



CASCADIA HIGH SPEED RAIL, LLC™ OPPORTUNITY

EXECUTIVE SUMMARY

Over the last seventeen years, Cascadia High-Speed Rail, LLC has been developing a high-speed rail system for the Eugene, Portland, Tacoma/Seattle, Vancouver, and BC corridors. The 413-mile Cascadia High-Speed Rail (CHSR) corridor has been designed as an exclusive, double-track, electrified route for passengers and express parcel trains capable of traveling 250 mph. The logical first segment for development is the 173-mile corridor between the Portland Rose Quarter and Seattle Central, with over 35 percent of the route in tunnels. The route follows the I-5 corridor with loop spurs into SEA-TAC and PDX airports. The Seattle to Vancouver, BC segment is 123 miles with 74 miles in tunnels, while Portland to Eugene is 110 miles with 10 miles in tunnels.

The CHSR corridor currently has a population of 9 million, which will grow to nearly 13 million by 2050. This will significantly increase intercity travel along the I-5 corridor from 66 million trips per year to over 91 million visits yearly. Given the geographic and environmental issues of the I-5 corridor, it will be extremely costly to build enough highway or air capacity to meet this need. CHSR offers a viable and compelling alternative.

The CHSR Company has designed a well-detailed corridor that will be highly competitive with highway and air modes. The corridor offers a 58-minute travel time between Portland and Seattle, a 35-minute travel time between Portland and Eugene, and 47 minutes between Seattle and Vancouver, BC.

The CHSR express parcel freight trains will be designed to be compatible with both air cargo containers and less-than-truck load (LTL) palletization. This will automate the interchange between air, truck, and train transportation. The plan will connect the CHSR corridor to existing airport and urban area terminals with rail spurs to significant express parcel sorting facilities. This and airport connections will provide the link needed to provide express parcel and airport container flows throughout the corridor at much lower costs.

The economic return to the communities along the corridor provides a positive Cost-Benefit Ratio of 2.3 at a 3.0 percent real discount rate. The crucial benefits include significant reductions in vehicle congestion, air travel delays, energy use, and CO2 emissions, helping to minimize the detrimental effects on the environment, human casualties, and fatalities. Trains are powered locally using clean electricity generated from dams, solar collectors, and wind turbines versus fossil fuels, which have a volatile price structure. A narrow, fifty-foot right-of-way for a high-speed rail double track system is a small land-use footprint that can move up to 32,000 travelers per hour, equivalent to driving the same number of auto vehicle travelers on 18 highway lanes.

The benefits to express parcel companies of the CHSR system are:

- It provides a faster and more effective way of linking express parcel terminals and facilities along the Eugene, Portland, Seattle, Vancouver, and BC corridor, cutting travel times by 60 to 70 percent.
- The cost of moving express parcels by high-speed rail is significantly lower than truck or air services.
- The CHSR system offers the ability to provide a new product as a “Same Day” service that cannot be delivered by undependable highway and air travel modes. This service would resemble the highly profitable British Rail Red Star parcel service.
- Companies using the CHSR system will increase their market share by 20 to 30 percent of the LTL truck market, 15 percent of the air cargo market, and 40 percent of the express parcel market.

1. MISSION

The mission of Cascadia High-Speed Rail, LLC is to design, secure funding, and develop an economically feasible high-speed intercity, commuter, and freight parcel rail corridor in the Pacific Northwest. The goal for the 413-mile, electrified, double-track Cascadia High-Speed Rail corridor between Eugene, Oregon and Vancouver, BC, is for it to become the ultimate transportation system for on-time delivery of passengers and parcels in a fraction of the time compared to other ground transportation modes. CHSR will not only be an innovative and efficient transportation system but will also be developed to meet the highest safety standards set by the Federal Rail Administration. CHSR will provide an unmatched catalyst for creating new environmentally focused, livable town centers at mixed-use station hubs. These hubs will be connected to other corridors for light rail, streetcar, buses, autos, water taxis, bikeways, and pedestrians. CHSR will offer the ultimate customer experience and safety for businesses, commuters, and tourists. The intended result is to provide society with a choice to live in a progressive community with a well-connected variety of transportation options that induce job growth via the construction and use of new residences, retail businesses, offices, and entertainment centers. The future is now to build a more equitable, CO₂-reducing environment.

