

High-Speed Rail Project Initiation

A Roadmap for Advocates



U.S. High Speed Rail

Introduction

There are many regions in the United States that would benefit greatly from the advent of high-speed rail (HSR). High-speed trains can curb paralyzing highway congestion, reduce the need for short-haul flights, and lower planet-warming greenhouse gases and other harmful pollution from cars and airplanes. HSR can connect cities and communities in new ways, spur economic development, improve access to affordable housing and job markets, and offer the public a more comfortable, faster and safer way to travel.

But actually implementing an HSR project is its own journey, one that can involve regulatory hurdles, funding challenges, shifting political priorities, economic downturns, and litigation related to land acquisition and property rights. HSR projects are complex, multi-year undertakings, more zigzag than straight line. In many cases, zigzag can mean schedule delays and cost increases. Like all campaigns, early awareness and anticipation of the challenges and risks that can drive a project sideways are essential.

Much has been written in recent years bemoaning the fact that the U.S. is so far behind Japan, China, and virtually every European country in constructing a high-speed rail network. Many reasons are given for why this is the case, especially our lack of familiarity with high-speed rail technology and the role it could play in addressing some of our nation's serious mobility and climate challenges.

Yet more recently the prospects for introducing bullet trains in the U.S. have been looking brighter, thanks to the significant boost in federal funding announced by the Biden Administration in December 2023. This latest round of funding for both high-speed and intercity passenger rail comes as part of historic new investments in rail from the Bipartisan Infrastructure Law that was enacted in 2021. Thanks in part to the new federal funding, at least one and perhaps two HSR systems with operational speeds of 186 mph to 220 mph could be in service by the end of this decade.

The Regional Plan Association of New York (RPA) has identified 13 so-called "megaregions" based on interlocking population, economic and travel patterns that could be fertile ground for HSR service. The RPA determined that HSR was the transport mode of choice in those regions. The Federal Railroad Administration has identified 11 HSR corridors that significantly mirror the pattern of megaregions identified by RPA.

Recent polling conducted by Public Policy Polling for the U.S. High Speed Rail Coalition found that 72 percent of U.S. registered voters either strongly or somewhat support the creation of a nationwide HSR network in the U.S. These findings come on the heels of a 2022 poll conducted by the Berkeley Institute of Governmental Studies, which found that by a five-to-three margin, California voters support continuing to build high-speed rail.



Photo: California High-Speed Rail

Now is the time to capitalize on this new momentum by taking a hard look at what strategies, planning efforts and resources it will take to move HSR concepts into going projects.

To build on this new momentum, the Coalition has prepared this project initiation game plan with a particular purpose and audience in mind. The purpose is to provide practical guidance for how to launch a regional HSR program given both the opportunities and challenges of megaproject delivery in the U.S today. Think of it as converting uncharted territory into a roadmap.

High-speed trains are needed to effect a sweeping transformation of the transportation sector – making train travel competitive with flying and driving and moving millions of passengers out of cars and airplanes.

The intended audience is civic-minded advocates, likely outside of government, who believe that HSR service would greatly benefit their communities and are committed to launching a major new project in their region. This roadmap is intended to equip advocates with a baseline set of expectations for what lies ahead as well as overarching strategic guidance as they seek to develop their piece of America’s future national HSR network.

We also recognize that HSR projects can be initiated by private companies. While private entities may favor a somewhat different approach to project initiation, we think that many of the observations in this report will be equally relevant regardless of the sponsoring entity.

What is High-Speed Rail?

In the U.S., some journalists, advocates, and politicians have created confusion by using the term “high-speed rail” to refer to conventional passenger rail systems running at top speeds between 79 – 150 mph that operate on legacy infrastructure shared with freight or commuter trains and/or use diesel power. This is not how high-speed rail is understood in most of the world. This roadmap instead uses the term “high-speed rail” or “HSR” to refer to the electric, steel-wheel on steel-rail systems operating primarily on dedicated infrastructure in countries across Europe and Asia.

World-class high-speed rail is a rail system capable of operating at sustained speeds of at least 186 mph. It requires a sealed, dedicated track with no dangerous grade crossings or sharp curves in order to allow the safe attainment of very high speeds. HSR systems use advanced signaling systems as well as special lightweight, energy-efficient trains designed to reach high speeds.

It is these specific characteristics that make HSR a competitive mode of intercity travel when connecting population and employment centers that are in the range of 200 to 600 miles apart. “Too long to drive, too short to fly” is one popular way of describing HSR’s transportation niche. HSR in the right setting not only provides a superior experience compared to driving or flying, it can also save regions many billions of dollars from not having to expand highways or airports, both of which are more costly and, in many cases, impractical.

Brian Kelly, CEO of the California High Speed Rail Authority, has described managing a megaproject as “surviving near death experiences.”

Project Initiation

Project initiation is defined in this report as the critical incubation period of visioning, initial planning, and advocacy. It is the time when HSR proponents need to get organized, determine preliminary project feasibility, build partnerships, cultivate political support, and develop strategies for securing both short-term and long-term funding. These are some of the continuously evolving and interactive building blocks that lead to the completion of an HSR project’s initiation phase and its successful journey through the entire project lifecycle, shown below.

