains over long distances.
- **Train Control System:** Spain employs the European Train Control System (ETCS) for its high-speed network. ETCS Level 2 is widely implemented, providing real-time monitoring, and signalling information directly to the train cabs, enhancing safety and operational efficiency.
- **Communications:** Integrated GSM-R systems are used for secure and reliable voice and data communications

between trains and control centres, facilitating smooth operations and emergency responses

Figure 2: HSR Line equipped with ETCS Level 2. Source: railjournal.com



KEY HIGH-SPEED STATIONS

Spain's high-speed rail network is supported by state-of-the-art stations, designed to handle the high passenger throughput characteristic of high-speed travel. Notable examples include, Madrid Puerta de Atocha, Barcelona Sants, and Sevilla Santa Justa. These hubs are not just transit points but also architectural landmarks, offering a range of services and facilities to passengers. The exponential success of the high-speed rail service through the years has encouraged the Spanish Railways Infrastructure Administration (ADIF) to continuously expand the capacity of the key stations to keep up with the demand.



Figure 3: Madrid Atocha HSR Station.

HIGH-SPEED TRAIN FLEETS

The diversity of Spain's high-speed train fleet is a testament to its technological ambition. The fleet includes models from leading manufacturers from all over the world such as Siemens, Alstom, Bombardier, CAF and

Talgo. Each one of them has contributed to unique designs tailored to the operational requirements of the Spanish network. These trains, capable of speeds up to 350 km/h (220 mph), include both purely high-speed models and dual-track gauge variants, facilitating seamless travel across both high-speed and conventional lines.

Figure 4: Trains from different manufacturers parked at a HSR station.



FUTURE LINE EXTENSIONS

In recent years, Spain's high-speed rail network has seen significant extensions, further enhancing its already impressive reach. These expansions have not only extended the network's coverage but have also brought high-speed rail services to previously underserved regions, significantly improving regional accessibility and connectivity. Below are detailed descriptions of some of the key line extensions:

Madrid - Extremadura Line

This line represents a major advancement towards connecting the western region of Extremadura to the central hub of Madrid. The line, when fully completed, will stretch over 400 km (250 mi), bringing high-speed services to an area that has long awaited enhanced rail connectivity.

The line includes new and upgraded stations in cities such as Plasencia, Cáceres, Mérida, and Badajoz, bridging the gap between these historical regions and the nation's capital.

MURCIA - ALMERÍA

Part of the Mediterranean Corridor, this extension aims to connect Murcia to Almería, covering approximately 180 km (110 mi) along Spain's southeastern coast.

Key stations along this route include Lorca, Aguilas and Vera, facilitating direct high-speed rail access to the Mediterranean coastline.

GALICIA HIGH-SPEED LINE

The high-speed line connecting Madrid to Galicia aims to shorten the travel time between the nation's capital and the northwestern region of Galicia.

Santiago de Compostela, A Coruña, and Vigo are among the key destinations, significantly benefiting from reduced travel times to Madrid.

BASQUE HIGH-SPEED NETWORK

The Basque Y, also known as the Basque High-Speed Rail network, represents one of the most significant infrastructure projects in Spain's recent history, aiming to integrate the Basque Country into the national and European high-speed rail networks. This ambitious project seeks to connect the three main cities of the Basque Country: Bilbao, Vitoria-Gasteiz, and San Sebastián, with a high-speed railway line that will also link to the French border, thus facilitating access to the European high-speed rail network.

The total length of the network is approximately 175 km (110 mi). Trains on this network are expected to operate at high speeds, significantly reducing travel times between the Basque cities and improving connections with the rest of Spain and Europe.

The construction of the Basque Y has faced various challenges, including technical difficulties associated with tunneling through the region's complex geology, long viaducts, incorporating sustainable design principles and technologies to protect the region's unique landscapes and ecosystems, and budgetary constraints. Despite these challenges, progress continues, with the ultimate goal of fully integrating the Basque Country into Spain's and Europe's high-speed rail networks.

The Basque Y is a testament to Spain's commitment to expanding its high-speed rail network, enhancing regional connectivity, and promoting sustainable transportation. Once completed, it will mark a significant milestone in the country's infrastructure development, providing a model for future high-speed rail projects in Europe and beyond.

LIBERALIZATION PROCESS

The liberalization of Spain's rail sector, initiated under European Union railway packages, represents a significant transformation towards a more competitive and customer-centric market in passenger rail services. This reform has been instrumental in opening Spain's high-speed rail sector to competition, ending the monopoly of the state-owned operator, Renfe, and paving the way for new operators to introduce innovative services, competitive pricing, and enhanced service quality. This change led by ADIF has increased the demand for HSR

travel, encouraged innovation and improved the user experience. Based on a conversation with Raúl Míguez Bailo, an ADIF official who played a crucial role in this process, in this article we explore the challenges, strategies and results of liberalization.

CHALLENGES

From the outset, ADIF faced the challenge of opening an existing market with an incumbent operator, Renfe, to new competitors. The key to success has been ADIF's adoption of an active role in the process, in contrast to the more passive approach seen in other European contexts, such as SNCF in France. The strategy focused on the publication of a Declaration of Capacity of the network, making 70-75% of capacity available to the market, and reserving the rest for one-off needs, as required by European regulations.

The most attractive route initially identified was Madrid-Barcelona. Through an expression of interest, ADIF sought to understand the business plans and prospects of potential operators. This process revealed an interest that went beyond the Madrid-Barcelona route, extending to Valencia and Southern Spain (Seville and Malaga). The lack of European guidelines on how to prioritize capacity allocation led ADIF to devise a structure of "capacity packages" structured in 3 tiers: big, medium and small. The difference between the packages is the number of slots that they have. This capacity offer tries to adapt to different service models: major rail operator, medium rail operator and small rail operator / low-cost, and all of them included an even distribution of peak, medium and low demand slots, an innovation in the railway field.

NEW OPERATORS IN THE HIGH-SPEED RAIL SECTOR

As a result of liberalization, several new operators have entered the high-speed rail market, introducing fresh dynamics into Spain's rail services:

- Iryo is a consortium that includes international players like Trenitalia and Air Nostrum. Iryo has begun operating on high-demand routes such as Madrid-Barcelona, Madrid-Valencia, and Madrid-Seville, offering services characterized by modern trains, competitive fares, and high service standards. Iryo's entry into the market signifies a direct challenge to Renfe's dominance, aiming to capture a significant share of Spain's high-speed rail passengers.
- Ouigo Spain: A subsidiary of the French National Railway Company (SNCF), Ouigo has started operating low-cost high-speed services between Madrid and Barcelona and plans to expand its network to include



Figure 5: Trains from different operators parked at a HSR station. Source: Juan Montero

routes such as Madrid-Alicante, Madrid-Valladolid and Madrid-Málaga and Seville. Ouigo's business model focuses on low fares, high-frequency services, and a simplified fare structure, appealing to budget-conscious travellers.

RESULTS AND RECEPTION

The framework agreements signed with the operators guarantee the operation for 10 years, providing the necessary certainty to develop a feasible business plan and account for the amortization, the major initial investment, the rolling stock. This has been welcomed by industry. However, the model has also been criticized for the heavy preconditioning of the operators' business models. Despite this, the competing operators clearly focused on the medium and small packages, and the incumbent in the big package. The allocation criterion established by ADIF was the capacity occupancy that each bidder offered, with the objective of maximizing the network utilization and the revenues.

The intervention of academic experts, such as Juanjo Montero, director of the regulatory university of Florence, validated the Spanish model, highlighting the need for certainty for operators. Surveys for new lines to Galicia and Asturias are currently being explored, indicating continued interest and the possibility of adopting a less rigid approach to operator coordination.

Impact of Liberalization

- The entry of new operators into Spain's high-speed rail sector is expected to have several positive outcomes:
- **Increased Competition:** The presence of multiple operators is likely to drive down prices and improve service quality, benefiting passengers.
- **Innovation and Service Diversification:** New entrants may introduce innovative services, such as different classes of service, flexible ticketing options, and enhanced onboard

amenities.

- **Market Growth:** By making high-speed rail more accessible and affordable, the liberalization could lead to an increase in rail's market share in passenger transport, aligning with the EU's objectives of promoting sustainable transport and reducing carbon emissions. According to data compiled by ADIF, rail traffic reached 17.6 million train-km in January 2024, 7.8% more than in January of the previous year. The evolution reflects notable increases, despite 2023 registered historic traffic records. This is explained by the liberalization of passenger rail transport and the commissioning of new High-Speed lines in Spain, expanding the HSR network to 4,000 km (2500 mi). The greatest passenger traffic increase has happened in intercity services (+18%) and in the High-Speed network (+21.2%).

LOOKING TO THE FUTURE

The future of rail liberalization in Spain envisages the introduction of PSO (Public Service Obligations) services for commuter and regional services, possibly structured by geographical areas and awarded to a single operator. This approach to market competition promises to further revolutionize the sector, improving the transportation offer for commuter rail users and fostering greater efficiency and innovation.

The liberalization of Spain's high-speed rail sector marks a significant milestone in the evolution of the country's transport landscape. By fostering competition, encouraging innovation, and prioritizing customer needs, Spain is set to enhance the attractiveness and sustainability of high-speed rail, contributing to the broader goals of connectivity, economic development, and environmental stewardship.

CONCLUSION

Spain's high-speed rail network continues to evolve, driven by technological advancements, strategic expansions, and a progressive liberalization agenda. As the network grows and diversifies, it reinforces Spain's position at the forefront of high-speed rail innovation, offering a glimpse into the future of sustainable and efficient high-speed travel in Europe and beyond.