2. BACKGROUND

The Pacific Northwest, also known as Cascadia, has been recognized as a potential high-speed rail corridor since 1992 when the USDOT Federal Railroad Administration identified it as one of the original ten best corridors for development. The US High-Speed Rail Association (USHSR) recommends that CHSR be #4 for HSR funding to the federal government.

CHSR Company is uniquely positioned to continue the design and development of the corridor due to the completion of the following six studies:

- 2006-2022, Technical Expert Rudy Niederer studied and designed CHSR corridor and station location options with assistance from Commercial Real Estate Broker/Designer Brad Perkins.
- In August 2016, Transportation Economics & Management Systems, Inc. (TEMS) completed the Fix America Surface Transportation (FAST) Study, which was registered with the Federal Railroad Administration (FRA).
- In September 2018, TEMS completed the CHSR Economic Feasibility Study and determined that private investors (Amazon, FedEx, UPS, etc.) could help finance 50 percent of the corridor's capital costs.

- In April 2018, Ankrom Moison Architects completed four CHSR Station Area Development Scenarios for the Portland Rose Quarter, Vancouver, WA Waterfront, Tacoma Dome, and Seattle Central I-5 Link Commuter Train location.
- January 2022 TEMS completed the Tier 1 Environmental Impact Statement Study between Portland and Seattle, which has been submitted to the FRA and Federal Highway Administration (FHWA). CHSR Company is now prepared to secure private/public partnership funding to complete the Tier 2 Environmental Impact Statement Study.
- In April 2023, TEMS completed the update to the CHSR Economic Feasibility Study or Business Prospectus to stimulate investment by Amazon, FedEx, and UPS, which can sign contracts to lease the CHSR corridor at certain time intervals for express parcel transport.

3. THE FUTURE IS NOW

Portland-based Cascadia High-Speed Rail, LLC, plans to use the most advanced technology and methods to design, finance, and build the ultimate high-speed rail corridors in the United States. Since 2006, CHSR Company has been developing a transportation system capable of moving trains up to 250 mph. The CHSR system will be the model that can be replicated on HSR corridors we are designing throughout the USA. From detailed studies of topography, land use planning, and economic feasibility during the CHSR corridor design phase, we are now prepared for a technical and public critique of ours. CHSR Corridor Concept Plan. These planning recommendations include where to build the CHSR corridor on the ground, flyovers, in tunnels, and where to locate station/hub town centers between Eugene, Oregon, and Vancouver, BC. It will be financed with public and private funds for capital construction to transport passengers and parcel freight. As was done in China, modern gantry systems will be used to build flyovers, saving time and money compared to construction methods used in California.

CHSR, LLC's and TEMS's advanced studies in CHSR corridor design, finance, and construction methods have helped us determine the current construction cost of the corridor between Eugene, OR, and Seattle, WA. To make the project cost-efficient, the public sector needs to collaborate in partnership with our team that will, use construction methods, and design a corridor within public rights-of-way or adjacent to freight rail corridors wherever possible to save money. The HSR corridor in California may never get built entirely. The current price tag of \$128 billion is wholly dependent on public funding and has been poorly planned, with cost overruns and delays. Our Concept Plan saves money where and how it is constructed. The Plan also includes a good return on investment in development costs, 50% paid by the public and 50% paid privately.

The recent bipartisan approved Infrastructure Investment Jobs Act (IIJA) provides a strong platform for HSR investment. A part of the Act is the TIFIA funding program, which requires infrastructure projects costing more than \$750 million to include the study of a private sector alternative if it reduces costs, which our program clearly will. The Federal Highway Administration (FHWA) has also created multi-modal "Mega" and "Infra" funding programs for alternatives such as high-speed rail that can complement the I-5 Columbia River Crossing project by satisfying significant environmental problems and equity issues. These funding programs and the National Environmental Protection Act require that significant transportation projects meet necessary CO₂ reduction and equity goals. We intend to use these programs to use a private sector-led project's efficiencies and technical expertise rather than a much more expensive and slower (learn as you go) public sector approach to develop a new HSR transportation corridor and station/hub system.

