RAIL-INDUSTRIAL PARTNERS

WHITE PAPER · MERCHANDISE CARLOAD MARKET SHARE

Capturing the Merchandise Carload Market

How U.S. Freight Railroads Can Win a Larger Share of North American Merchandise Carload Freight

SEPTEMBER 2026

RAIL-INDUSTRIAL.COM

1 Executive summary

U.S. freight railroads have lost merchandise carload share to trucks for two decades. Merchandise carload means all non-intermodal carload traffic other than coal. It was about 8.4 million carloads in 2024 on AAR's weekly-reporting basis and has not grown since 2008. Over the same period truck tonnage grew about a third. STB's own waybill tabulation shows non-coal carloads down 1.3% from 2006 to 2019 in an economy that grew about 50%.

Coal is excluded. Its decline from 7.71 million carloads in 2008 to 2.94 million in 2024 reflects the electricity market. It accounts for the fall in total carloads and has nothing to do with merchandise competition. It appears here only so that it can be separated out.

Four things happened to merchandise carload over those years. Class I operating ratios fell from 88% to the low 60s while volume did not grow; STB's chairman called that an emphasis on the operating ratio over growth in 2021, and CSX's chief executive at the time, Joe Hinrichs, said in September 2025 that the industry's focus had been margins and that truck-competitive carload was not the priority. Real rail rates rose about 30% after 2004 by STB's measure, narrowing rail's advantage on the medium-length lanes where truck is a substitute. Service became unpredictable enough that shippers testified they pay a truck premium for certainty. And new industrial sites were built on highways instead of sidings.

The freight that can be recovered falls into three groups: rail-served plants that truck part of their own outbound, truck shippers within dray range of a rail terminal, and new industrial sites now being planned. Most of it moves in the distance range where truck is the competing mode. FHWA projects truck tonnage to grow faster than rail through 2050.

Recovering it requires two parties doing different jobs. The Class Is are configured to hook and haul: to move large blocks and unit trains between major terminals at scale. Every choice they made since 2004 made them better at that and worse at the single-car, siding-by-siding work merchandise carload requires.

That work belongs to shortlines and terminal operators. They gather small shippers into blocks a Class I can handle, and they can provide the services this paper describes: transload terminals, first- and last-mile switching, rail-served industrial development, published local schedules, one price for the whole move, car-level tracking, and handling designed for specific commodities. An owner of several properties can run them as one regional group; a single-territory shortline gets much of the same effect by cooperating with neighboring railroads and with its Class I. Either can grow merchandise carloads in markets where the Class Is on their own have not.

A shortline that gathers freight is only as effective as the linehaul it hands off to. The Class Is do not need to change their operating model, but their support is required across the relationship. Commercially, that means rates and divisions that leave room for the shortline, the terminal, and the shipper to share a saving over truck. Operationally, it means reliable scheduled service at the interchange and car supply. In marketing and industrial development, the Class I's participation decides whether a new customer locates on rail at all. This paper treats that support as a requirement of the approach.

Evidence and judgment. The first half of this paper, through the section on why merchandise carload lost share, is drawn from the public record, and every figure is cited. The second half is a proposal. Its basis is the authors' experience owning and operating shortline railroads and rail-served terminals, and working with Class I railroads across every part of the relationship: pricing and divisions, contracts, marketing and industrial development, interchange and blocking, car supply, local service design, and network planning.

That experience is the source of the paper's central operating judgments. Shortlines are effective at gathering small shippers into blocks. The Class Is are built to hook and haul and are not going to return to single-car gathering. The Class Is furnish cars from their own fleets when they have them and do not want private empties on their networks. And none of the gathering work pays unless the Class I supports it commercially and operationally. The proposal attaches no numbers that are not in the public record. Readers should treat the first half as fact and the second as an operator's judgment about what can actually be executed.

2 The structural argument

The underlying reason railroads have lost merchandise carload share is structural. Rail is a business that depends on volume, its basic product is the train, and for forty years the freight economy has been moving toward smaller and more dispersed shipments. The rest of this paper follows from that.

Rail's costs depend on volume. A railroad's cost advantage over a truck exists only when many shipments share the same train at the same time over the same corridor. The infrastructure is private and fixed, the train is the basic product, and the cost per car falls as the train gets longer and the corridor gets denser. Average train weight rose from 2,923 tons in 2000 to 3,948 in 2023,[1] and the PSR-era Class I told GAO its average train grew from about 5,250 feet to 7,000 feet in a decade.[2]

Trucking is a business of individual loads. A truck runs on public roads it does not own, and a carrier adds capacity one truck at a time. The cost of carrying one more load is close to the average cost of carrying any load, so a carrier can serve a shipper with thirty loads a year at nearly the same cost per load as one with three thousand. The Motor Carrier Act of 1980 deregulated trucking in the same year the Staggers Act deregulated rail,[3] and the industry that resulted has no network to protect, no operating ratio to defend, and no reason to turn away the marginal load.

The market moved toward smaller shipments. Three-quarters of U.S. freight tonnage now moves under 250 miles and only about 6% moves 1,000 miles or more.[4] Distribution networks are located for highway access, which has averaged the third-ranked corporate site-selection factor since 2016.[5] Coal, the one remaining train-sized flow, declined with the electricity market. Freight became smaller and more dispersed at the same time trains became longer.

Someone has to gather the shipments. Dispersed shipments have to be gathered into train-sized units: gather the cars, supply the cars, run the local, classify the block, price the whole move. Before 2004 the railroads absorbed that cost themselves, in yards, locals, car fleets, and through-rate divisions, because competition among more carriers gave them a reason to. Consolidation from about 40 Class Is in 1980 to six removed that reason.[6]

PSR made the decision explicit. The Class Is converted a carry-everything common-carrier network into a scheduled bulk conveyor. They pushed the cost of gathering onto shippers through private cars, demurrage, and reduced local frequency, and priced off what did not fit. Class I-owned and leased cars fell about 32% and staff about 28% between 2011 and 2021.[2] Real rates rose about 30% after 2004.[7] For a railroad managing to an operating ratio in the low 60s, that was a sound decision. It also took rail out of the part of the freight market that was growing.

What reverses it. The Class Is are not going to return to the gathering business, and their cost structure argues against it. Reversal requires someone else to perform that function at a lower cost than the railroads once did and at a lower cost than truck. That means terminals and transload that give any shipper within dray range a rail origin without a siding, shortlines and contract switching that run the local the Class I no longer runs, and a single price for the whole move.

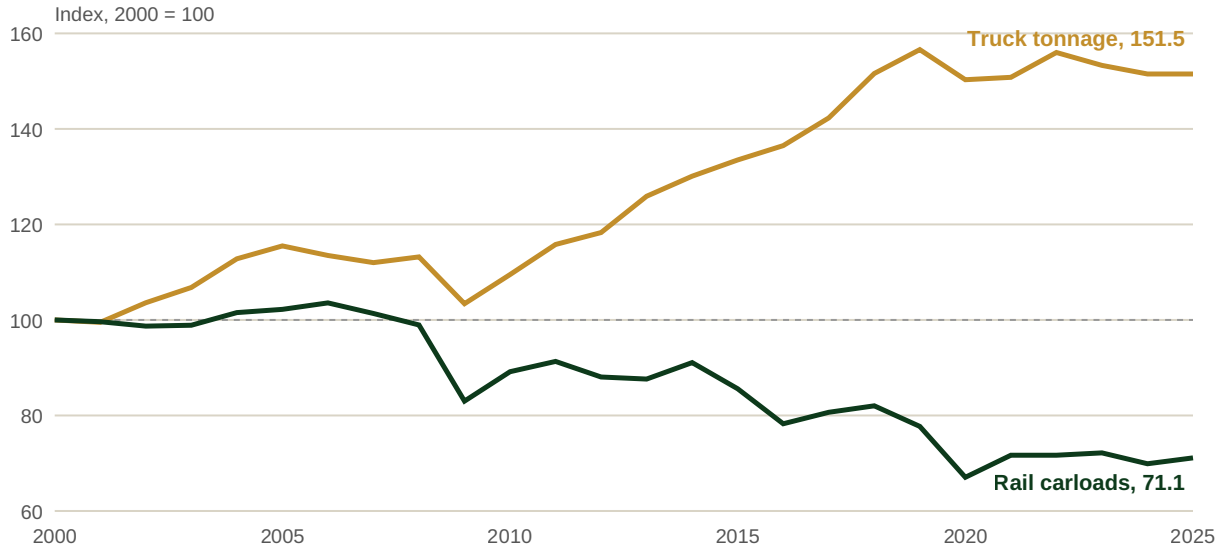
Those services feed a Class I linehaul that has to do two things in return: run the interchange on a schedule, and price the combined move for a lane where truck competes. Behind that, rail-served industrial development rebuilds volume at the source. If the loss came from the railroads withdrawing from the gathering function, recovery depends on someone else performing it at a cost the market will pay.

Measuring progress. Total carloads and revenue ton-miles are poor measures for this purpose: the first is dominated by coal and the second by length of haul. Better measures are rail's share of ton-miles in the 250-to-1,000-mile distance bands where the two modes compete, and merchandise carloads per rail-served customer. Both are published or can be computed from published data, and both have been flat or falling for fifteen years.

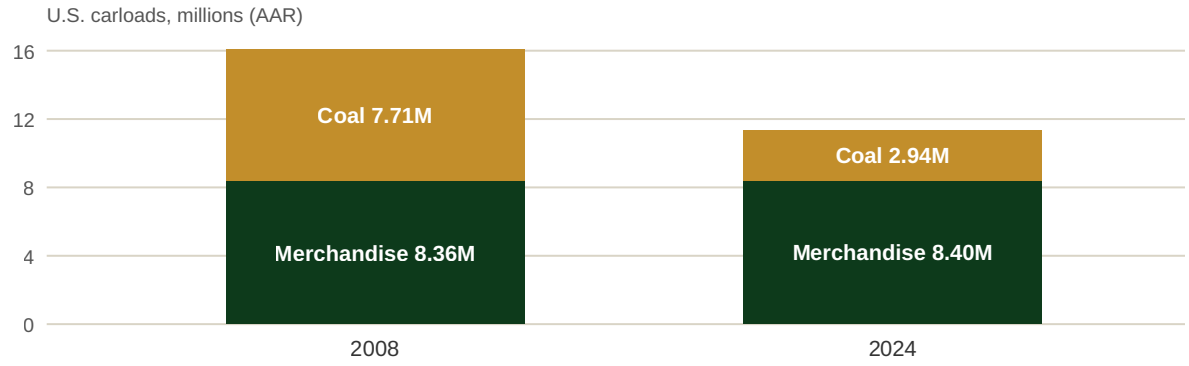
3 Merchandise carload volume vs. freight growth since 2000

This paper is about merchandise carload, defined here as all non-intermodal carload traffic excluding coal. It includes grain, chemicals, metals, forest products, aggregates, autos, and every other carload commodity, whether it moves in manifest or unit-train service. No public monthly series isolates it, so the chart below uses total carloads for the time series and separates coal at the two years for which AAR publishes coal carloads on a comparable basis.

