

High-Speed Intercity Passenger Rail

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REVIVING A RAIL REVOLUTION:

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HOW WASHINGTON STATE CAN GET BACK ON TRACK TOWARD CREATING A WORLD-CLASS PASSENGER RAIL NETWORK

Amidst the fallout of the coronavirus pandemic, interest in passenger rail has increased markedly across the United States. With an enthusiastically pro-rail federal administration now in power, talk of our nation's "second great railroading revolution" has begun among advocates and transit blogs from coast to coast. But is this only our second, or even third, attempt at such a revolution? What about the one that started in the Pacific Northwest about 30 years ago, the one that aimed to create the most advanced rail system in North America?

WHERE IT STARTED

It was the early 1990s, and change was afoot in Western Washington. Many parts of the region were still recovering from the last recession in the 1980s, in addition to earlier declines of Boeing's space program and the logging industry. Bellevue and Redmond were feeling the impacts of Microsoft's meteoric rise. Amazon didn't even exist yet, but Washington's leaders were taking proactive steps to accommodate major economic and population growth. There was a new awareness of the environmental pollution caused by car dependence and the impossibility of "building our way out of" congestion with more highway lanes. The state was

steadily easing its way into implementing the 1990 Growth Management Act and several Commute Trip Reduction provisions, all to mitigate the impacts of a projected population boom in the Puget Sound. In 1991, the Washington State Legislature directed that a comprehensive assessment be made of the feasibility of developing a statewide 'High Speed Ground Transportation' (HSGT) system. The next year, the Federal Railroad Administration (FRA) designated the Pacific Northwest Rail Corridor, which runs through the heart of Seattle, as a high-speed rail (HSR) corridor.

With the results of the earlier HSGT study in, the 1993 Washington State Legislature passed RCW 47.79 and created something revolutionary: a goal to build a regional HSR network connecting Seattle with Portland, Vancouver, BC, and Spokane by 2030. As recommended by the study, Washington and Oregon began implementing modern intercity passenger rail service on existing tracks between Vancouver and Eugene, OR, with the goal of increasing this service's top speed to 110 mph. From this, Amtrak Cascades originated, one of the nation's most successful intercity passenger rail services. Following the study's vision, the Washington State and Oregon Departments of Transportation both created bold long-range plans for Cascades that would dramatically increase their frequency and usefulness. Washington also studied the idea of using existing

tracks to provide convenient intercity train service between Seattle and Spokane via the Yakima Valley and the Tri-Cities.

But something happened along the way. Progress on the vision of world-class rail in Washington slowed during the early 2000s. With the exception of some improvements made thanks to funding from the American Recovery and Reinvestment Act and the upcoming opening of the Point Defiance Bypass, Amtrak Cascades has not seen significant expansion since 2006. A 2001 study of daytime East-West passenger rail service went almost 20 years without the necessary follow-up, largely due to revenue losses stemming from Initiative 695 (a 1999 statewide initiative that cut Washington vehicle registration fees). Efforts to get HSR moving again have begun in earnest with faster travel times and a different project name: 'Ultra-High-Speed Ground Transportation' (UHS GT; since this is a local term, I will continue to refer to this new project iteration as simply 'HSR'). But at this point, HSR will come too late to respond meaningfully to our climate and housing crises; and its lack of interim connectivity improvements (especially for Central and Eastern Washington) calls the current project's motivations and political practicality into question.

What's missing? Where do we go from here? There are three important features that the Northwest HSR project must include in order to respond to today's demands: a robust intercity passenger rail network, a stronger emphasis on equity, and faster climate and environmental action.

BUILDING A SOLID FOUNDATION ON CONVENTIONAL RAIL

Here are the top ten countries with the most advanced HSR systems, rated in terms of operational top speeds and route mileage:

- China
- Japan
- Spain
- France
- Germany
- South Korea

- Italy
- Turkey
- Austria
- Saudi Arabia

Spread across the world, with differing geographies, economies, and political systems, these countries don't have much in common. Even when it comes to their rail transportation systems there are different lessons to be learned from each one. But there is one thing they do share: excluding only Saudi Arabia, every country on this list had existing intercity passenger rail networks before HSR, with very frequent schedules along busy travel routes.