4. VISION

The Cascadia High-Speed Rail, LLC™ project aims to provide a new, highly attractive intercity and commuter travel mode for the Pacific Northwest. The Cascadia HSR system would offer all the amenities

of intercity high-speed rail, including modern stations with parking and fast, comfortable trains. The fast trains provide a much more comfortable travel experience than airplanes, buses, and automobiles. Trains will have a larger seating capacity with room to stretch, walk around, and access onboard food service, the bar/restaurant car, larger video screens, live entertainment, and Wi-fi. Passenger luggage will have much more storage space and be easier to load than narrow aisles and doorways in airplanes.

The CHSR system will be built to meet the highest safety and seismic standards set by federal and state governments. The CHSR Class 9 standard is much higher than the existing Class 6 freight rail standard. For example, the Japanese high-speed rail corridors have used the Class 9 standard without a fatality since the introduction of the world's first HSR system in 1964. These standards will include advanced design and technology for tracks, tunnels, bridges, train sets, signals, and control systems. The right-of-way will be a "sealed corridor," which only allows vehicles, pedestrians, and wildlife to safely pass over or under the corridor and does not allow passage over the existing railroad tracks, which causes many train accidents as in Florida's Brightline Passenger Rail corridor.

The Pacific Northwest travel corridor is an environmentally sensitive area between two mountain ranges. At the same time, the growth of intercity transport for passengers and freight requires that transport facilities be expanded by over 50 percent for personal travel, over 100 percent for all cargo, and 300 percent for express freight by 2050. The infrastructure costs and land mass for this market expansion cannot be provided by highway and air travel modes without significant environmental damage to the urban context and rural landscape associated with I-5 widening projects or extra airport runways. The limited land use needs of a CHSR corridor and the use of clean, locally produced energy resources offer the solution to these problematic, expansive problems.

CHSR can absorb a significant share of the personal travel and express market growth. It can do this by:

- using a narrow 50 ft right-of-way compared to the 200-500 ft right-of-way needed for highways,
- sharing existing rights-of-way in both the I-5 highway corridor and freight rail rights-of-way (not tracks), thus avoiding many environmental issues and increasing transport capacity not just by the provision of the new HSR rail system but by reducing travel volume congestion for both highways and airports,
- tunneling and constructing flyovers to avoid surface constraints, particularly in urban areas, will provide fast access to city centers and reduce highway congestion,
- offering an efficient, frequent, and affordable train service compared to airplane, bus, and auto/truck modes.
- Connecting to the center and transportation hubs of significant towns and cities ensures a high level of mobility for all travel modes that access local communities. Over 90 percent of the corridor's population will be within one-half hour of the corridor stations and transport hubs,
- providing higher-density property development in and around the stations along the CHSR corridor.

5. PURPOSE AND NEED

Cascadia High-Speed Rail systems will provide an effective alternative for the Pacific Northwest that will significantly enhance the transport capacity of the corridors, highways, and airports. The system will provide an efficient travel option for:

- First is personal mobility, the ultimate speed for destinations within 500 miles. Fares would be set at rates like Amtrak in the Northeast corridor, including a full range of discount tickets for students, senior citizens, and families and peak and off-peak pricing.
- Second, increasing the on-time service of express parcel and light cargo transport by providing faster and more rapid movement of express cargo along the corridor will generate more service options, such as same-day delivery.
- Third, creating a significant property development program at stations in cities along the corridor will revitalize and produce substantial economic growth surrounding each stop station, which can help reduce urban sprawl. These developments in large cities may well encompass 40-60 blocks near the stations and produce billions of dollars of development like those already developed in Europe and Asia.

The aim is to establish a private/public partnership to develop and build the service within ten years once the Environmental Impact Statement (EIS) study is completed. The EIS study is needed to secure federal and state infrastructure funding to cover capital costs with a portion shared by the private sector. The EIS study for the three segments will be comparatively inexpensive due to the corridor design and detailed studies that have been completed.