Total U.S. rail carloads fell from 16.2 million in 2000 to 11.6 million in 2025, a 29% decline. Truck tonnage rose 52% over the same period. Carload traffic held near 16 million through 2008, dropped in the 2009 recession, and never recovered; the 2016 and 2020 downturns each reset the base lower. Truck tonnage recovered from each downturn. Its 2019 level remains the peak, and 2022 came within half a point of it.



Rail carloads vs. truck tonnage, 2000–2025, indexed to 2000. Source: BTS/AAR via FRED, RAILFRTCARLOADSD11 and TRUCKD11.



Coal and merchandise carloads, 2008 and 2024. Source: AAR; 2008 coal is Class I originations, 2024 is the weekly series.

Coal is excluded from this paper's definition of merchandise carload because its decline is an electricity-market event, not a matter of competition between rail and truck. It is separated here only so the merchandise line can be seen. Coal carloads peaked at 7.71 million in 2008 and fell to 2.94 million in 2024, the lowest since AAR records began in 1988, as coal's share of U.S. electricity generation dropped from 52% in 2000 to 15% in 2024.

Non-coal carloads were about 8.4 million in 2024 (11.34 million total less 2.94 million coal, both from AAR's weekly series). They were flat to lower than in 2008, while truck tonnage grew a third. The 2008 coal figure comes from a broader Class I series, so the 2008 merchandise estimate of 8.36 million is, if anything, low. STB reached the same conclusion on its own waybill data: excluding coal, "adjusted carloads" fell 1.3% between 2006 and 2019. AAR's counter is that ex-coal ton-miles rose 10% over the same years because hauls got longer. Both are true. Longer hauls on a flat carload count mean rail is carrying the same customers farther, not carrying more customers, and a flat count in a growing market is a loss of share.

The most recent data show a recovery under way. AAR reported carloads excluding coal up 4.5% in the first quarter of 2026, the highest first-quarter level since 2015, and by mid-year at their highest monthly level since August 2018, with 16 of 20 carload categories growing in the second quarter.[8] For the first 26 weeks of 2026, U.S. carloads were about 5.9 million, up about 3% on 2025.[9] That is a cyclical upturn and a welcome one. It has not yet returned merchandise carload to its 2008 level, and it has come alongside an intermodal surge that this paper excludes.

By ton-miles, rail carried about 39% of domestic freight in 2000 (BTS, all rail). In 2023 the Freight Analysis Framework attributed 19% of ton-miles to rail and 10% to multiple modes (mostly intermodal), against 44% for trucks; the two series use different methods, so the gap overstates the decline, but the direction is clear. FHWA projects total U.S. freight tonnage growing about 1.6% per year to 2050 with truck growing faster than other modes, so the market continues to grow.

Most freight moves short distances: 74% of tonnage moved under 250 miles in 2024, and only 6% moved 1,000 miles or more. Rail is the dominant mode by weight and ton-miles on the 1,000–2,000-mile band. The volume is in the middle distances where carload rail has been weakest.

3.1 Structure of the carload market today

Merchandise carload is a market of roughly 8.4 million carloads a year inside a total of about 11.3 million on AAR's weekly-reporting basis, which excludes the U.S. operations of CN, CPKC, and GMXT. On an all-railroads basis both figures would be a few percent higher. Coal, excluded from this paper, is the remainder. Most of the car fleet is privately owned or leased rather than railroad-owned, and one carload in five touches a shortline.

Merchandise earns more per ton-mile. In 2017 Class I average revenue per ton-mile was 5.76 cents for all commodities other than coal against 2.58 cents for coal.[10] Through November 2024 coal was 25.9% of U.S. carloads, chemicals 14.8%, and grain 9.4%.[11] The remaining half is spread across metals, motor vehicles and parts (about 1.8 million Class I carloads a year), petroleum and petrochemicals (over 2.3 million carloads of refiner and petrochemical feedstocks and products), forest products, crushed stone, sand and gravel, and food.[1,12] Chemicals set an annual carload record in 2024 on the back of low-cost U.S. natural gas. Grain shippers and railroads partner on more than 3 million carloads a year.[12]

Most of the fleet is no longer railroad-owned. Class I-owned and leased railcars fell about 32% from 2011 to 2021, from roughly 358,000 to 243,500.[2] No single authoritative figure for the private share of the North American fleet is published. Industry estimates range from over 60%[13] to about two-thirds[14] to roughly 73%,[15] and lessors report fleet utilization above 95%.[16]

"Private" includes leasing companies as well as shippers. Lessors own a large share of the private fleet and nearly all tank cars, so the shipper-owned share is smaller than the private share, and no published figure gives the share of carloads that move in private cars. Whoever owns the car, a shipper considering rail today must usually arrange it, which is a fixed cost and a management burden truck does not impose. Trains got heavier as carloads got fewer: the average freight train carried 3,948 tons in 2023 against 2,923 in 2000.[1]

Shortlines are a separate industry. More than 600 shortline and regional railroads operate about 50,000 route miles, roughly a third of the national network, serve more than 10,000 shippers, and originate or terminate one carload in five.[17,18] The average shortline employs fewer than 30 people and runs under 79 route miles; 51% of shortline track is wholly owned, 31% leased from Class Is, and shortlines devote about a quarter of revenue to rehabilitating track they inherited with decades of deferred maintenance.[19,20] These are the operators that still call on a customer with 30 cars a year, and the ones with the most direct stake in whether carload grows.

The practical consequence for share: the Class Is decide the linehaul price and the interchange, but the shipper's experience of rail, and the decision to use it, is formed at a siding, a transload, or a shortline yard. That is where the volume is won or lost, and it is largely outside the Class I operating plan.

4 Why merchandise carload lost share

Merchandise carload lost share while the Class Is were improving their operating ratios on a base that was not growing, and while the industrial base moved off the railroad. Whether the first was a strategy or an outcome was a matter of interpretation until the industry's own leaders addressed it: STB's chairman called it a pursuit of the operating ratio in 2021, CSX's then chief executive said in September 2025 that margins had come ahead of truck-competitive carload, and Berkshire Hathaway's 2025 report names operating margin as the measure by which it judges BNSF. The results are not in dispute, and the section

below collects those statements. The Surface Transportation Board convened its September 2024 [21] hearing on exactly this finding: over ten years carload volumes had not grown and had in fact decreased. Five causes follow, roughly in order of importance. Coal is not among them, for the reasons given above.

CAUSE	EVIDENCE	EFFECT ON MERCHANDISE CARLOAD
Operating-ratio management (PSR)	Class I operating ratio 88% (2000) to about 68% (2016) and 60–65% (Q3 2024); Class I staff down about 28% from 2011 to 2021 per GAO, and 29% (about 45,000 jobs) in the six years to 2022 per STB[22,23,2,24]	Fewer trains, longer trains, fewer local crews and yards; four of seven Class Is told GAO they cut service days to smaller customers
Rates rose after 2004	Class I revenue per ton-mile 2.35 cents (2004) to 4.05 cents (2014), nominal, per BTS Table 3-21; STB's real-terms index fell 27% from 1985 to 2004 then rose about 30%; USDA measured +36% per ton-mile 2004–2011[25,7,6]	Narrowed rail's cost advantage on the medium-length lanes where truck competes (the lane-level effect is the authors' inference from the rate record; no national truck-vs-rail lane price series exists)
Service reliability	Shipper testimony at the STB's 2022 and 2024 hearings centered on missed switches, unfilled car orders, transit variability, and the cost of holding safety stock[26,12]	Shippers pay a truck premium for certainty; carload becomes the mode of last resort
Loss of rail-served industrial sites	AFPM testified that about 75% of refiners and petrochemical plants are served by a single railroad; highway access averaged third among corporate site-selection factors across the 2016–2023 Area Development surveys, though it fell to a tie for ninth in 2023[12,5]	Each closed siding is permanent share loss; new plants sited without rail are unreachable at any rate
First/last-mile and transaction friction	Demurrage and accessorial revenue rose sharply after 2018 with no rise in carloads; STB requested quarterly reporting and held a 2019 hearing[27,15]	The all-in cost and effort of a carload move exceeds the linehaul price; small and mid-size shippers default to truck

4.1 The Class I record in detail

The Class Is lost relative share through five documented choices made between 2004 and 2022, in a market that no longer penalized them for doing so. The record below is drawn from STB proceedings, GAO, USDA, AAR, and the carriers' own filings.

Consolidation removed competition between railroads for the small customer. There were about 40 Class I railroads in 1980 and seven by the 2000s; the CP–KCS combination made it six in 2023.[6,28] Class Is account for about 94% of industry freight revenue.[1] The four largest originated 86% of grain and oilseed traffic in 2011, against 53% in 1980.[6] The refining and petrochemical trade association reports that 78% of its members' rail-served facilities have a single serving railroad;[29] that is a shipper-side figure for one industry, but no comparable Class I-published figure exists.

A carrier that faces no rail competitor at most of its sidings does not lose the customer when it cuts service. It loses only the customer's additional volume, and that volume goes to truck without showing up in any rate case.

Rates rose from 2004 on. BTS Table 3-21, drawn from AAR's Railroad Facts, shows Class I average revenue per ton-mile at 2.26 cents in 2000 and 2.35 cents in 2004, then 2.84 (2006), 3.34 (2008), and 4.05 cents in 2014. That is a 72% nominal rise in a decade, after two decades of flat-to-falling nominal rates.[25] In real terms, STB's index shows rail rates fell 27% between 1985 and 2004 as productivity gains

were passed through, then rose about 30%.[7] USDA measured a 36% rise in real average revenue per ton-mile across all commodities after 2004, and attributed most of it to higher railroad costs rather than to market power.[6]

Traffic peaked in 2006. The economy grew about 50% afterward while the railroads carried less freight at higher rates. The industry's comparison to 1981 is accurate; the change after 2004 is the one that bears on carload share.

PSR reduced the network's capacity to serve small customers. GAO's 2022 review of all seven Class Is documented the operating changes[2]:

OPERATING CHANGE, 2011–2021	MEASURE	CARLOAD CONSEQUENCE
Staff	Down about 28% across the seven Class Is; STB counted a 29% cut, about 45,000 jobs, in the six years to 2022[24]	Fewer local and yard crews; longer recovery from any disruption
Train length	One carrier: 5,250 ft (2011) to about 7,000 ft (2021); another: trains over 10,000 ft from under 3% (2017) to over 25% (2021)	Cars wait for the next long train; bunching at the customer dock
Locomotives	Down about 5%, 24,730 to about 23,600	Less surge power; embargoes replace capacity
Railroad-owned and leased railcars	Down about 32%, 358,000 to 243,500	Car supply pushed to shippers; industry estimates put the private share of the fleet between roughly 60% and 73%
Local service frequency	Four of seven Class Is cut service days to smaller customers when all cars could be delivered in fewer days	"Five days a week" became "two days a week, more cars at once"

GAO also reported that most stakeholders believed the staff and locomotive reductions had reduced network resilience, and that FRA and STB opened first-mile/last-mile (EP 767) and service-reporting (EP 770 Sub-No. 1) dockets in response. Each of those changes is defensible for a railroad managing to a 60% operating ratio. Each also makes a single-car customer harder to serve.

