

Written testimony of Tom G. Williams  
Group Vice President, Consumer Products  
BNSF Railway Company



Before the House Committee on Transportation and Infrastructure's  
Railroads, Pipelines and Hazardous Materials Subcommittee  
for a hearing entitled:

*Full steam ahead for rail: Why rail is more relevant than ever for  
economic & environmental progress*

Wednesday, March 10, 2021  
Washington, D.C.

## **Introduction**

Good Morning Chairman Payne, Ranking Member Crawford and members of the Subcommittee. My name is Tom Williams and I am Group Vice President for the Consumer Products business unit of BNSF Railway Company (BNSF). Consumer Products is BNSF's largest business unit—consisting of domestic and international intermodal freight along with automotive—and represents more than 50% of the freight volume moving on our railroad. Thank you for inviting me today to discuss BNSF's perspective on the economic and environmental advantages of freight rail.

BNSF is a wholly-owned subsidiary of Berkshire Hathaway and one of North America's leading freight transportation companies with a rail network of 32,500 route miles in 28 states and three Canadian provinces. BNSF transports on average about 15% of all intercity ton-miles of freight that moves in the United States. In 2020 and despite the impacts of the COVID-19 pandemic on the U.S. economy and around the world, BNSF handled 9.5 million units (carloads and intermodal containers and trailers) of freight. In total, BNSF typically operates about 1,500 trains per day, including 245 passenger trains that run over our network.

To handle these traffic volumes safely and efficiently, BNSF reinvests significant capital into its network every year. These investments play a key role in our ability to operate a safe and reliable network, and support operating and technology improvements that drive sustainability, efficiency, resiliency and capacity. Since 2000, BNSF has invested more than \$70 billion into the railroad, providing the foundation to reliably and consistently meet customer expectations and position for future freight opportunities. The predominately privately funded U.S. freight rail industry continues to be a tremendous competitive advantage for our country.

## **The U.S. freight supply chain**

The U.S. freight supply chain plays a critical role in ensuring our nation's economic competitiveness by efficiently connecting producers, manufacturers and consumers domestically and in export markets around the globe. According to the latest Federal Highway Administration (FHWA) and Bureau of Transportation Statistics (BTS) data, nearly 20 billion tons of goods worth almost \$19 trillion moved on the U.S. freight transportation network in 2017. Total freight across all transportation modes is projected to reach 27 billion tons by 2045 with a value of \$38 trillion.

Significant investment along with innovation in asset utilization, operational efficiencies and resiliency will be needed across the entire supply chain to meet this anticipated growth in freight demand. Rail has historically and will continue to play a critical role in serving the nation's freight transportation needs. According to the Association of American Railroads (AAR), rail accounts for 40% or more of long-distance freight volumes and hauls close to one-third of the country's exports. International trade accounts for approximately 35% of U.S. rail revenue and 42% of the carloads and intermodal units carried by U.S. railroads. The inherent economic and environmental advantages of rail are likely to result in the industry handling an increased share of intercity freight volumes in the future.

## **Moving freight during the COVID-19 pandemic**

BNSF plays an important role in moving freight across the nation every day. Our customers ship consumer goods, industrial products including construction and building materials, agricultural commodities, energy products and various other freight on our railroad. And while the world around us changed last year due to the COVID-19 pandemic, our important freight delivery mission did not and ultimately showcased the dependability of our people and operations.

BNSF had expected to achieve modest freight volume improvements heading into 2020 but the pandemic caused the economy and freight environment to deteriorate in a very short period of time. BNSF volumes began falling in the first quarter of the year and this trend accelerated as the COVID-19 economic shutdown became widespread heading into the summer.

As BNSF adjusted to this new environment, our leadership focused on two main objectives: Protecting the health of employees and continuing to deliver essential freight needed by our customers and the nation. BNSF made ongoing adjustments to its policies and protocols to protect the health and safety of our employees and the integrity of our operations. Railroaders were recognized early on as essential critical infrastructure workers and the men and women of BNSF responded to the call with optimism and perseverance, keeping trains moving during a very challenging time.