The liberalization of high-speed rail in Spain is a testament to the power of proactive policy and strategic planning. By adopting innovative approaches and opening to competition, ADIF has laid the foundations for a more dynamic, competitive, and user-centered railway future. This process has not only enriched existing infrastructure and services but has charted a promising path towards growth and sustainability in Spanish rail transport.

RIDING THE FUTURE

CHINA'S HIGH-SPEED RAIL REVOLUTION AND ITS GLOBAL IMPLICATIONS

Contribution By: Lynn Feng, AECOM

Alongside states, municipalities and Since its launch in 2004, China has swiftly built the world's largest and most sophisticated high-speed railway (HSR) network, now exceeding 40,000 km (25,000 miles). This network, which presently links over 90 percent% of major cities across the nation, is on track to expand to 70,000 km (43,000 miles) by 2035. By 2020, the high-speed rail had already connected 75 percent% of cities with populations above 500,000. The Fuxing trains, capable of reaching speeds up to 350 km/h (217 mph), are a highlight of this network, servicing critical routes such as Beijing-Shanghai and Chengdu-Chongqing. China stands unique in the global arena, operating the only commercial HSR service at these top speeds. Its network weaves through the country, uniting diverse regions from the northeastern forests to the bustling Yangtze River Delta, and from the vast Gobi Desert to the shores of the East China Sea.

2. Governance and Expansion Plans

Figure 1 (Below): Governance of China's HIGH-SPEED RAIL INDUSTRY

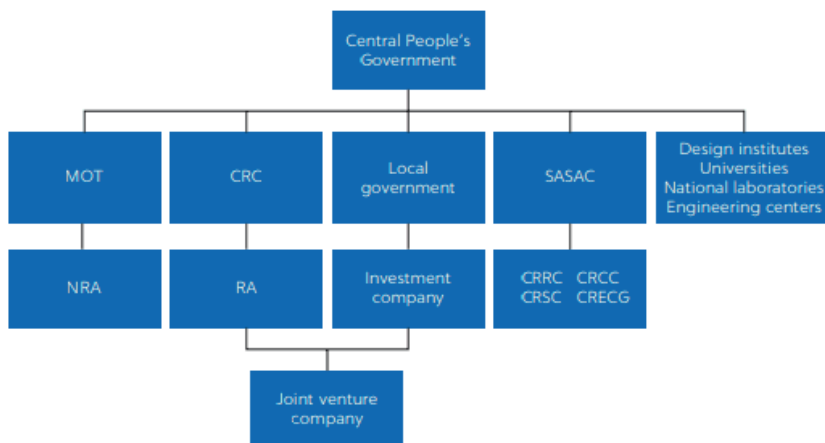
Note: CRC = China Railway Corporation; CRCC = China Railway Construction Corporation; CRECG = China Railway Engineering Corporation; CRRC = China Railway Rolling Stock Corporation; CRSC = China Railway Signal & Communication Corporation; MOT = Ministry of Transport; NRA = National Railway Administration; RA = Regional Administration; SASAC = State-Owned Assets Supervision and Administration Commission.

Initially planned with four primary routes crisscrossing the country in north-south and east-west directions, the system is now evolving into a comprehensive network. Aimed for completion by 2030, the plan includes developing "eight vertical and eight horizontal" corridors to enhance north-south and east-west connectivity. This ambitious expansion aims to integrate 92% percent of Chinese cities with populations over half a million, demonstrating the network's vast reach and connectivity. The high-speed rail (HSR) system has transformed passenger travel by significantly cutting travel times and increasing

capacity, having transported over 7 billion passengers in the last decade alone. With an annual demand of 1.7 billion passengers, the success of China's HSR service is undeniable, reflecting its critical role in the nation's transportation infrastructure.

Figure 2 (Pg.20): The Eight Vertical and Eight Horizontal Plan Map 3. Competitiveness and Future Prospects China's HSR services significantly contribute to the economic transition of cities within a 2-hour radius from major urban centers, driving renewed economic growth. To expedite HSR network expansion, China employs standardized processes and strategically places new stations in suburbs, enhancing accessibility despite longer trips from city centers and promoting expected development around suburban stations. China's HSR system aims for a one-to-two-hour "traffic circle" connecting major and adjacent cities, facilitating a cohesive urban mega region. China has built 16 railway lines, including Hefei-Nanjing, Zhengzhou-Xuzhou, and Quzhou-Jiujiang, with suburban HSR stations like Quzhou Railway Station and Xuzhou East Railway Station for rapid construction.

China's HSR competes effectively with road and air transportation, attracting over 1.7 billion passengers annually across income groups. Recent advancements, including a next-generation high-speed train reaching 453 km/hr (281 mph) indicate the potential for HSR travel times to rival air





travel speeds. For instance, a 400 km/hr (249 mph) rail service between Beijing and Shanghai could reduce the journey time to just 2.5 hours—comparable to a typical flight between these major cities. HSR has become the preferred mode of transportation in China due to its cost-effectiveness, convenience, comfort, and overall faster travel compared to air transport in most cases. Exceptions to this can be found in remote and less densely populated regions like Xinjiang and Tibet where air travel holds a clear advantage over HSR.

China is extending its influence to neighboring countries through regional railway projects, like the Laos-China Railway and plans for connections to Bangkok and Singapore, aligning with the Belt and Road Initiative. In the Association of Southeast Asian Nations (ASEAN) countries, high-speed rail systems, often backed by Chinese investments, are under development, enhancing China's economic influence in the region and solidifying its position as a regional superpower. China is also investing significantly in magnetic levitation (maglev) technology to enable passenger services at speeds up to 620 km/h (385 mph), surpassing the current limitations of traditional steel wheels on rails. Southwest Jiaotong University achieved a breakthrough in China's rail transit with their high-temperature superconducting maglev prototype, utilizing magnetic force for levitation. The prototype, operating at over 600km/h (373 mph), signifies a transition from lab testing to practical application. This self-suspending, self-guiding, and self-stabilizing technology, operating at minus 196 degrees Celsius (385 degrees Fahrenheit), holds promise for cost-effective, energy-efficient, and

environmentally friendly high-speed transit. Future plans involve integrating vacuum pipeline technology to surpass 1000km/h (621 mph), marking a transformative step in rail transit development.

4. Successes and Challenges

China's rapid implementation of its HSR network is attributed to long-term planning with strong government support, minimal plan changes, innovative scale leading to a competitive supply industry, early capacity development, local partnerships, effective project management ensuring on-time delivery, a rigorous safety regime, competitive HSR service with high punctuality, market suitability for medium-distance travel, urban connectivity considerations, affordable pricing strategies, and economic viability. China's experience emphasizes factors like meticulous long-term planning, collaboration between central and provincial governments, and strategic construction management. The HSR's success lies in service design choices, competitive fares, and its ability to attract passengers from various income groups for diverse purposes.

Despite the rapid growth of China's high-speed rail, facilitated by centralized state funding and planning, China's HSR has faced its own fair share of challenges as its development tends to overlook the impact on existing communities along the routes. In China, it's common for "new towns" to be created far from city centers but close to new HSR stations. While certain HSR new towns enjoy economic success, others remain vacant for years, ultimately transforming into "ghost cities." This rapid expansion of HSR which converts non-urban land into urban areas, results in the loss of ecological habitats, without yielding any economic, environmental, or social benefits from these abandoned urban areas. While China's approach minimizes legal disputes common in European and American projects as a result of its centralized government where decisions are made at the national level by one main authority. However, Europe and America have decentralized governments where local authorities often engage in the decision-making process which leads to local protectionism as seen with the controversial Southern California International Gateway (SCIG) project in Los Angeles County. Since 2013, SCIG has been mired in contentious litigation and protests from local communities, resulting in on-going delays that have already spanned a decade.

In July 2011, the Wenzhou collision, involving two high-speed trains on a viaduct, resulted in

casualties and injuries due to a failure in the signal system, which led to a loss of public confidence in the HSR system in China. This prompted a widespread speed reduction and a temporary halt in new HSR construction. However, over the past decade, there have been no significant incidents reported, and passenger numbers have surged dramatically with the expansion of the network. By late 2020, public confidence had been restored. China National Railways operated more than 9,600 high-speed trains daily, including the world's only high-speed overnight sleeper services on selected longer-distance routes. The renewed confidence in the HSR system was partly attributed to the improvements made to the HSR safety management system, the Chinese Train Control System (CTCS), following the 2011 incident. One notable enhancement was the integration of the Intercity Railway Train Control System with the CTCS used in high-speed train systems. This integration allowed for the smooth coexistence and shared usage of tracks by both regular intercity and high-speed trains. Functioning like a common language, this system enables intercity trains to seamlessly share tracks with their high-speed counterparts, ensuring effortless utilization of the same tracks by various train types. Ultimately, this integration enhances transportation flexibility and convenience.

5. Lessons Learned and Takeaways

China's success in HSR implementation offers significant lessons learned for other countries considering HSR investment, including a well-analyzed long-term plan, standardization, collaboration with local governments, effective project management, safety systems, competitive pricing, and offering a range of services to meet diverse passenger needs. In contrast to China's well-integrated and expansive HSR network, the United States faces exacerbated challenges in developing HSR due to a fragmented rail system. Unlike China's comprehensive and standardized rail system, the U.S. rail infrastructure is characterized by different track sizes, varying standards, and disjointed connections managed by multiple agencies. The key takeaways from China's experience underscore the necessity of strategic planning, consistent standards, and collaborative efforts, among other factors, for successful HSR implementation in countries like the U.S.:

- Comprehensive Long-term Planning: China's HSR achievements stem from meticulous, forward-looking planning that aligns with national transportation goals and economic development. For the U.S.,

adopting a similar approach would mean developing a visionary HSR blueprint that integrates with broader transportation and urban development strategies, ensuring that high-speed rail complements existing infrastructure and future growth.

