The Office of
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American High-Speed Rail & Rebuilding the U.S. Economy

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A Vision Worthy of the Moment

Emerging from the global devastation of World War II, America built an economy that quickly became the envy of the world. It was built upon a foundation of new infrastructure, funded by Congress and the American taxpayer, that dramatically expanded jobs, transportation options, and access to markets for people and businesses across the country. America didn't just rebuild 19th-century infrastructure; our nation built 20th-century systems to meet the demands and opportunities of a new economy.

Today our infrastructure, much of it dating to those postwar years, is failing. And like that time, simply rebuilding the infrastructure of the last century will be insufficient to meet either the demands or the opportunities of an economy that is changing faster than ever before. As automation and artificial intelligence come to support every aspect of our lives; as a global pandemic sharpens our focus on ensuring domestic manufacturing capacity; and as a new generation of Americans demand next-generation transportation options, we cannot rely on the technologies of the past. In the 1950s, we didn't just add lanes to our state highways or make dirt runways longer; we built interstates and international airports. Today, relying solely on highways while the rest of the world speeds past us in high-speed trains would be akin to investing billions in laying more copper telephone lines while the rest of the world installs fiber optics.

Our global competitors recognize this: $46 billion is expected to be invested annually in high-speed rail and transit in China from 2020-2030, about 27% of their transportation budget. Even Morocco, with roughly half a percent of our GDP, invested $2.2 billion in Casablanca-Tangier high-speed rail as the first leg of a connection between its major cities and less developed communities in the Western Sahara Desert. Saudia Arabia, gushing with oil, just completed a 280-mile electrified high-speed line that headlines its new infrastructure push to link holy cities, like Mecca and Medina, and commercial centers, like Jeddah, with King Abdulaziz International Airport and communities along the Red Sea coast. These are just but a few examples. It's time for America to catch up, or the world economy will leave us behind.

Given the fundamental efficiencies and competitive advantages of rail—so fundamental that American freight railroads continue to fund their own infrastructure while the American taxpayer foots the bill for all our roads—there is a strong argument for shifting a larger proportion of government transportation investment to rail, just as China has done. Such a bold move would make Eisenhower proud, but our politically fractured times make grand visions much more challenging. So what we should do, at a bare minimum, is level the competitive playing field so

that certain modes are not propped up with huge artificial government subsidies over more modern, more competitive alternatives, which offer a more efficient use of limited taxpayer dollars. In other words, let America's free market thrive in next-century transportation and infrastructure by simply allowing high-speed rail and other 21st-century technologies to compete against older options.

This is far from the case today. While robust funding mechanisms exist to build highways and airports, no trust fund nor formula funding exists—at all—for even last century's intercity passenger rail, not to mention high-speed rail or future technologies like maglev or Hyperloop. Without basic federal standards or regulations for high-speed rail, every proposed project entails tremendous delays and regulatory costs. As a consequence, while China builds 250 mph railways, our Amtrak putters along most of its routes at speeds slower than trains plied the same old rail lines in the 1930s. Almost all freight lines in Europe are electrified, and cleaner and faster as a result, yet Congress has given no incentives to American freight carriers to do the same. Even most of our commuter trains still dawdle along behind diesel engines.

The consequence is hundreds of billions of dollars of added costs to our economy—from lost time and business due to historic traffic congestion, to environmental degradation and land waste on a massive scale—as well as hundreds of billions in lost economic opportunity. Consider how the Houston - Dallas market would expand if you could get downtown-to- downtown in 90 minutes, every fifteen minutes. Or what New York - Chicago travel would look like without weather delays, ever. Or how much more connected Tulsa and Oklahoma City would be on a high-speed line with hourly service between Dallas and Kansas City. Indianapolis, Louisville, Nashville, and Chattanooga would all be stops on a high-speed line with hourly service between Chicago and Atlanta. While business travelers in China regularly travel Atlanta - Chicago distances by high-speed train—with more frequent service, far nicer accommodations, no weather disruptions, and much more time aboard rather than in terminal lines or security checks—Americans only have one viable travel option. Notably, Chinese travelers can go by airline or highway as well, but they have choices, and the market has strongly favored travel by high-speed rail. And this is true not just for passengers but high-speed package delivery as well, an increasingly large part of the new economy. In addition, building an interstate high-speed rail network would directly support millions of construction and permanent jobs, boost domestic manufacturing and steel production among other industries, and free up our existing airport, highway, and freight rail infrastructure to focus on higher-value business.

There is a reason why nearly every other developed country in the world—and several developing ones—consistently choose high-speed rail over highway and airport investments for corridors 750 miles or less, which accounts for most major city pairs throughout the United States. The reason is basic economics or, more bluntly, math. Existing Washington lobbies have distorted the market and held America back for too long. It's time to level the competitive playing field, let the free market thrive in transportation as it does elsewhere in the American economy, and give a new generation of Americans, competing in a new world, the options and efficiencies we demand.

Political Opportunity

High-speed passenger rail development presents an opportunity to align major constituencies and form a broad coalition to transform our transportation infrastructure. Next-generation workers of all political stripes are seeking modern transportation options. Connecting major city pairs and intermediate communities along HSR corridors will revolutionize the modern commute, allowing us to remain personally or professionally productive while traveling from our more affordable hometowns to fast-growing city centers where the majority of new jobs are being created. Speaking generally, Democrats have led support for new transportation options in Congress. Meanwhile, Republicans and business leaders are seeking more private sector investment and ideas in transportation development. Private entities, from tech companies like Microsoft to railway operators like Virgin Trains USA, have already begun planning and preparing to develop HSR corridors because of the broad economic gains brought to the firms directly and indirectly served by these lines. Energy suppliers and utility companies will also gladly meet the demand for electrified rail, and well over half of congressional districts and almost every state, represented by both Republicans and Democrats, already host rail suppliers, manufacturers, and steel producers despite low investment in rail to date. At the policy level, state and metropolitan planners believe HSR is a necessary option to connect our regions, drive our economies, and reduce congestion and strain on other modes. Environmentalist interest in more sustainable transportation options is well aligned with private-sector industry desire for improved traveler experience and reduced land use, energy consumption, and emissions—all of which come with proven high-speed rail technology.

To unite this broad coalition, federal leadership is required in several areas. To expedite planning and development, America must establish high-speed rail standards and regulations, a critical step that has eluded the Department of Transportation for decades. We need to create a framework to partner with private freight railroads, whose rights-of-way (ROWs) are sometimes advantageous routes for development, while—critically—maintaining existing freight service and growth potential. And the federal government should contribute funding to encourage state, local, and private investment as we do with other transportation modes, creating job growth and flexibility during the economic downturn.

Congress will consider many infrastructure priorities in the midst of the coronavirus pandemic, so as we weigh alternatives, it is worth noting that modern high-speed trains allow passengers to sit much further apart than in airplanes or even in shared private automobiles. Economically, this is an unprecedented time to leverage low borrowing costs and high demand for federal stimulus to prioritize market-driven infrastructure investments that have the potential to rival the economic benefits of Eisenhower's Interstate System over time. This proposal is not about eliminating funding for other infrastructure projects but prioritizing limited federal dollars for wiser investments with greater returns for our future.

Public-Private Partnership

Historically, building a country's first high-speed line is the hardest, and then investment proceeds rapidly once people have a taste of its potential. Yet despite still not having a single high-speed rail line, American private companies have already demonstrated strong interest in major investments. Microsoft's partnership with the governments of Oregon, Washington, and British Columbia on a feasibility study and business case serves as one example. Two primary goals underlie Microsoft's interest in HSR. First, it will help attract and sustain a skilled workforce by offering fast, reliable commutes between employment hubs and attractive communities with more affordable housing. Second, connecting the major economic hubs within the Cascadia megaregion will spur better collaboration and make—what Microsoft CEO Brad Smith has dubbed the Cascadia Innovation Corridor—more competitive with other technology and innovation hubs across the world.

This proposal incentivizes increased public-private partnerships (P3s), such as the partnership between Microsoft and state and provincial governments in the Pacific Northwest, by prioritizing projects where at least 20% of funds are non-federal and allowing non-federal funds to come from private sources, not just from state and local governments. Transportation firms and investment vehicles will gain access to federal grants and a federal framework for development while partnering with a public entity. And firms well beyond the transportation sector will be encouraged to invest, knowing their contributions raise the priority of projects that will benefit their and their employees' interest. Even if every successful grantee under this proposal includes just the bare minimum non-federal funding to achieve priority status, an additional $38 billion will be leveraged for HSR planning and development.