The biggest problem with the Northwest HSR implementation approach is that it hasn't remembered this simple lesson: without a solid foundation of local and regional passenger rail services, HSR will have a hard time succeeding. Communities lacking good local rail and transit services, particularly those in the Yakima Valley and Eastern Washington, are unlikely to support a Seattle-centric north-south HSR line at the polls. Even enthusiastic supporters in small towns along the I-5 corridor may choose not to ride HSR if they have difficulty getting to stations without long drives to metropolitan centers. With the right infrastructure upgrades, Amtrak Cascades can become competitive with flying and driving between many places and building the train-riding culture necessary for HSR to be economically and financially feasible. This is why Washington state rail plans and studies dating back over three decades have all recommended incremental yet consistent investment in existing rail corridors and services before the development of HSR, including the 1992 HSGT study and the 2006 Long-Range Plan for Amtrak Cascades.

EMPHASIZING EQUITY AND ACCESSIBILITY

The economic and social effects of HSR are varied. Thus, it is important to understand those circumstances in which HSR helps with equity or accessibility and those where other solutions are needed. Places like Japan and France are not more equitable or accessible simply because of

the Shinkansen or TGV lines between their major cities. These top-tier HSR services are the flagships of nationwide mobility ecosystems that include conventional intercity and commuter trains; metro systems; bus networks; high-quality pedestrian and cycling infrastructure; and urban design patterns that are economically efficient and can connect all of these things together effectively.

The Northwest HSR project is often talked about as an equalizer, and in certain respects it is. But if improving equity and access across Washington are our top priorities, we cannot forget the roles of regional and local public transportation systems, active transportation like cycling and walking, and transit-oriented land development. HSR is unlikely to be an ideal option for daily work commuters and those with limited transportation options because HSR fares are assumed to be 52 cents per mile, as opposed to a 19-26 cents per mile average for Amtrak Cascades and a 10 cents per mile average for Sounder commuter rail. If it fails to include investment in more affordable transportation alternatives across the entire state, the HSR project may not contribute meaningfully toward its core values of equity and economic inclusion.

ACTING QUICKLY ON THE ENVIRONMENT AND CLIMATE

A report from the Intergovernmental Panel on Climate Change claims that a 45 percent drop in global carbon dioxide emissions (relative to 2010 levels) by 2030 is necessary to prevent irreversible climate damage. As of 2018, the largest contributor to America's greenhouse gas emissions is the transportation sector, at 28 percent. Of that, 82 percent of the sector's greenhouse gas emissions are from road vehicles; another 9 percent from aircraft, and just 2 percent from rail. A major mode shift from highways and air to rail is perhaps the fastest and most effective way to reduce the overall emissions of America's transportation system.

With a planning horizon of no less than 20 years, Northwest HSR will not be able to contribute to needed carbon dioxide reductions by 2030.

When it does open, HSR's pricing will make it a strong competitor with air travel, but not necessarily with driving. Thus, in order to reduce emissions as quickly as possible, Washington needs to invest in its existing rail system and shift as much freight and passenger traffic to rail as possible. This includes upgrading Amtrak Cascades to maximize its speed, capacity, and frequency as laid out in the previously mentioned studies.

The Bottom Line: Northwest HSR Will Never Be Realized Without a Robust Conventional Intercity Passenger Train System

It's 2021, and once again Washington finds itself with mixed news and a bit of uncertainty. While Puget Sound's economic and population growth has continued, the effects of climate change and a serious disconnection from the rest of the state threaten its prosperity. We have also fallen far behind in achieving our 1993 goals for a statewide HSR network. But Washington still has the chance to prove itself as a leader in doing rail the right way. We just need to think practically in the short term and focus on our most critical priorities in the long term.