Once Project Initiation is completed, an HSR project moves through the subsequent phases of Project Development, Final Design, Construction, and Operations.

Project Development encompasses the period of environmental review, preliminary engineering, capital cost estimation and schedule preparation.

A project management plan and financial or business plan are required deliverables.

In *Final Design*, the project is advanced to be ready for construction. The project sponsor has secured agreements and funding commitments, completed right-of-way acquisition and utility relocation agreements and updated construction costs.

Construction is completed when the project is fully built and tested. At that point, the project moves into *Operations*.



High-Speed Rail Project Lifecycle

High-speed rail projects are some of the largest and most complex construction projects in the world. And building new infrastructure in the U.S. is notoriously challenging. For these reasons, shepherding an HSR project through Project Initiation is its own marathon, which can last six or more years.

While entire high-speed rail lines are often planned, designed, and built in a decade or less in countries like Spain, so far, U.S. high-speed rail projects are taking multiple decades. With major reforms and sustained public investment, we can significantly pick up the pace of high-speed rail delivery in the U.S.

For now, steadfast endurance and a healthy dose of optimism on the part of project advocates are key. Without an effective launch energized by broad and deep political and community support, ambitious infrastructure projects such as HSR will stall or more likely fade away. And without determined, strategic advocates committed for the long haul, America will never have a national HSR network.

Key Building Blocks of an Emerging HSR Project

Successfully launching a proposed HSR project requires effective leadership, political support, adequate funding, and concept credibility. Achieving those outcomes rests on a number of crucial building blocks that include organization, technical planning, strategic alliances, risk awareness, and persuasive communication. These building blocks are not standalone activities. Rather, they need to be implemented in concert with each other.

This section takes a closer look at those building blocks.

ORGANIZATION

The very early leadership of a campaign for a new HSR project can take any number of forms, from an informal partnership among a few unaffiliated advocates to a labor union federation or trade association. An informal group can take on the mission of building awareness, but soon enough, given the sheer volume of work involved in launching a massive new mega-project, advocates will need to

form a capable new organization devoted solely to launching the new HSR program.

To start with, this coordinating entity needs an experienced leader who has credibility and good relationships with a wide array of elected officials, civic and other leaders and who can bring disparate interests together. The leader needs to be supported by motivated HSR “missionaries” committed to rigorous project planning and enlisting the support of special interest organizations and the general public. Building the right team, defining roles and responsibilities, and creating a shared sense of mission from the very start are all critical organizational imperatives.

As the HSR concept process unfolds, the organization will need to create a number of project initiation deliverables, some of which will require the assistance of specialists.

These include:

- Project vision and identity around which to rally supporters.
- Risk assessment to identify potential fatal flaws, opposition arguments, and other obstacles.
- Political outreach strategy.
- Stakeholder engagement program that includes active community outreach and coalition building.
- Timeline with major milestones.
- Preliminary feasibility study.
- Funding plan to cover the cost of early project planning, marketing materials, and other expenses (thought needs to be given to both public, business, labor, or philanthropic funding sources).
- Communications and media relations program that includes key messages, factsheets, briefings, website, etc.
- Lessons learned from other complex public works projects, including other high-speed rail projects.

Because an HSR project typically crosses multiple jurisdictions and involves integration with other modes of transportation, including regional bus and rail service, there will likely be a need down the road for multi-party agreements. The organization should anticipate this need by developing a preliminary list of relevant parties and types of agreements that will be required in the future.

Later in the process, a state agency or a metropolitan planning organization or other publicly funded agency will likely take over sponsorship and management of the project, including federal and state funding grant applications, mandated environmental reviews, and preliminary design. Thought needs to be given at an early stage about what type of governance structure would be the most appropriate for taking on the management of the HSR project. And then advocating for it.

STRATEGIC ENGAGEMENT

It takes a large and diverse village to create and sustain momentum “from the ground up” for transformative infrastructure projects such as HSR. Like political campaigns, strategic alliances and nonstop public outreach are essential to build momentum for the cause and to demonstrate the level of broad support needed to secure the necessary funding. “Build your bridges before you need them,” is the advice offered by the authors of the book *How Big Things Get Done*.

Begin by mapping out lists of likely supporters, opponents and “neutrals” and developing outreach and messaging strategies for each cohort.

Reach out to key federal, state and local elected officials whose districts will benefit from the project. Look for major employers in your region who can advocate for HSR based on business growth factors, including improved commute experiences and affordable housing opportunities for their workforces and access to a broader labor market. Work with existing coalitions and other constituency groups who have an obvious stake in the project and who can carry the message forward and influence decision-makers from their own perspectives. These groups could include business leaders, labor unions, chambers of commerce, civic and community leaders, transportation consultants and contractors, non-profit advocacy organizations, local university officials, sporting and cultural venue managers, and other influencers.

Campaigns organized by building trades and railroad maintenance and operations unions to promote the jobs benefits of HSR have been very successful in building political support and securing

public funding for specific HSR projects. In return, HSR project sponsors have signed union-friendly labor agreements that are already creating thousands of good-paying union jobs and promise to create many thousands more in the years to come. With their extensive lobbying and advocacy apparatuses and considerable political clout in many parts of the country, unions are a powerful potential ally for any new HSR project.