Some private entities, like Texas Central Railway (TCR) and Virgin Trains USA, are currently developing higher-speed and high-speed passenger rail corridors, and this proposal would accelerate their progress. TCR will provide fast and reliable travel between fast-growing Dallas and Houston, with an intermediate stop in the Brazos Valley, turning a 6-hour drive or 3-hour flight into a 90-minute train ride from city center to city center. Virgin Trains USA operates higher-speed rail in Florida called Brightline and is developing a service called XpressWest between Las Vegas and Victorville, CA, with plans to tie into Palmdale and the government-funded California high-speed passenger rail network. While this proposal requires participation from public entities to receive federal funding for HSR planning and development, it expands eligible recipients to include P3s and could expedite current and future projects that have been exclusively publicly- or privately-led thus far. Federal dollars could turn TCR and XpressWest, which are transformational by U.S. standards but modest by international standards, into hugely successful projects with far bigger ridership and economic benefits, just as federal dollars augment state highway projects. For example, funds could be used to help build an extension of TCR to Fort Worth or the final leg of XpressWest into Palmdale and Los Angeles.

Coordinated, Competitive National Transportation Strategy

A coordinated, competitive national transportation strategy would allow all modes— including aviation, rail, and highways—to grow and concentrate where they hold a competitive advantage. This is a hallmark of more famously efficient transportation networks like Germany's. Lufthansa's Rail and Fly program promotes single-ticket travel across Germany by high-speed passenger rail to connections with international flights at Frankfurt International Airport. This has allowed the airline to discontinue less-profitable domestic routes, such as the roughly 90-mile flight from Frankfurt to Cologne. It also frees up the Autobahn for high-speed auto travel to destinations only accessible by automobile. In the U.S., there are already signs of an appetite for such a strategy. Virgin Atlantic Airlines operates routes with destinations in Miami, Orlando, Las Vegas, and Los Angeles—all of which are currently served or will be served by Virgin Trains USA, which would happily provide coordinated transportation for air travelers.

In contrast, U.S. transportation spending is overly prescriptive, essentially forcing investment in highways and aviation while effectively blocking high-speed ground transportation alternatives regardless of what makes the most economic sense. Not only are funding mechanisms for high-speed options non-existent, the current USDOT benefit-cost analysis (BCAs) treats many of the benefits high-speed passenger rail accrues as externalities. As a result, these BCAs favor investments in other highways and airports while creating significant opportunity costs in unrealized travel time and emissions savings, lost safety and efficiency gains, and massive lost economic development. Because America has invested next to nothing in high-speed rail to date, we have a lot of low-hanging fruit in undeveloped projects with outsized economic returns compared to pouring more money into overly-congested alternatives. Washington State's Secretary of Transportation Roger Millar characterized one example: "For $108 billion we've got another lane of pavement in each direction, and it still takes you all day to get from Portland to Vancouver. Half of that invested in ultra-high speed rail, and it's two hours. That's game-changing stuff."

To promote a more balanced, efficient use of taxpayer dollars, this proposal incorporates new factors in state, metropolitan, and non-metropolitan transportation plans, including comparing land use, benefit and cost streams at their present value (e.g. travel time savings, productivity gains, passenger safety, etc.), and outcome benefit measures for cumulative effects over the lifecycle of a transportation system (e.g. regional land development, economic development, lifecycle public health and environmental costs) across different modes.

High-Speed Rail's Competitive Advantage

International experience has proven that high-speed rail excels in corridors 100 - 750 miles long, primarily when connecting two or more large cities and their intermediate communities. Routes would want to attract business travelers in addition to commuters, tourists, and general transportation travel.

Many rail corridors meet these criteria, including the 11 federally-designated HSR corridors. Some have falsely argued that high-speed rail is not suitable for America because it is so big. Even before China disproved this assumption, Europe's integrated network provided a good counterpoint where the most popular corridors are shorter legs even though the network nearly spans the continent. Most Americans might not opt for HSR travel from Chicago to Los Angeles, but each leg of Amtrak's Southwest Chief connecting Chicago, Kansas City, Topeka, Albuquerque, Flagstaff, Los Angeles, and their intermediate communities meets the conditions identified above and would attract significant ridership while boosting local economies. Similarly, the air or highway route from Chicago to California's Bay Area passes through Omaha, Denver, Salt Lake City, and Reno.

It is important to note that some rail corridors will not meet the criteria identified above. Much like we have invested in an Interstate Highway System with higher speed limits that connects to arterials, collectors, and local roads, different tiers of passenger rail will be incorporated into a coordinated national transportation strategy. For this reason, this proposal defines two tiers of rail in addition to current passenger rail, which is limited to 79 mph in most corridors. Higher-speed rail would include trains operating between 110 and 186 mph. In many cases, less costly incremental improvements on existing passenger rail lines, like reducing curves, would allow trains to offer higher-speed rail, and as such, 20% of funding under this proposal could be used for higher-speed rail projects. Additionally, this proposal defines high-speed rail using the international standard of 186 mph or greater, which maximizes the economic benefits of HSR in corridors as described above. Balancing investments in both higher-speed rail and high-speed rail will allow the U.S. to pursue a similar investment strategy to France, which has found success continuing high-speed routes on non-high-speed lines to complete journeys without requiring a change of trains.

HSR as Economic Stimulus

President Eisenhower's case for the Interstate System identified six key reasons for the project: unsafe travel, congested roadways, traffic-related backlogs in the courts, inefficiencies in the economy, inadequacy for rapid transport in the face of catastrophe or defense, and the need for a massive public-works program to put millions to work.[1] Sixty-four years later, with low interest rates, national infrastructure decline, and an economy crushed by pandemic, the case for infrastructure investment is clear. But focusing on expanding the Interstate System would be a poor choice for infrastructure stimulus as highway investment is achieving diminishing returns: the billions being spent in highway expansion in metro areas has increased travel time through induced demand and resultant congestion.[2] Forcing everyone into more cars or over-crowded planes has failed for our international peers and is failing here at home.

A new generation of Americans in a new global economy demands better, faster options, and environmental stewardship and economic growth require it. Again, China is a good example, not just because they are our principal economic competitor but because they just built their high-speed network in the past decade. Despite inaugurating their first high-speed railway track in 2008,[3] they now lead the world in both speed and scale, boasting nearly 24,000 miles of railways with speeds between 124 and 250 miles per hour. China's government investment also unlocked a competitive transportation network, and now Morgan Stanley Research expects the private sector share of HSR and rail transit investment in China to grow from 25% over the past three years to 50% over the next 10 years.[4]

We are starting from scratch as well, but private-sector investments in planning and developing higher-speed and high-speed passenger rail reinforce the unmistakable conclusion of transportation experts that strong demand exists. Virgin Brightline in Florida operates higher-speed rail while studies show that demand for true high-speed rail along the corridor is many times greater. Virgin Trains USA and Texas Central Railway are currently developing projects in Nevada-California and Texas respectively. Even Amtrak ridership in 2016 was 1.5 times ridership in 2000, outpacing the growth of commercial system enplanement between January 2000 and December 2016 despite terribly slow speeds.[5] Further demand is evidenced by the number of Americans forced to drive long-distance trips or fly short-haul flights. In fact, nearly 90% of long-distance trips in the U.S. are by personal vehicle,[6] and the short-haul flight between Los Angeles International Airport (LAX) and San Francisco International Airport (SFO) is the busiest domestic route in North America and ninth busiest in the world.[7] The gap between supply and demand for higher-speed and high-speed passenger rail demonstrates that 21st

[1] Weingroff, Richard. "Original Intent: Purpose of the Interstate System 1954-1956," *Highway History*, Federal Highway Administration: link.
[2] "The Congestion Congestion Con: How More Lanes and More Money Equals More Traffic," Transportation for America (March 2020): link.
[3] https://rail.nridigital.com/future_rail_apr19/timeline_profiling_the_evolution_of_china_s_high-speed_rail_network
[4] Xing, Robin, "China's Urbanization 2.0: New Infrastructure Opportunities Handbook." Morgan Stanley Research (2020, March 22).
[5] https://www.transtats.bts.gov/TRAFFIC/
[6] https://www.bts.gov/archive/publications/america_on_the_go/long_distance_transportation_patterns/entire
[7] https://www.businesswire.com/news/home/20190326005439/en/

century intercity rail represents the transportation mode offering the highest potential for overall economic growth to current and new industries. California's system has had its problems, but despite the current pandemic, more than 3,500 people are still working on more than 100 miles of high-speed rail right now.[8] Dramatically increasing federal leadership and funding for national HSR development after the immediate public health crisis would exponentially increase job growth across a number of industries (e.g. construction, engineering, manufacturing) in the near and medium term, in addition to permanent jobs created for operations and maintenance. Based on a conservative estimate from the Mineta Transportation Institute of the number of jobs created per billion dollars invested in HSR,[9] this proposal would create nearly 725,000 jobs annually over five years, or using the American Public Transportation Association's ratio,[10] this proposal would create more than 1.16 million jobs per year. Further, HSR development induces economic development in real estate, retail, community development, tourism, moderate income housing, and more, and establishes globally competitive megaregions.