The 2022 service record. STB convened the [26] hearing in April 2022 after agricultural, energy, and manufacturing shippers testified to missed switches, unfilled car orders, and plant slowdowns. It then imposed new weekly service reporting on the four largest carriers.[30] Union Pacific's congestion embargoes rose from five in 2017 to more than 1,000 in 2022, nearly ten times any other railroad. The Board held a second hearing on that alone and found that UP's 181 congestion embargoes in 2023 still exceeded all other Class Is combined.[31,32] An embargo is a railroad telling a shipper not to ship. Freight turned away in that period had to move by another mode or not at all.

Accessorials shifted cost and risk to the customer. After the 2018 PSR rollouts, Class I demurrage and accessorial revenue jumped with no matching rise in carloads. CSX demurrage was up 121% from 2017 to 2018, UP up 30%, and BNSF up 15% with accessorials up 61% [15] (the letters are posted on the STB site and were not re-totaled for this paper). One scrap shipper told the Board its monthly demurrage to Norfolk Southern rose 560% in a year.[33] STB held a hearing in May 2019, has asked every Class I to report demurrage and accessorial revenue quarterly since 2018, and posts the reports.[27] Longer trains deliver more cars at once into the same free time, so the charge is partly a product of the operating model, and a mid-size shipper cannot budget for it.

Capital allocation favored shareholder returns over network growth. From 2010 to September 2021, when STB's chairman gave the figures, the seven Class Is had spent $138 billion on capital, most of it maintenance, while the five U.S.-based Class Is had returned $191 billion in buybacks and dividends.[7] STB's tally reached $253 billion by early 2024.[34] AAR's counter is accurate: railroads reinvest about 18% of revenue against 3% for the average manufacturer.[1] Both are true. The reinvestment kept the linehaul plant in condition. Almost none of it built the yards, sidings, terminals, or local crews that grow carload volume.

What this adds up to. None of these choices was irrational for a Class I. Consolidation made the marginal single-car customer unnecessary to retain. Pricing by what each customer could bear made the remaining customers pay more. PSR lowered the cost of running the network at the expense of the local service those customers depend on. Embargoes and accessorials managed the resulting congestion by turning freight away. And the cash generated went to owners rather than to capacity that would have carried growth. Taken together, the choices removed the railroads from the marginal merchandise customer, and that customer went to truck.

4.2 What the industry says about itself

The reading above is not a shipper's or a regulator's alone. Since 2024 the owners, chief executives, and retired leaders of the Class Is have said the same thing in public, and their words carry more weight with this audience than any outside analysis.

The owner of BNSF states the yardstick. In Berkshire Hathaway's 2025 annual report, chief executive Greg Abel wrote that Berkshire views operating margin, the inverse of the operating ratio, as "the best measure of performance." He wrote that the gap to the industry's best remained too wide (BNSF's 2025 operating ratio was 65.5% against Union Pacific's 59.8%), and that each point of margin is worth about $230 million of cash flow to Berkshire. BNSF paid Berkshire $4.4 billion in dividends in 2025.[35,36]

The same report shows BNSF's industrial products carloads falling from 1,471,000 in 2023 to 1,448,000 in 2024 and 1,382,000 in 2025, a 6% decline in two years, while consumer products (intermodal and automotive) grew.[37] That is the merchandise carload story in a Class I's own filing, from the owner that names margin as the measure.

A Class I chief executive said it directly. At an investor conference in September 2025, CSX chief executive Joe Hinrichs, asked why railroads have struggled to grow even setting coal aside, said the industry's focus for the last 10 to 15 years had been restructuring for efficiency and margins, and that "if your only pursuit is every quarter trying to show a little better O.R.," then intermodal and truck-competitive carload business will not be the priority, because the pricing dynamics are different. The average Class I operating ratio fell from 70.8% in 2012 to 59.9% in 2021.[38] Hinrichs left CSX two weeks later, on September 28, 2025, under pressure from an activist investor pressing the company toward a merger; Steve Angel succeeded him.[39,40] The remarks stand as those of a sitting Class I chief executive at the time he made them.

Retired Class I leaders say the same. At Michigan State University's Rails to the Future conference in May 2026, retired BNSF executive chairman Matt Rose said the industry must "grow or die." Retired Norfolk Southern chief executive Wick Moorman, retired CSX president Clarence Gooden, and retired Union Pacific president Beth Whited described stagnant volume, uneven service, and short-term financial pressure as threats to the industry. They described carload customers waiting weeks for a rate quote and

ten days for a car.[41,42] The Trains analysis of that conference put it plainly: excluding coal, rail volume has been stagnant since 2014 while Class I revenue is up more than 20%, and in some cases railroads were content to see traffic go to the highway because it was not profitable enough to help the operating ratio.

The analysts agree on the diagnosis. TD Cowen's June 2025 rail report said the Class Is have "underpenetrated their TAM for more than a decade," with carload growth lagging GDP and inconsistent service at the root of the share loss.[43] Independent analyst Rick Paterson told the STB's 2025 growth hearing that since the 2006 peak the railroads lost volume in sectors where U.S. production rose, including finished vehicles and corn. He has described the post-2004 formula as raising rates faster than costs while volume did not grow.[44,45] Oliver Wyman told the RailTrends conference the Class Is have lost share across all commodity groups.[46]

None of these speakers is a shortline advocate. The owner of the largest railroad names margin as the measure; a Class I chief executive, speaking while in office, said margin came ahead of truck-competitive carload; the retired heads of three other Class Is say the industry must grow; and the industry's own analysts say the share loss has run for more than a decade. The paper's reading of the record is theirs.

A shortline owner says the same from the other side. In Railway Age's April 2026 issue, Peter Gilbertson, president and chief executive of Anacostia Rail Holdings, wrote that even excluding coal, Class I carload traffic peaked in 2006 and has steadily lost share to trucking, while shortlines that interchange nearly all their traffic have continued to grow volume. He argued that if the industry wants to grow carload traffic rather than manage its decline, interchange performance has to be scheduled, measured, and reported consistently, with interchange frequency designed around growth and customer needs rather than operating convenience, and that the working model is Class Is running efficient long-haul movements between hubs while shortlines provide first- and last-mile service and feed freight into the national system.[47] He is an interested party, and the paper treats him as one; his description of the division of labor and of what the Class I has to supply is the same as the one set out below.

4.3 Trucking and industrial siting

Trucking gained carload's share because it is built to serve exactly the customer rail walked away from, and because the country's new industrial capacity was sited for trucks. Neither is a rail failure in itself; together they turned each Class I retreat into permanent truck volume.

Trucking will take the small customer. The Motor Carrier Act of 1980 deregulated trucking in the same year Staggers deregulated rail, lowering barriers to entry and letting carriers compete on price.[3] The result is an industry of tens of thousands of carriers with no network to protect, no operating-ratio target that penalizes a small customer, and costs that grow one truck at a time. A shipper with 30 loads a year is a good truck customer and a bad rail customer. A shipper that adds 10% volume gets a better truck rate and, under PSR, may get a demurrage bill. Trucks are also involved in the supply chain of every one of the top ten commodities by tonnage and by value,[4] so a truck carrier already has the relationship with the plant that rail is trying to reach.

Truck pricing is not tied to fixed network costs. Rail rates rose about 30% in real terms after 2004 while the network shrank. Truck rates move with the freight cycle and driver supply and reset every time the market softens. Between 2000 and 2025 truck tonnage grew 52% while carloads fell 29% (appendix). After the 2009 recession truck tonnage passed its prior peak within two years, and after 2020 it recovered

to within half a point of its 2019 peak by 2022; carloads never regained their pre-2009 or pre-2020 levels. After 2004, trucking took share on every lane where the rail linehaul saving no longer covered the switching, dray, car, and uncertainty cost of the rail move.

Industrial siting favors the highway. Highway access averaged third among the factors in Area Development's annual corporate site-selection survey across 2016–2023, behind skilled-labor availability and labor cost, though it fell to a tie for ninth in the 2023 survey.[5] Rail service does not appear among the leading factors in the published rankings the authors reviewed. AFPM's testimony that about 75% of refiners and petrochemical plants are single-served describes the legacy rail-served base; the newer industrial base is largely built without rail at all.[12] Three-quarters of U.S. freight tonnage moves under 250 miles, a distance where rail cannot compete without a rail-served origin and destination.[4] A plant built without a siding is freight that no rate cut will recover, because retrofitting rail to an existing site is rarely justified by the linehaul saving.

Two forces compounded. As Class Is cut local service and switch frequency, plants that kept a siding used it less and eventually stopped maintaining it. As plants closed sidings, Class Is had fewer reasons to run the local. The authors' reading is that this loop ran fastest between 2008 and 2016, when coal fell and PSR spread, and that the flat non-coal carload line since 2008 is its signature. That is an interpretation of the data, not a published finding. Reversing it requires a party willing to run the local, supply the car, and build the terminal for a customer the Class I will not serve directly, which is the subject of the rest of this paper.

Three things are not causes of the merchandise loss. Coal is not: its fall from 7.71 million carloads in 2008 to 2.94 million in 2024 is an electricity-market event that explains the decline in total carloads and nothing about merchandise, which is why this paper sets it aside. Truck deregulation is not: the Motor Carrier Act of 1980 did make trucking cheaper and more flexible, but that happened before 2000 and did not stop carload from growing through 2006. And the freight itself did not disappear. The chemicals, grain, aggregates, metals, forest products, and building materials that fill merchandise trains grew with the economy, and chemicals set a carload record in 2024. The loss is on the margin of every commodity group, not the disappearance of any one.

5 What can be done: the addressable freight and the responses

The freight that could move by rail is truck freight in carload-type commodities on lanes long enough for rail to compete, plus rail-served volume that has drifted to truck at the first and last mile. AAR's own estimate is that shifting 25% of truck traffic moving 750 miles or more to rail would cut emissions by 11.4 million tons a year; the same arithmetic says that traffic exists and is not moving by rail today. FHWA projects freight tonnage growing 1.6% a year to 2050, so the available freight grows even without winning a single existing truck load.