Work with leaders from smaller communities along the route whose residents will gain access to greater job opportunities in regional economic centers, helping to lessen the urban and rural divide. Invest time in proactive public engagement based on a commitment to transparency and equity. Seek feedback from the community and take it seriously in the planning process. If appropriate, conduct surveys, sponsor focus groups and organize outreach events to spread the word and get feedback. Creation of advisory committees can help to keep project proponents informed about viewpoints—positive or negative—they otherwise would not be aware of.

“We undertook a grueling round of town halls, community meetings, and political one-on-ones... nearly 100 events in all,” Andy Byford, Senior Vice President for High-Speed Rail at Amtrak, told a recent symposium in Toronto regarding a major upgrade project at New York City Transit. “It was hard work, but by the end we had huge political and public support and a mandate to deliver the plan.” (Amtrak, which has recently taken on a leadership role in the Dallas-Houston, Texas high-speed rail project, can also be an important player in some proposed HSR projects.)

Governors in Oregon and Washington have played leading roles in supporting Cascadia high-speed rail. “We are living in unprecedented times that call on us to envision our future in new ways. Transformative infrastructure projects like (HSR) could help us rebuild our economy in the short term and provide us with a strong competitive advantage in the future. It could transform the Pacific Northwest.”
Washington Governor Jay Inslee



Photo: Deutsche Bahn AG / Georg Wagner

If possible, identify a high-profile “champion,” someone outside the advocacy organization who has stature, credibility, commitment, and the ability to bring the right people to the table. Best of all would probably be a Governor (or ex-Governor), but the champion could also be a mayor, a county executive, a major corporation CEO or someone else well known in the transportation realm.

In all of the enthusiasm about the potential for regional HSR, don’t be blindsided by opponents who will claim, “Another government boondoggle we can’t afford.” “It will take forever to build.” “It won’t serve my community.” “It will disrupt my _____” (fill in the blank). Rail projects seen as competing with other transportation interests have historically drawn both overt and covert opposition.

Any communities through which the HSR trains pass without a station stop are strong candidates to oppose. This was the case with Martin and Indian River counties in Florida (who opposed Brightline Florida), and with communities all along the proposed Texas Central Line (which would stop only in Dallas,

Brazos/College Station and Houston). They are likely to oppose the project because they see little benefit in high-speed trains blowing through their towns 30 times or more each day.

Large-scale infrastructure projects such as HSR generate significant regional benefits, but they can also have disruptive local impacts. Those who are adversely affected are often more motivated to take action than those who would benefit from it. These opponents can include individual or corporate landowners whose property would be affected.

A dramatic example of the latter situation is occurring in Dallas, where a planned HSR line between Dallas and Fort Worth includes a 7-story high viaduct between West Dallas and downtown. Powerful downtown real estate interests are lobbying the city council to oppose the plan, arguing the elevated structure will create major problems for ambitious real estate development plans tied to the city’s new convention center, set to open in 2029. Supporters of the project disagree, arguing the elevated HSR line will increase real estate values in Downtown Dallas

and allow for a smooth, one-seat ride between Fort Worth, Dallas, and Houston.

Opposition often takes the form of adverse comments during the environmental review process, objection to funding proposals, lawsuits seeking to stop construction and new state or local laws and regulations designed to hamstring the project. Opponents may also include organizations serving those with a commercial interest in maintaining the status quo in the transportation and energy sectors. These organizations may align with those who object to government funding for HSR or find common cause with “Not In My Back Yard (NIMBY)” groups most affected by right-of-way acquisition, noise, or localized project impacts.

Dealing with opponents can be tricky business. “Not in my backyard” can mean *it’s intruding on my property*, or it can mean *why aren’t we getting an HSR train station in my town?* Lawsuits are the bane of big projects as they cause extensive and expensive delays. So, negotiate or counterpunch?

If the decision is to negotiate with opponents, meet with them, take their issues seriously, and avoid unpleasant surprises. Look for ways to demonstrate indirect benefits from the project that foes may not have considered. Remain open to considering changes in project scope as a cost of doing business if the result is to defuse opposition and keep the coalition intact. Win-wins are valuable outcomes as long as accommodations do not compromise fundamental anticipated HSR benefits such as achieving speeds that enable effective competition with airlines.

Engagement with opponents may not gain their support, but lack of engagement will almost certainly make matters worse. It is much easier to make project changes early, rather than later, in project planning.

Always maintain the discipline of clear and consistent messaging around the project’s purpose, need and benefits to all levels of government, community, and business advocates.

Strategic engagement also needs to account for the fact that political cycles often introduce new leaders with new priorities during the long-haul process of moving an HSR project forward. Consider strategies for how to bridge potential political gaps. One option could be to break a longer-distance, multi-city, HSR project into smaller delivery sections and to make complementary investments such as an early upgrade to a plaza in front of a future HSR train station (known as “early site activation”) to create visible “early wins.” The future HSR station in Fresno, California is a good example of early site activation. A number of design alternatives for the Historic Depot site plaza are being considered following a series of meetings to solicit community feedback and insights. The goal is to create a functioning park and plaza as active public spaces at least two years before HSR service begins. Showing positive results early may help to sustain public patience and support needed to see the project through to completion.