Connectivity and Agglomeration Economies across Megaregions

The primary reason why high-speed rail is such a strong economic driver compared to alternative investments is that it best supports 21st-century development in bustling urban centers, walkable downtowns even in much smaller cities and towns, and the agglomeration economies of cities and megaregions that are driving the vast majority of current economic growth. Highways and airports support the sprawly suburban office parks of the 1970s that are increasingly out of favor as an unsustainable development model, inefficient for business and land use, and undesirable for a new generation of Americans.

Real estate, both residential and commercial; retail, including small businesses not just big box stores; community development and tourism; and all education models—all thrive in the land use models naturally engendered by train stations. Dramatically faster commute times to outlying areas likewise increase rural access to city centers and their concentrated job opportunities while allowing city workers to access more affordable housing. These preferred, modern development models represent a unique alignment of commercial, environmental, and social interests (covering a diverse set of political constituencies), and stand in sharp contrast to the acres of parking lots required for the superhighway-based development models of the past century. In other words, walkable downtowns are in favor across the country, by Americans of all political stripes. High-speed rail naturally supports and incentivizes this kind of development without forcing it through onerous zoning laws and restrictions. Thus, not only is this kind of development more preferred by the public, more profitable for business, and more sustainable for our future; it comes care of the free market with high-speed rail, but must be forced *while Americans are forced* to rely on cars and airplanes. This proposal encourages the growth we increasingly desire, and does so through a more open and free transportation market.

[8] Rudick, Roger. "High-Speed Rail Construction Continues Under COVID-19," Streets Blog SF (March 25, 2020): link.
[9] https://scholarworks.sjsu.edu/mti_publications/246/
[10] https://www.apta.com/research-technical-resources/high-speed-passenger-rail/benefits-of-high-speed-rail-for-the-united-states/

Consider again the Pacific Northwest. Washington State's Department of Transportation collaborated with Oregon, the province of British Columbia, and Microsoft to conduct a feasibility study and business case study of HSR in the Pacific Northwest Cascadia Corridor, demonstrating that developing HSR to connect this megaregion is worth the investment. Greater regional connectivity across Portland, Seattle, and Vancouver, with each leg of the trip taking less than an hour, will create an interconnected economic corridor, rather than separate and disparate zones, allowing it to compete with other innovation and technology hubs like Silicon Valley. In fact, the business case study estimates that the project, which will cost between $24 and $42 billion, would deliver $355 billion in regional economic growth.[11] Microsoft CEO Brad Smith characterizes the potential for economic development as a result of HSR development in the business study:

> Our ability to compete in the world's economy will be enhanced dramatically [by] having a region that is 6 million inhabitants strong versus two or three regions of 3 million each. By combining the sub-regions, it is the only way for this megaregion to reach scale. None of the sub-regions can get to 6 million by itself.

In fact, the World Bank found that China has experienced this effect with 1.7 billion business riders creating more than 850 million new opportunities to connect, trade, and exchange ideas annually to drive economic activity, innovation, and increased productivity.[12] Still, economic development is not limited to the major city pairs that will likely serve as terminals in initial high-speed passenger rail corridors across megaregions: intermediate communities with access to HSR service will also benefit, perhaps even more dramatically. Our international peers have recognized this economic benefit. Earlier this year, the British government approved construction of 250 mile-per-hour passenger rail connecting London, Birgmingham, Manchester, and Leeds, which are Britain's four largest metro areas. This new line will open additional opportunities for the British to work in major economic hubs while living in more affordable intermediate communities and enjoying quick, reliable, and clean commutes. Imagine the socioeconomic impact of a similar investment in the federally-designated Chicago Hub Corridor linking Chicago, Detroit, St. Louis, Milwaukee, and their intermediate communities. Americans could leave work in a midwestern economic hub, enjoy a fast, congestion-free commute, and be home in time for dinner in their hometowns.

The connectivity of being able to live in Bellingham, WA, and commute 45 minutes by HSR to a job in the Central Puget Sound opens new housing markets to workers, reduces the costs of living, and shares economic growth with nonurban areas in a megaregion as agglomeration economies expand along a HSR corridor. Take Texas Central Railway (TCR) as another example. When operational, TCR will serve an intermediate station in the Brazos Valley near College Station along during the 60-90-minute trip from Houston to Dallas. Linked to nearby Texas A&M University and the surrounding area, the station will dramatically increase job access for everyone living in the Brazos Valley, not to mention access to all the sports, leisure, and tourism

[11] "Ultra-High-Speed Ground Transportation Business Case Analysis" Washington State Department of Transportation prepared by WSP (July 2019): link.
[12] http://documents.worldbank.org/curated/en/933411559841476316/pdf/Chinas-High-Speed-Rail-Development.pdf

activities of Dallas and Houston. Likewise, getting to Texas A&M games will be much easier for anyone living near these high-growth cities. Over a 25-year period, the project is expected to deliver a $36 billion boost to the Texas economy, not just the economies of Houston and Dallas. While many rural and isolated communities have lost jobs and population as urbanization continues in the U.S., intermediate communities along HSR corridors will benefit from local economic growth as people seek affordable hometowns connected to the economic opportunities in urban centers.

Creating New Jobs and Industries

Compared to investing in other transportation modes, high-speed rail development has the greatest potential for spurring economic growth. This is primarily because there are so many undeveloped projects with huge benefit-to-cost ratios as none have been completed to date; in other words, there is lots of low-hanging fruit. All of the benefits high-speed rail brings—from agglomeration economies in regions newly-connected with dramatically increased speed and frequency, to huge growth in urban and suburban development and housing, to increased casual and tourist travel—have been documented to result in extraordinary job growth and economic development, to the tune of hundreds of billions of dollars if a full network is built out. The impact would be enormous, especially in comparison to pouring money into more highway projects that have been documented to simply encourage more people to drive at increasingly slower speeds on increasingly congested roadways. But all these indirect benefits aside, it's worth examining even just the direct job creation that would result from this program. Even though it pales in comparison to the broader economic growth high-speed rail will create, it is quite significant on its own.

During the recovery from the Great Recession, the total number of job-years created per federal dollar invested in transportation infrastructure under the American Recovery and Reinvestment Act (ARRA) was greatest among Federal Railroad Administration grants compared to grants administered by other U.S. Department of Transportation administrations such as the FAA or FHWA.[13] This is despite the fact that one of the biggest criticisms of high-speed rail grants as stimulus in ARRA was slow expenditure.[14] The concern is no longer relevant as FRA now has experience administering larger capital grants, and we now have a pipeline of projects ready for funding.

The most direct economic benefits of HSR development come from growth and job creation in construction and operations. Texas Central Railway (TCR) expects to create 40,000 new construction jobs and 1,000 direct permanent jobs when the railway is operational. In California, construction of a relatively small segment of 119 miles in the Central Valley continues during the current public health crisis, employing more than 3,500 individuals. As high-speed passenger rail lines become operational, a new industry and tens of thousands of jobs will emerge for

[13] Calculated using the American Recovery and Reinvestment Act (ARRA) 1201(c) report as of January 31, 2012 from the Department of Transportation found at https://www.transportation.gov/policy-initiatives/recovery/arra-1201c-report-january-31-2012