As we start to consider the financial and political feasibility of HSR, we must not forget the importance of investing in our region's existing rail infrastructure and services over the next decade. For intercity passenger transportation, that means, at a minimum, implementing the 2006 Long-Range Plan for Amtrak Cascades and extending similar passenger rail services across the Cascade Range to Yakima, the Tri-Cities, and Spokane (a project which sees public approval of 76 percent). Once North-South and East-West intercity rail backbones have been established and a competitive market of rail and transit travelers has been created, Washingtonians on both sides of the Cascades will have reason to support the creation of Northwest HSR.

HSR is a worthwhile endeavor - we cannot afford to undermine it by failing to build out the statewide public transportation network and the coalition of supporters it needs to succeed.

a decade. Virginia Gov. Ralph Northam signed a \$525 million agreement with CSX Transportation for acquisition of right-of-way and infrastructure, which will allow Virginia to increase capacity and introduce more trains in the I-95 corridor. In all, Virginia acquired 384 miles of CSX right-of-way, and 223 miles of track, primarily on the I-95, I-64 and I-85 corridors.

The most significant element of the plan is increasing rail capacity in Northern Virginia. The signature project of this part of the plan is to build a new \$1.9 billion Long Bridge crossing over the Potomac River from D.C. into Virginia with the aim of improving reliability, adding capacity and separating freight and passenger traffic. The Long Bridge will eliminate a terrible choke point adding new capacity for a growing commuter and passenger rail system by increasing the number of tracks entering and leaving D.C. from two to four. A recent study from George Mason University estimated that the completion of the Long Bridge alone and the associated expanded capacity and rail service it enables would translate to “an increase of \$2.2 billion in economic contributions from rail commuters living in Virginia and an increase of \$5.9 billion from rail commuters in the Washington region.” This is a very healthy benefit/cost ratio when compared to the cost of the bridge. The FRA along with the District Department of Transportation (DDOT), Virginia Department of Rail and Public Transportation (DRPT) and with the participation of the National Park Service (NPS), published the Combined Final Environmental Impact Statement (FEIS), Final Section 4(f) Evaluation, and Record of Decision (ROD) for the Long Bridge Project in September 2020. Amtrak, Virginia Railway Express and DRPT are working on a funding plan to move the Long Bridge project from planning to construction. In late January 2021, DRPT announced the award of a \$21 million contract to VHB for the development of the Preliminary Design plans for this important regional project.

Virginia completed a study of extending state-supported Amtrak service from Roanoke to New River serving the Blacksburg area, home to Virginia Tech. The New River Valley has strong demographics for successful rail service with a population of more than 180,000, including more than 40,000 university



students. Studies indicate an additional 80,000 riders are expected to use the new service. The Governor recently announced a budget amendment of \$50 million. Funds from this budget amendment would be used to extend the service to the New River Valley. The current Roanoke train is the only Amtrak service in Virginia that covers 100 percent of its operating costs through ticket sales. The extension of service to the New River Valley would add a second train and have a later departure time from Roanoke. The state legislature is considering the budget amendment.

Gov. Northam signed new legislation creating a rail authority in the New River Valley at a ceremony in Christiansburg, VA on May 5th. Attending the ceremonial signing were elected officials, principals of Virginians for High Speed Rail and the Virginia Rail Policy Institute and Jim Squires, CEO of Norfolk Southern. The new legislation authorizes the creation of a regional passenger-rail authority in Planning District 4 to assist in the creation and maintenance of passenger rail in the region. The authority would be authorized to enter into revenue sharing agreements and to issue revenue bonds. The bill also says the authority would be governed by a board consisting of members of each participating locality and institution of higher education. More importantly than the ceremonial bill signing was the surprise announcement of the purchase of a Norfolk Southern rail line between Salem and Christiansburg.