The last FHWA distance-band table published in Freight Facts and Figures (2007 data, FAF 3.4) gives the national scale. Trucks moved about 1.34 billion tons at 250–499 miles, 407 million at 500–749, 207 million at 750–999, and 203 million at 1,000–1,499. Rail's share of tonnage rose from 18% to 30%, 37%, and 43% across those same bands. Roughly a billion tons a year of truck freight moved 500 miles or more in that year, in distance bands where rail already carried a third or more of the tonnage. The figures are dated and the FAF has been rebased since, but the shape is what the estimating method below tests lane by lane.

Three groups, in order of how quickly they can be won:

1. **Existing rail-served shippers shipping below their rail potential.** Plants with a siding that truck part of their outbound because car supply, switching frequency, or transit time is unreliable. No new infrastructure is involved; what changes is service and commercial terms.
2. **Truck shippers within a short dray of a rail terminal.** Chemicals, plastics, building products, metals, forest products, food and beverage ingredients, fertilizer, and aggregates that could move by rail to a transload and truck the final leg. This is where transload and terminal capacity converts directly to carloads.
3. **New industrial sites.** A plant, mill, or distribution center sited on rail produces carload volume for the life of the facility. Reshoring, energy, and data-center construction are producing new industrial siting decisions now.

The actions that address each cause:

LEVER	WHO EXECUTES	WHAT CHANGES FOR THE SHIPPER
Scheduled, published local service	Shortline, Class I local	Known switch days and car-order cycle; shipper can plan production around rail
Single-price, all-in quotes	Shortline or terminal as the selling party	One rate covering linehaul, switching, transload, dray, and car; no tariff surprises
Transload and terminal capacity	Terminal operator	Rail economics without a siding; open to any shipper within dray range
Rail-served industrial development	Shortline, developer, state and local	Site-ready rail-served land with switching, utilities, and permits in place
Shipment tracking and simple ordering	Shortline and terminal, with Class I data	Web-based ordering, ETAs, and exception alerts comparable to a truck brokerage
Reliable Class I interchange	Class I with shortline partners	Consistent interchange windows and car flow so the local promise holds end to end

None of these actions require the Class Is to abandon the hook-and-haul model they are built for. Most are carried out by the shortlines and terminal operators that hold the customer relationship and the last mile. Two of them, though, depend on the Class I directly and cannot be worked around. The interchange has to run to a schedule the local promise can be built on, and the linehaul rate has to leave a margin the shortline, the terminal, and the shipper can share against the truck alternative.

A shortline that combines twenty small shippers into a daily block has done the hard part. If the block waits three days for a train, or the through rate is set as if the traffic were captive, the effort fails and the shippers go back to truck. The remainder of this paper treats Class I interchange service and rate support as a requirement.

5.1 What Class I support means in practice

Class I support is not one thing and it is not confined to the junction. It runs through the whole relationship between the Class I and the shortline or terminal: commercial (rates, divisions, contracts, and joint selling), operating (interchange, blocking, car supply, and how the local is designed), and planning

(industrial development, capacity, and network changes that affect the shortline's traffic). The five items below are the ones that most often decide whether a market works, and each belongs in the agreement between the two railroads.

1. Interchange scheduling and blocking. A shortline's combined traffic reaches the Class I network as a block delivered to a junction or a serving yard on the Class I's road switcher or local. The block is worth more to the Class I, and moves faster for the shipper, if the shortline pre-blocks it to the Class I's own destination blocks. It can then be swapped onto the next scheduled train instead of being reclassified in the serving yard. That requires the Class I to share its blocking scheme and trip plans, hold a published interchange window, and accept the block on the day it is tendered.

The reverse move matters as much. Empties and inbound loads have to come off the Class I on a schedule the shortline can build its local around. GAO recorded that four of seven Class Is cut service days to smaller customers under PSR.[2] An interchange that drops from daily to three days a week adds up to two days of waiting at each end of the car cycle, and roughly a day and a half per cycle on average. Car cycle is what the shipper experiences as transit time and what the car owner experiences as fleet cost.

2. Divisions, Rule 11, and the handling-line arrangement. How the shortline gets paid determines whether it can price a lane against truck. Shortlines are paid under a handful of arrangements. A handling carrier is not shown in the pricing route and is paid a per-car allowance set by contract with the Class I. A switch carrier is listed in the operating route and paid a published switch charge. Some are paid under a junction settlement with the connecting carrier. An ISS (Interline Settlement System) carrier negotiates its own division of a joint through rate or, under AAR Accounting Rule 11, publishes its own rate and bills the shipper separately.[48,49]

Under a joint through rate the Class I quotes the total to the shipper. The shortline's revenue is its negotiated division, or for a handling carrier a fixed per-car allowance. If the Class I prices the combined lane as it would a captive single-served shipper, the division cannot fund a local, a car pool, and a transload and still beat truck, and the aggregated move cannot be sold. Rule 11 gives the shortline rate freedom but hands the shipper two rate negotiations and two invoices, which is exactly the friction that sends mid-size shippers back to truck.[50,51]

The single-price product in element 5 is the operator absorbing that burden. It takes the Class I's Rule 11 rate or a negotiated division, adds its own switching, transload, dray, and car charges, and quotes the shipper one number. What it needs from the Class I is a linehaul rate set for a lane where truck competes, with the shortline's share of the saving treated as the cost of originating the traffic rather than as lost revenue.

3. Interchange commitments (paper barriers). Most shortline track was bought or leased from a Class I, and many of those transactions carry an interchange commitment: a clause that bans, penalizes, or credits against routing the line's traffic to any railroad other than the seller. STB has defined them as clauses "limiting the ability or incentive of the purchaser or lessee of a rail line to interchange traffic with railroads other than the line's seller or lessor." It has run the Ex Parte 575 proceeding on them since 1998, when AAR and ASLRRA signed a Railroad Industry Agreement addressing them, and has required their disclosure in line-sale and lease filings since 2008, with expanded disclosure proposed in 2012.[52,53,54] For a shortline gathering traffic, the commitment is the difference between a Class I that has to earn the block and one that owns it by contract. Any acquisition review should begin with the interchange commitment on each line.

4. Cars: system supply and private cars. Car supply is not something a shortline provides. The Class I furnishes system cars from its own fleet when it has them, and that fleet fell about 32% between 2011 and 2021.[2] Beyond that the car is the shipper's problem. Privately owned or leased cars must be registered by their controlling entity in Railinc's Loading Authority system under AAR Circular OT-57, which replaced the older OT-5 loading-authority approvals in 2020 (OT-5 still governs reporting marks and mechanical designations), and the registration must name a storage location for the cars.[55,56]

The Class Is do not want those cars on their network when they are not loading. BNSF requires private-car controlling entities to manage the flow of empties to its origin points "to preserve network fluidity" and may require equipment to be moved off-line at the owner's expense. Union Pacific's policy says the same, and UP described its 2022 congestion embargoes as a response to excessive customer-controlled cars on its network.[57,58,59] For a shipper considering a move from truck, the car is therefore a cost and an obligation that truck does not impose. What the interchange agreement has to cover is that the Class I moves a shipper's private cars, loaded and empty, on the same schedule as the rest of the block, so that the shipper's car cycle is predictable enough to size a fleet against.

5. Data at the junction. Every one of the above is measurable. Since 2024 the Class Is report standardized first- and last-mile metrics, industry spot and pull (ISP) and original estimated time of arrival (OETA), to STB, and must furnish a customer's own records within seven days of a request. The Seventh Circuit left those reporting requirements standing when it vacated the switching remedy.[60,61] An operator should run the same metrics on its own local, on the interchange, and on the Class I linehaul, and put them in front of the shipper and the Class I every month. What the Class I has to supply is the waybill interchange (EDI 417/426), car location messages, and trip-plan data in a form the operator can build a schedule and a problem-handling desk on.

Those five items, written into an interchange agreement, are what support means in practice; each is drawn from the public record cited above rather than from any single carrier's agreement. Left to the tariff and the Class I's operating plan, a shortline can gather the freight in its territory and still lose it to truck at the junction.

5.2 Estimating the freight, market by market

Before an operator negotiates with a Class I, quotes a lane, or spends on a terminal, it needs an answer to a specific question: in this territory, how much freight now moves by truck that could move by rail, on which lanes, at what saving to the shipper, and how many carloads would that be? This section describes how to build that answer from public data and the operator's own records, and then how the answer is used. It is an estimate of what is available to compete for, not a forecast of what will be won.

Who builds it and what it takes. The operator's commercial staff, using four inputs: the Freight Analysis Framework (FAF), which is public; the STB Carload Waybill Sample, available to railroads; the operator's own waybills and customer list; and conversations with shippers in the territory. The work is a few weeks per market. No consultant is required, and no number in it has to be assumed; every figure is either public data or something a shipper said.

The four thresholds. The method uses a dray radius (how far a truck will reasonably run to a terminal), a minimum lane density (how many cars a lane must produce for switching to pay), a handling-cost limit (what a transload can cost before it eats the saving), and a required saving over truck (what a shipper

needs to see before changing modes). None is stated here as a number because none is in the public record; each is set by the operator from its own tariff, costs, and experience, and the fourth is learned from the shipper.

Step 1: start with all the truck freight in the territory. FAF reports tons, ton-miles, and value by origin zone, destination zone, two-digit SCTG commodity group, and mode, with annual updates through 2024 and forecasts to 2050.[62] From it, take the truck-mode flows that begin or end inside the terminal's dray radius, keep the commodity groups that move in carload service (chemicals and plastics, fertilizers, grain and milled products, metals, forest and paper products, nonmetallic minerals, building products, food and beverage inputs, petroleum products), and keep the flows long enough for rail to compete in that market. The result is the gross tonnage: everything in the territory that is at least the right kind of freight moving the right distance.

Step 2: remove what cannot practically move by rail. Three tests, applied lane by lane. Density: does the lane produce enough cars on a regular cycle to justify switching it? Handling: can the commodity be transloaded without damage or contamination at a cost below the saving? Pellets, bulk liquids, lumber, steel, and aggregates usually pass; most palletized consumer goods do not. Receiver: is the destination rail-served, or within dray range of a receiving terminal? What passes all three is the tonnage that could realistically move by rail. The gross figure from Step 1 is large; this step is where most of it falls out, and that is the point of the exercise.

Step 3: price what remains against truck, both ways in full. For each surviving lane, build the shipper's true cost by truck (rate, fuel, accessorials) and by rail (linehaul, origin switching, transload handling, dray, car cost, and the inventory cost of rail's longer and less predictable transit). Rail wins where the saving exceeds what the shipper requires to accept the disruption of changing modes, and that threshold is learned by asking the shipper, not assumed. Linehaul quotes come from the Class I; switching and handling rates from the operator's own tariff; national revenue-per-ton-mile series (BTS Table 3-21) indicate direction but are not lane prices. The lanes that pass are the sales list, ranked by saving times tonnage.