[14] https://www.crs.gov/Reports/R46343

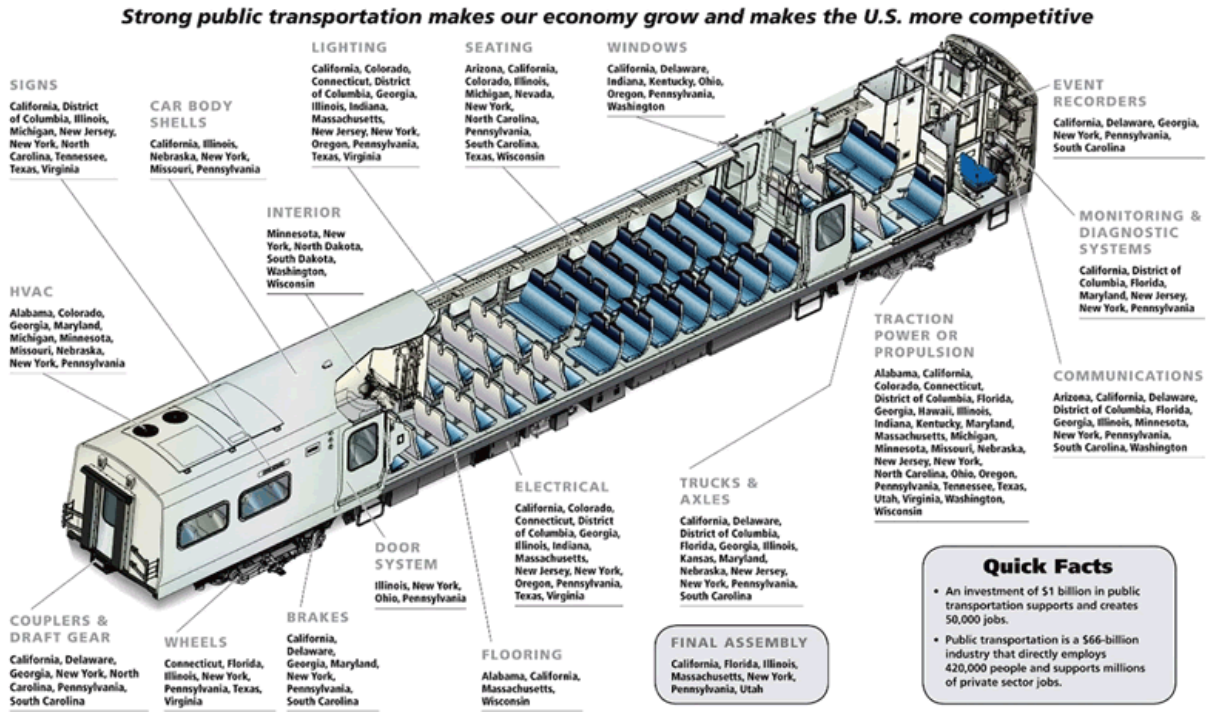
operations, maintenance, and improvements, and additional jobs will be supported as development around stations occurs.

Employment and economic growth, however, are not limited to construction and operations. In 2017, the rail supply sector added $74.2 billion to GDP, supported 650,000 jobs, and contributed $16.9 billion in taxes in communities across diverse geographic regions and populations. HSR requires high-grade steel, which is currently not produced in the U.S., so TCR and its Japanese investors are pursuing a joint venture between Japanese and American steelmakers to produce high-grade steel domestically. This is good for industrial towns such as Pueblo, CO, and Granite City, IL.

Siemens is one example of a company that already produces high-speed passenger rail cars internationally, supports HSR development in the U.S., and has existing plants ready to begin production for domestic high-speed passenger rail. The Siemens plant in Sacramento, CA is already the leading supplier of light rail in North America and the company has decades of experience in adapting world class rail solutions to American market standards, while sourcing supplies in the U.S. in order to exceed Buy America requirements. Today, examples of their locomotives and coaches can be found in Florida with the new Brightline passenger rail service, along the Northeast Corridor with Amtrak's new electric ACS-64 locomotives, in the Midwest and west coast with new EPA Tier 4 certified diesel locomotives on Amtrak's state-supported service, and in U.S. cities from coast to coast that utilize Siemens-built light rail vehicles and street cars. HSR projects would not only result in California jobs; operations at Siemens manufacturing hubs in Pennsylvania, Kentucky, Georgia, Oregon, and Mississippi would also grow, as well as their sub-suppliers in more than 20 states. Even before producing a single high-speed rail train, Siemens has more than doubled its engineering and manufacturing workforce over the past decade in response to demand for locomotives and light rail vehicles.

And this is just one company's story. The economic benefits of a HSR program would extend across the country to a wide variety of firms, including Kawasaki in Nebraska and New York and Alstom in western New York, Florida, and Missouri. Additionally, 212 companies in 32 states manufacture passenger rail cars and locomotives or major components and systems for these vehicles,[15] creating many jobs in communities even where construction does not occur. Additionally, today's rail vehicles have hundreds or even thousands of digital sensors built in to optimize operations and enhance safety, so job creation does not end with production, as long-term maintenance and optimization requires a permanent staff for high-tech support. For every direct job in the railway supply sector, 4.2 jobs are supported in other industries.[16]

[15] Jewell, John Paul and Zoe Lipman. "Passenger Rail & Transit Rail Manufacturing in the U.S." Blue Green Alliance: Clean Transportation (January 2015): link.
[16] "Tracking the Power of Rail Supply: The Economic Impact of Railway Suppliers in the U.S." commissioned by the Railway Supply Institute and conducted by Oxford Economics, 2018: link.



Electrification as an Immediate Next Step

Electric trains are faster, quieter, more efficient, and better for the environment, which is why most major rail lines outside the United States, for both freight and passenger, are electrified. Denver's commuter rail system, the only domestic system built entirely from scratch in the past decade, is completely electrified. But the rest of the country actually had more miles of electrified rail a century ago than we do today. This proposal adds electrification to the existing list of significant improvements to intercity rail passenger service to be prioritized in grant selection.

Again, these investments represent a lot of low-hanging fruit, and will have notably better economic returns than electrifying other transportation modes. Electric planes are still decades from regular commercial operation, and electrifying our highway infrastructure is an important long-term goal, but will only achieve significant environmental gains after existing gas-powered automobiles are slowly phased out. Again, the international comparison is worth examining where most countries have been benefiting from electrified rail for decades. Even Saudi Arabia, sitting on a pot of oil, has electrified its brand-new 280-mile rail line. Put succinctly, America should electrify our transportation infrastructure, but it should begin with time-proven technology.

Opportunity Costs of Our Current Investment Scheme

Our current federal transportation investment program contains massive opportunity costs by not including high-speed rail as an option. Economic externalities accrue heavily to HSR compared to other driving or flying:

- **Safety**: fewer deaths and injuries
- **Public Health**: less pollution
- **Wasted Time**: less time in terminal lines and security checks; no weather disruptions
- **Business Growth**: in urban centers and walkable communities preferred by employees
- **Housing**: expanded access and growth in walkable communities
- **Overall System Costs**: reduced strain on existing aviation and highway assets
- **National Security**: increased U.S. independence from imported fuels
- **Exports**: competing with China who uses HSR as part of its Belt and Road Initiative

These benefits all accrue to high-speed passenger rail for our international peers, yet the U.S. has not continued the limited federal funding that was previously available for HSR development, instead investment skews towards transportation modes that score worse across all of these measures.

The comparison with Japan's national transportation system is dramatic. Japan has built out its Shinkansen high-speed network with nine primary lines and three more in development, connecting the people and economies of 22 major cities and spanning its three major islands at speeds up to 200 miles per hour. Since it began operation 56 years ago, the system has experienced zero passenger fatalities or injuries due to accidents. In the U.S. in 2018 alone, there were 36,560 deaths due to motor vehicle crashes and 393 deaths in civil aviation accidents, including one commercial airline passenger fatality. In the same time period, we have lost more than 2.5 million souls to motor vehicle accidents in the U.S. and nearly 20,000 in aviation disasters since 1990.[17] The comparison could not be more stark.

The World Bank calculated the rate of return for China's investment in HSR based on economic, socioeconomic, and sustainability gains as 8%—significantly outweighing the opportunity cost for capital for long-term infrastructure investments in both China and most of the globe—with some lines achieving an 18% return.[18] In fact, 25 Chinese cities and provinces as of March 20, 2020 announced plans to invest $71.28 billion by the end of the year to further stimulate short-term demand and generate long-term growth.[19] China is expected to invest an average of $46 billion,

[17] For the 56-year comparison, data for automobile fatalities due to accidents is compiled by the National Safety Council and sourced from the National Center for Health Statistics, and this data does not include 2019 or 2020. Annual data for general aviation fatalities is available for 1990-2018 from the Bureau of Transportation Statistics.
[18] http://documents.worldbank.org/curated/en/933411559841476316/pdf/Chinas-High-Speed-Rail-Development.pdf
[19] https://www.fitchratings.com/research/corporate-finance/traditional-projects-to-lead-china-infrastructure-investments-in-2020-08-04-2020

which is equivalent to 27% of their 2019 transportation budget[20] or 0.34% of their 2018 GDP,[21] annually from 2020-2030 in 21st-century high-speed rail and rail transit.