During and after the EIS study, the following Plans, Timelines, and Approvals need to occur:

- Hire lobbying support and plan to provide 50% of project funding from state and federal governments.
- Develop an EIS Record of Decisions and seek federal, state, and local approvals.
- Develop a CHSR Right of Way Acquisition Plan and Timeline.
- Develop a CHSR Rail Car Acquisition Plan and Timeline.
- Develop a CHSR Track Construction Plan and Timeline
- Develop a CHSR Operations Plan and Timeline.
- Develop Town Center and Station Plans and Timelines for all stations and seek local approvals.
- Develop airport connections at Eugene, Portland, SeaTac, and Vancouver, BC airports.
- Develop Freight Terminal Plans and Timelines for rapid parcel delivery.
- Develop Marketing and Public Relations Plan and strategy.

6. PREEMPTIVE OFFERING

The Cascadia High-Speed Rail (CHSR) corridor is a unique and compelling offering due to the following factors:

- Increasing train speeds up to 250 mph makes train times competitive with auto, bus, truck transportation, and air service under 500-mile travel distances.
- The rail industry has modernized trains so that train systems are modularized, which ensures that if a component breaks down, it can be removed and a new module installed to replace the broken module. This significantly reduces “repair” times and ensures a more reliable train service.

- Auto and truck models suffer from high gas prices and increasing congestion, reducing their reliability and competitiveness by nearly 50 percent between 1970 and 2020. Dependable time schedules are a significant factor in determining cost and profit. Guaranteeing delivery time sells, especially in the express parcel business.

The passenger rail and express parcel service market has expanded dramatically in the last twenty years. Amtrak, whose services have not changed or improved much over the previous twenty years, saw its market (riders) increase by 50 percent on their system. Cascadia High-Speed Rail will be faster and have more reliable frequent service than Amtrak. The Amtrak “choo-choo train” publicly financed system receives \$66 billion in infrastructure funding from President Biden. Now that President Trump and the Republicans are in control, they favor public funds matched by the private sector. This will build a much faster HSR system that will act as a dynamic catalyst for economic development. The Cascadia High-Speed Rail corridor has a tremendous amount of capacity and speed so that it can facilitate the movement of three types of customers:

1. Commuters will pay fares for Cascadia Commuter Express (C-CE), which travels between the Portland Rose Quarter (RQ) and the Vancouver, WA Waterfront in six minutes.
2. Long-distance travelers will pay fares for Cascadia Inter City Express (C-ICE), which travels up to 250 mph and takes only 58 minutes between Portland RQ and Seattle Central Hub.
3. Parcel freight companies will lease corridor segments and travel at top speeds during off-peak passenger travel times.

The express parcel market is expanding rapidly at 12 to 15 percent per year due to “online” shopping growth. The industry is struggling to keep pace with the business's growth. It needs extra capacity, requiring parcels to be sent to and from retail locations and homes from significant “fulfillment” centers across the US. As a result, there are dramatic cost savings compared to truck and air transport services.



7. COMPETITIVE LANDSCAPE

Cascadia High-Speed Rail, LLC is uniquely positioned to provide high-speed passenger and freight services in the Eugene-Portland-Seattle-Vancouver, BC corridor. There are several reasons for this, which include:

- CHSR Company has developed an affordable approach to the corridor's development. It has used the Japanese Financial Model of using the right-of-way and station areas to support three markets: Passenger Rail Business, Express Parcel Business, and Station/Hub Property Development Business. This approach provides extra funding to pay for the infrastructure of the CHSR system. As a result, the public sector is relieved of much of the burden of developing the infrastructure and is only required to pay 50 percent of the project's capital cost. The private sector can run the service proposed at an operating profit without subsidy and cover 50 percent of the capital cost. This allows the public sector to get the economic and transport benefits of the CHSR project without carrying the full load of the project's capital cost. This makes CHSR attractive to the states and federal government, which most likely cannot afford to develop the project's total cost.
- The development of expanded transportation systems in the Northeast raises many environmental issues, most of which can only be overcome by having a small footprint that can be fitted in existing rights-of-way or tunneled to preserve the landscape, environment, and urban settlement pattern along the corridor. CHSR has planned the only practical corridor route for the system in the Northwest.
- The competitive environment analysis from the perspective of alternative modes such as air, auto, bus, and truck shows that the CHSR will be price-competitive and more efficient in moving passengers and freight.
 - Regarding passenger and express parcel service, energy prices and highway congestion will drive people to the faster, more reliable, comfortable, and affordable Cascadia HSR option.
 - Regarding air passengers and air freight, the airlines have long since given up on trying to provide cost-effective, profit-making service for distances under 500 miles.