Step 4: add the other two groups. The first group, rail-served customers already on the line who truck part of their volume, is estimated from the operator's own waybills and the STB waybill sample: compare each customer's rail carloads with its plant output or receipts (from permits, EIA, USDA, or the customer itself), estimate the share going by truck, and ask the customer why. The third group, new industrial sites, is estimated from state and local economic-development pipelines and permit filings for announced plants; each announced rail-served project is converted to an annual carload figure from its stated capacity and commodity.

What comes out. For one market, a lane list and a summary statement of this form: within dray range of terminal X, roughly N million tons a year of carload-type freight moves by truck over rail-competitive distances; M million tons passes the density, handling, and receiver tests; K million tons shows a saving above what its shippers require; at Y tons per car that is Z carloads a year available to compete for, against the terminal's current throughput of W. Alongside it, a list of the existing customers with volume to recover and the reasons they gave, and a list of announced sites with their carload potential.

How the estimate is used. It is the basis for every later decision in the sequence described under Execution, and it is used five ways. First, to decide whether the market is worth a negotiation with the serving Class I at all, and to go into that negotiation with specific lanes, tonnages, and the divisions that would make them work, rather than a general request for support. Second, to decide which lanes to quote

first: the ones with the largest saving on the most tonnage. Third, to size any terminal or handling investment to the lanes that have actually been committed, never to the total; the total tells the operator the ceiling, the commitments tell it what to build. Fourth, to support CRISI and state grant applications, which ask for shipper commitments and truck-diversion benefits in exactly this form. Fifth, to give an investor a basis for underwriting growth in that market that rests on public data and signed volume rather than on the operator's optimism.

What it is not. It is not a forecast, and the total at the top is not a target. Most of the gross tonnage fails the tests, and of what passes, only the lanes the Class I will price competitively and the shippers will commit to become carloads. The estimate identifies what is worth pursuing; the Class I relationship and the shipper's decision determine what is won.

For national scale, AAR's own diversion estimate is the reference point: shifting 25% of truck traffic moving 750 miles or more to rail would cut 11.4 million tons of emissions a year.[1] AAR has already estimated at the national level how much truck freight could move by rail; the market-level version of that estimate is what an operator needs.

6 Value-added services an operator can provide

The services below are ones an operator can build, price, and sell today, and each removes a specific reason a shipper chooses truck. Combined, a terminal with car supply, a published schedule, and one all-in price is something a truck shipper can buy without having to learn the railroad.

1. Transload and rail terminals. Bulk (dry and liquid), break-bulk, and dimensional transload within dray range of the freight. The terminal is the entry point for group 2 above: it turns a truck shipper into a rail shipper with no siding, no railcar lease, and no tariff. Revenue comes from handling, storage, car storage and rail switching fees, dray management, and product-specific services (blending, packaging, drumming, screening). Aggregates into the New York area grew roughly 700% since 2000 on exactly this model, per . [63]

2. First-mile and last-mile operations. Contract switching at the customer's plant, in-plant rail operations, dray management, and interchange management with the Class I. Shippers want one accountable party from dock to interchange; the operator that provides it controls the lane and the pricing.

3. Rail-served industrial development. Own or option rail-served land, install lead track and switching capacity, secure utilities and entitlements, then market site-ready parcels to reshoring manufacturers, energy, food, and building-materials plants. Each tenant is long-lived carload traffic plus switching, car, and terminal revenue. State rail-siding and industrial-access grant programs and federal CRISI funds can offset track cost.

4. Scheduled, published local service. A published local schedule, a car-order cutoff, and a spot-and-pull performance metric the shipper can see. This is the cheapest lever on the list and the one shippers value most; it converts group 1 without capital.

5. One price, one invoice. A lane rate that bundles linehaul, switching, transload, dray, and car, quoted and booked online, with the operator holding the Class I contract on the shipper's behalf. Many small and mid-size shippers will not assemble a rail move from several parties; the operator that assembles it for them holds the account.

6. Shipment tracking and problem handling. Car-level ETAs, dwell alerts, and demurrage avoidance built on Class I EDI and GPS car data, delivered the way a truck broker delivers it. Shippers expect it, and its absence costs business.

7. Commodity-specific service products. Purpose-built offerings for the commodities with the most truck volume in dray range: plastics (pellet transload with silo storage), food-grade liquids, fertilizer (seasonal storage and blending), lumber and building products (reload yards), metals (covered transload with cranes), and aggregates (unit-train unloading into truck-served stockpiles).

8. Regional groups, or cooperation among independent shortlines. The first seven services apply to any shortline or terminal, including a single railroad serving one territory. Most shortlines are exactly that, and nothing above requires them to be part of a larger company.

Where one owner holds several shortlines and terminals in a region, running them with one sales organization, one pricing approach, and one relationship with the Class I gives a shipper with several plants one railroad to deal with. It also gives the owner enough volume to matter to the Class I. A shortline that operates in one defined territory reaches the same ends a different way: joint marketing with the neighboring shortlines that interchange with the same Class I, coordinated proposals to that Class I on interchange terms and divisions, participation in the Class I's shortline development program where one exists, and the state and regional shortline associations. The object in either case is the same: to present the Class I and the shipper with enough volume, on terms simple enough, that the traffic is worth handling.

Elements 1 and 2 are the physical operation, 3 is the source of future traffic, and 4 through 8 are the commercial side. Each can earn a return on its own; together they move share.

6.1 Economics and execution of each element

The eight elements differ in capital, time to first carload, and risk, and the order in which an operator builds them matters more than the list. The table sets out each element's revenue lines, whether it needs capital before it can produce carloads, where public funding applies, and the main risk. No cost or timing figures are given; those are site-specific and are not in the public record. The public-funding column cites the programs described in the policy section.

ELEMENT	REVENUE LINES	CAPITAL BEFORE FIRST CARLOAD	PUBLIC FUNDING	MAIN RISK
1. Transload and rail terminals	Handling per ton or car; storage; rail switching; dray management; product services	Yes: land, track, pads, silos or tanks, equipment	CRISI; state freight and siding programs; port and EDA grants for public-benefit terminals	Building before the lane estimate is done; a terminal without an anchor shipper
2. First-mile and last-mile operations	Contract switching per car or per month; in-plant operations fee; interchange management fee	Little: locomotive and crew, sometimes a lease on plant track	Rarely; some state rail-service programs	Unreliable Class I interchange; the local can be perfect and still miss the outbound train

ELEMENT	REVENUE LINES	CAPITAL BEFORE FIRST CARLOAD	PUBLIC FUNDING	MAIN RISK
3. Rail-served industrial development	Land sale or ground lease; switching on every future carload; terminal revenue from the tenant	Yes, and long-dated: land, lead track, utilities, entitlements	CRISI; state rail-siding grants; EDA; local incentives	Land without an entitled, utility-ready parcel; tenants choose the site that is ready
4. Scheduled, published local service	None directly; it lifts carloads on every other line	None: planning, crew discipline, a published schedule, a reported metric	None needed	Publishing a schedule the Class I interchange will not support
5. One price, one invoice	Margin on the combined rate; the operator holds the Class I contract	Little: commercial and billing work; working capital for pass-through charges	None	Class I unwilling to contract with the operator as principal; mispricing charges the operator does not control
6. Shipment tracking and problem handling	Usually included in the rate; a subscription for larger shippers	Little to moderate: EDI and car-location integration, a customer portal, a service desk	None	Building software instead of buying it
7. Commodity-specific handling	Premium handling and storage rates	Yes: silos, tanks, covered storage, cranes, food-grade or hazmat compliance	CRISI and state programs for public-benefit facilities	Compliance failures that close the facility; dependence on one commodity
8. Regional groups, or cooperation among independent shortlines	For an owner of several properties, all of the above across markets plus cross-selling; for a single shortline, joint marketing and coordinated Class I proposals with neighbors	Yes: acquisition capital	Acquisition financing is private; CRISI and 45G follow the assets	Buying track without buying customers; integration that loses the local knowledge that made each railroad work; for independents, neighbors unwilling to share customers or proposals

Three points follow from the table. First, elements 4, 5, and 2 need little or no capital and produce carloads before any construction; an operator that has not done them should not be building terminals. Second, the capital-heavy elements, 1, 3, and 8, are the ones public funding reaches. CRISI has awarded more than $5.2 billion since fiscal 2017, with shortlines receiving $2.6 billion across more than 220 projects, and the combined FY2023–2024 round alone offered $2.48 billion, of which $1.29 billion went to shortline projects.[64,65,66] Third, the main risk on every element is the same one: committing capital ahead of a customer. The services are built lane by lane behind signed volume.

A note on margins. Terminal and switching revenue is priced against the shipper's truck alternative, not against the railroad's cost, so the margin on a well-chosen lane is set by the difference between the truck and rail cost that the estimate measures. Where the truck-rail difference exceeds the shipper's required saving and the operator's all-in cost is below the rail linehaul plus a reasonable return, the difference is the operator's to keep. That is why the estimate comes before the capital, and why the same terminal can be a strong asset in one market and a weak one 200 miles away.

7 Execution: sequence, gates, and measures

Share is recovered one market at a time, and the sequence below is written the way an operator would run it: cheapest steps first, capital only after volume and Class I terms are in writing, and a decision point at each step where the answer can be no. Nothing in it depends on a Class I changing its operating model or on a regulatory outcome.

A
Interchange terms in writing
window, blocking, divisions, cars, data

B
Audit existing customers
what they truck and why

C
Publish the local schedule
and report performance

D
Quote all-in rates
on specific lanes

E
Gate: committed volume and Class I terms?
no → keep quoting lanes; no capital committed

F
Commit capital
terminal, handling, sites; then the next market

Step A, before anything else: the Class I relationship. The commercial and operating terms with the serving Class I are settled before the operator spends on anything: rates and divisions or Rule 11 terms, the interchange window and blocking, interchange commitments, movement of private cars, data, and the Class I's participation in marketing and industrial development for the market. If the Class I will not commit to service and to a division that leaves room for the shortline and the shipper, the market is not workable and the operator moves to one where it is. This is the step most often skipped, and it is the one that decides whether the rest pays.

Step B: audit the customers already on the railroad, and sort the reasons. Every rail-served customer is visited and asked what it ships by truck, to where, and why. The answers fall into two groups, and the point of the audit is to tell them apart. Some volume is on truck for reasons the railroad cannot change: the lane is too short for rail to compete once switching and transit time are counted; the receiver is not rail-served and is not near a terminal; the product or its packaging does not suit a railcar; the customer's order sizes or delivery windows require a truck; or a truck contract is in force. That volume is set aside. Other volume is on truck for reasons the operator and its Class I can address: a switch that comes on the wrong day, a car that is not there when it is needed, transit time that cannot be planned around, a rate that was never quoted, or a bad experience the customer has not been given a reason to revisit. That is the freight to pursue, and it is the cheapest to recover because the siding, the car, and the relationship already exist. The audit also produces the list of specific asks the operator takes to the Class I: which lanes, which service days, which divisions.