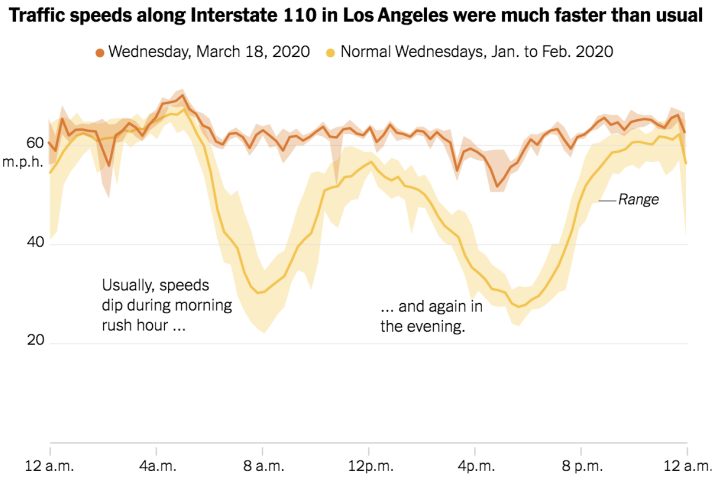
In 2017, the American Public Transportation Association (APTA) produced an initial framework[22] to assess the return-on-investment for HSR projects.

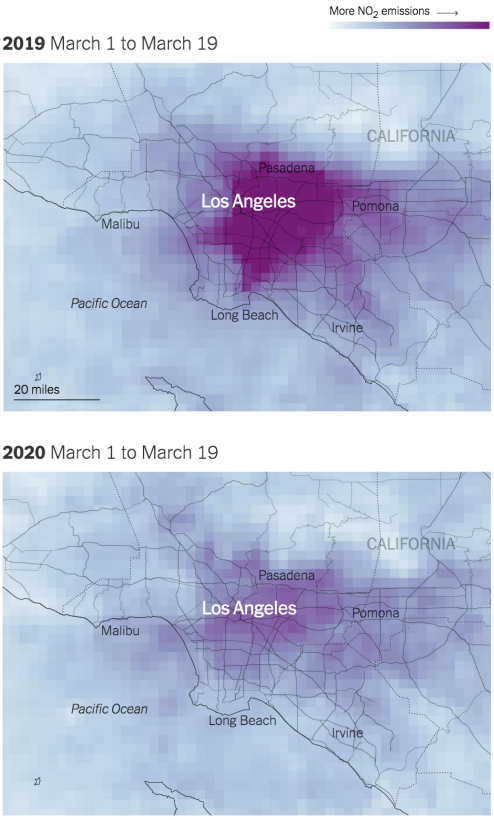
Travel, Societal, and Other Benefits	National	Regional	Local	Owner/ Operator
Travel Time	XX	X	X	
Travel Cost	XX	X	X	
Reliability	XX	X	X	
Consumer Surplus from Induced New Travel	XX			
Safety Impact	XX	X	X	X
Noise Impact	X	X	XX	
Reduction in Greenhouse Gas (CO_2)	XX			
Emissions Reduction for Other Pollutants	XX	XX	XX	
Energy Resources: Oil Import Reduction	XX			
Accessibility Benefits (Agglomeration Economies)		XX	X	
Station Area Development			XX	
Regional Economic Development			XX	
Government Revenues from Taxes		X	XX	XX
Service Operator and Facility Owner Costs				XX
Service Operator and Facility Owner Revenues				XX

XX = largest effect seen; X = effect seen

[20] https://www.bloomberg.com/news/articles/2020-03-13/unraveling-the-mysteries-of-china-s-multiple-budgets-quicktake
[21] https://data.worldbank.org/country/china
[22] https://www.apta.com/wp-content/uploads/Resources/resources/reportsandpublications/Documents/HSR-ROI-2017.pdf

For many, the environmental and public health benefits of HSR will be the most compelling case. HSR will, indeed, drastically reduce pollution, emissions, land use, and energy consumption in U.S. transportation throughout the 21st century. It takes little imagination to envision the environmental gains from HSR development. In fact, the causal sequence of our current response to the pandemic demonstrates short-term congestion, pollution, and emissions reductions through decreased vehicle use, of course without the medium- and long-term benefits that would accompany high-speed passenger rail development.[23] While a similar argument could be made for electric vehicles regarding pollution and emissions, EVs will not reduce congestion, provide reliable commute times, nor achieve the beneficial economic externalities that accrue to HSR. Federal investment in HSR would allow the U.S. to achieve long-term reductions on these metrics and also achieve the economic benefits outlined above. Metro areas today are able to measure the temporary reduction in congestion, pollution, and emissions due to the pandemic, which would become permanent features if travelers could opt for HSR over driving.





[23] Plumer, Brad and Nadja Popovich. "Traffic and Pollution Plummet as U.S. Cities Shut Down for Coronavirus." New York *Times* (March 22, 2020): link.

Concerning Other Modes

Freight Railroads

Aware that in some cases the least costly right-of-way option for building high-speed rail is along existing private freight corridors, these railroads have been wary of calls to develop it. Under this proposal, freight railroads are offered incentives to sell, lease, or grant easements on their undeveloped land along existing rights-of-way in the form of assistance to acquire new land opposite the land granted to HSR development. Most federally-designated high-speed rail corridors could find willing partners in developing along undeveloped freight-owned right-of-way with the proper compensation and liability framework established.

Another incentive for freight railroads is that most current Amtrak intercity passenger rail operates on freight lines, so developing HSR on dedicated tracks would relieve significant congestion. Investments in higher-speed rail can benefit freight railroads as well when capital projects improve facilities and increase travel speeds and operating costs (e.g. straightening curves). Light freight, such as packages and mail, is currently transported primarily by plane, but HSR would offer a more efficient and cleaner alternative to the current industry.

Aviation

As a result of incomplete transportation investment analyses, aviation has filled the gap caused by underinvesting in our passenger rail network, even when less profitable and less efficient. For transportation corridors up to 750 miles, high-speed rail offers better journey times than aviation, including less time wasted in terminals or security, and fewer emissions. But far from simply stealing business from the airlines, high-speed rail can help airports and airlines increase profits by reserving runways and gates for higher-margin, longer-distance flights. Recall Lufthansa's Rail and Fly program. Eurostar announced in 2019 that it's London-Paris HSR route has more than halved air travel demand between the two cities.[24] In China, travelers have shifted modes for shorter trips with high-speed rail's ridership doubling that of domestic flights,[25] while the Shanghai Maglev connects the Pudong International Airport to the metro system serving Shanghai, thus making the airport more accessible from the city center.

Many in Congress have bemoaned airline bailouts and subsidies, yet the federal government has not seriously invested in transportation alternatives that are more economically efficient and therefore, in the long term, require less government support. The overlap of destinations between Virgin Atlantic Airlines and Virgin Trains USA shows signs that airlines in the U.S. understand the benefit of a coordinated national transportation strategy. Airports either unable or unwilling to make costly expansions for short-haul routes would benefit from HSR development. For example, San Francisco International Airport (SFO) expects 61 million passengers annually by 2030 and is endeavoring to reduce its frequent short-haul routes, like

[24] Morgan, Sam. "Planes vs. Trains: High-Speed Rail Set for Coronavirus Dividend" *EURACTIV* (April 15, 2020): link.
[25] https://www.eesi.org/papers/view/fact-sheet-high-speed-rail-development-worldwide

SFO-LAX, to shift runway capacity to long-haul flights, which move more passengers per plane with fewer flights.[26] Similar to Frankfurt International Airport in Germany, SFO would benefit dramatically from HSR.

America's Car Culture

Underfunding passenger rail networks also shifts travelers toward highways and car use, not by preference but by subsidizing highways and limiting options for travelers. Where conventional passenger rail exists to supplement commutes, systems experience success in moving commuters to rail. For example, Metrolink in Los Angeles has achieved 85% "choice riders" (i.e. riders who also own an automobile) with the leading motivations being less stress, greater relaxation, less expensive, more efficient use of time, and environmental reasons.[27] In regions that only have access to urban economic hubs by highway, super commuters spend hours commuting each way through congested roadways for employment opportunities: more than 10,000 super commuters live in western Massachusetts, some traveling 1,000 miles or more per week for their commutes. Western Massachusetts super commuters would gladly trade in their drive for frequent and reliable 45-minute terminal-to-terminal high-speed travel by train connecting Pittsfield, Springfield, Worcester, and Boston. Furthermore, reams of research document that these trends are only further reinforced among Millennial transportation preferences for walkable communities, easy access to urban amenities, reliable systems, and a smaller environmental footprint.