- Standardization Across the Network: The uniformity of China's HSR system, from track gauge to signaling systems, has been a cornerstone of its efficiency and scalability. The U.S. could benefit from establishing national standards for HSR to streamline construction, reduce costs, and facilitate interoperability across state lines.

- Collaboration with Local Governments: China's central and local governments work in tandem to support HSR projects, from land acquisition to funding. The U.S. needs to foster a cooperative framework that involves state and local entities in the planning and implementation process, ensuring that HSR projects receive the necessary support and resources at all levels of government.

- Effective Program Management: China's HSR network expansion has been marked by rigorous project management practices, including strict adherence to timelines and budgets. Adopting similar program management disciplines in the U.S. could mitigate common challenges related to cost overruns and delays.

- Safety Protocols: Following the initial safety concerns, China enhanced its HSR safety measures, which have been instrumental in rebuilding public trust. The U.S. must prioritize safety from the outset, incorporating advanced safety technologies and rigorous operational protocols to ensure passenger security.

- Competitive Pricing Strategy: China's HSR tickets are priced to compete with other modes of transportation, making HSR an attractive option for a wide range of income groups. The U.S. could consider dynamic pricing models that make high-speed rail a viable alternative to flying or driving, thereby increasing ridership.

- Diverse Service Offering: China's HSR services cater to various passenger needs, from basic to premium, enhancing the overall appeal of rail travel. The U.S. HSR system should aim to offer a range of services and amenities (similar to what Amtrak currently offers on certain routes) that meet different preferences and budgets.

- Leveraging Technological Innovations: China's investment in cutting-edge technologies, such

as maglev trains and digital ticketing systems, has kept its HSR network at the forefront of rail technology. The U.S. could benefit from adopting innovative technologies that improve efficiency, passenger experience, and operational effectiveness.

• **Environmental Considerations:** China’s HSR network has contributed to reducing the carbon footprint by offering a greener alternative to air and road travel. The U.S. should emphasize the environmental benefits of HSR, aligning its development with sustainability goals and climate change mitigation efforts.

China’s HSR development provides a roadmap for the other countries to follow, highlighting the importance of strategic planning, standardization, collaboration, and innovation. By learning from China’s successes and challenges, countries like the U.S. can pave the way for a successful high-speed rail system that meets the future mobility needs of the nation.

KEY TERMS

• **China’s Belt and Road Initiative (BRI).** Facilitates cross-border collaboration, aiding neighboring countries in developing high-speed rail networks. An example would be the 1,000-kilometer (621 mi) China-Laos line connecting Kunming to Vientiane, fostering tourism and trade.

• **Chinese Train Control System (CTCS).** Became operational in China since 2002, functioning as an advanced automatic train protection (ATP) system. It boosts safety and operational efficiency through cutting-edge technology, facilitating real-time communication between trains and wayside devices.

• **“Eight Horizontal and Eight Vertical.”** Refers to the strategic plan outlined in the revised MLTRP to construct eight significant north-south and eight major east-west high-speed rail routes. This initiative aims to establish a widespread and interconnected network, enhancing transportation, fostering economic development, and promoting regional connectivity.

• **“Four Vertical and Four Horizontal.”** A key element in the original MLTRP, which consists of four north-south and four east-west HSR lines. It was largely completed by the end of 2015, it now serves as the backbone of China’s extensive HSR network, connecting major population centers.

• **Medium- and Long-Term Railway Plan (MLTRP).** Initiated in 2004, is a plan guiding China’s railway development until 2030, particularly emphasizing



TBM NAMED YONGZHOU

ABOVE: A SUPER-LARGE-DIAMETER SHIELD TUNNELING MACHINE “YONGZHOU” ROLLED OFF THE ASSEMBLY LINE IN CHANGSHA ON FEBRUARY 26, 2024. CHANGSHA, HUNAN PROVINCE OF CHINA.



BEIJING WEST RAILWAY STATION

ABOVE: OPENED IN 1996, IS ONE OF THE LARGEST RAIL STATIONS IN ASIA HANDLING AN AVERAGE OF 150,000–180,000 PASSENGERS PER DAY.

COMPASS RAIL

VISION FOR NEW PASSENGER SERVICES IN WESTERN MASSACHUSETTS

THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, AMTRAK AND FREIGHT RAILWAY CSX ARE DOING A SERVICE MODEL TO FIGURE WHAT SPECIFIC CONSTRUCTION NEEDS TO HAPPEN WITH \$108 MILLION. IT'LL BE COMPLETE IN JUNE 2024.

In October 2023, the Massachusetts Department of Transportation (MassDOT) unveiled Compass Rail – Passenger Rail for the Commonwealth of Massachusetts. Compass Rail is MassDOT's statewide (and beyond!) vision for intercity passenger rail. The compass moniker is a reference to the existing north-south and proposed west-east services that would intersect at a robust hub in Springfield, MA. And the more astute observers may notice the name reinforces the [Commonwealth's passenger rail](#) vision (clever, huh?).

While MassDOT, through its Rail and Transit Division, has managed Amtrak state supported services along the Connecticut River, dubbed the Knowledge Corridor, for over a decade, recent events have precipitated the need to organize and present a clear, branded vision for intercity passenger rail. For one, communities in Western Mass and their elected officials have been coalescing around a specific East-West Rail concept for linking themselves to Boston by rail. This service, with proposed extends Pittsfield to Boston along the Boston & Albany (B&A) corridor, overlaps with earlier studies and concepts, and MassDOT believes a formal vision would offer clarity. Secondly, the Bipartisan Infrastructure Law, or Infrastructure Investment and Jobs Act (IIJA), established historic

financial resources for intercity passenger rail, and it created a new program: the Federal Railroad Administration's Corridor Identification and Development (Corridor ID) Program. MassDOT believes Compass Rail assists in articulating MassDOT's short- and long-term visions for rail as it seeks new funding possibilities.

Existing Services

Existing north-south services include multiple branded Amtrak lines, including the Vermonter, Hartford Line, Northeast Regional (Springfield), and Valley Flyer. These services have varying extents, with southern termini at either Washington Union Station or New Haven, CT and northern termini at Springfield, Greenfield, or St. Albans, VT.

North of New Haven, Amtrak owns the Hartford Line to Springfield. From there, the MassDOT-owned Knowledge Corridor (or Connecticut River Line), which was purchased and improved by MassDOT in 2014, continues to the Massachusetts/Vermont border.

This array of Amtrak services is complemented by CTail's Hartford Line commuter rail service between New Haven and Springfield which has a cross-honor agreement with some, not all, of the Amtrak services. Compass Rail partly serves to make clear the range and characteristics

of transportation options that are available to the public.

PROPOSED SERVICE EXPANSIONS

MassDOT is advancing several service routes which range in status from conceptual, pending, to pilot phase. The Berkshire Flyer, which completed its second pilot season in October 2023, offers direct access from the bustle of New York City to Pittsfield, MA, and the serenity of the Berkshires. This seasonal route, operating from early summer to early fall, extends an outbound Empire Corridor train to Pittsfield via Albany on Friday afternoons and returns via Albany on Sunday afternoons. It is a state-supported route operated by Amtrak in partnership with New York State DOT.

The Inland Route, which would operate between Boston and New Haven via Springfield, is a pending service thanks to a recent \$108 million CRISI award from the FRA. This grant will fund design and construction of track improvements between Worcester and Springfield that will provide capacity for two daily round trips.

More conceptually, MassDOT is advancing an intercity corridor from Boston to Albany along the Boston & Albany Corridor. This corridor was recently accepted into FRA's Corridor ID Program.





Through this multi-step program, MassDOT will complete a service development plan, generate a corridor project inventory, and complete preliminary engineering and NEPA for capital projects.

Interestingly, the Corridor ID inaugural class also includes corridors from neighboring states with segments that overlap or intersect with the Compass Rail network. The Vermont Agency of Transportation's (VTrans') Vermonter Corridor includes the Knowledge Corridor, and the Connecticut Department of Transportation's (CTDOT's) Hartford Line Corridor encompasses Amtrak's Hartford Line from New Haven to Springfield.

EAST-WEST RAIL

Like many rail corridors in the US, the B&A across Massachusetts once had robust passenger service before it was greatly reduced in the 1960s and 1970s. For a period in the early 1970s, coinciding with the creation of Amtrak, it had no service between Boston and Albany. In 1975, Amtrak instituted a once-daily Lake Shore Limited trip between Boston and Chicago via Albany. This route continues to operate today – one daily round trip – as a part of Amtrak's long-distance network.

In the following decades, people and organizations had advocated for (and continue to advocate for) increased frequency of passenger rail between Boston and Western Mass communities. Various service concepts have been debated and studied, with two primary studies guiding the expansion component of Compass Rail. First,

published in 2016, was the Northern New England Intercity Rail Initiative (NNEIRI). This study, completed in cooperation with VTrans, CTDOT, and FRA, established a service development plan for the Inland Route and Boston-to-Montreal Route. Both routes proposed serving Boston to Springfield along the B&A with the former operating between Springfield and New Haven and latter to Montreal. It is this Inland Route that has been awarded the previously mentioned CRISI grant for early actions.

The second recent and notable study is the East-West Passenger Rail Study published by MassDOT in 2021. This study evaluated service alternatives between Pittsfield and Boston. And while a final alternative was not identified, the three alternatives endorsed for further study recommended a passenger rail connection between these cities with interim stops in Framingham, Worcester, Springfield, and a newly proposed station in Palmer.