Depending on the level of local support for HSR in the region, another potential tactic to mitigate the risk of new priorities could be to seek passage of a tax measure as happened in Los Angeles County in 2016

A community not getting a train station could still receive benefit from HSR thanks to cleaner air, reduced regional traffic congestion, fewer auto accidents and reduced highway expansion and maintenance costs.

to support a range of transportation improvements, including more than \$2 billion in dedicated funding for development and future construction of the High Desert Corridor high-speed rail project. The Los Angeles County Traffic Improvement Plan, known as Measure M, imposed a .5% retail sales tax “to expand the rail and rapid transit system” among other transportation investments. A more preliminary approach would

be to push for a ballot provision asking the state or region to consider funding further studies to document the project’s value. Obviously, proponents would need to have confidence in a positive outcome for such an undertaking.

The need for credible and effective advocacy never goes away until the last spike is hammered. And even then, the coalition needs to stay engaged to make sure the HSR is operated and maintained as envisioned and planned.

TECHNICAL PLANNING

There is a balance between generating excitement about an HSR proposal and getting too far out in front with forecasts or design details before your homework is completed. Credibility requires bottoms up planning at the local or regional level that is informed by an understanding of the regional travel market and its mobility challenges.

Scenario planning could be a good way to begin. Before advocating for any one solution, define the problem. Define the goal. What happens if we do nothing? Consider all options. Build to a conclusion rather than starting with it, keeping in mind that the “project” is the means, not the end (This approach will be required in any event during the environmental review process). HSR, for example, needs high travel demand between regional anchor markets as well as strong intermediate travel markets. If the case for HSR is credible, proponents should be able to define preliminary corridors and display how those corridors would link to existing rail and bus services to make a network.

The FRA calls this project justification approach “Purpose and Need.”

HSR needs dedicated infrastructure and no grade crossings in order to maintain speeds of at least 186 mph. However, it may be necessary to share tracks — at lower speeds — with conventional rail services in limited locations (e.g. approaching a train station in a heavily urbanized area). Understanding how your HSR project fits into this larger context can guide not only the problem statement for planning studies, but also decisions on outreach, partnerships, and funding.

Initial project planning therefore requires a feasibility study based on regional transportation needs and opportunities. The feasibility study should include preliminary capital and operating costs, ridership and revenue forecasts, and an estimate of wider economic

and environmental benefits. Keep in mind, however, that forecasts at this early stage of project planning are purely indicative. Unrealistic, optimistic and best-case projections prior to design and uninformed by a serious risk assessment do not help the cause. At a minimum, talking about cost and schedule in *ranges* is one way to sidestep promises that could come back to haunt you and the project. “Underpromise and overdeliver” is a prudent approach at this early stage. That being said, an independent feasibility study can provide generally useful information for a “go/no-go” decision. If the study supports the HSR concept, it can arm project sponsors and stakeholders with credible and persuasive evidence to strengthen public and political support, seek funding, solicit private sector interest, and lay the groundwork for moving project planning forward.

Becoming familiar with the federal and state funding programs that support new passenger rail projects once they have reached a certain stage of planning development is highly recommended. For example, the new Corridor ID funding program implemented by the FRA requires preparation of a Service Development Plan. Understanding the prerequisites for entry into that grant program should be on the radar screen early in the project initiation phase (See the next section for more details on Corridor ID).

Earlier in this roadmap, we mentioned the idea of breaking a longer-distance, multi-city, HSR project into smaller delivery sections in order to show progress sooner. There could be other good reasons for considering a phased approach. Smaller bites are less complex to manage, and they provide “lessons learned” that can be applied to future extensions.

Most importantly, *take the time to get it right*, even in the face of external pressure to expedite the project initiation phase. Thorough planning at the beginning will save time and money and preserve credibility in the long run. “Think slow, act fast” as emphasized in *How Big Things Get Done* means that taking the time needed to properly plan a project lays the groundwork for expediting project delivery later on.

Too often, advocates have put their projects in jeopardy by offering unrealistic ridership, cost and timing projections long before risks and challenges are understood and before design has even begun.

PROJECT FUNDING AND FINANCING

While a lot of the labor required at the initial planning stage may be voluntary, there are inevitable and substantial costs related to undertaking studies and preparing educational materials for the proposed project. That is why advocacy groups need to make fundraising a top priority. Typically, the federal and state governments are the source of larger tranches of funding, but local funding support is also necessary. Local building trades unions or building trades councils that could gain new members from the HSR project as well as major employers that have a stake in workforce mobility, housing affordability and regional economic growth (such as Microsoft in Seattle) may be willing to pitch in.

The Cascadia HSR project budgeted \$2.6 million in public and private funding between 2017 and 2021 to pay for two studies and a roadmap for advancing the high-speed rail project.

One recommended strategy is to begin by going for small grants and initiating studies that can help to define the project while building external relationships and project credibility.