The view is that apart from high-speed rail, today's auto, truck, and air transportation options will become more expensive and less reliable in the next 20-30 years.

- CHSR can act as a model for many other corridors in the United States. The USDOT has recognized the advantages of high-speed rail as a complementary alternative to highway expansion. As such, USDOT has now developed two programs not under the control of USDOT FRA (previously the major group for rail investment) but as part of USDOT Federal Highway Administration (FHWA). The FHWA programs offer MEGA and INFRA grants for corridors that use high-speed rail to alleviate environmental concerns and congestion and provide an effective increase in capacity that is difficult to deliver by just expanding the I-5 highway and airports.

8. LEADERSHIP

Cascadia High-Speed Rail, LLC has been led and developed by experts in high-speed rail planning and its ancillary businesses. The team has taken a market-driven approach that considers the role that passenger, express parcel, and property development can play in providing a company that can effectively cover operating costs and the project's capital costs.

Three key team members are:

- Bradley C. Perkins is President and CEO of Cascadia High-Speed Rail, LLC™, who has spent considerable time and resources influencing the direction of the newly designed CHSR corridor and transportation hub locations with local state and national leaders. He is a commercial real estate broker and has owned and operated Perkins Realty, a commercial real estate company, since 2004. He has amassed multiple properties for development, such as the Hollywood Library, New Seasons Headquarters, and Madrona Studios in Portland. Born in Portland, Perkins graduated from the University of Oregon in 1975 with a B.A. in Architecture and has facilitated the relocation and restoration of dozens of historic properties. He has led land use planning and development of environmentally progressive transportation projects that inspire livable communities.
- Rudy Niederer is CHSR Company's technical expert who has completed the concept plan for the electrified Cascadia High-Speed Rail corridors in the Northwest, Midwest, and East Coast. Niederer has designed the 413-mile corridor to avoid all grade crossings and effectively connect CHSR with all other transportation systems at the station stops. In 1996, Niederer designed the light rail concept plan for Honolulu, HI, known as Honolulu Area Rapid Transit (HART). From 1972 to 1990, he worked as a crew supervisor for Custodis Cottrell Company, headquartered in Chicago, IL, traveling throughout the US to troubleshoot, construct, and rehabilitate massive industrial chimneys. Born and educated in Switzerland, Niederer continues innovating, inventing, and designing solutions to complicated engineering and construction projects that are environmentally focused.
- Dr. Alexander Metcalf, President of Transportation Economics & Management Systems (TEMS) since 1989. Dr. Metcalf began his career in research at the Royal Institute of Public Administration in London, England, and became an economic advisor to the European Community for transportation policy and planning studies. He was Chairman of the European Freight Study and a member of the Technical Advisory Committee for the European Passenger Study. He was appointed Chief Economist at British Rail and London Transport and, upon privatization, Managing Director of Transcon International. Over his career, he has carried out primary high-speed rail policy and planning studies for British Rail, SNCF, JNR, the World Bank, the Asian Development Bank, Transport Canada, and USDOT.

*Note: Cascadia High-Speed Rail, LLC is a Trademark Company and not contracted with the following:

- Cascadia Rail: cascadiarail.org
- Ultra-High-Speed Rail Ground Transportation Study: Washington State DOT, wsdot.wa.gov
- High Speed Rail Alliance: The Cascadia Ultra-High-Speed Rail Ground Transportation Project - www.hsrail.org: Ultra High-Speed Rail: Cascadia High-Speed Rail