The completion of the so-called East-West Rail study overlapped with the Biden Administration's passing of the Infrastructure Investment and Jobs Act (IIJA). In consideration of the favorable

results of the study, and the availability of new funding for intercity passenger rail projects offered by the IIJA, then-Governor Charlie Baker offered a commitment to pursue implementation of East-West Rail. Current Governor Maura Healey has maintained commitment to the project and has been successful in initiating key early actions. The Healey Administration has also shepherded a rebranding of the route as West-East Rail in deference to Western Mass communities. Both titles continue to be used by various project proponents.

CLARIFYING WEST-EAST RAIL

The Healey Administration and MassDOT are committed to advancing the capital in service objectives of West-East Rail. MassDOT sees West-East Rail as a vision for connecting Western Mass and Boston by rail, and Compass Rail provides the detail on how the vision will be realized and integrated into the network. Compass Rail identifies proposed services and a program of projects to demonstrate how West-East Rail will be implemented through a series of incremental, compounding projects. Already underway are early actions for the Inland Route, Palmer station planning and design, the Pittsfield Track Capacity project, and the CRISI-funded Springfield Area Track Reconfiguration design and environmental review. So, while West-East Rail is not a discrete project that will be realized at once, the public will be seeing near-term progress on the corridor as Compass Rail flourishes.



IN THE SPOTLIGHT

FRA PROFESSIONALS - YOU SHOULD GET TO KNOW US

U.S. DEPARTMENT OF TRANSPORTATION *Federal Railroad Administration*



ALLISON FULTZ
Chief Counsel

“Serving as Chief Counsel of the Federal Railroad Administration is the honor of a lifetime. Being part of the effort to continuously improve safety on the nation’s rail system, initiate the new FRA grant programs mandated by the Bipartisan Infrastructure Law, and contribute to America’s historic push into high-speed passenger rail transportation presents fascinating challenges every day. I am deeply grateful to be working shoulder to shoulder with the stellar career staff and my fellow appointees at FRA and USDOT. Our work today sets the stage for a generation of investment in the nation’s rail network.”



JAMES GARLAND
Director of Railroad Planning and Engineering

“Historic levels of federal investment in the rail sector demand a new standard of expertise to bring projects to fruition. At the FRA, I am privileged to lead a growing team of dedicated professionals and experts who are excited to make the vision of a robust network of national passenger rail service a reality.”



MARLYS OSTERHUES
Director of Environmental Program Management

“For every federally funded project or action, FRA is required to evaluate its impacts to the human and natural environment. We can’t successfully complete the environmental and cultural resources process without strong internal and external partnerships. Collaboration, consensus, and communication create the foundation for success to meet our mission. It’s this connection and teamwork that make me excited to lead this team.”



MICHAEL HUNTER
Executive Staff Director, Office of Railroad Systems and Technology

“We in FRA’s Office of Railroad Safety stand ready to help usher in the next generation of passenger rail transportation in the U.S. We stand on the precipice of true change—whether it’s helping to deploy critical climate changing technology to power the next iteration of rail vehicles, or bringing true high-speed rail to the U.S., we are committed to efficiently advancing these transformational projects, while ensuring the highest level of safety is maintained.”

FRA/APTA: WEBINAR

“SEIZING THE MOMENT - FULFILLING THE NEW ERA FOR INTERCITY PASSENGER RAIL”

Contribution By: Jennelise Hafen, APTA

The December 2023 announcement of FRA’s Federal-State Partnerships and Corridor ID grant awards put a playbook in place for the U.S.’s social and economic future.

Three recent recipients of Federal Railroad Administration (FRA) Federal-State Partnerships grants, and Corridor ID grants joined FRA Chief Counsel Allison Ishihara Fultz in a February 14 webinar cosponsored by FRA and APTA.

Julie White of the North Carolina Department of Transportation, Melissa Figueroa of the California High-Speed Rail Authority and Patricia Quinn of the New England Passenger Rail Authority shared how their organizations are “seizing the moment” and advancing their respective projects through FRA Federal-State Partnership Grants pursuant to the federal Infrastructure Investment & Jobs Act (IIJA).

Moderator Paul P. Skoutelas, APTA

President and CEO, applauded FRA’s actions over recent months directing Federal-State Partnership grants to a small number of projects best positioned to advance quickly while nurturing a broader pipeline of projects (through the Corridor ID Program) to move forward as they become ready.


Fultz described the criteria and process for participation in IIJA’s new and expanded grant programs, and White highlighted the need for community engagement, collaboration, and strong partnerships in the plans for the seven corridors awarded funding between Atlanta, GA and Washington, DC. Figueroa shared how FRA funding has helped put infrastructure in place and developed

a momentum in California for High-Speed Rail. Quinn demonstrated how a small rail authority can use funding to effectively expand service in rural areas. These timely presentations and the discussion that followed with Fultz demonstrated the momentum that the IIJA funds can bring to any region, and how new intercity passenger rail investments will enhance the economic health of their regions and add balanced options for universal mobility.

If you missed the February 14 webinar, APTA members can find the recording on the APTA website, APTAU On-Demand Videos, at learning.aptagateway.com.

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NCDOT'S S-LINE

WINNING BIG & MOVING FORWARD

Contribution By: Candice Andre (VHB) and Meredith Van Duyn (Mott MacDonald), in support of NCDOT

APTA provided an overview of North Carolina Department of Transportation's (NCDOT) S-Line program in 2022, so what has the program accomplished over the last year? *Big wins, extensive collaboration, and continued momentum forward.*

The S-Line program gained real traction when NCDOT and the State of Virginia were awarded federal grants to purchase a portion of the S-Line corridor and advance design for future rail passenger service. Efforts are underway by NCDOT to return the S-Line back to a functioning passenger rail corridor.

NCDOT is serving as the program lead and providing technical assistance for the construction, design, and development of the S-Line in partnership with Amtrak, Federal Railroad Administration (FRA), VPRA, Virginia Department of

Rail and Public Transportation (DRPT), Virginia Department of Transportation (VDOT), community leaders, and more than 40 private industry firms.

FEDERAL FUNDING AWARDED

On Dec. 9, 2023, President Biden and U.S. Department of Transportation announced that NCDOT has received a **\$1.09 billion** FRA Federal State Partnership grant to design and build the first segment of the Raleigh to Richmond Line. Prior to the \$1.09 billion grant announcement, S-Line corridor-related projects received about \$110 million in discretionary federal funds to advance the project through partnerships and support from numerous federal, state, and regional agencies. Those funds paid for surveying, preliminary engineering, transit-oriented development

“ This is great news and underscores our successful efforts to build a transportation system that works for all North Carolinians. The S-Line is a critical project that will provide fast, frequent and reliable service connecting North Carolina, Virginia, and the Northeast. It extended our already popular passenger rail service between Charlotte and Raleigh, and provides people, especially those in underserved areas, a safe, convenient, and inexpensive way to get where they're going.”

— Gov. Roy Cooper

(TOD) planning, and development of mobility hubs.

The \$1.09 billion grant is being used for final engineering design, right of way acquisition and construction costs for the section of the S-Line from Raleigh to Wake Forest. The money will also be used on new and upgraded track and replacement of at-grade crossings with highway/rail overpasses. Officials plan to upgrade the existing freight rail line to accommodate passenger rail service while maintaining the existing freight rail service. Construction will also include highway and rail bridges, including two safety projects in Cary that are also on the Southeast Corridor.

The conceptual program schedule below shows the next steps of the design project with tentative timelines for North Carolina.

NCDOT was also awarded seven grants totaling \$3.5 million as part of the FRA Corridor Identification and Development program. These grants will help enhance the state's existing passenger rail services between Charlotte and Raleigh and expand

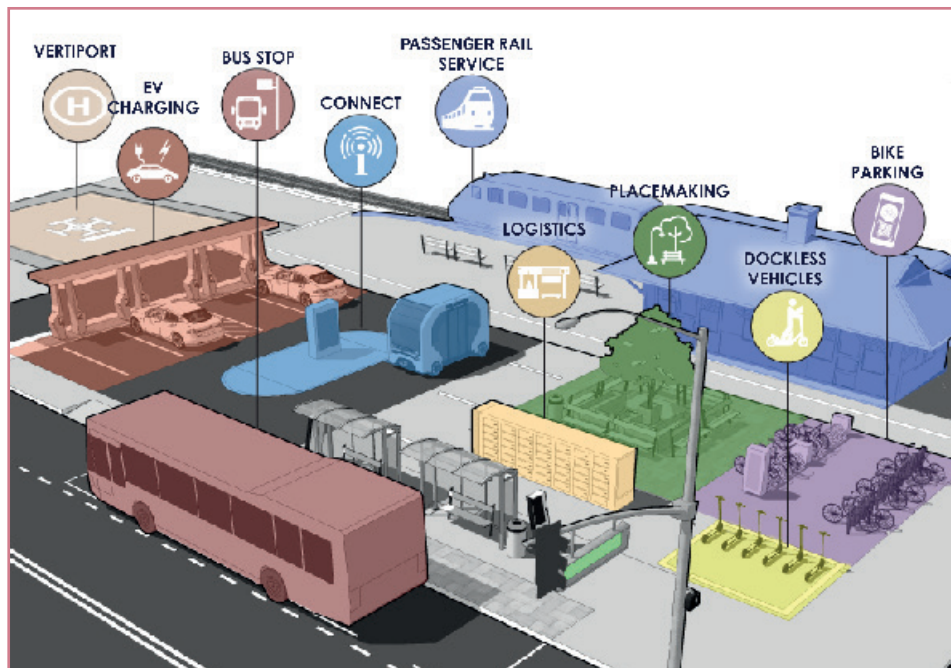


passenger rail into other areas of North Carolina and other states. Those seven grants will be used to begin or advance the planning process for developing passenger services on rail corridors between:

- Charlotte and Atlanta
- Charlotte and Kings Mountain
- Charlotte and Washington D.C.
- Fayetteville and Raleigh
- Wilmington and Raleigh
- Winston-Salem and Raleigh
- Salisbury and Asheville

COMMUNITY PLANNING & IMPLEMENTATION

Communities along the S-Line corridor in central North Carolina have plans and strategies to prepare for TOD, with a planning study completed and released by NCDOT in Summer 2023. The S-Line TOD planning study evaluated market conditions, affordable housing considerations, multimodal transportation opportunities, and regulatory conditions in several central North Carolina communities. The study proposes transportation improvements that would meet a vision responsive to each communities' needs. Each participating community received a "playbook" with recommendations to continue planning and development efforts. The "playbook" included sites to consider for transportation-focused development, a timeline for executing goals, and projects needed



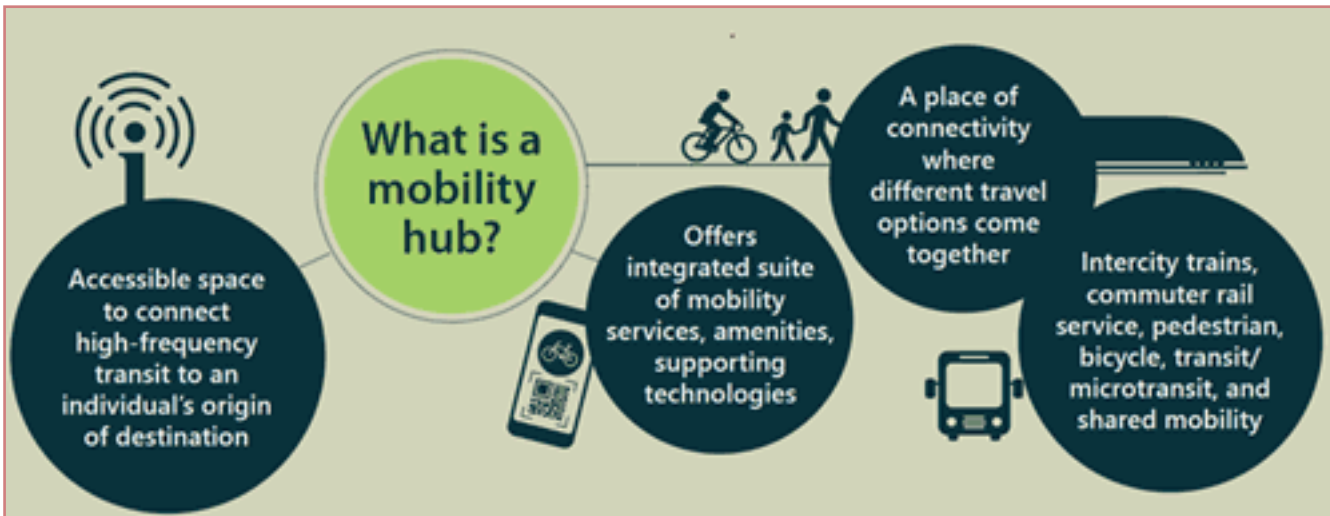
to complete multimodal transportation initiatives. The outcomes of the TOD study underscore NCDOT's goal to develop a robust multimodal system that provides safe and efficient access and mobility for all North Carolinians.

Now, communities are planning for and designing mobility hubs, bringing together the potential of rail with last-mile transportation solutions like transit and ride-sharing services that make other modes of travel accessible so customers can get to their final destinations quickly and easily. These hubs, serving as an entry point to each community, will transform the connectivity, innovation, growth, and overall vibrancy of not only

the rural communities along the corridor, but the entire region. Communities will see immediate positive impacts, independent of the S-Line rail project, and will be set to optimize accommodation of future service.

These hubs are a catalyst for economic opportunities, attracting mixed-use developments and employment and commercial ventures as more people flock to use them. These transit connections will provide more choices on where to live, will improve access to education, jobs, and healthcare, and will connect urban and rural economies.





OVERVIEW OF PASSENGER RAIL IN NC

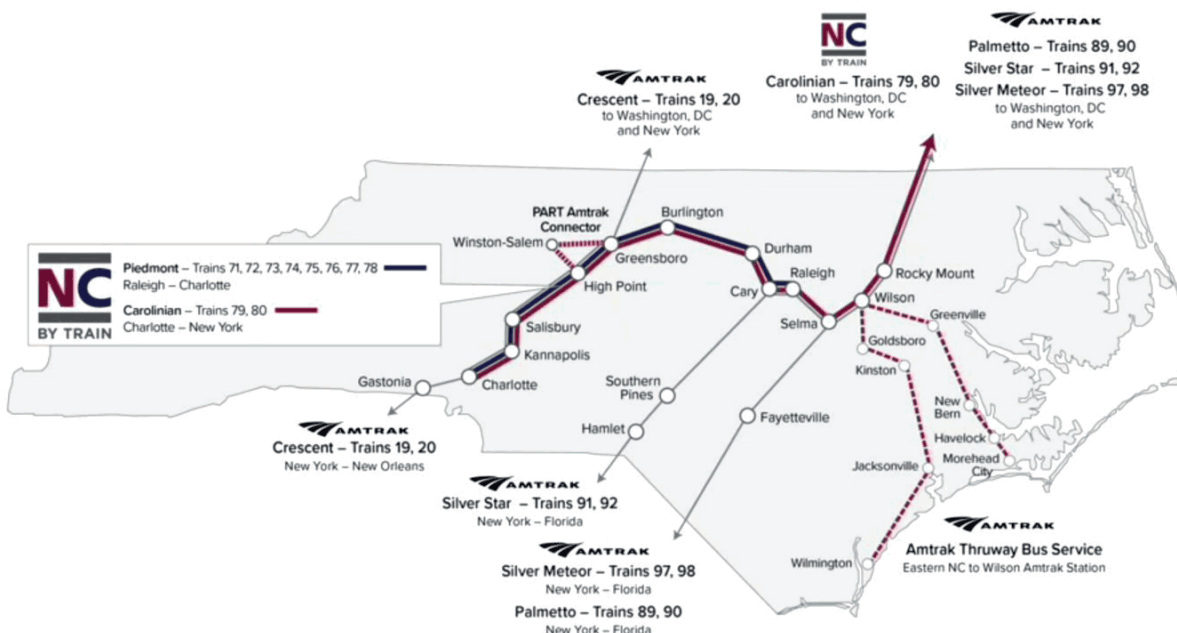
Passenger rail service is provided in North Carolina by the Piedmont and the Carolinian under the NC By Train brand. NC By Train provides five daily roundtrips that stop at 12 stations across North Carolina. The Carolinian offers daily service connecting Charlotte, Raleigh, and New York. The Piedmont runs four roundtrips a day (eight trains) between Raleigh and Charlotte. In 2023, more people rode North Carolina's state-supported passenger trains than any previous year in the 33-year history of the service. Ridership topped 641,000, a 38% increase over the yearly average pre-pandemic ridership levels.

NCDOT is working to expand its passenger rail service along the S-Line, a high-performance passenger rail corridor being developed between Raleigh and Richmond and part of the federally designated Southeast High Performance Rail Corridor. The Southeast Corridor will better connect rural and urban communities and increase passenger rail services with shorter travel times between North Carolina, Virginia, and the Northeast. Projected ridership on this service between Charlotte and New York is projected to be 2.5 million by 2040 when S-Line project is complete.

railroads and for supporting rail-related job creation and economic growth statewide. Through a comprehensive program of improvements focusing on freight, safety and passenger initiatives, the impact of rail programs and services in North Carolina is increasing dramatically. NCDOT has made significant progress in planning for the future, supporting equity and sustainability, through the multimodal divisions collaborating as one to change the landscape of mobility.

The Rail Division of NCDOT is responsible for the safe and efficient movement of people and goods on North Carolina's

FOR MORE INFORMATION, GO TO: <https://www.ncdot.gov/divisions/rail/s-line-projects/Pages/default.aspx>





AMTRAK NETWORK DEVELOPMENT

The Infrastructure Investment and Jobs Act (IIJA) provided unprecedented funding for intercity passenger rail and has allowed Amtrak to make once-a-in-a-generation investments in our fleet and infrastructure, accessibility, service expansion, stations and more. Amtrak’s Network Development team, part of the Strategy & Planning department, is responsible for guiding and facilitating the development and expansion of Amtrak’s national network from initial planning through service implementation. Network Development serves as the single point of contact between Amtrak, the Federal Railroad Administration (FRA), and state stakeholders for all service development activities by coordinating the contributions and efforts of Amtrak teams across the company.

Based in NYC, Vice President Nicole Bucich leads the national Network Development team, supported by Joseph Barr, Director of the East Region (Boston, MA), Arun Rao, Director of the West Region (Madison, WI) and staff located across the country. The team is actively recruiting for a West Director and project managers to support network expansion activities. Network Development’s initiatives are driven by Amtrak’s vision to “Connect More People and Places” and double ridership by 2040 to 66 million riders, along with the goals and objectives of our state partners.