The most relevant funding program at the federal level for HSR project initiation is the new *Corridor Identification and Development Program* (Corridor ID). Its primary focus is to guide intercity passenger rail development throughout the country and to create a pipeline of projects ready for implementation. For each selected corridor, FRA initially awards grants of \$500,000 for defining the scope, schedule and budget for rail service development planning. In 2023, the FRA received 92 Corridor ID applications and awarded \$34.5 million to 69 projects including five new HSR projects. Multiple other corridors received Corridor ID grants for new conventional rail projects.

Emerging HSR rail corridors in Texas, the Southeast, Southern California and the Pacific Northwest received Corridor ID grants in late 2023.



Photo: International Association of Machinists (IAM)

FRA guidance for Corridor ID applicants requires submittal of a detailed Corridor description, including key geographic travel markets that must be served; high level estimates of service frequency and travel times; potential geographic routes; intended operator of the Corridor, if known; challenges the Corridor aims to address, and expected other users and beneficiaries of the Corridor. In preparing applications, keep in mind FRA's strategic goals related to economic competitiveness, infrastructure resilience, greenhouse gas reduction, energy efficiency, environmental justice, racial equity and barriers to opportunity.

Early coordination with local communities regarding station locations and access and the potential for transit-oriented development is recommended in the FRA guidance. Establishing working relationships with the owners of adjacent or overlapping corridors and future shared facilities is also vital, along with outreach to Amtrak and freight railroads if they are already operating within the proposed HSR corridor.

Consolidated Rail Infrastructure and Safety Improvements (CRISI) program for capital projects that improve passenger rail transportation in terms of safety, efficiency and reliability. CRISI can fund early planning activities, specifically corridor service development plans. In 2023, FRA received 234 CRISI applications and awarded \$1.4 billion to 70 projects.

Other federal competitive discretionary grant programs are less tailored to the Project Initiation stage, but HSR project advocates should still educate themselves about future funding opportunities and the obligations and conditions that come with them. These grant programs include:

Federal-State Partnership (FSP) for Intercity Passenger Rail Grant National Program to expand or establish new intercity passenger rail service, including public and private high speed rail projects. In 2023, FRA

received 67 FSP National applications and awarded \$8.2 billion to 10 projects.

Interstate Rail Compacts Grant Program to encourage multi-state applications where relevant.

Railroad Crossing Elimination Grant Program for improvements that focus on improving safety and mobility. HSR operations require a dedicated right-of-way with no highway grade crossings. This program is a good way to prepare a corridor for future HSR.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant program to achieve national objectives in the areas of safety, environmental sustainability, quality of life, economic competitiveness, state of good repair innovation and partnership.

In addition to federal funding programs, project proponents should work with their governmental and political partners to compete for and access state government funding.

As noted in other sections, private entities with a stake in improving regional mobility and its corollary benefits can be amenable to providing financial and other resources.

FRA Grant Application Tips:

- Verify your eligibility (based on statute and Notice of Funding Opportunity)
- Make sure all required supporting documents are submitted
- Accurately describe the project cycle you are applying for
- Don't assume reviewers are familiar with your project or region
- Stay "rail focused"
- Make sure dollar amounts are consistent throughout and notify FRA if you are receiving other federal funding; demonstrate non-federal match
- Submit Benefit Cost Analysis (if required) in unlocked excel sheets
- Demonstrate stakeholder support and status of discussions with host railroad, infrastructure owner, others
- Make sure your organization is registered with the federal System for Award Management
- Prioritize projects if you have multiple grant applications
- Use FRA forms and templates
- Take advantage of FRA on-line resources <https://www.youtube.com/watch?v=20oRhiUx8qA>



Photo: International Association of Machinists (IAM)

MAKING THE CASE

Communicate, communicate, communicate. Bring on a team that knows how to craft effective messages for multiple audiences, to prepare effective marketing materials, and to use all of the rapidly growing array of media tools to articulate what the region will gain from an HSR system. Being good communicators also means being good listeners and factoring all points of view into the HSR campaign.

A 10-car train has the same carrying capacity as 9 airplanes or 10 additional highway lanes, according to AECOM.

An HSR project has the potential to create a wide range of regional benefits, and therefore a diverse band of advocates. There are plenty of studies showing worsening traffic congestion, longer work trips and growing time-waste in many parts of the country. While COVID flattened roadway congestion for a time, the trend is almost certainly temporary, according to the Texas A&M Transportation Institute's Urban Mobility Report of 2021, which states that "the respite was short-lived."

Reducing longer distance journey times compared with driving on crowded highways and offering a competitive travel alternative to the stress of flying are key mobility benefits to emphasize.

Trains have a far superior "on-time" performance than airplanes (which are more susceptible to delays and cancellations due to weather, equipment problems and crew shortages) and automobiles (which are frequently delayed by traffic congestion, accidents and highway construction projects).

Point out the fact that trains are much more comfortable than planes, and that they afford you the opportunity to read or work, stretch your legs or nap—activities that are way off-limits for car drivers. The Long Island Railroad used to say, "Your train time is your own time."

Mobility benefits accrue not only to the HSR passenger but also to the users of a now less congested highway and air travel network.

But mobility improvements are not the only contributions that can come from HSR. Other benefits include climate resiliency, economic growth, safety, expansion of regional housing markets, and cost-avoidance related to highway expansion and new airport runways.