Step C: publish the local schedule and report against it. Fixed switch days, a car-order cutoff, and spot-and-pull performance reported to each customer monthly. This costs crew discipline and a spreadsheet. It is what turns the audit into carloads, and it is the record the operator will later put in front of the Class I and any investor.

Step D: quote specific lanes all-in. For the truck freight identified in the market estimate, the operator quotes one rate covering linehaul, switching, handling, dray, and car, using the Class I's Rule 11 rate or a negotiated division plus its own charges. Lanes are quoted one at a time; a lane the Class I will not price competitively is dropped, not subsidized.

Step E, the gate: committed volume and Class I terms in writing. No terminal, handling facility, or industrial site is built ahead of signed shipper commitments and written Class I terms for the traffic. If either is missing, no capital is committed; the operator keeps quoting lanes and building the service record until both are in hand. A terminal built on an estimate is the most common way this approach fails.

Step F: commit capital. Terminal and handling capacity sized to the committed volume, with CRISI and state funding applied where the project qualifies. Industrial sites only where the land is entitled and utility-ready and the Class I has committed to serving the lead. Then the sequence starts again in the next market, or, for a single-territory shortline, on the next lane.

The measures below are the ones the operator reports monthly to its customers, its Class I, and its owners. Targets are the operator's to set; none is stated here.

METRIC	WHY IT MATTERS	TARGET DIRECTION
Carloads per rail-served customer per month	Group 1; measures rail share of a shipper's own outbound	Up
Industry spot and pull (ISP) on-time % and car-order fill %	The service promise behind every commercial offer	Above 90% and rising
Transload throughput (tons, carloads) and new shippers per quarter	Group 2	Up
Truck-to-rail conversions won, by lane and commodity	The direct measure of share capture	Up
Rail-served acres under option, permitted, and leased	Group 3, future traffic	Up
Revenue per carload, all-in, and revenue per customer	Additional services are being sold, not just linehaul	Up

Shortlines and terminal operators are the parties best placed to do this work. They hold the customer relationship and the last mile, they carry a lower cost structure on local switching than a Class I, and they have no operating-ratio constraint that penalizes adding a small customer. The Class Is retain the linehaul and the scale economics. The strategy depends on them running that linehaul to a schedule the shortline can sell and pricing it so the combined move beats truck.

Where one owner holds several shortlines and terminals, running them as one regional business with a single commercial organization makes them investable on growth rather than only on the stability of existing traffic. A single-territory shortline does not need to be part of such a group to do everything else in this paper. It needs a working relationship with its Class I and, where it helps, with the shortlines next door.

8 Policy and regulatory context

Four regulatory and policy currents in 2026 bear on carload capture. None of them changes the problem this paper is solving, which is that railroads have lost share of the carload market to trucks; they change the cost and the terms of solving it.

The UP–NS transcontinental merger. Union Pacific and Norfolk Southern filed their joint control application with the STB on December 19, 2025. The Board rejected it as incomplete on January 16, 2026, accepted a revised application on May 28, 2026, and in August set a schedule that pushes a final decision into late May 2027.[67,68,69] The applicants' case is that an integrated coast-to-coast network will shave up to 48 hours off carload transit at the six gateways where they exchange about a million carloads a year, and that faster single-line service will win freight back from trucks.[70,71] Shipper groups and competing carriers dispute that and have asked for the longest review the law allows.[72]

This paper takes no position on the merger. Whatever the Board decides, the carload share loss documented above happened on the existing networks, on lanes where interchange was not the binding constraint, and it will not be reversed by linehaul integration alone. Removing an interchange helps the freight that is already on rail. It does nothing for the plant with no siding, the shipper with no cars, or the customer whose local runs twice a week. Whatever the outcome, the work described in this paper is the same.

Reciprocal switching. In April 2024 the STB unanimously adopted a rule letting a shipper with access to only one Class I petition for a reciprocal switching order when service fell below three published standards: on-time arrival (OETA), transit-time consistency, and industry spot and pull (ISP) for first- and last-mile service. All six Class Is were required to report the metrics on a standardized basis and to hand a shipper its own records within seven days.[60,73]

The U.S. Court of Appeals for the Seventh Circuit vacated the rule in July 2025. It held that a process with no finding of inadequate service exceeded the Board's authority under the Staggers Act, while expressly leaving the expanded weekly service-metric reporting in place. In January 2026 the STB proposed a replacement that would repeal its 1985 competitive-access regulations and judge each complaint on its facts.[74,72] The lasting effect of the 2024 rule is that the Class Is now measure and report first-mile/last-mile performance in a common format, which gives shippers and shortlines a public benchmark. A terminal or shortline that publishes its own spot-and-pull performance against that benchmark has a useful comparison to put in front of customers.

The 45G shortline maintenance credit. Section 45G, enacted in 2004 and effective from 2005, was made permanent by the Consolidated Appropriations Act, 2021 (signed December 27, 2020); the credit is now 40% of qualified track maintenance spending (50% for tax years beginning before 2023), capped at $3,500 per mile of track, and ASLRRA credits it with more than $8 billion of private investment; the cap has been frozen since 2005, and bills introduced in 2025 (H.R. 516, S. 1532) would raise it to $6,100 per mile, index it to inflation, and extend eligibility to all shortline track.[20] For an aggregator, 45G lowers the cost of bringing acquired track to 286,000-pound car standard, which is a precondition for most modern carload business.

CRISI and state programs. The federal Consolidated Rail Infrastructure and Safety Improvements program has awarded more than $5.2 billion since fiscal 2017, with shortlines receiving more than half; the FY2023–2024 round offered $2.48 billion and delivered a record $1.29 billion to shortline projects in 36 states.[64,65] Awards have funded track and bridge rehabilitation, transload facilities, locomotive

replacement, and grade-crossing safety. Many states run parallel rail-siding, industrial-access, and freight-rail assistance programs. Together these cover a meaningful share of the capital in elements 1, 3, and 7, and they favor applicants who can show shipper commitments and truck-diversion benefits, which is exactly what the lane sizing above produces.

What this means for strategy. Policy is moving toward measured service, access to a second railroad, and public co-investment in shortlines and terminals, and away from the 2004–2022 settlement in which the Class Is set terms unilaterally. None of it guarantees carload growth; all of it lowers the cost and raises the leverage of an operator who is already growing. The problem to solve remains the one in the title: carload share relative to trucks, lane by lane, at the siding and the terminal. Regulatory outcomes, including the merger, affect the terms of that work but do not replace it.

9 What each party has to do, and what stands in the way

Merchandise carload share will not be recovered by any one party acting alone. It requires five parties to move, and each faces a specific, documented barrier today. The division of labor matters. The Class Is are configured to hook and haul, moving blocks and unit trains between major terminals, and are not built to call on a plant that ships thirty cars a year. Shortlines and terminals are built for exactly that and are effective at gathering small shippers into blocks. The gathering only pays if the Class I hauls the block on a schedule and at a rate that leaves the shortline, the terminal, and the shipper a saving over truck. Class I service and rate support is therefore a requirement, not an outcome to hope for. The table sets out what each party has to do and what currently stands in the way.

ACTOR	WHAT IS REQUIRED OF THEM	CURRENT BARRIER	EVIDENCE
Shortlines and terminal operators	Provide the eight services: scheduled local service, transload, single pricing, industrial development, regional grouping	Small scale and thin capital: the average shortline has fewer than 30 employees and under 79 route miles, inherited track with decades of deferred maintenance, and spends about a quarter of revenue on rehabilitation to reach the 286,000-pound car standard	[19] [20]
Class I railroads	Hold interchange windows and accept pre-blocked traffic; set through-rate divisions or Rule 11 rates for a lane where truck competes rather than for a captive shipper; contract with operators as principal on single-price lanes; move private cars on the same schedule as loads; disclose, and where they block growth waive, interchange commitments; share blocking, trip-plan, and ISP/OETA data	PSR operating plans that reduced local service frequency and resilience; embargoes used to manage congestion; demurrage and accessorial practices that penalize the customer for the operating model's bunching; interchange commitments (paper barriers) on many spun-off lines; divisions on through rates set unilaterally by the Class I; no rail competitor at most sidings to discipline any of it	[2] [32] [27] [29]
Shippers	Commit volume to a lane in exchange for a published schedule and an all-in price; site new plants on rail where the sizing supports it	Safety-stock and inventory cost of variable transit; car supply now the shipper's problem with lessor utilization above 95% and new-car prices roughly double a decade ago; highway access averaged third among siting factors from 2016 to 2023 while rail service is not among the leading factors in the rankings reviewed	[26] [16] [75] [5]

ACTOR	WHAT IS REQUIRED OF THEM	CURRENT BARRIER	EVIDENCE
Public sector (STB, FRA, Congress, states)	Keep first/last-mile metrics public; restore a workable competitive-access remedy; fund edge-of-network capacity; index 45G	The 2024 reciprocal switching rule was vacated by the Seventh Circuit in July 2025 (the service-metric reporting survived) and the January 2026 replacement is only a proposal; the common-carrier obligation remains statutorily undefined; 45G's $3,500-per-mile cap has been frozen since 2005 and the credit rate fell to 40% in 2023; CRISI's guaranteed $1 billion a year in advance appropriations runs only through FY2026, and funding after that depends on reauthorization and annual appropriations	[74], [34], [76], [65], [18]
Capital providers	Invest in carload growth at shortlines and terminals on the basis of lane-by-lane estimates, not only on the stability of existing traffic	No accepted basis for evaluating shortline and terminal growth; the public data needed for it (FAF, the Carload Waybill Sample) is partly confidential at the commodity level, and the industry's own growth record since 2006 gives investors little precedent	[77] [7]

How the pieces fit. The operator's actions in the first row are the only ones that can start without anyone else moving, which is why the sequence begins with scheduled service on existing sidings. Each converted lane produces the evidence the other four parties need. A Class I sees blocked, scheduled traffic it can handle. A shipper sees a schedule held and a bill that matched the quote. A state or FRA program sees a truck-diversion benefit it can fund. An investor sees carloads per customer rising in a market that was estimated before the money went in.

The barriers are linked. A Class I will not hold an interchange window for traffic that does not exist. A shipper will not commit to a schedule no one has kept. Capital will not fund a terminal without an estimated market. The operator has to move first, at the least expensive point, and build a record the other parties can act on.

What this approach does not require. It does not require re-regulation of rail rates, a change in Class I ownership or hook-and-haul operating philosophy, a merger outcome, or new federal money beyond programs that already exist. It does require two things of the Class Is: scheduled, reliable interchange service for combined blocks, and through rates on that traffic set for a lane where truck competes rather than for a captive shipper. Every barrier in the table can be worked around at the lane level by an operator willing to carry the first-mover cost. The public-sector row lowers that cost but does not gate the work.