A freight rebound began in the summer and we saw significant volume improvement during the second half of the year, led mainly by our Consumer Products business. Lower international intermodal and automotive volumes in the first three quarters were offset by higher domestic intermodal volumes, which ultimately reached record levels for the year on our railroad. Increased retail sales, retail inventory replenishments, and e-commerce activity drove the second half recovery. We also saw strong demand in our grain export business while softness in U.S. industrial production and lower coal demand driven by reduced electricity demand, low natural gas prices and other factors (including the continued structural decline of coal) contributed to overall BNSF volumes being down 7% compared to 2019.

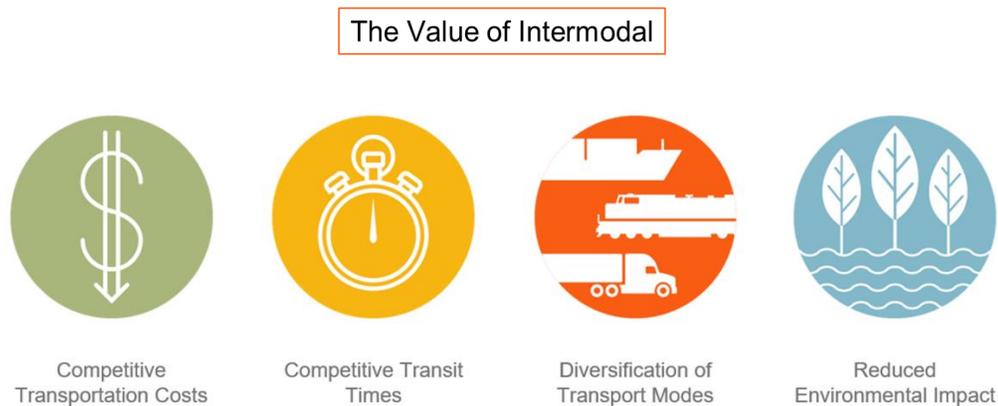
There are positive signs that the U.S. economy continues to gain strength and that volume recovery will continue. BNSF serves every major port along both the West Coast and Gulf of Mexico with key transcontinental routes between Southern California and Chicago, the Pacific Northwest and Chicago and beyond. This past December and January were the two largest months in BNSF history for moving volume direct to rail off the ports in Southern California. We have called back furloughed employees and pulled railcars and locomotives out of storage to help handle the increased freight demand and drive improved fluidity through this gateway.

BNSF did experience significant weather-related impacts in recent weeks following record-breaking cold temperatures as well as heavy snow and ice accumulations across large segments of the rail network. The extended duration of these extreme conditions, and their reach deep into our headquarters state of Texas, impacted our ability to maintain normal train operations. The railroad has since made significant gains in network velocity and fluidity but it will take some additional time to safely restore service to the level expected by our customers.

## The economic and environmental advantages of rail intermodal

While there are significant economic and environmental advantages to moving all kinds of freight by rail, I will focus largely on our Consumer Products business and specifically the value proposition of rail intermodal. As I highlighted at the outset, more than 50% of the freight volume moving on BNSF is intermodal and those volumes are growing. This did not happen by accident; BNSF has devoted considerable effort and investment in developing the world's leading rail intermodal franchise.

Intermodal is the most cost-effective and environmentally efficient mode of transporting freight, creating value for our customers, communities and the environment. BNSF remains upbeat about continued growth prospects in intermodal driven by projected future freight demand, changes in consumer behavior and related freight logistics, along with the increasing importance environmental issues—specifically carbon reduction—play in our customers' decisions about transportation.



The term “intermodal” was coined in the 1960s as the use of standardized shipping containers increased in popularity. Intermodal combines the strengths of different transportation modes to yield an efficient, cost-effective total movement of goods that Americans use every day. Intermodal is separated into two distinct categories: Domestic and international. Domestic intermodal is the movement of 53-foot containers and 28 or 53-foot trailers within the U.S. that could travel exclusively by truck but that benefit from the cost savings and environmental advantages of riding on the railroad for the long haul portion of their journey.