Transportation's dependence on fossil fuels makes it the single largest source of carbon emissions in the United States. Short-hop air shuttle routes, which are the most energy and carbon-intensive commercial aviation services, can be significantly curtailed by competitive HSR. The Biden Administration has set a target of a 50-52% reduction in greenhouse gas emissions by 2030 compared with 2005. While no recent studies have been performed to calculate how much a national zero-emissions HSR network would reduce greenhouse gases and criteria pollutants, there are some indicative regional studies, including one by Brightline West that connecting Las Vegas and Los Angeles with electric, zero emissions HSR trains will lower greenhouse gases by more than 400,000 tons of CO₂ each year.

One byproduct of climate change is the advent of much rougher weather across the country. While not immune from the effects of heavy storms, HSR service is not as vulnerable as air travel in terms of weather-related delays and cancellations.

Using detailed scheduling data on a total of 13.8 million domestic flights in China from 2011 to 2016, researchers at the University of Hong Kong found that HSR led to a 10.1% drop in the monthly number of flights per route. Moreover, the HSR-induced decrease in flight frequency reduced CO₂ emissions 2 million tons annually, with energy savings of about 19.33 petajoules annually or about 3.2 million barrels of oil.

Safety is another important talking point. Travel by rail is substantially safer than traveling by automobile.

Over the past 10 years, the passenger automobile death rate per one million passenger miles was 17 times higher than for passenger trains, according to the National Safety Council.



Photo: Deutsche Bahn AG / Dominic Dupont

FAA estimated the annual costs of delays in 2018 to be \$28 billion (including direct cost to airlines and passengers, lost demand, and indirect costs).

The potential for safety benefits from HSR is underscored by Japan's experience, where high-speed trains have transported more than 11 billion passengers without a single fatality.

Planning, construction and operations of an HSR line will create good-paying jobs and will create long-term economic benefits for employers, real estate developers, and lodging and hospitality companies, among many other interests. Technological innovation can be a byproduct of HSR. It can also open opportunities for employment and training in disadvantaged communities and for certified small and disadvantaged businesses. Other benefits include access to lower-cost housing and jobs without marathon driving commutes.

HSR is key to unlocking synergies between cities

and metropolitan areas. For some communities with new HSR stations, there may be opportunities to revitalize their local economies and create transit centers in the central business districts where mixed land uses (residential, commercial and business) and urban densities are best suited. The transit centers will provide an opportunity to encourage walkable, more concentrated development patterns that meet new growth demands and reduce the rate and occurrence of low-density development, which erodes the value of land resources.

Each job directly related to the construction of a HSR project results in 2.4 jobs for the local economy. The Tours-Bordeaux high-speed rail project in France created 4,500 jobs during construction or 10,800 total jobs.

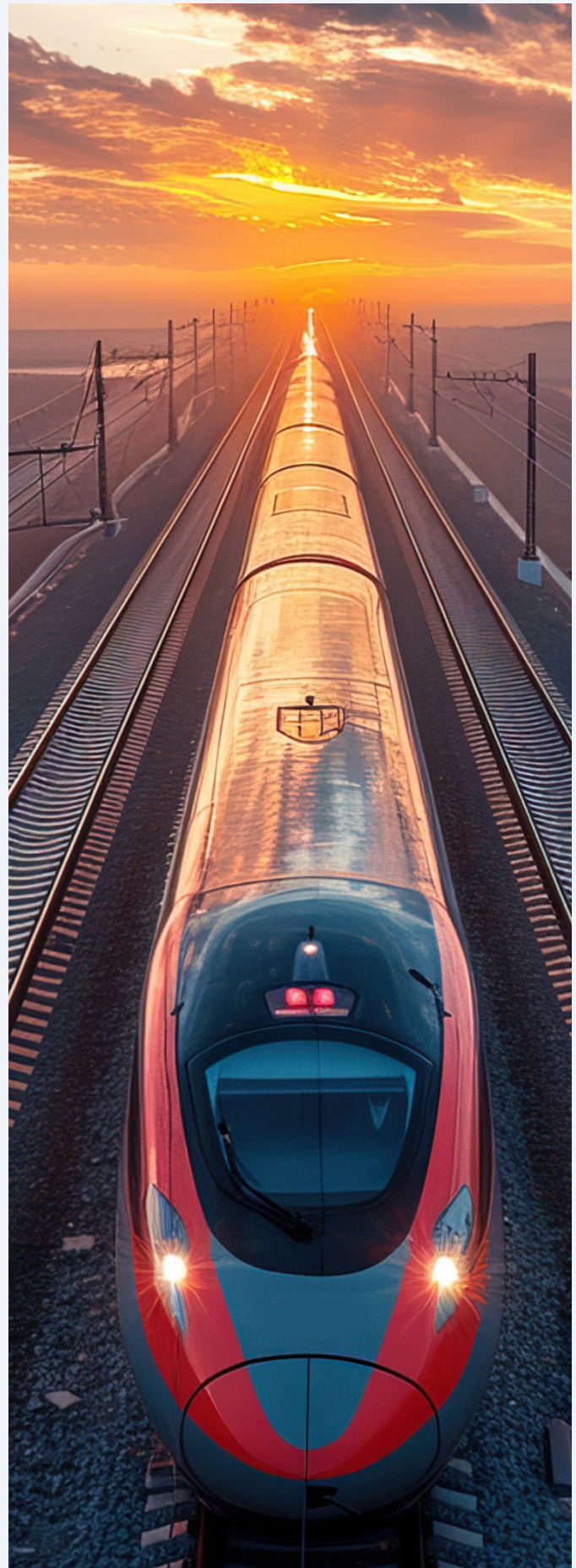
Finally, while an HSR project requires a sizable investment of public funds, expanding highway and airport capacity to meet projected future demand could be even more expensive, assuming it was