WASHINGTON (with assistance from Patrick Carnahan, All Aboard Washington and Paige Malott, CASCADIARAIL) – Amtrak’s Los Angeles–Seattle Coast Starlight and Chicago – Seattle Empire Builder continue to serve the state with long-distance service.

Due to the impacts of COVID, the Coast Starlight and Empire Builder have seen service cuts, with each offering only three weekly departures in each direction since October. Long-distance network ridership has declined, but it also appears to have been the fastest to recover given the lack of transportation options in many of the areas it serves. The tri-weekly service is likely stunting recovery.

In partnership with the State of Oregon, Washington State Department of Transportation's (WSDOT) sponsors a state-supported corridor train operating between Portland – Seattle and Vancouver, British Columbia. The Cascades corridor is 467 miles long: 300 miles in Washington, 134 miles in Oregon, and 33 miles in British Columbia. Service has been drastically curtailed. The Cascades has been cut from four Seattle-Portland, two Portland-Eugene, and two Seattle-Vancouver, BC daily round trips to just one daily Seattle-Eugene round trip, with all Cascades trains north of Seattle suspended. Thruway connecting bus services appear to be operating at or fairly close to normal frequencies. According to WSDOT, ridership on Amtrak Cascades is down roughly 87 percent.

Restoration of Cascades service on the Point Defiance Bypass is steadily moving ahead. Positive Train Control (PTC) has been installed along the full length of the Bypass. WSDOT conducted 'dynamic testing' (whereby trains made round-trip passes at gradually increasing speeds) on the Bypass with a Talgo VIII trainset on the weekend of January 16-17, 2021. This dynamic testing was part of Sound Transit's process for the resumption of Cascades service, as Sound Transit is treating this as a 'new start' that requires full certification of equipment, crews, and operating procedures. If Sound Transit grants its approval, WSDOT anticipates a late-spring/early-summer timeframe for resumption of service on the Bypass.

In a related move by WSDOT, all Talgo VI train sets were removed from service as of June 29th, 2020. WSDOT's Talgo VIs are parked at King Street Station, and Amtrak's are parked at their Beech Grove, Indiana maintenance facility. The Oregon-owned Talgo VIIIs are still operational.

Washington State DOT is studying the feasibility of an ultra-high-speed ground transportation

(UHS GT) connecting the three largest cities in the Cascadia megaregion: Seattle; Portland; and Vancouver, BC. A key component of that vision is reducing travel time among the three cities from more than eight hours to less than two. A technical feasibility study completed in 2018 by Jacobs with AECOM and Deutsche Bahn was an important first step in understanding and quantifying the potential benefits and costs of an UHS GT system in the Cascadia megaregion. A more detailed Business Case completed in 2019 by WSP and Steer developed a benefit cost analysis, assessment of potential economic gains, and early ridership and revenue forecasts. A report on the findings of this study can be found in SPEEDLINES Issue #28, page 26.

The project will bring \$355 billion in economic growth to the Pacific Northwest, create 200,000 skilled labor jobs, and reduce carbon emissions by 6 million metric tons --the equivalent of taking 13 million cars off the road. With speeds of 220 mph (354 kph), the project has the potential to move up to 32,000 passengers per hour, providing 47-minute trips between Seattle and Vancouver and 58-minute trips between Seattle and Portland.

The project has been championed for its cost savings compared to building an additional lane of highway along the I-5 corridor. According to WSDOT Secretary Roger Millar, UHS GT is estimated to cost \$24-\$42 billion to build; one lane of highway will cost \$108 billion, take just as long to build, and the lane would be full by the time it opened. "Highway expansion cannot and will not keep up with growth, but we can make investments that can be gamechangers, like high-speed rail," he stated.