10 Risks, objections, and responses

The objections below are the ones most often raised. Where an objection is partly right, the response says so.

OBJECTION	WHAT IS RIGHT ABOUT IT	RESPONSE
"Carload decline is coal, full stop."	Coal accounts for the whole decline in the total since 2008.	Non-coal carloads have been flat for 16 years while truck tonnage grew a third; a flat count in a growing market is a loss of share, and that is the part of the market this paper addresses.

OBJECTION	WHAT IS RIGHT ABOUT IT	RESPONSE
"The Class Is control the linehaul; a shortline or terminal cannot grow without them."	True for price and for interchange reliability.	The Class Is testified at the STB's 2024 growth hearing about their own growth strategies and need carload volume; the operator's job is to bring them traffic in a form they can handle, blocked and scheduled, and to hold them to the OETA and ISP metrics they now report. The published first-mile/last-mile metrics give an operator a public benchmark to negotiate against.
"Rail rates have fallen 44% since 1981; the problem is not price."	The 1981 comparison is accurate.	The relevant comparison is 2004 onward, when real rates rose about 30% and the marginal lanes tipped to truck; a bundled all-in price restores the comparison shippers actually make.
"Autonomous and electric trucks will erase rail's cost edge on medium hauls."	Driver cost is among the largest truck cost items and autonomy targets it.	The 400–plus-mile carload lanes this paper targets are the ones where rail's energy and labor advantage per ton is largest; autonomy compresses the spread but does not close it for bulk and heavy commodities, and the timeline for autonomous trucks on dense industrial routes remains uncertain. The lane estimates should be rerun as truck costs change.
"Terminals are capital-heavy and cyclical."	Both.	Build behind signed volume, not ahead of it; diversify commodities within a terminal; lean on CRISI and state programs for public-benefit capital; and price handling against the truck alternative so margins hold when linehaul rates move.
"Shortlines are too small to matter."	The average shortline has fewer than 30 employees.	One carload in five already touches a shortline, and aggregation into regional networks with one commercial front end is what makes the segment investable.
"Industrial siting is a 30-year problem; nothing an operator does changes it."	Legacy siting cannot be reversed.	Reshoring, energy, and data-center construction are the largest wave of new industrial siting in a generation; an operator with entitled, rail-served, utility-ready land competes for that wave on equal terms with highway sites, and each win is decades of captive carloads.
"The data is mixed-basis and the share numbers are directional."	Correct; the 2000 and 2023 ton-mile shares use different methods, and non-coal carloads mix Class I originations with the AAR weekly series.	Every figure is sourced and the basis is stated; the lane-by-lane estimate replaces national approximations with counts for each market before any capital is committed.

Two risks remain. A Class I can still decline to contract with an operator as principal for a single-price lane, which limits element 5 to markets where the Class I is willing. And a prolonged industrial recession reduces all three groups of freight at once regardless of execution. The first is mitigated by scale and by the regulatory environment. The second is the cyclicality any freight investment carries.

APPENDIX: ANNUAL CARLOAD AND TRUCK TONNAGE DATA, 2000–2025

Annual U.S. rail carloads are the sum of the twelve seasonally adjusted monthly values in BTS series RAILFRTCARLOADSD11; the truck tonnage index is the twelve-month average of BTS series TRUCKD11 (2015=100), rebased here to 2000=100. Both are as published on FRED on September 1, 2026, with data through June 2026. The carload series is built from AAR's Weekly Railroad Traffic report and, like AAR's own published totals since 2021, excludes the U.S. operations of CN, CPKC, and GMXT;

AAR's earlier headline totals (for example about 13.1 million for 2019) included those carriers and are therefore higher than the figures here. The first half of 2026 averaged 995,000 carloads a month, an annualized 11.9 million, the strongest run rate since 2019.

YEAR	RAIL CARLOADS (MILLIONS)	CARLOAD INDEX (2000=100)	TRUCK TONNAGE INDEX (2000=100)
2000	16.24	100.0	100.0
2001	16.18	99.6	99.5
2002	16.03	98.7	103.6
2003	16.06	98.9	106.8
2004	16.49	101.6	112.8
2005	16.60	102.2	115.5
2006	16.82	103.6	113.5
2007	16.46	101.3	112.0
2008	16.07	98.9	113.2
2009	13.48	83.0	103.4
2010	14.48	89.2	109.5
2011	14.83	91.3	115.8
2012	14.30	88.1	118.3
2013	14.23	87.6	125.9
2014	14.79	91.1	130.1
2015	13.90	85.6	133.5
2016	12.71	78.3	136.5
2017	13.10	80.6	142.3
2018	13.32	82.0	151.6
2019	12.62	77.7	156.6
2020	10.89	67.1	150.3
2021	11.64	71.7	150.8
2022	11.64	71.7	156.0
2023	11.72	72.2	153.3
2024	11.35	69.9	151.5
2025	11.55	71.1	151.5

Coal reference points from AAR: 7.71 million Class I originated coal carloads and 878.6 million tons in 2008 (the peak); 4.44 million carloads and 518.4 million tons in 2018; 3.4 million carloads in 2022; 2.94 million in 2024. The 2024 non-coal figure (8.40 million) subtracts AAR's weekly-series coal count from AAR's weekly-series total and is on one basis. The 2008 figure (about 8.36 million) subtracts Class I coal originations from the weekly-series total; the coal series is broader, so 2008 merchandise is probably understated and the true change since 2008 is flat to down.



ABOUT THE AUTHOR

Tim Eklund is Managing Partner of Rail-Industrial Partners, LLC.

His experience includes owning and operating shortline railroads and rail-served terminals, and working with Class I railroads on pricing and divisions, contracts, marketing and industrial development, interchange and blocking, car supply, local service design, and network planning, which is the basis of the operating judgments in this paper.

ABOUT RAIL-INDUSTRIAL PARTNERS

Rail-Industrial Partners is a specialized investment and strategic advisory platform focused on the North American freight rail, rail services and rail-industrial sectors.

The firm's partners and advisors have owned and operated shortline, regional and Class I railroads throughout North America.

NOTES AND SOURCES

1 AAR — truck-to-rail diversion estimate, real rate trend since 1981. https://www.aar.org/freight-rail-facts-figures/

2 GAO-23-105420 — staff, train length, locomotive and railcar counts 2011–2021; service-frequency changes. https://www.gao.gov/products/gao-23-105420

3 CRS R48594 — 2023 ton-mile shares (truck 44%, rail 19%, multiple modes 10%) and FHWA 1.6%/yr tonnage growth to 2050. https://www.congress.gov/crs-product/R48594

4 BTS — 2024 distance bands and modal dominance by distance. https://data.bts.gov/stories/s/Moving-Goods-in-the-United-States/bcyt-rqmu/

5 Mericle/Area Development — highway access ranking among site-selection factors, 2016–2023. https://www.mericle.com/news/2025/03/important-site-selection-factors/

6 USDA AMS — Class I count, grain origination concentration, rates since 2004. https://www.ams.usda.gov/sites/default/files/media/Railroad%20Concentration,%20Market%20Shares,%20and%20Rates.pdf

7 STB, via AJOT — real rate index 1985–2004 and after; capex vs. buybacks and dividends. https://ajot.com/insights/full/ai-stbs-oberman-says-u.s-railroads-reduced-service-raised-rates-and-derived-191-billion-in-dividends-and-buybacks-since-2010

8 AAR Rail Industry Overview, Apr 2026 — 2026 ex-coal carload recovery; first-half 2026 carload totals. https://www.aar.org/wp-content/uploads/2026/04/AAR-RIO-APR-3-2026.pdf

9 AAR weekly traffic via AJOT — 2026 ex-coal carload recovery; first-half 2026 carload totals. https://www.ajot.com/news/aar-reports-rail-traffic-for-the-week-ending-july-04-2026

10 AAR, Railroads and Coal — 2008 coal peak of 7.71M Class I originated carloads and 878.6M tons. https://www.aar.org/wp-content/uploads/2018/05/AAR-Railroads-Coal.pdf

11 AAR RIO, Dec 2024. https://www.aar.org/wp-content/uploads/2024/12/AAR-RIO-December-9-FINAL.pdf

12 AFPM testimony. https://www.railwayage.com/regulatory/for-stb-an-earful-on-rail-industry-growth/

13 FreightWaves, 2019 — private-fleet share estimates, lessor utilization, new-car prices; all industry secondary sources, used only as a range. https://www.freightwaves.com/news/commentary-the-complexity-of-owning-or-leasing-freight-cars

14 Tealinc, citing Railinc — private-fleet share estimates, lessor utilization, new-car prices; all industry secondary sources, used only as a range. https://blog.tealinc.com/blog/understanding-railcar-ownership-vs.-leaseback

15 RSI Logistics. https://www.rsilogistics.com/blog/railroad-demurage-stb-hearing-may-22/

16 Railway Age, 2025 — private-fleet share estimates, lessor utilization, new-car prices; all industry secondary sources, used only as a range. https://www.railwayage.com/financeleasing/2025-guide-to-equipment-leasing-managing-through-discontent/

17 ASLRRA — shortline count, mileage, carload share, ownership mix, 45G terms. https://www.aslrra.org/advocacy/aslrra-advocacy-priorities/

18 ASLRRA, Oct 2025 — shortline count, mileage, carload share, ownership mix, 45G terms. https://www.aslrra.org/news/views-and-news/views-news-101525/

19 PwC for ASLRRA — shortline count, mileage, carload share, ownership mix, 45G terms. https://www.aslrra.org/aslrra/document-server/?cfp=aslrra%2Fassets%2FFile%2Fpublic%2Fadvocacy%2Fpwc-aslrra-final-report.pdf

20 ASLRRA 45G — shortline count, mileage, carload share, ownership mix, 45G terms. https://www.aslrra.org/advocacy/45g-short-line-tax-credit-modernization/

21 Growth in the Freight Rail Industry. https://www.stb.gov/news-communications/latest-news/pr-24-29/

22 AASHTO — real revenue per ton-mile 2000–2014, operating ratio 2000–2016. https://transportation.org/rail/wp-content/uploads/sites/24/2024/07/2018-Freight-Rail-Report.pdf

23 Oliver Wyman — 2024 operating ratios. https://www.oliverwyman.com/our-expertise/insights/north-american-freight-rail-performance/2024-q3.html

24 STB PR 22-21 — hearing record, 29% workforce reduction, service reporting order. https://www.stb.gov/news-communications/latest-news/pr-22-21/

25 BTS Table 3-21 — Class I nominal revenue per ton-mile, 1960–2014; the current edition (through 2024) is published as an Excel file at the second link. https://www.bts.gov/archive/publications/national_transportation_statistics/table_03_21

26 Federal Register, EP 770 — hearing record, 29% workforce reduction, service reporting order. https://www.federalregister.gov/documents/2022/04/13/2022-07831/urgent-issues-in-freight-rail-service