even possible to expand those assets. A recently updated 2019 study by the California High Speed Rail Authority estimates that the cost of adding highway lanes and airport runways equivalent to the people-moving capacity of HSR would cost in the range of \$90 billion to \$125 billion more than HSR. The Authority's current Sustainability Report and Benefit-Cost Analysis calculates other HSR benefits in the areas of job creation, travel time savings, safety, reliability, emissions reduction, renewable energy generation, air travel reduction, and impacts to disadvantaged communities, among others.

A study by the London School of Economics found that the introduction of HSR led to an average 8.5% GDP growth in three German counties with intermediate HSR stops. The increase in GDP is caused both by agglomeration benefits as well as knowledge spillovers in the newly developed areas outside stations.

In preparing the case for implementing an HSR system, it will be important to plan and advocate for integration between HSR and regional bus, rail, and other transportation modes. To be really effective, transportation offerings need to be viewed as elements of a coordinated network. This means synchronized service timetables, joint planning for shared facilities, and multiple bilateral and multi-party agreements. The more seamless the network is for the riding public, the more efficient and effective it will be. HSR is a major pillar of a network, not a standalone operation.

The California High-Speed Rail Authority's 2023 Benefit-Cost Analysis estimates collective net benefits totaling \$848 billion through 30 years of operation between San Francisco and Los Angeles, compared with a "base" cost estimate of \$106 billion.



Project Initiation Evolution

Every HSR project will have its own sequence of initial planning and engagement activities. The Building Blocks described above will overlap and intersect in somewhat different ways throughout the early years. Nevertheless, it is possible to map the relative importance of certain activities during three loosely defined project initiation phases:



Getting Started

Getting started is the conception or the beginning of the beginning. It is likely launched by a small coalition of advocates who have both the vision and the credibility to move the transmission into first gear. Some key checkpoints at this stage of the process include:

- Vision for a new HSR service
- Defining HSR purpose and need
- Preliminary definition of city pairs and corridors
- Early identification of supporters/neutrals/opponents
- Initial political and stakeholder outreach to test the waters
- Investigation of federal state and local funding opportunities
- Leadership roles and responsibilities

Making Progress

Making progress means evolving from the more informal activities described above to more of a structured planning and advocacy process. Some key checkpoints at this stage of the process include:

- Identifying a “champion” who will bring attention and credibility to the project
- Preparation of a Feasibility Study to identify potential alignments and station locations and quantify preliminary ridership/revenue, costs and societal benefits
- Early win planning
- Create a coalition of support through massive public and stakeholder engagement campaign with technical assistance from community outreach specialists
- Special attention to owners of connecting corridors, shared facilities and, if appropriate, host railroads
- Media strategy, messaging, and public education materials supported by public relations specialists
- Continued political outreach
- Exploration of state and local funding sources, including potential bond bills and ballot measures
- Implementing strategies for accommodating/ countering foes of the project
- Preparation of federal funding applications

Arrived!

Arrived! in this context means the project has public support and adequate funding and is ready to begin the FRA project development phase and to move into preliminary design and environmental review. Congratulations!

Case Study: Cascadia High-Speed Rail

A New Model for HSR Project Initiation

Cascadia high-speed rail is one of the newest high-speed rail projects in America. It has advanced steadily in recent years and provides an intriguing model for how to initiate high-speed rail.

In September 2016, the Cascadia Innovation Corridor conference convened leaders from British Columbia and Washington to foster the creation of a connected megaregion for innovation and economic development. Cascadia is a rapidly growing economy encompassing Vancouver, BC; Seattle, Washington; and Portland, Oregon. The region shares similar values, skilled workforces, and an appetite for innovation, including advancing economic and social interconnectivity.

Business and government leaders explored the potential for joint partnerships in education, transportation, university research, and human capital, among others. Leaders from both sides of the U.S.-Canadian border acknowledged the importance of developing an interconnected, competitive economic region and identified actions to further that vision. At the conference, Washington Governor Jay Inslee and British Columbia Premier Christy Clark signed a formal agreement committing the two governments to work together to foster collaboration and innovation. The agreement outlined formal steps the two governments would take to partner in several areas, including transportation.

One strategy contemplated by the Cascadia Innovation Corridor is high-speed rail. Since 2018, businesses, labor, environmental and community groups, and local elected leaders have provided support and momentum to build political and institutional agreement for high-speed rail connecting Cascadia's economic centers. This support builds on a track record of business, labor, and environmental support for nearly \$44 billion in transportation investments in Washington since 2003.