BNSF maintains the largest and most advanced domestic rail intermodal network in the world that combines the speed and flexibility of a truck with the efficiency, capacity and economies of scale provided by a train. Our intermodal facilities provide direct access to major distribution centers and warehouses throughout the U.S. These end points or “hubs” are located in key markets helping to maximize supply chain efficiencies and speed-to-market for our customers' freight. Domestic intermodal ultimately optimizes the roles and division of labor between truck and rail.

International intermodal relates to goods shipped in 20 and 40-foot containers that travel between domestic and international ports and then move by rail to inland destinations. Inbound

international container shipments arrive on a container ship at a port and those that are not distributed locally are loaded onto a train headed for the interior of the country. Containers may be loaded onto trains “on dock” or trucked a short distance to an “off dock” or “near dock” intermodal yard where they are sorted and loaded onto trains. BNSF’s direct access to the major U.S. West Coast ports—the largest gateway between Asia and North America—helps our customers minimize their transit times and reduce overall emissions associated with their freight shipments.

According to the Intermodal Association of North America (IANA), 95% of worldwide manufactured goods move at some point in a container. Containers accounted for 47% of intermodal volume in 1990, 69% in 2000, and 92% in 2019. At \$40 billion, the North American intermodal market value is the largest in the world with the share of rail intermodal having grown tremendously over the past 25 years. According to the AAR, U.S. rail intermodal volume increased from 5.6 million containers and trailers in 1990 to a record 14.5 million in 2018 before modestly declining in 2019. Intermodal accounted for close to 25% of revenue for major U.S. railroads in 2019, more than any other traffic segment.

One intermodal train can carry up to several hundred containers and trailers, removing that same number of trucks from congested roadways and eliminating wasted time and fuel from trucks sitting in traffic. Shifting freight from trucks to privately funded railroads also reduces the pressure on policy makers at all levels of government to come up with new funding to maintain existing infrastructure and build new roads and bridges. As discussed in more detail below, trains are also much more fuel-efficient than trucks overall, which contributes to lowering carbon emissions, decreasing environmental impacts and enhancing safety.

BNSF share gains over time in intermodal have come as the result of billions in capital investment in our rail routes, terminals to load and unload containers and technology to provide the customer the high levels of service and efficiency needed to ensure intermodal remains an enduring part of the supply chain. Since every container or trailer on a BNSF train could also travel by truck, we must provide service that is both cost effective and meets the stringent delivery needs of intermodal shippers. As you will read later in my closing comments, policymakers can play an important role in supporting the future of intermodal.

## **Sustainability**

Steel wheels on steel rail is the most sustainable way to move goods long distances over land. On average a U.S. freight train can move one ton of freight more than 470 miles on just one gallon of diesel fuel, making rail three or four times more fuel efficient than trucks and reducing greenhouse gas (GHG) emissions.

One timely example to highlight how ongoing investments in rail infrastructure and multimodal transportation assets can promote sustainability and contribute to reducing transportation related emissions is the Salmon Bay Rail Bridge rehabilitation project located in Seattle, Washington. The bridge is a critical link to the Pacific Northwest’s economy and gateway for international commerce with 30 to 40 trains crossing the bridge every day, including Sound Transit and Amtrak passenger trains. The bridge requires a 200-foot movable span to

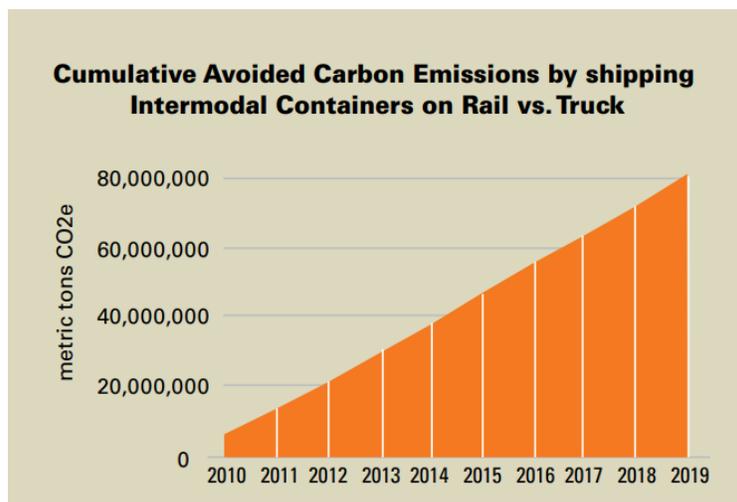
accommodate the more than 40,000 marine vessel trips traversing the Ballard Locks and Lake Washington Ship Canal each year to and from Puget Sound.