The development and expansion of Amtrak’s national network is being guided by two FRA initiatives:

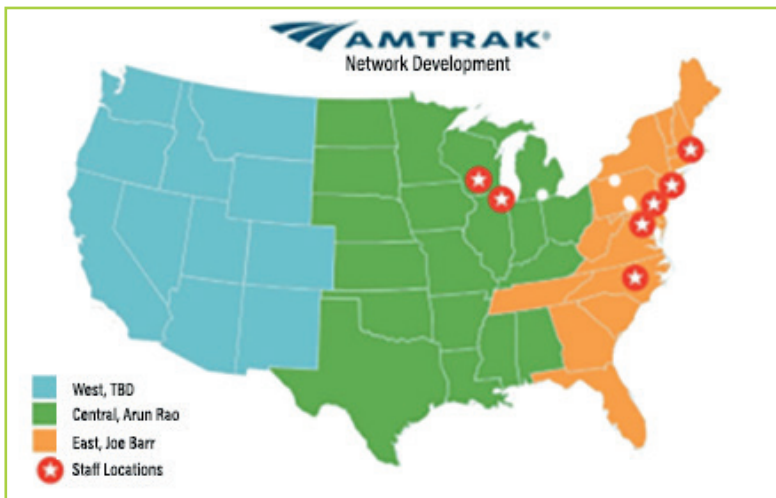
Contribution By: Nicole Bucich, Amtrak

the Corridor Identification and Development (Corridor ID) Program and the Long Distance Service Study. These two efforts will determine the future playbook for Amtrak’s growth across the country. As described in Issue #37 of Speedlines, the FRA announced 69 FY22 Corridor ID awards of up to \$500,000 per project / \$34.5 million total for new high-speed rail corridors, new conventional rail corridors, existing routes, and existing routes with extensions. The Network Development team is leading three of Amtrak’s Corridor ID awards:

DAILY CARDINAL SERVICE - This proposed improvement would increase tri-weekly Cardinal service to daily, operating between New York City and Chicago via Philadelphia, Baltimore, Washington, DC, Virginia, West Virginia, Kentucky, Ohio and Indiana.

DAILY SUNSET LIMITED SERVICE - This proposed improvement would increase tri-weekly Sunset Limited service to daily, operating between Los Angeles and New Orleans via Houston, San Antonio and El Paso, Texas; Tucson, Ariz.; and other communities.

Long Island Service - This proposed corridor would extend three existing daily Northeast Regional round trips between Washington, DC and New

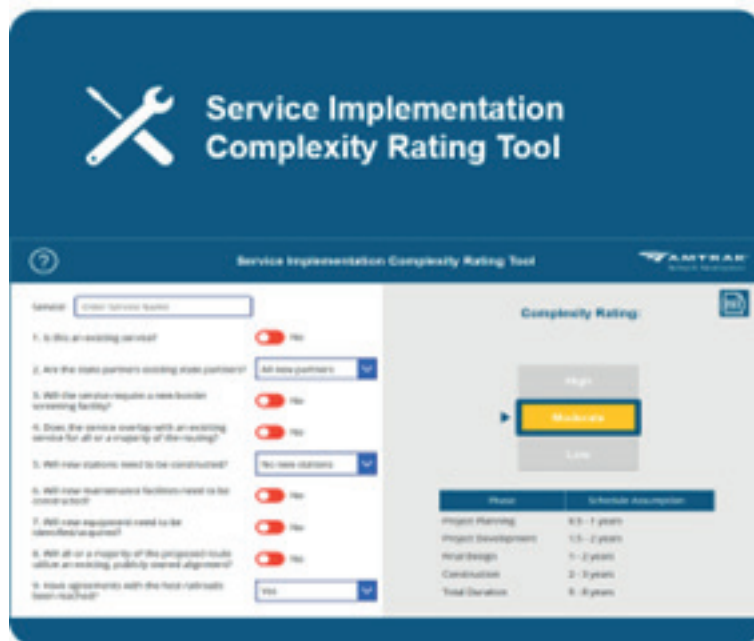


York City east from Moynihan Train Hall to Ronkonkoma, NY, with stops at Jamaica (Queens, NY) and Hicksville, NY. This would entail track, station and infrastructure upgrades to accommodate these trains and better integrate Amtrak service with Long Island Rail Road commuter service.

The Amtrak Texas High-Speed Rail (HSR) Service is being led by Andy Byford, Sr. Vice President of High Speed Rail programs. This proposed corridor would connect Dallas and Houston, Texas, with a new, dedicated and grade separated high-speed passenger rail service.

Turning to the other corridors on the Corridor ID list, Amtrak is eager to partner with states to advance these new and enhanced intercity routes. The Network Development team facilitates all activities and communication with state and regional partners, providing technical support and guidance through all steps of Corridor ID. Partnering with Amtrak early in the Corridor ID process unlocks technical assistance such as generation of ridership, revenue and operating cost estimates; access to equipment options orders and rail facilities; demonstration trains to build support for future service; potential operating and capital cost assistance; and seamless passenger connections to Amtrak’s national service network.

The Network Development team is also developing Corridor ID support tools to assist partners as they navigate the Corridor ID Program. A SharePoint site will include state-supported service and host railroad 101 information; sample agreement templates; technical support materials for developing ridership, revenue and operating cost estimates; a corridor complexity analysis tool; and new service implementation checklists.

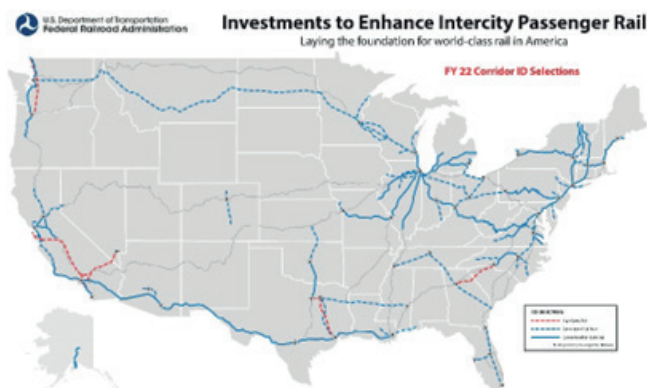


The Complexity Rating Tool was developed to assist stakeholders in understanding potential timeframes for implementing service. Low and medium complexity generally aligns with enhancements or extensions of existing corridors, and high complexity with new corridors.

Beginning with the Service Development Plan, through Project Development (including environmental reviews and permitting), Final Design and Construction, and ending with the Implementation phase, the Network Development team leads and coordinates all Amtrak efforts. The team is currently leading the implementation of new service between the Twin Cities, Milwaukee and Chicago, the extension of the Amtrak Downeaster to Rockland, ME and the Gulf Coast service between New Orleans and Mobile. Network

Development is also taking the lead on improving and expanding cross-border service to Canada, including working with Michigan to extend their state-supported service to connect with VIA Rail Canada in Windsor, ON and with Vermont to return the Vermonter to serving Montreal, QC. These initiatives also include working with U.S. Customs and Border Protection and the Canada Border Services Agency to establish new immigration and customs facilities at our Canadian terminals, including preclearance operations that avoid the need for trains to stop at the international border.

The Network Development team is excited for the future of rail in this country and working with stakeholders to make these plans a reality.



HSIPR RIDERSHIP

POST-PANDEMIC RECOVERY

Contribution By: Kenneth G. Sislak (AECOM)

The world as we once knew it has changed forever because of the COVID-19 pandemic. The business lockdowns and travel bans upended assumptions about the nature of work and corporate culture. People discovered that they don't have to be in an office every day and most work can be done remotely. The advent and adoption of virtual meeting technologies like Zoom, Webex or MS Teams meant people no longer needed to commute to work or travel great distances for business meetings. This has been realized in lower occupancy rates of downtown office buildings, more work from home by employees and disrupted business travel patterns. As lockdowns eased, what we have seen is a slow recovery in urban transit and commuter rail ridership as some people returned to work. While ridership is slowly recovering, it is not following the previously recognized normal commuter travel patterns. Urban travel patterns have changed. Travel is now more widely dispersed over the day and has become more concentrated on Tuesday through Thursday. Peak hour travel is spreading in the post-lockdown period. Weekend travel has increased. Automobile traffic has returned to near normal levels, but public transit ridership remains stubbornly below pre-pandemic levels in most major U.S. metro areas. So, how has passenger rail ridership recovered in the United States and around the world? Passenger volumes on trains around

the world have nearly fully recovered from the COVID-19 pandemic. There has been a slow and steady recovery in passenger numbers, reflecting positive economic activity and the return to normalcy from the extreme lockdowns imposed by many governments. Let us explore the post-pandemic recovery experience in the United States looking at both passenger rail and airline passenger volumes then turn toward our neighbors across the globe. United States of America
In the United States ridership is growing but has not fully recovered from pre-pandemic ridership records. Ridership on the Northeast Corridor (NEC) services are almost at pre-pandemic levels. State supported and long-distance train ridership is still lagging but expected to recover fully in 2024. Highlighted below is ridership information for Amtrak and Brightline.

AMTRAK

Amtrak carried a record 32.5 million passengers in FY 2019 (October 1, 2018 – September 30, 2019) with impressive growth on the Northeast Corridor and state-supported lines. Amtrak ridership fell to 16.8 million passengers in FY 2020 because of the COVID-19 pandemic and plummeted to 12.1 million passengers in FY 2021.

Ridership recovered to 22.9 million passengers in FY 2022 and increased to 28.5 million passengers in FY 2023, still below the 2019 record. The recovery has been slow but steady. The breakout of

ridership includes:

- Northeast Corridor: Ridership in the NEC has almost fully recovered from the pandemic. Over 12.1 million people rode trains in the NEC during FY 2023 as compared to 12.5 million riders in pre-pandemic FY 2019. This is about three percent lower than pre-pandemic ridership levels.

- State-Supported Services: A little over 12.4 million people rode state-supported corridor trains in FY 2023 compared to 15.4 million riders in FY 2019 – about 19.5 percent lower than the pre-pandemic ridership levels. Ridership is at about 81.5 percent of pre-pandemic levels.

- Long-distance trains: Over 3.9 million travelers rode long distance trains in FY 2023 compared to 4.5 million riders in FY 2019 – a little over 13.3 percent lower than the pre-pandemic ridership levels. Ridership is at about 86.7 percent of pre-pandemic levels.