From 2017 to 2020, the Washington State Department of Transportation conducted a series of studies on the feasibility, business case, and a roadmap for developing high-speed rail. These studies were funded by Washington (US\$1.3 million), Oregon (US\$440,000), British Columbia (CAD\$900,000), Microsoft (US\$500,000), and labor unions (US\$10,000). Conducted in 2017-2018, the purpose of a preliminary feasibility study was to examine the potential technology options, organizational structure, and financing and funding alternatives. Additional work identified possible economic benefits to the megaregion from improved access provided by ultra-high-speed ground transportation technology (UHS GT).

The study identified, at a high level, the potential for development of UHS GT between Portland, Seattle and Vancouver, with a possible passenger rail connection to Spokane, Washington. Ultra-high-speed ground transportation was defined as a maximum operating speed exceeding 250 miles per hour (mph) (402 km/h). WSDOT identified five conceptual service levels between Portland and Vancouver with potential station locations in-between.

In 2019, a business case was prepared that included a benefit analysis, assessment of potential economic gains, and early ridership and revenue forecasts. In 2020, a Framework for the Future study charted a potential path forward on project governance, strategic engagement, and funding and financing to advance the project.

Also in 2020, the Cascadia Innovation Corridor released the Cascadia 2050 Vision to become a sustainable megaregion, which described how enhanced interconnectivity would allow Cascadia to accommodate the megaregion's expected population growth by addressing affordability, congestion, and climate change. In 2021, the governors of Oregon and Washington and the premier of British Columbia signed a Memorandum of Understanding (MOU) confirming their continued support of the high-speed rail project and establishing a Policy Committee to advance work in project governance, strategic engagement, funding, and scenario planning.

In 2022, the Washington State Legislature authorized \$150 million as a state match to secure Infrastructure Investment and Jobs Act funding through the Federal Railroad Administration's grant programs. Most recently, the Federal Railroad Administration awarded a Step 1 Corridor Identification program grant to WSDOT to prepare the scope, schedule and budget for a Service Development Plan. The program is expected to enter Step 2 of the program in 2024. Oregon and British Columbia partners are fully engaged with the Washington Department of Transportation in the development of the Step 2 program and will participate in the governance structure as the program moves forward.

The Cascadia High-Speed Rail Program is now coordinating with WSDOT's I-5 Master Planning Study to address the future transportation needs of western Washington communities. The integrated Cascadia High-Speed Rail and I-5 Program allows stakeholders to look holistically at highway, rail, and other travel options. No official decision has yet been made whether to build the high-speed rail project.

Acknowledgments

Bernard Cohen, Senior Advisor for Planning and Operations at Alternate Concepts Inc., is the principal author of this Roadmap. He is a member of the U.S. High Speed Rail Coalition Executive Committee.

The Coalition would like to thank the International Association of Machinists and Aerospace Workers, another member, for designing this roadmap.

The Coalition also wishes to thank all of the members of our organization and other industry and labor experts who put various drafts of this Roadmap under the microscope of their rich industry experience. Our report is infinitely better due to their editorial contributions.

The U.S. High Speed Rail Coalition is an advocacy project of the U.S. High Speed Rail Association, the voice of America's high-speed rail industry.

To learn more about the Coalition, see ushsrcoalition.org.

To learn more about the Association, see ushsr.com.

Further Reading

[Beyond Speed: Five Key Lessons Learned from High-Speed Rail Projects](#)

WSP
2023

[Guidance on Development and Implementation of Railroad Capital Projects](#)

Federal Railroad Administration
2023

[Guidebook for Intercity Passenger Rail Service and Development](#)

Transportation Research Board
Cooperative Rail Research Program
2016

[Keeping it On the Tracks: High-Speed Rail Success and Lessons Learned](#)

Mobility Innovation Center
University of Washington
2023

[From Vision to Reality: A New High-Speed Rail Playbook](#)

AECOM
2024

[An Inventory of the Criticisms of High-Speed Rail: With Suggested Responses and Counterpoints](#)

American Public Transportation Association
2012

[How Big things Get Done](#)

Bent Flyvbjerg and Dan Gardner
Penguin Random House LLC
2023

[Defining U.S. Megaregions](#)

Regional Plan Association
2009

[National Survey Results](#)

Public Policy Polling
U.S. High Speed Rail Coalition
2024

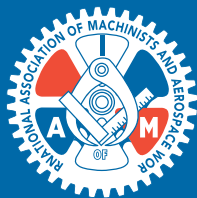
[Getting on the Right Track: Navigating the Future of Intercity Passenger Rail in America](#)

Committee on Transportation and Infrastructure Hearing
U.S. House of Representatives
2023

[Seizing the Moment: Fulfilling the New Era for Intercity Passenger Rail](#)

American Public Transportation Association Webinar
2024

Published June 2024



The International Association of Machinists and Aerospace Workers (IAM) is one of North America's largest and most diverse industrial trade unions, representing approximately 600,000 active and retired members in the aerospace, defense, airlines, railroad, manufacturing, transit, healthcare, automotive, and other industries

The IAM Rail Division comprises members from the Transportation Communications Union (TCU/IAM) and IAM District 19

Designed by the IAM Communications Department