The movable span’s counterweight system is in need of rehabilitation, which will include replacing the structural steel members and components that have reached the end of their useful life. Failure of the system would cause the bridge to be forced to the “up” position, cutting off freight and passenger rail traffic. A recent analysis found that a bridge outage would shift freight traffic to more circuitous rail routes or onto the highway system. Commuter and intercity rail passengers would also be impacted and diverted to area roadways. The analysis concluded that maintaining reliability of the movable span would save more than 200 million gallons of diesel fuel and associated emissions from alternative and less efficient freight movement, avoid the addition of more than 600 million over-the-road passenger miles, and preserve maritime access through the locks and canal.

BNSF and other public and private stakeholders in the State of Washington are now working together on an innovative public private partnership to ensure continued reliable operation of this unique multimodal asset, to be completed in a manner responsive to community interest in preserving the bridge’s historic features and minimizing impacts on the environment.

At BNSF we know that environmental issues and specifically carbon reduction play an ever more important role in the transportation choices our customers are making. Shipping by rail can be part of an effective strategy to achieve significant carbon emissions savings and BNSF has developed a tool to aid our customers in quantifying the environmental benefits of rail by estimating the carbon footprint for their shipments on our railroad. The carbon estimator tool can also be used to calculate the reduction of a potential customer’s carbon footprint should they choose to incorporate BNSF into their transportation supply chain.

BNSF’s intermodal customers reduced their carbon emissions by roughly 7.5 million metric tons in 2019 and as shown in the graph below, BNSF has helped our customers and the nation avoid more than 80 million metric tons of CO<sub>2</sub>e over the past decade. This is the equivalent of removing more than 17 million passenger vehicles off the road.



While Environmental Protection Agency (EPA) data shows that freight rail accounts for just 2% of transportation-related GHG emissions, BNSF continues to challenge the status quo by working to further increase the efficiency of our network and minimize our impact on the planet. Efficiency also improves our position in the marketplace and helps preserve the competitive advantage of the U.S. supply chain.

Locomotive technology has been essential to improving our network fuel efficiency and reducing air emissions, and as such we have made a significant investment in three key areas of locomotive technology: New locomotives, Automatic Engine Start/Stop (AESS) systems and Energy Management Systems (EMS). BNSF is proud to have the largest number of the newest and cleanest-burning locomotives in North America. Since 2005, BNSF has purchased more than 3,600 new locomotives, including more than 500 locomotives since Tier 4 EPA standards took effect in 2015.

BNSF has also equipped more than 3,500 locomotives with EMS, which allows throttles and dynamic brakes to be controlled automatically, similar to cruise control in an automobile. We are integrating EMS with the safety technology Positive Train Control (PTC), which I will touch on again later, to maximize the utilization of EMS and minimize fuel consumption. Finally, BNSF significantly reduced its locomotive fleet's average emission rate of nitrogen oxides (NOx) and particulate matter (PM) over the past decade. In just the five years from 2015 to 2019, our NOx and PM emissions decreased by more than 11% and 25% respectively.

BNSF is actively pursuing other means to reduce our carbon emissions and utilize more sustainable technology in our operations. We are currently working with Wabtec—a leading rail technology supplier and locomotive manufacturer—and have begun testing in revenue service a prototype 100% battery-electric locomotive. This work is supported in part by a \$22.6 million grant awarded to BNSF and the San Joaquin Valley Air Pollution Control District from the Zero- and Near Zero-Emission Freight Facilities (ZANZEFF) project by the California Air Resources Board to pilot several emissions-reducing technologies in and around railyards. BNSF installed a charger for battery-electric locomotives at our Mormon Yard in Stockton, California.