27 STB. https://www.stb.gov/reports-data/demurrage-accessorial-charges/

28 Freight Rail Customer Alliance — consolidation and captivity figures; shipper-side sources, so read as advocacy on interpretation, not on the counts. https://railvoices.org/the-issue/

29 AFPM — consolidation and captivity figures; shipper-side sources, so read as advocacy on interpretation, not on the counts. https://www.afpm.org/newsroom/blog/freight-rail-america-can-market-be-free-if-theres-almost-no-competition

30 STB PR 22-28 — hearing record, 29% workforce reduction, service reporting order. https://www.stb.gov/news-communications/latest-news/pr-22-28/

31 STB PR 22-49 — 5 embargoes in 2017 to over 1,000 in 2022. https://www.stb.gov/news-communications/latest-news/pr-22-49/

32 STB PR 24-17 — 5 embargoes in 2017 to over 1,000 in 2022. https://www.stb.gov/news-communications/latest-news/pr-24-17/

33 Logistics Management. https://www.logisticsmgmt.com/article/stb_to_hold_hearing_in_may_on_railroad_demurrage_and_accessorial_charges

34 Railway Age — real rate index 1985–2004 and after; capex vs. buybacks and dividends. https://www.railwayage.com/regulatory/railroads-to-investors-we-got-this/

35 Berkshire Hathaway 2025 Annual Report — operating margin as the measure of BNSF's performance; BNSF industrial products carloads 2023–2025; dividends to Berkshire. https://www.berkshirehathaway.com/2025ar/2025ar.pdf

36 Trains. https://www.trains.com/pro/freight/class-i/new-berkshire-ceo-bnsf-needs-to-improve-its-profitability/

37 Berkshire Hathaway Form ARS, FY2025 — operating margin as the measure of BNSF's performance; BNSF industrial products carloads 2023–2025; dividends to Berkshire. https://www.sec.gov/Archives/edgar/data/1067983/000119312526106284/d948018dars.pdf

38 Trains, Sept 2025 — Hinrichs at an investor conference; average Class I operating ratio 70.8% (2012) to 59.9% (2021). https://www.trains.com/pro/freight/class-i/csx-ceo-says-railroads-have-struggled-to-grow-due-to-fixation-on-profit-margins/

39 CSX — Hinrichs' departure and Angel's appointment, effective Sept 28 2025. https://www.csx.com/index.cfm/about-us/media/press-releases/csx-corp-announces-leadership-transition/

40 FreightWaves — Hinrichs' departure and Angel's appointment, effective Sept 28 2025. https://www.freightwaves.com/news/hinrichs-out-as-csx-ceo

41 Trains, May 14 2026 — Rose, Moorman, Gooden, Whited; ex-coal volume stagnant since 2014; Class I revenue up more than 20%. https://www.trains.com/pro/freight/class-i/a-failure-to-grow-poses-a-threat-to-railroads-retired-class-i-executives-warn/

42 Trains analysis, May 21 2026 — Rose, Moorman, Gooden, Whited; ex-coal volume stagnant since 2014; Class I revenue up more than 20%. https://www.trains.com/pro/freight/class-i/retired-railroad-execs-sound-the-alarm-over-lack-of-volume-growth-analysis/

43 Railway Age — analyst and consultant assessments of carload share loss. https://www.railwayage.com/freight/class-i/if-all-else-fails-attempt-to-merge/

44 Trains, Aug 2025 — analyst and consultant assessments of carload share loss. https://www.trains.com/pro/regulatory/hearing-focuses-on-turning-around-the-rail-industrys-growth-problem/

45 Trains, Feb 2024 — analyst and consultant assessments of carload share loss. https://www.trains.com/trn/news-reviews/news-wire/how-wall-street-holds-railroads-hostage-analysis/

46 Trains, Aug 2025 — analyst and consultant assessments of carload share loss. https://www.trains.com/pro/freight/if-railroads-cant-grow-theyll-be-forced-to-merge-or-shrink-consultant-says/

47 Railway Age, Apr 2026 — shortline owner's view of the Class I–shortline division of labor and interchange measurement; an interested party. https://www.railwayage.com/freight/short-lines-regionals/reimagining-rail-growth/

48 Montana DOT, Interchange Between Shortlines and Major Carriers — handling, switch, and ISS carrier arrangements; through-rate divisions; Rule 11 mechanics and their burden on shippers. https://www.mdt.mt.gov/business/rscc/docs/shortline-interchange.pdf

49 Railinc, Railway Accounting Rules — handling, switch, and ISS carrier arrangements; through-rate divisions; Rule 11 mechanics and their burden on shippers. https://public.railinc.com/sites/default/files/documents/RAR.pdf

50 RSI Logistics — handling, switch, and ISS carrier arrangements; through-rate divisions; Rule 11 mechanics and their burden on shippers. https://www.rsilogistics.com/blog/rule-11-railroad-rates-benefit-shippers/

51 AAR/ASLRRA amicus brief — handling, switch, and ISS carrier arrangements; through-rate divisions; Rule 11 mechanics and their burden on shippers. https://www.aslrra.org/ASLRRA/document-server/?cfp=/ASLRRA/assets/File/public/news/testimony/Docket21-7093and21-7095_Amicus_Brief-AAR_ASLRRA.pdf

52 Federal Register, Nov 2012 — paper-barrier definition, 1998 AAR/ASLRRA Railroad Industry Agreement, 2008 disclosure rule (EP 575 Sub-No. 1), 2012 expanded-disclosure proposal. https://www.federalregister.gov/documents/2012/11/02/2012-26882/information-required-in-notices-and-petitions-containing-interchange-commitments

53 Federal Register, Feb 2006 — paper-barrier definition, 1998 AAR/ASLRRA Railroad Industry Agreement, 2008 disclosure rule (EP 575 Sub-No. 1), 2012 expanded-disclosure proposal. https://www.federalregister.gov/documents/2006/02/06/E6-1558/review-of-rail-access-and-competition-issues-renewed-petition-of-the-western-coal-traffic-league

54 Railway Age, 2019 — paper-barrier definition, 1998 AAR/ASLRRA Railroad Industry Agreement, 2008 disclosure rule (EP 575 Sub-No. 1), 2012 expanded-disclosure proposal. https://www.railwayage.com/regulatory/are-paper-barriers-ripe-for-stb-review/

55 Railinc — private-car registration (OT-57 replaced OT-5 loading authority in 2020), storage-location requirement, Class I pipeline-management and off-line storage policies. https://public.railinc.com/products-services/loading-authority-ot-57

56 AAR Circular OT-57 — private-car registration (OT-57 replaced OT-5 loading authority in 2020), storage-location requirement, Class I pipeline-management and off-line storage policies. https://public.railinc.com/sites/default/files/documents/OT-57.pdf

57 BNSF — private-car registration (OT-57 replaced OT-5 loading authority in 2020), storage-location requirement, Class I pipeline-management and off-line storage policies. https://www.bnsf.com/ship-with-bnsf/ways-of-shipping/equipment/private-equipment.html

58 Union Pacific — private-car registration (OT-57 replaced OT-5 loading authority in 2020), storage-location requirement, Class I pipeline-management and off-line storage policies. https://www.up.com/customers/all/equipment/private_foreign_policies/index.htm

59 RSI Logistics — private-car registration (OT-57 replaced OT-5 loading authority in 2020), storage-location requirement, Class I pipeline-management and off-line storage policies. https://www.rsilogistics.com/blog/surface-transportation-board-and-the-union-pacifics-use-of-embargoes/

60 STB PR 24-20 — performance standards, court vacatur, 2026 proposal. https://www.stb.gov/news-communications/latest-news/pr-24-20/

61 FreightWaves, Jul 2025 — Seventh Circuit vacatur of the 2024 reciprocal switching rule; reporting requirement left in place; petitioners CSX, UP, and CN subsidiaries. https://www.freightwaves.com/news/federal-court-vacates-rule-to-help-shippers-with-inadequate-rail-service

62 BTS FAF — the dataset behind the market-sizing method. https://www.bts.gov/faf

63 New York & Atlantic testimony to the STB. https://www.ajot.com/news/rail-freight-market-share-decline-addressed-at-u.s-surface-transportation-board-hearing

64 Trains — CRISI award totals and shortline share. https://www.trains.com/trn/news-reviews/news-wire/aslrra-president-discusses-crisis-short-line-transformation/

65 ASLRRA — CRISI award totals and shortline share. https://www.aslrra.org/advocacy/transportation-funding/crisi/

66 Progressive Railroading — CRISI award totals and shortline share. https://www.progressiverailroading.com/railPrime/details/To-short-lines-the-big-haul-of-CRISI-funding-represents-a-lifeline--73273

67 UP 10-Q — UP–NS merger filing history, commitments, and schedule. https://www.sec.gov/Archives/edgar/data/0000100885/000010088526000250/unp-20260630.htm

68 STB PR 26-13 — UP–NS merger filing history, commitments, and schedule. https://www.stb.gov/news-communications/latest-news/pr-26-13/

69 WOWT — UP–NS merger filing history, commitments, and schedule. https://www.wowt.com/2026/08/19/new-timeline-set-union-pacific-norfolk-southern-merger-proceedings/

70 UP, Jul 2026 — UP–NS merger filing history, commitments, and schedule. https://www.up.com/press-releases/growth/stb-supplemental-second-round-270727

71 NS Form 425 — UP–NS merger filing history, commitments, and schedule. https://www.sec.gov/Archives/edgar/data/702165/000119312525180892/d27639d425.htm

72 FreightWaves — performance standards, court vacatur, 2026 proposal. https://www.freightwaves.com/news/new-rule-would-make-it-easier-for-shippers-to-seek-competing-rail-services

73 Railway Age — performance standards, court vacatur, 2026 proposal. https://www.railwayage.com/regulatory/stb-finalizes-reciprocal-switching-rule/

74 Trains — performance standards, court vacatur, 2026 proposal. https://www.trains.com/pro/freight/class-i/stb-proposal-would-make-it-easier-for-shippers-to-reach-a-second-railroad/

75 Intellitrans — private-fleet share estimates, lessor utilization, new-car prices; all industry secondary sources, used only as a range. https://www.intellitrans.com/resources/railcar-leasing-options-full-net-ownership

76 26 U.S.C. 45G — credit rate (40%; 50% before 2023), $3,500-per-mile cap, permanence. https://www.law.cornell.edu/uscode/text/26/45G

77 STB economic data. https://www.stb.gov/reports-data/economic-data/

Data notes. "Carload" throughout means non-intermodal originations as reported in the AAR Weekly Railroad Traffic report. Non-coal carloads for 2008 and 2024 are total carloads less AAR coal originations and mix two reporting bases, so treat them as approximate. Rail tons originated and revenue ton-miles were left out on purpose; they are dominated by coal and long-haul bulk and obscure the carload share story.