By artificially inflating demand for private vehicle travel, the U.S. has underestimated the costs associated with granting primacy to the automobile. The public costs of the vehicle economy are regressive, in that even families without a car subsidize car owners and highway systems. In Massachusetts alone, the total annual cost of the vehicle economy is $64 billion with non-vehicle owning families contributing approximately $14,000 annually.[28] There are obvious costs, such as capital costs and the public health cost of emissions and pollution, and less obvious costs, such as the opportunity cost of land use, lost productivity due to congestion, and public safety costs including accidents. HSR scores better on all of these metrics.

Highway investments now have dramatically diminishing returns. A study found that between 1993 and 2017, states spent more than $500 billion on highway capital investments in urban areas, and induced demand has caused congestion to grow by 144% in these same areas, which is faster than population growth.[29] Washington State explored expanding I-5 between Portland, Seattle, and Vancouver and found that within a few years of completing the highway expansion, congestion would be just as bad as it is currently at twice the price tag of HSR between these cities.

[26] http://www.bayareaeconomy.org/files/pdf/CaliforniaHigh-SpeedRailOct2008Web.pdf
[27] https://metrolinktrains.com/globalassets/about/agency/facts-and-numbers/metrolink-2018-od-study.pdf
[28] https://www.hks.harvard.edu/faculty-research/policy-topics/cities-communities/car-economy-costs-64-billion-year- mass
[29] "The Congestion Con: How More Lanes and More Money Equals More Traffic." Transportation for America. (March 2020): link.

Alternative High-Speed Technologies

Magnetic levitation (maglev) and hyperloop are alternative high-speed technologies at different stages of development. High-speed maglev is a proven technology, with operational experience in Europe, Japan, and China. Notably, pioneering work on the first superconducting maglev (SC maglev) technology was originally performed in the U.S. at Brookhaven National Laboratories. Hyperloop is based on maglev technology and is at the experimental stage with hopes of demonstrating operations in the coming years.

Federal precedent exists for investing in maglev. Starting in 1996, the Department of Transportation found that maglev's viability and benefits were best proven in the densely-populated Northeast Corridor, and shortly thereafter, Congress created the Maglev Deployment Program (MDP) where city pairs competed for federal funding to develop a maglev corridor. After feasibility studies for seven proposed projects, followed by Environmental Impact Statements for the top two pairs, the Baltimore - Washington, D.C. Maglev Project emerged as the winner. Multiple transportation bills propelled progress to date,[30] and now Baltimore-Washington Rapid Rail (BWRR), working with the FRA, State of Maryland, and the District of Columbia, is planning a maglev line that would eventually connect Washington, D.C., to New York at 311 mph for a one-hour trip.

The most discussed firms pursuing hyperloop technology are Elon Musk's Boring Company and Virgin Hyperloop One. If realized, hyperloop could provide a 600-mph transit option by enclosing a maglev system in a vacuum tube. While hyperloop is undemonstrated and the current economics of maglev is favorable only in limited dense urban corridors, projects of these modes should be able to compete for funding as well, and will be able to do so under this proposal.

Deploying new American transportation technology is not only important for its stimulative effect, but it also has implications for our foreign policy. China is exploiting the national security benefits of exporting its own high-speed rail technology to other nations as part of its Belt and Road Initiative (BRI), expanding power globally through international development in a model once perfected by the United States. In Laos, China is currently building infrastructure to support a proposed HSR line from Kunming, China to Singapore, which will also travel through Thailand and Malaysia. The Jakarta-Bandung high-speed passenger rail line in Indonesia is being constructed and operated by a consortium led by China Railway Corp and primarily funded by loans from the China Development Bank. Additional Chinese rail projects include both East and West Africa serving Nigeria, Ethiopia, and Djibouti. Morocco will choose China or France, each being global leaders in HSR, to develop a Marrakech - Agadirk line as the next segment of

[30] These bills include the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA); the Transportation Equity Act for the 21st Century (TEA-21) in 1998; the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005; the SAFETEA-LU Technical Corrections Act in 2008; and various appropriations bills.

Moroccan HSR, and as a result, one of these countries will accrue the associated diplomatic gains.[31]

The United States has a long and celebrated history of helping rebuild the economies of former adversaries and creating new allies through financial support and exported industrial expertise. Several of the direct beneficiaries of our rebuilding efforts following World War II became leaders in next-generation transportation technologies before China's game-changing investment. France built the Train à Grande Vitesse (TGV), Siemens' Intercity Express (ICE) high-speed trains criss-cross Germany, and several Japanese railways, led by Japan Central Railway (JRC), inaugurated the high-speed railway age with the Shinkansen system. Many of our allies' train manufacturers, including Siemens, Bombardier, Alstom, Kawasaki, Hitachi, Hyundai, and Stadler, have already made significant investments in plant and equipment in America. Notably, JRC has partnered with Texas Central Railway (TCR) and BWRR to share its Shinkansen and SC maglev systems, respectively, and the Spanish Renfe will operate TCR service. The French National Railway Company (SNCF) led the early push to develop high-speed rail in Texas in the late 1980's and early 1990's, and also invested in later efforts in Florida; they had to turn their attention to other international projects when American leaders scuttled these projects for short-term political goals. In sum, it is free democratic allies who have pioneered high-speed rail technology. Combining that HSR expertise with U.S. adoption and leadership would present a compelling alternative to China's BRI development efforts as we enter a new era of global power competition.

[31] https://www.moroccoworldnews.com/2020/02/294277/high-speed-battle-france-china-fight-to-build-new-train-line- in-morocco/

High-speed Passenger Rail Proposal

The U.S. could achieve world-class, 21st-century transformative infrastructure by opening up federal funds for HSR development, encouraging matching non-federal dollars for HSR investment, and providing incentives, flexibility, and additional benefits to participating state and local governments. This proposal authorizes the Federal Railroad Administration (FRA) to provide $41 billion annually over 5 years for HSR planning, technology improvements, and development. Even without adjusting for inflation, this investment is less than annual federal expenditures for highways under the FAST Act, but as a significant increase over past HSR appropriations, it allows high-speed passenger rail development to finally compete with other modes in the U.S. Furthermore, the proposal encourages $7.6 billion annually in non-federal investment, which could achieve total investment of $48.6 billion or more annually, and incentivizes state and local government participation through TOD grants along HSR corridors, increased flexibility regarding the non-federal share of HSR planning and development costs, and the benefit of greater funding predictability for projects requiring multi-year federal investments.

This shift in American transportation strategy would meet the demands of the moment and potential of the 21st century, creating new American manufacturing industries, bring millions of jobs to communities across America, and increasing demand and productivity in the private sector, all of which will reduce unemployment and help economic recovery.

Select Highlights

- Establish a long-term framework for HSR so Congress, state and local governments, and the market may invest in HSR planning, technology, and development;
- Authorize $205 billion in HSR over 5 years, a modest sum compared to other modes, with potential investment of $243 billion or more including non-federal matches;
- Standardize the definition of HSR across applicable statutes and produce federal HSR standards and regulations to ensure alignment of HSR development in the U.S.;
- Increase predictability of funding for projects that require multi-year investments;
- Foster a growing national HSR network, including allowing the designation of new corridors, through a strategic, economically-rigorous process;
- Ensure limited infrastructure dollars are invested where they truly achieve the greatest ROI by incorporating externalities into metropolitan, nonmetropolitan, and statewide transportation plans and comparing benefit-cost analyses (BCAs) across modes;
- Incentivize communities to allow new construction of HSR lines as prioritized recipients for $100 million in FTA TOD grants over five years;
- Create flexibility for state and local governments to pay non-federal shares with RRIF and TIFIA loans or, in some cases, waive the non-federal requirement;
- Eliminate the challenge of previous High-Speed Intercity Passenger Rail (HSIPR) grants being spread too thinly by increasing funding levels to ensure high-speed passenger rail corridors are completed;
- Expedite HSR project planning and development by creating comprehensive, performance-based HSR regulations, not one-off Rules of Particular Applicability;
- Ensure electrification, TOD, and access to moderate income and affordable housing markets are prioritized in HSR development; and
- Incentivize freight railroads to make available existing rights-of-way to develop HSR.