The battery-electric locomotive initiative builds on other BNSF investments in sustainable technologies along our network and in our hubs including:

- **Idle control:** Reduces air emissions and fuel consumption by automatically shutting down locomotives that aren't being used.
- **Electric wide-span cranes:** Produce zero emissions on site while generating power each time they lower a load. The wide stance design of these new cranes eliminates as many as six diesel trucks (hostlers) for shuttling containers within the intermodal facility, reducing emissions and improving fuel efficiency.
- **Battery-electric equipment:** Hostlers, cargo handling equipment and drayage trucks.
- **Intermodal automated gate systems (AGS):** AGS uses digital cameras to record images of the containers, chassis, tractors and unit numbers as they enter an intermodal

facility. These new gates have increased facility throughput and reduced truck idling time and air emissions by 50%. In addition, BNSF's RailPASS Mobile App for truck drivers cut each gate transaction time in half, allowing drivers to pass through the AGS in as little as 30 seconds.

BNSF is focused on ensuring that rail continues to be the most environmentally preferred mode of surface transportation and remains committed to playing a constructive role to test and prove the commercial viability of emerging technologies that further reduce emissions.

## **Railroad safety**

Safety is the most important thing we do at the railroad, and no discussion of rail's advantages is complete without highlighting the industry's safety advancements and ongoing risk reduction efforts. These include robust capital investment, operational and technological innovation, training that reinforces safe operating practices and maintenance of a strong safety culture among our employees. The graphic below highlights the industry's safety record over the past 20 years.

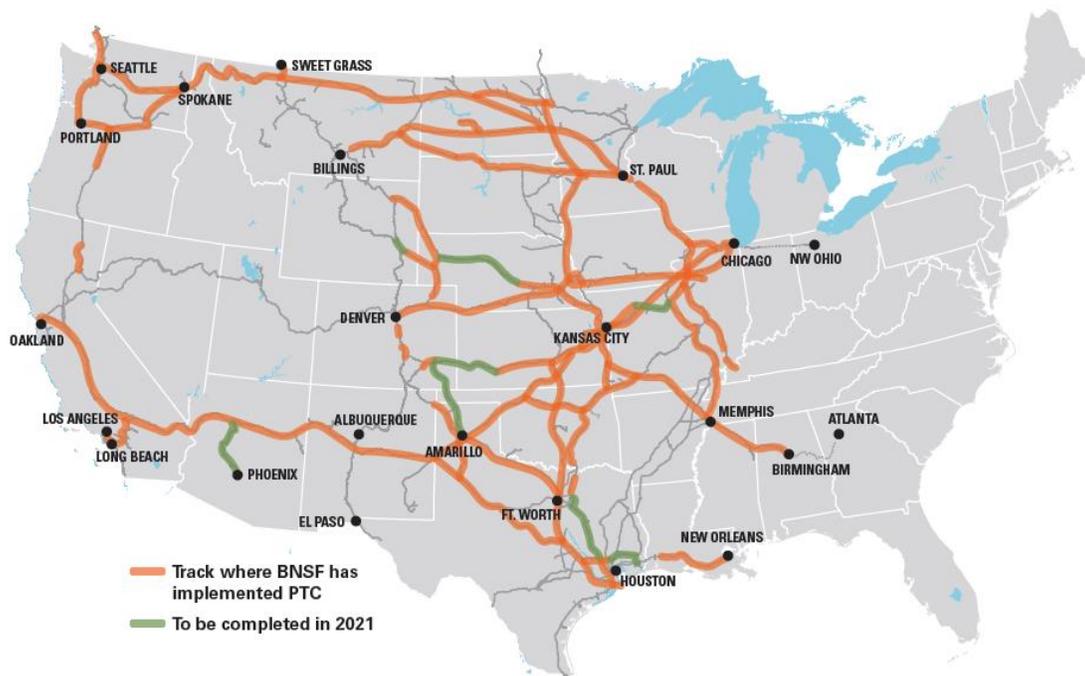
<b>Railroad Accident Rates: 2000-2020</b>	
Total accidents	-35%
Collisions	-52%
Derailments	-37%
Other	-24%
Employee injuries	-52%
Grade crossings	-32%
Hazmat incidents*	-64%

\*Through 2018 Source: FRA, AAR

BNSF is committed to a culture that continuously examines the effectiveness of its safety processes and performance, and we've made steady improvements over time in reducing employee injuries and the number of mainline derailments. We've also made steady improvements in grade crossing safety. Since 2000, BNSF's employee injury frequency ratio has been reduced by 62% while the rail equipment incident rate has been reduced by 45%. BNSF's highway grade crossing incident rate has decreased by 50% over this same time period.