BRIGHTLINE

Ridership on Brightline in Florida has been growing. As reported in SPEEDLINES Issue 37, in its first partial year of operation in 2018 Brightline reported carrying about 579,000 passengers between Miami and West Palm Beach. In 2019, ridership increased 52 percent to 885,000 for the full year. Then the COVID pan-



dem hit all travel markets causing Brightline to be shut down in 2020 only resuming service in late 2021. For the partial year 2021, ridership was reported to be 159,474. In 2022, Brightline operated a full schedule between Miami and West Palm Beach and ridership grew to over 1.2 million passengers, a 35 percent increase over the pre-COVID year.

On September 22, 2023, Brightline extended service to Orlando International Airport (MCO) from West Palm Beach allowing trips to be made from MCO to South Florida. Ridership during the opening days of September was encouraging. More than 17,578 passengers rode between Orlando and South Florida. Brightline's total September ridership included 125,475 "short-distance riders," or those traveling only within South Florida. The total month's ridership of 143,053 was 56 percent higher than September 2022's mark of 91,577, which included only South Florida service. The system's ridership for 2023 was 2.05 million passengers nearly doubling the 2022 total of 1.2 million riders. Brightline increased its daily roundtrips between MCO and Miami to 16 daily roundtrips

in November 2023 to accommodate growing demand. Ridership on the MCO extension alone was:

17,578 in September

79,686 in October

93,184 in November

115,683 in December

Brightline expects 5.5 million passengers in 2024, including 2.8 million long-distance trips on the Miami-Orlando route and 2.7 million short-distance trips among the five South Florida stations, according to a December forecast. And with a steady increase in ridership, Brightline projects they will serve 8.2 million passengers in 2025, including 4.5 million long-distance and 3.7 million short-distance.

US DOMESTIC AIRLINE PASSENGERS

Amtrak competes with airlines in the NEC and long-distance travel markets. In comparison, airline traffic has been slow to recover. U.S. airlines carried 811.5 million domestic passengers in pre-pandemic 2019. Passenger volumes declined to a little over 337.4 million in 2020. Traffic rebounded in 2021 by growing to 605.9 million passengers, which was 25.3 percent below pre-pandemic passenger volumes. There were roughly 705.5 million domestic passengers carried by U.S. airlines in 2022. In 2023, U.S. airlines carried nearly 751.4 million passengers on domestic flights across the United States. This was an increase of 6.4 percent over 2022 but still only about 92.3 percent of the 811.5 million domestic passengers carried in 2019. Airlines fully expect to recover from the pandemic by the end of 2024.

INTERNATIONAL HIGH-SPEED RAIL EXPERIENCE

Following the World Health Organisation's declaration of a pandemic in March 2020, stay-at-home orders, border closures and lockdowns swept across the world almost as quickly as the virus. Planes were grounded and trains remained parked in depots and stations across Europe and Asia. Since the lockdowns were

lifted two years ago, travel has rebounded.

Ridership on high-speed trains across the globe is recovering from the pandemic. The chart below shows ridership trends on high-speed rail systems worldwide that publish ridership data. The data in the chart has been collected by sifting through annual reports or other open sources available on the internet. Ridership for KTX is available but you must read Korean to read the reports. Similarly, the French TGV data is available through an open data portal, but you need to speak French to navigate and read reports! Désolé, mon français n'est pas très bon.

CHINA

China suffered through two COVID episodes, which is reflected in the ridership for the years 2020 and 2022. On 23 January 2020, the central government of China imposed a lockdown in Wuhan and other cities in Hubei to quarantine the center of the outbreak of COVID-19 to this region. This was commonly referred to as the Wuhan lockdown. Subsequent lockdowns were introduced in other regions of China in response to localized outbreaks during the two years following. The largest of these was Shanghai in early 2022. Travel was disrupted throughout the country. Railway passenger volume in China dipped below pre-pandemic levels in 2020 recovering slightly in 2021 but dipping again in 2022 because of the lockdowns. The restoration of normal business activity allowed travel to return to pre-pandemic levels in the first half of 2023. Chinese high-speed rail services regained its pre-pandemic ridership and finished the year very strong with increased ridership as new routes were brought on-line. With the addition of new high-speed lines, China is again setting the pace for high-speed rail development.

HSR	Operator	Annual Passengers (millions)					
		2018	2019	2020	2021	2022	2023
Acela	Amtrak	3.4	3.6	1.6	0.9	2.1	3.0
NEC Regionals		8.7	8.9	4.5	3.5	7.1	9.1
Total NEC		12.1	12.5	6.1	4.4	9.2	12.1
China HSR	CRH	2,001.0	2,290.0	1,560.0	1,920.0	1,228.8	2,940.0
Eurostar	Eurostar	11.0	11.1	8.3	1.6	8.3	18.6
Thalys	Thalys	7.5	7.9	2.7	2.5	6.5	w/Euro
France TGV	SNCF				86.2	122.0	124.0
Germany ICE	DB	93.9	99.2	55.0	57.2	98.1	n/a
San'yo Shinkansen	JR West	85.0	87.0	82.0	36.0	44.0	68.0
Tokaido Shinkansen	JR Central	174.1	168.0	64.0	85.6	131.0	167.0
Korea	Korail		163.5	113.1	136.7	145.4	163.0
KTX	Korail				46.9		
Spain AVE	Renfe	21.3	22.4	7.6	12.3	23.6	30.7
Taiwan	THSRC	63.7	67.4	57.2	43.4	54.1	73.1

See article on China on page 19.

EUROSTAR

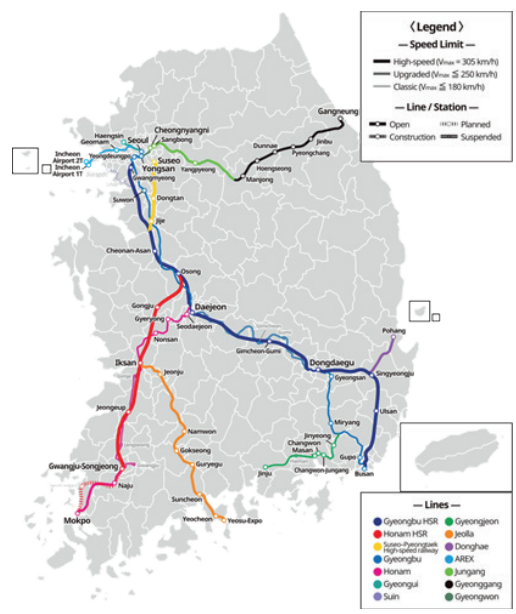
Eurostar reported transporting 18.6 million passengers in 2023, almost reaching pre-pandemic levels. This growth in ridership reflects the merger of Eurostar and Thalys in 2022. Ridership increased by 25.7 per cent compared to 2022, when Eurostar transported 14.8 million people. Ridership was 8.3 million on Eurostar trains and 6.5 million on Thalys trains. Prior to the pandemic, Eurostar transported 19 million passengers in 2019, which included 11.1 million on Eurostar trains and 7.1 million on Thalys trains. The coronavirus pandemic led to a significant decrease in travel across the globe.

FRANCE

According to a report entitled The European Rail Transport Market In 2021, published by the French Transport Authority, or Autorité de régulation des transport (ART), France showed one of the strongest rebounds in passenger rail traffic in Europe from the COVID-19 pandemic. Rail ridership was up sharply at SNCF Voyageurs, reflecting the appeal of regional and high-speed leisure travel in France and other European countries. Though traffic continued to suffer from the Omicron wave in Q1 2022, it rebounded later in the year, with SNCF revenue up +27 percent over 2021 and +3 percent over 2019. The TGV segment benefited from French consumers' enthusiasm for long-distance rail travel, which drove train occupancy rates up sharply according to SNCF. High-speed travel to other European countries also delivered on its promise, with both revenue and number of trains gradually returning to pre-pandemic levels in 2022. TGV ridership however grew only about 1.6 percent between 2022 and 2023.

GERMANY

Germany is blessed with a fully integrated railway network and a fleet of intercity express (ICE) high-speed trains. In 2022, around 98.1 million passengers travelled on Deutsche Bahn (DB) ICE trains, compared to only 57.2 million a year earlier. This significant increase in ridership between 2021 and 2022 reflects a return to pre-pandemic travel trends. No data is yet available for 2023. A cautionary note however was reported in The Wall Street Journal in August 2023: "Germany, the land of meticulous planning and clockwork punctuality, can't seem to make its trains run on-time. Last year, a third of all long-distance trains operated by DB ran late, the worst showing in 10 years, deepening an existential crisis in a country where failing to show up on time is verboten." This lack of reliability is primarily due to the rail network, which had been neglected for decades and had fallen below a state-of-good repair and completely overloaded in many places. The on-time performance of long-distance intercity and ICE trains plummeted from



73 percent in January 2023 to 52 percent in November. The decline in punctuality is attributed to construction sites along many of the lines as DB renews infrastructure that is outdated and needs to be renewed. As DB renews its infrastructure and purchases new trains, punctuality will improve, and customer satisfaction will return. Ridership and passenger revenue is expected to increase. In January this year, around 89.5 percent of trains arrived “on-time” with a delay of no more than 6 minutes.