Legislative Outline

I. Reauthorize 49 U.S.C. 26101, 26102, 26106: Reauthorization of HSR Corridor Planning, Technology Improvements, and Corridor Development

II. Amendments to 49 U.S.C. 26101-26106 and add 26107: Changes to HSR Authorities

III. Amendments to 49 U.S.C 5303 and 49 U.S.C. 5304: Incorporating Externalities into Transportation Plans to Improve BCA on Transportation Mode Investments, and Extending FTA's TOD Pilot Program for Transit-Oriented Development Planning

IV. Amendments to 45 U.S.C. 822: Creating Flexibility for RRIF Loans

V. Amendments to 26 U.S.C. 142: Incentivizing Private Investment in Passenger Rail Projects

VI. Amendments to 49 U.S.C. 22905: Clarifying Labor Provisions

Section-by-Section

I. Reauthorize 49 U.S.C. 26101, 26102, 26106: Reauthorization of HSR Corridor Planning, Technology Improvements, and Corridor Development

This would reauthorize Title 49 Chapter 261, High-Speed Rail Assistance. Excluding three sections addressed in the amendments below, this chapter includes High-Speed Rail Corridor Planning (26101), High-Speed Rail Technology Improvements (26102), and High-Speed Rail Corridor Development (26106). **The programs are reauthorized by amending and increasing the authorizations of appropriations in Sections 26104 and 26106**. (Specific amendments are outlined in the next section.)

- **High-Speed Rail Corridor Planning (26101)** is reauthorized to treat the backlog of planning activities (e.g. proposed projects without an issued DEIS or FEIS/ROD, HSR corridors without feasibility studies or economic analyses, etc) and to help create a pipeline for future corridor development in the HSR network.

- **High-Speed Rail Technology Improvements (26102)** is reauthorized to allow DOT and the FRA to improve, adapt, and integrate proven technology for commercial application in HSR service in the U.S. This can be done through financial assistance to private businesses, universities, states, local/regional governments or authorities, or other agencies of the federal government. This will allow the federal government to act as an investment partner in HSR technological improvements.

- **High-Speed Rail Corridor Development (26102)** is reauthorized to allow the FRA to finance capital projects in HSR corridors. This section includes the grant criteria and requirements for the High Speed Intercity Passenger Rail (HSIPR) grant program. It is through these grants that the bulk of HSR corridor development occurs (i.e. acquisition, construction, improvement, inspection, mitigation, replacement, etc.).

II. Amendments to 49 U.S.C. 26101-26106 and add 26107: Changes to HSR Authorities

26101. High-speed rail corridor planning:

- Allow the Secretary to designate new federal HSR corridors.
- Allow RRIF and TIFIA loans, which would be repaid by private, local, or state sources, to count toward the 20 percent state/local share.
- Remove requirement for 20 percent non-federal source, and allow for project prioritization for projects where at least 20 percent of the costs are funded through non-federal dollars (while still counting RRIF and TIFIA, as above, to count as non-federal dollars)

- Clarify that interstate agreements for HSR corridors do not constitute interstate compacts requiring federal approval.
- Remove Northeast Corridor exclusion.
- Require the Secretary of State to provide a Presidential Permit for Border Crossing to a grantee if the proposed route crosses a national border.
- Authorize advance acquisition of railroad right-of-way (similar to advance acquisition permitted for highway and transit projects) by allowing the Secretary to assist a grantee in acquiring right-of-way before the completion of the environmental reviews for any project that may use the right-of-way if the acquisition is otherwise permitted under federal law, but prohibit rights-of-way acquired under this provision from being developed in anticipation of the project until all required environmental reviews for the project have been completed.

26102. High-speed rail technology improvements

- Emphasize that interoperability is a goal but should not exclude the opportunity for other technologies.

26103. Safety regulations

- The FRA is directed to promulgate comprehensive, performance-based regulations for all HSR projects, which will allow innovation within individual projects and remove the barrier of slow, one-off Rules of Particular Applicability.
- The regulation may be a formalized rule based on previously constructed Rule of Particular Applicability.

26104. Authorization of appropriations: Robust Funding

- Authorization of appropriations for High-Speed Rail Corridor Development are moved from 49 U.S.C. 26106 to this section.
- For five fiscal years after enactment, annual appropriations are authorized at
    - $3 billion for High-Speed Rail Corridor Planning (previously $30 million annually over eight years),
    - $3 billion for High-Speed Rail Technology Improvements (previously $30 million annually over eight years), and
    - $35 billion for High-Speed Rail Corridor Development (highest authorization was $350 million in a year under the previous five year authorization).

26105. Definitions

- Standardize definition of "high-speed rail," which is defined as 125+ mph in this section and 110+ mph in the following section and add a definition of "higher-speed rail":
    - Define "higher-speed rail" as passenger trains operating at top speeds between 110 and 186 mph, and
    - Define "high-speed rail" as passenger trains operating at top speeds of 186 mph or more.

26106. High-speed rail corridor development:

- Allow RRIF and TIFIA loans, which would be repaid by private, local, or state sources, to count toward the 20 percent state/local share.
- Remove requirement for 20 percent non-federal source, and allow for project prioritization for projects where at least 20 percent of the costs are funded through non-federal dollars (while still counting RRIF and TIFIA, as above, to count as non-federal dollars)
- Allow no more than 20% of funds to go toward higher-speed rail development.
- Strike the "regulations" and "appropriations" subsections, which were moved into sections above.
- Add electrification to the existing list of significant improvements to intercity rail passenger service.
- Add TOD and increased access to affordable and moderate income housing alongside "anticipated economic and employment benefits" under factors that lead to greater consideration.
- Clarify that interstate agreements for HSR corridors do not constitute interstate compacts requiring federal approval.
- Prohibit spending timelines for grantees to avoid increased costs to meet artificial timelines.
- Require the Secretary of State to provide a Presidential Permit for Border Crossing to a grantee if the proposed route crosses a national border.
- Authorize advance acquisition of railroad right-of-way (similar to advance acquisition permitted for highway and transit projects) by allowing the Secretary to assist a grantee in acquiring right-of-way before the completion of the environmental reviews for any project that may use the right-of-way if the acquisition is otherwise permitted under federal law.
    - Prohibiting rights-of-way acquired under this provision from being developed in anticipation of the project until all required environmental reviews for the project have been completed.
- Permit grants to be used to reimburse grantees for pre-construction expenses incurred prior to award of a grant subsequent to the date of enactment of these amendments, at grantee's risk.

Add Section 26107: Acquiring Freight Railroad Right-of-Way

This new section creates an incentive for freight operators to sell, grant easement on, or lease freight-owned land along existing right-of-way for high-speed rail development. These tracts of land often represent the least costly path for HSR development, but also the least costly path for freight railroad expansion. Given this, and the fact that locating passenger rail service near a freight railroad introduces risk, the following provisions are included regarding freight railroads:

- Freight railroads may sell, grant an easement on, or lease land to a Section 26101 or 26106 grantee with zero federal tax on this revenue.
- Freight railroads that sell, grant an easement on, or lease land shall receive a federal tax credit equal to the amount of revenue from this activity to be applied in a year where the freight railroad purchases a like amount of land along the portion of right-of-way affected.
- Freight railroads that sell, grant easement on, or lease land for high-speed rail development shall be granted the same liability protections granted to freight railroads that host Amtrak services (49 U.S.C. 28103).
- Capital investments or improvements made to freight railroad right-of-way (e.g. turnouts, passing track, signaling, crossings, etc.) by Section 26101 or 26106 grantees shall not be considered taxable income.

III. Amend 49 U.S.C 5303 and 49 U.S.C. 5304: Incorporating Externalities into Transportation Plans to Improve BCA on Transportation Mode Investments, and Extending FTA's TOD Pilot Program for Transit-Oriented Development Planning

Sections 5303 and 5304 provide the definitions and requirements of Metropolitan Transportation Planning and Statewide and Nonmetropolitan Transportation Planning, respectively, to develop long-range transportation plans and transportation improvement programs (TIP) through a performance-driven, outcome-based approach. The planning process already must consider nine different factors. These factors can be amended to include externalities and to require comparisons across these factors among modes of transportation (including requiring State Rail Plans) to capture the true positive societal return on investment. Additional factors should be evaluated, including:

- Value of land use for modes of transportation, which includes value of land dedicated to parking as an opportunity cost for highways;
- Benefit and cost streams and their present value, such as travel time savings, cost or expense savings, safety gains, and productivity gains;
- Outcome benefit measures for cumulative effects over the lifecycle of a transportation system, such as regional land development and economic development; and
- Public health and environmental costs of pollution and emissions.

An additional amendment would extend FTA's Pilot Program for TOD Planning for 5 years and authorize $20 million annually. This pilot program would be amended to include communities where new HSR corridor development occurs among the factors leading to greater consideration.

These amendments are important because 1) states, regions, and localities would be required to consider a more holistic BCA when making transportation planning decisions, 2) these plans and TIPs are required as part of Capital Investment Grant (CIG) applications, which could be used for improving transit systems connected to HSR corridors and potentially invest in projects required for HSR corridor development, and 3) localities would be provided an incentive for allow development of HSR within their communities (e.g. acquiring R-o-W, when curves must be eliminated from existing R-o-W forcing construction in new communities).