BNSF has made significant safety progress in partnership with our employees and by continually exploring and investing in innovative technologies that help make the railroad safer and more efficient. PTC is an example of this, with deployment of the technology helping to address human factor risks associated with train operations. BNSF has invested well over \$2 billion to deploy PTC on 99 subdivisions, including on several not mandated by the federal government, and covering more than 14,000 routes miles. 93% of total freight volumes moving

on our railroad is protected by PTC. The graphic below shows BNSF's current PTC footprint (green lines indicate non-mandated subdivision implementation scheduled for 2021).



While PTC has received the most public attention in recent years when it comes to railroad safety, there are also many other important safety technologies related to equipment health and track inspection being developed and deployed around the rail network. It is important to note that safe rail operations are not achieved simply through compliance with federal regulations. Rather, railroads employ comprehensive risk based safety programs that often go well beyond federal requirements. This is why you will hear the freight rail industry continue to voice support for a performance-based, data-driven safety regulatory paradigm that allows innovation—as opposed to command-and-control mandates—to drive solutions that improve rail safety and efficiency.

### **Closing thoughts and policymaker considerations**

Freight railroads are poised to play an increasingly important role in meeting growing demand for goods movement in the U.S. As the American Society of Civil Engineers wrote in a report released recently on the state of the nation's infrastructure, the freight rail industry “maintains a strong network... investing on average over \$260,000 per mile.” The economic and environmental advantages of rail, supported by such significant private capital investment and ongoing innovation across the industry, will help maintain U.S. competitiveness in world markets and position the country to play a leadership role in sustainable transportation solutions. Smart, long term public policy decision-making can help support this outcome. Here are a few items for policymakers to consider:

- **Innovation:** Railroads must be allowed to innovate to improve safety, efficiency and sustainability. Innovation can include the development and deployment of new technologies along with process and operational improvements. Safety regulatory oversight should identify expected safety outcomes and support and encourage innovative solutions to meet those goals.
- **Modal equity:** A level playing field across competing freight transportation modes is required to ensure railroads remain competitive. Publicly-funded highway and bridge infrastructure should be supported by an appropriate and sustainable user fee mechanism to avoid subsidizing freight moving on already congested highways (and ultimately incentivizing that outcome) at the expense of privately funded freight railroads. Modal equity also includes “innovation equity” to ensure equal opportunity across modes to pursue innovative transportation solutions that enhance safety and efficiency.
- **Balanced regulation:** Railroad rates and service are regulated by the Surface Transportation Board, the successor agency to the Interstate Commerce Commission. The Board performs an important role and must take care to maintain a balanced regulatory environment that will allow railroads to earn sufficient revenues to support ongoing reinvestment in their networks.
- **National uniformity:** Preserve a nationally uniform rail regulatory framework that avoids a patchwork of state and local rules that are not appropriate for, and inconsistent with, the needs of interstate commerce.
- **Infrastructure capacity:** Railroads are becoming ever more efficient but still anticipate needing to build additional infrastructure—in particular yard and intermodal hub capacity at rail endpoints—to handle anticipated growth in freight demand. This has become ever more challenging and the rail industry looks forward to working cooperatively with public officials at all levels of government to facilitate these efforts, which are needed to support the policy goal of keeping more of our nation’s freight moving by rail.
- **Public-Private Partnerships:** Provide flexible federal funding opportunities that support public-private partnerships with freight railroads, including through competitive USDOT grant programs such as INFRA, BUILD and CRISI. Also, increase funding to respond to community calls for more highway-rail grade separations.

Thank you again for inviting me to testify today and I would be happy to answer your questions.