The Cascadia megaregion is expected to grow by 4 million people in the next 30 years -- the equivalent of adding two additional cities the size of Vancouver. With current growth plans unable to accommodate 1.3 million of the newcomers, it's time to think big and think boldly about mobility. Challenge Seattle recently published its Vision 2050 report, which highlighted high-speed rail's ability to address large-scale problems in the Pacific Northwest, including better access to family-wage jobs, increasing affordable housing choices, and providing a sustainable alternative to air travel to help meet climate goals. The report noted the average monthly housing cost in the Cascadia megaregion is 44 percent of median income; in addition to an 80 percent increase in mega-commuters -- people spending more

than 90 minutes commuting one way-- in the last 10 years due to housing affordability and traffic congestion. High-speed rail could transform commutes to core cities, with journeys of 15 minutes or less from Tacoma to Seattle, or Everett to Seattle.

Improving access to jobs and affordable housing are reasons why Microsoft has supported the UHSGT project since its inception in 2016. "High speed rail will help address some of the pressing problems experienced in all three major cities. People won't have to choose between where they want to live and where they want to work," explained Irene Plenefisch, Microsoft Government Affairs Director.

In December 2020, WSP completed the Framework for the Future report, which outlines the next steps for the UHSGT project: setting up a governance structure and coordinating entity to work on community engagement, financing, and funding strategies. Washington Governor Jay Inslee has requested \$3.25 million in the state budget to continue studying the corridor. The legislative session ended without a decision on the transportation funding package, as the House and Senate could not reconcile differences between their two packages. Consequently, the Washington State Legislature has not yet appropriated the funding requested by Gov. Inslee to continue studying the Cascadia Corridor.

The Legislature previously directed the Joint Transportation Committee (JTC) to conduct a high-level feasibility analysis of an East-West intercity passenger rail system for Washington State, connecting Seattle with Spokane via the Stampede Pass corridor through Yakima and the Tri-Cities. Steer was commissioned by the JTC to assess the feasibility of the new East-West passenger rail service for state decision makers. They issued their report in July 2020. The overall conclusion is that introducing a Seattle to Spokane service via the Stampede Pass was technically feasible despite long travel times due to slow speeds and heavy freight traffic. Annual estimated ridership for year 2020 ranged from 31,000 to 205,000 annual trips with a further estimated increase to 215,000 if train journey times were reduced by one hour between Seattle and Spokane. This is only 25 percent of the Cascades ridership but above or comparable to some other Amtrak state-supported services.

WISCONSIN – The Wisconsin Department of Transportation (WisDOT) and Illinois Department of Transportation (IDOT) support the operation of the Milwaukee – Chicago Hiawatha service. The Hiawatha service is Amtrak's busiest route in the Midwest. Ridership on the Hiawatha service grew to more than 882,000 riders in FY 2019, which set a new ridership record. But, in FY 2020 ridership was impacted by COVID-19 and plummeted to 403,100 riders for the fiscal year ending Sept. 30, 2020. The number of Hiawatha trains had been reduced and there are limits on passenger capacity. Hiawatha currently offers three round trips per day, compared to the usual seven. Ridership has begun to increase, and the Hiawatha is relaunching the full seven round-trip schedule on May 23rd, along with the full schedule of Amtrak Thruway connecting bus services between Green Bay, the Fox Cities, and Milwaukee. Efforts to increase the number of daily Hiawatha round trips to ten per day are continuing.

In September 2020, FRA awarded a \$31.8 million CRISI grant to the WisDOT to fund upgrades to railroad infrastructure in Wisconsin and Minnesota permitting the Twin Cities-Milwaukee-Chicago Intercity Passenger Rail Service (TCMC) to be operated. The TCMC provides a second daily train along the existing Amtrak Empire Builder corridor between the Twin Cities, Milwaukee, and Chicago. The improvements on the Canadian Pacific railroad include communication and signaling, extending rail sidings, improvements at grade crossings, extending yard lead track and reconstructing and modifying new turnouts and mainline track. In addition, FRA also selected WisDOT for a Restoration and Enhancement grant for federal funds to cover a portion of the first three years of operating support of the TCMC second train.