IV. Amendments to 45 U.S.C. 822: Creating Flexibility for RRIF Loans:

- Specify that RRIF loans may be used for the non-federal share of a project if the loan is repayable from non-federal funds.
- Allow applicants to use federal funds to pay the credit risk premiums under RRIF loans.
- Authorize Better Utilizing Investments to Leverage Development (BUILD) grant funds to cover the subsidy cost of federal credit assistance under RRIF.
- Require the Secretary to repay the credit risk premium for recipients that have satisfied all obligations attached to RRIF loans.

V. Amendments to 26 U.S.C. 142: Incentivizing Private Investment in Passenger Rail Projects

- Raise the 142(m) Highway or Surface Freight Transfer Facility private activity bonds (PABs) national limitation from $15 billion to $30 billion.

Private HSR developers are more likely to use 142(m) because there is the 142(i) volume cap at the state level for private entities, which leads to competition with other high-priority projects such as affordable housing, but 142(m) has nearly reached its national limit. The ubiquity of grade separation for HSR projects means that the use of Title 23 funds is common, thus qualifying these projects for 142(m), which is preferred for private entities given the state volume caps on 142(i). Because public HSR developers could use either PAB, they are less impacted by this policy change, so this will incentivize more private HSR development.

VI. Amendments to 49 U.S.C. 22905: Clarifying Labor Provisions

- Ensure that all entities that do traditional rail work employing workers in crafts or classes recognized under the Railroad Labor Act (RLA) are deemed carriers for the purposes of RLA and the Railroad Retirement Act (RRRA), with some reasonable exemptions for contractors.

In many cases, only locomotive engineers and conductors are covered under the RLA and RRRA because business models have evolved such that operators no longer do all the work related to passenger rail service, with other companies completing other activities (e.g. maintenance of way, signal, maintenance of equipment). This amendment, which is a negotiated compromise by rail and building trades unions and the Association of American Railroads, aligns protections with Congressional intent.

Project Pipeline

The following table is a non-exhaustive list of passenger rail projects ready for funding identified by APTA in May 2019. The projects included do not amount to full planning and development of all current federally-designated high-speed passenger rail corridors, indicating there is a sufficient supply of projects to justify robust investment. The inclusion of projects that are neither higher-speed nor high-speed rail reveals the need to refocus passenger rail funding in the U.S. to avoid developing lines with 20th-century technology.

Project	Details	Estimate Cost
California High Speed Rail Authority (CAHSR), Valley to San Jose	Connection between San Jose and Merced, part of the Silicon Valley to Central Valley HSR connection [225 mph, electric, grid separated (GS), FEIS Nov. 2020]	$15 billion
CAHSR, San Jose to San Francisco	Part of Phase I of CAHSR (225 mph, electric, GS, FEIS March 2021)	$2.3 billion
CAHSR, Palmdale to Burbank	Part of Phase I of CAHSR (225 mph, elec., GS, FEIS early 2021)	$17 billion
CAHSR, Burbank to Anaheim	Part of Phase I of CAHSR (225 mph, elec., GS, FEIS June 2021)	$5 billion
Northeast Maglev, DC to Baltimore (DC, MD, PA, NY)	Phase I study area between Washington, D.C. and Baltimore, MD with a stop at BWI Airport. Currently preparing Draft EIS. Will use SCMAGLEV technology. (311 mph, DEIS October 2019)	$10+ billion
High Desert Corridor, Palmdale to Victorville	Essential eventual link to connect XpressWest with CAHSR (150 mph, elec. GS, June 2016 FEIS, Revalidation late 2020)	$1.76 billion
Xpress West (Virgin Trains USA)	Las Vegas to Victorville to achieve eventual connection with Los Angeles covering 185 miles with 20 minute headways (150 mph, elec., GS, April 2011 FEIS, revalidation late 2019)	N/A - privately funded
Brightline (Virgin Trains), Miami to Orlando	Extension of current Brightline service eventually linking Miami-Orlando-Tampa (89 and 125, non-GS, GS DMU, FEIS 2015)	$3.7 billion
Brightline (Virgin Trains), Orlando to Tampa	Extension of current Brightline service eventually linking Miami-Orlando-Tampa. In planning.	
Texas Central Railways	Dallas-Brazos Valley-Houston service covering 240 miles with 30 minute headways during peak (225 mph,	$18 billion privately

	elec., GS, FEIS expected mid-2020). Privately funded but potential for public partnership for extension (e.g. into Fort Worth).	funded
Denver to Eagle (CO) Rail	Automated Guideway System over separated ROW on I-70 Mountain Corridor (150 mph, EIS/ROD 2005)	$5.1 billion
Cascadia Ultra-High-Speed Ground Transportation (WA, OR)	Portland-Seattle-Vancouver service (225 mph, elec. GS, pre-NEPA, completed feasibility and business case studies)	$24-42 billion
New Orleans to Mobile Rail	Passenger rail service connecting New Orleans, LA to Mobile, AL. In planning.	
Phoenix to Tuscon Rail	Passenger rail service connecting Arizona's two largest cities. (ROD December 2016)	
Hartford to Springfield Rail	Passenger rail service connecting Hartford, CT and Springfield, MA (89-110 mph, non-GS, DMUs)	$432.6 million
Fort Collins to Pueblo (CO) Rail	173-mile route over existing Class 1 ROW (80 mph). In planning.	
Northeast Corridor Commission	Corridor enhancements for Amtrak's highest volume line (160 mph, elec., GS, ROD July 2017)	$28.9 billion
Richmond to D.C. Rail	Part of Southeast High Speed Rail (SEHSR) Corridor (110 mph, draft tier 2 EIS 2017)	$1.7 billion
New Orleans to Jacksonville Rail	New Orleans-Gulfport-Mobile-Tallahassee-Jacksonville as part of Service Southern Rail Commission. In planning.	
Atlanta to Charlotte Rail	Part of the Atlanta to Charlotte Passenger Rail Corridor Investment Plan (PRCIP), service from Atlanta to Charlotte (110 mph, Tier 1 EIS initiated 2013)	$1.6 billion
Chicago-Iowa City-Omaha Rail (IA, IL, NE)	Chicago-Quad Cities-Iowa City-Des Moines-Council Bluffs/Omaha passenger rail service (79 mph, final Tier 1 EIS May 2013)	$1.2 billion
Chicago-Detroit Rail	Further rehab and increased capacity on existing lines between Detroit and Chicago (89 mph, non-GS, DMUs)	$2.98 billion
Chicago-St. Louis High-Speed Rail	Enhanced service between Chicago and St. Louis, including full build out of second track (89 mph, non-GS, DMUs)	$2 billion
Chicago-Milwaukee-Twin Cities (IL, WI, MN)	Improved passenger rail service between Chicago, Milwaukee, Minneapolis-St.Paul, part of the Midwest Regional Rail Initiative vision, will eventually link to	

	existing Amtrak Hiawatha service (79 mph).	
Baton Rouge-New Orleans Rail	Rail service connecting LA's two largest cities. In planning.	
East-West Passenger Rail Study (MA)	Boston-Worcester-Springfield-Pittsfield corridor, currently conducting initial study of build alternatives.	TBD
Northern Lights Express (NLX Project)	Connect Minneapolis and Duluth on 152 miles of track with 2.5 hour travel time and 3-4 round trips per day (89 mph, non-GS, FONSI February 2018, Tier 2 EA)	$820 million
St. Louis-Kansas City Rail	Capacity improvements between St. Louis and Kansas City.	$0.5 - $1 billion
Richmond to Raleigh Rail	Part of SEHSR Corridor (110 mph, Tier 2 EIS 2012)	$240.18 million
NY-Albany-Buffalo-Niagara Falls Rail	Enhanced service on 463-mile corridor between NY, Albany, Buffalo, Niagara Falls (89 mph or 125 mph, DEIS 2014)	$1.66 - $14.71 billion
OKC to Fort Worth Rail (OK, TX)	Oklahoma City to Dallas-Fort Worth (79 mph or 250 mph, ROD June 2017)	
Oregon Passenger Rail	Portland-Eugene passenger rail over a 125-mile segment (89 mph, non-GS, DMUs, DEIS October 2018, FEIS)	$1 billion
Keystone Line	Improved passenger service on Keystone line between Philadelphia, Harrisburg, and Pittsburgh (125 mph)	$1.5 - $13.1 billion