JAPAN

Currently, there are seven companies governing the Shinkansen high-speed rail system serving seven different regions of Japan. From North to South, they include the Hokkaido Shinkansen, the Tohoku Shinkansen, the Joetsu Shinkansen, the Tokaido Shinkansen, the Hokuriku Shinkansen, the San’yo Shinkansen, and the Kyushu Shinkansen. The busiest Shinkansen line is by far the Tokaido Shinkansen, which covers the route between Tokyo and Osaka, Japan’s two largest metropolitan areas. This was the first Shinkansen line built, which opened for revenue service in 1964 in time for the first Tokyo Olympics. During peak traffic times, 10 or more trains depart from Tokyo Station hourly. In 2022, Tokaido Shinkansen trains had a delay of 1.1 minutes per train on average, increasing from 0.2 minutes in 2015. In the fiscal year 2022, Japan Railways’ Shinkansen high-speed trains carried around 295 million passengers, increasing from 195 million passengers in the preceding fiscal year, which was an uncharacteristically low figure caused by the COVID-19 pandemic. The Tokaido Shinkansen has nearly recovered from its pre-pandemic ridership levels. The San’yo Shinkansen is still far below its pre-pandemic volume levels.

KOREA

The Korea Railroad Corporation (KORAIL) is the national railway operator in South Korea. KORAIL operates intercity/regional, commuter/metro and freight trains throughout South Korea. KTX (Korea Train eXpress) is the high-speed rail (HSR) services provided by KORAIL. There are five HSR lines in Korea. The first KTX service was launched in 2004, with high-speed rail service on the Gyeongbu line from Seoul to Busan. The KTX Gangneung Line is the latest line to open in 2017. It goes between Seoul and Gangneung. The five KTX lines enables people to travel anywhere in Korea within a half-day, subsequently altering people’s lives and improving access across Korea. Ridership on KTX mirrors the recovery of the KORAIL system. Ridership on KORAIL passenger services has fully recovered from the pandemic once again achieving 2019 ridership volumes. Ridership is expected to grow as economic activity increases and travel patterns return to normalized trends.

SPAIN

Alta Velocidad Española (AVE) is the high-speed rail service operated by Renfe, the Spanish state railway company. The first AVE high-speed rail service was inaugurated in 1992 connecting the cities of Madrid, Córdoba and Seville. After many years of consecutive growth, the number of passengers transported by AVE dropped abruptly from almost 22.4 million in 2019 to 7.6 million in 2020 due to the COVID-19 pandemic. In 2021, the high-speed rail passenger traffic recovered, reaching almost 12.3 million passengers. Passenger volumes began exceeding pre-pandemic figures in 2022, when nearly 23.6 million passengers were recorded. Last year, Renfe hit the second highest number of passengers transported on all its rail services in its history, with 522.3 million passengers carried on all its services and lines, representing a 19.4 percent increase when compared to the previous year. These figures include more than 85 million new passengers as compared to 2022. In 2023, over 30.7 million people travelled on AVE high-speed rail lines. This is 37 percent more than the 2019 pre-pandemic ridership of 22.4 million passengers. Spain’s two other high-speed train operators, Ilsa’s Iryo service and SNCF low-cost Ouigo service, have significantly expanded their activities in 2023, with additional services and routes set to be added in 2024. Ridership has fully recovered in Spain and is growing. [See article on Spain on page 15.](#)

TAIWAN

Taiwan High Speed Rail (THSR) is the high-speed railway of Taiwan consisting of one line that runs approximately 350 km (217 mi) along the west coast, from the capital Taipei to the southern city of Kaohsiung. The railway opened in January 2007 reaching almost 90 percent of Taiwan’s population. Construction and operations are managed by Taiwan High Speed Rail Corporation (THSRC). In 2019, THSR carried more than 67.4 million passengers. Since the outbreak of the COVID-19 pandemic in early 2020, passenger volumes declined in 2020 to 57.2 million riders and falling to 43.4 million riders in 2021. With various health control measures having been relaxed, ridership began to recover slowly since July 2022. Ridership in 2022 was 54.1 million passengers or just about 80 percent of the pre-pandemic volumes. Ridership has fully recovered in 2023, with over 73.1 million annual riders riding THSR trains setting a record. Ridership in early 2024 is exceeding forecasts requiring added trains to serve the high demand for travel during the Lunar New Year holiday celebrations. THSR is on the right track.

FRA LONG DISTANCE TRAIN STUDY

PROPOSED ROUTES

Contribution By: Wendy Wenner, Urban Engineers

BIPARTISAN INFRASTRUCTURE LAW (BIL) OF 2021 TASKS THE FEDERAL RAILROAD ADMINISTRATION (FRA), UNDER DELEGATION FROM THE SECRETARY OF TRANSPORTATION, WITH CONDUCTING AN AMTRAK DAILY LONG-DISTANCE SERVICE STUDY TO EVALUATE THE RESTORATION OF DAILY INTERCITY PASSENGER RAIL SERVICE AND THE POTENTIAL FOR NEW AMTRAK LONG-DISTANCE ROUTES. UNDER BIL, FRA IS REQUIRED TO CONDUCT A STUDY TO ASSESS THE RESTORATION OF DAILY INTERCITY RAIL PASSENGER SERVICE ALONG ANY AMTRAK LONG-DISTANCE ROUTES THAT WERE DISCONTINUED, AS WELL AS ANY AMTRAK LONG-DISTANCE ROUTES WITH NONDAILY SERVICE. IN EVALUATING INTERCITY PASSENGER RAIL ROUTES, FRA MAY ASSESS POTENTIAL NEW AMTRAK LONG-DISTANCE ROUTES.

The introduction of fifteen new or revived long-distance routes in the Federal Railroad Administration's presentation marks a significant milestone in the ongoing Amtrak Daily Long-Distance Service Study. This comprehensive study, mandated by the Infrastructure Investment and Jobs Act of 2021, aims to evaluate potential Amtrak long-distance routes for areas that are currently underserved. The presentation, which was issued prior to the third round of regional workshops, provides a rationale for pursuing these routes based on suggestions from previous workshop sessions. The ultimate goal of this study is to provide a final report of recommendations to Congress after another round of meetings

this spring. This initiative is separate from the FRA's selection of 69 routes for its Corridor Identification and Development Program, which included a substantial investment of \$500 million.

One key aspect of the [163-page PowerPoint presentation](#) is the involvement of various stakeholders, including Amtrak, state transportation officials, and passenger rail advocates. These individuals play a crucial role in shaping the future of long-distance rail travel in the United States. By collaborating and sharing insights, they can help identify the most viable routes and ensure that the needs of passengers are met. Influential figures within the field

of rail transportation have also been instrumental in driving this initiative forward. Leaders who have a deep understanding of the challenges and opportunities in the industry have played a pivotal role in shaping the direction of the study. Their expertise and vision have contributed to the identification of routes that have the potential to enhance connectivity and expand access to rail services across the country.

- Chicago to Miami, via Indianapolis, Louisville, Nashville, Chattanooga, Atlanta, Jacksonville, Orlando and Tampa;
- Dallas/Fort Worth to Miami, via Marshall, Baton Rouge, New Orleans, Pensacola, Tallahassee and Jacksonville;
- Denver to Houston, via Trinidad, Amarillo and Dallas/Fort Worth;
- Los Angeles to Denver, via Barstow, Las Vegas, Salt Lake City and Cheyenne;
- Phoenix to Minneapolis/St. Paul, via Flagstaff, Albuquerque, Amarillo, Newton, Kansas City, Omaha and Sioux Falls;
- Dallas/Fort Worth to New York, via



Proposed Network of Preferred Routes



ABOVE: CONCEPTUAL ENHANCED NETWORK PRESENTED AT MEETING SERIES 2, JULY 2023. NOT AN FRA PROPOSAL FOR SERVICE.

- Oklahoma City, Tulsa, St. Louis, Indianapolis, Cincinnati, Columbus and Pittsburgh;
- Houston to New York, via New Orleans, Mobile, Montgomery, Atlanta, Chattanooga, Roanoke, Lynchburg, Lorton, Washington, D.C., and Philadelphia;
- Seattle to Denver, via Portland, Boise, Pocatello, Salt Lake City and Grand Junction;
- San Antonio to Minneapolis/St. Paul, via Dallas/Fort Worth, Tulsa, Kansas City and Des Moines;
- San Francisco to Dallas/Fort Worth, via Merced, Bakersfield, Barstow, Phoenix, Tucson, El Paso and Midland;
- Detroit to New Orleans, via Columbus, Cincinnati, Louisville, Nashville, Montgomery and Mobile;
- Denver to Minneapolis/St. Paul, via Cheyenne, Pierre and Sioux Falls;
- Seattle to Chicago, via Yakima, Kennewick, Spokane, Sandpoint, Helena, Billings, Bismarck and Fargo;
- Dallas/Fort Worth to Atlanta, via Marshall, Jackson, Meridian and Birmingham; and

- El Paso to Billings, via Albuquerque, Trinidad, Denver, Cheyenne and Casper.

By expanding the reach of Amtrak’s services, more passengers will have access to affordable and efficient long-distance travel options. This can lead to economic benefits for large and smaller communities along these routes, as well as environmental advantages by reducing the reliance on cars and airplanes for long-distance trips.

The challenges associated with implementing these new routes will be infrastructure upgrades, funding constraints, and regulatory hurdles could pose obstacles to the successful launch of these services. Additionally, there may be resistance from certain stakeholders who have vested interests in maintaining the status quo. It will be important for decision-makers to address these challenges proactively and find creative solutions to overcome them.

Looking ahead, the future developments related to the introduction of long-distance routes are promising. With the support of key stakeholders and continued investment in rail infrastructure, these routes have the potential to become vital components of the national transportation network. By focusing on sustainability, accessibility, and efficiency, the implementation of these routes can contribute to a more connected and environmentally friendly transportation system for future generations.

* Materials from the working group meetings along with brainstorming questions for working group members to consider, previously discontinued routes, frequencies and service changes, potential new routes, and evaluation factors are compiled and available for review at: <https://fralongdistanцерails-tudy.org/meeting-materials/>