

An aerial photograph of a rugged canyon with a river at the bottom. A train is crossing a steel truss bridge over the river. In the background, another train is visible on a track higher up the canyon wall. A white double-headed arrow is positioned above the main title.

The DRZ: Where CN and CPKC cooperate

Directional running in British Columbia keeps Canada's trade-based economy moving

by Bill Stephens

Canadian National intermodal train Q108 crosses the Thompson River at Black Canyon as westbound Canadian Pacific coal load 867-247 approaches the double track and CN connection at Nepa, British Columbia, on Aug. 26, 2019. A.J. Shewan





Canadian National C44-9W No. 2525 and a BC Rail C44-9W bring coal drag 731 across the arched bridge over the Fraser River and the CP's Thompson Sub at Cisco, B.C., on Oct. 7, 2010. Tom Kline

On a dank September morning, Canadian Pacific Kansas City's Toronto-Vancouver intermodal hotshot train 101 rolls across Canadian National's steel arch bridge at Cisco, British Columbia, with the mighty Fraser River churning some 220 feet below.

Not 5 minutes later, an eastbound CN empty coal train roars out of the 595-foot Cisco Tunnel, crosses the Fraser on CPKC's three-span through truss bridge, and rumbles under the 12,800-foot No. 101, still making its way across the province's longest river.

The over-under meet at one of Canada's iconic railroad locations puts an exclamation point on 90 minutes of nearly non-stop action featuring grain, intermodal, coal, and merchandise trains in the CN-CPKC Directional Running Zone, or DRZ, as the railways call it.

CN and CP have been archrivals for more than a century. They compete for customers every day, and in recent years they've feuded over executives, collided over interchange in Chicago, and waged an epic battle for the Kansas City Southern.

Yet for 24 years, they've been cooperating in the DRZ by sharing tracks for about



AC44CW No. 9818 leads an eastbound potash train on Canadian Pacific's Cascade Subdivision along the Fraser River at Yale, B.C., on June 9, 2019. A crew change in North Bend is less than 30 miles ahead. Matthew Robson

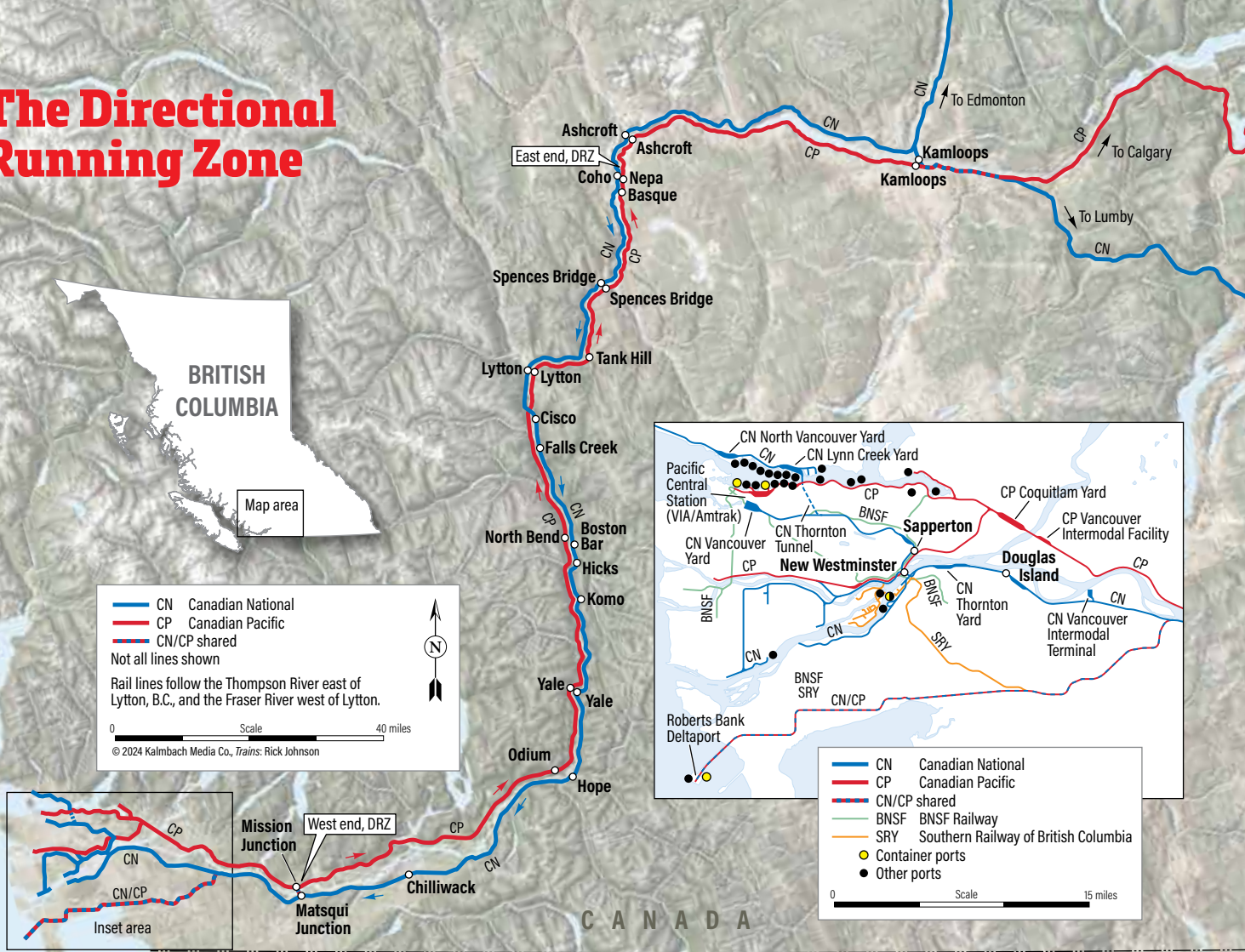
155 miles of the 235-mile corridor between Kamloops and Vancouver. "It's the right thing for the Canadian economy, it's the right thing for our customers, and it's the right thing for the railroads," says Derek Taylor, CN's executive vice president and chief field operations officer.

The sheer walls and fast-moving water of the Thompson and Fraser river canyons are formidable barriers to adding or ex-

tending passing sidings. By pairing their single-track mains and coordinating operations, CN and CPKC eliminated delays associated with meets — and aren't limited by passing-siding length. What the frenemies have created is a high-capacity, double-track route that keeps Canada's trade-based economy humming.

And it's a good thing they did. Without the DRZ and the overlapping coproduction

The Directional Running Zone



Highest Tonnage Multi-Commodity Main Lines in North America

Railroad	Route	Annual Gross Tonnage	Year	Trains Per Day	Year
Union Pacific	Overland Route, O'Fallons-Gibbons, Neb.	305 million*	2018	77	2019
Canadian National-CPKC	British Columbia Directional Running Zone	228 million**	2020	58	2023
BNSF Railway	Southern Transcon, Clovis-Vaughn, N.M.	189 million	2017	80	2017
Union Pacific	Overland Route, Cheyenne-Green River, Wyo.	140 million	2018	42	2019
CSX Transportation	Former B&O, Greenwich, Ohio-Chicago	113 million	2018	48	2019
Norfolk Southern	Chicago Line, Toledo, Ohio-Chicago	110 million	2018	75	2021

Source: Railroad density maps, railroad officials, STB filings

*307 million west of North Platte; 302 million east of North Platte.

**Based on figures CP reported for 2020; *Trains* estimate for total based on roughly even CN-CP tonnage split

area in Vancouver, neither railway could have handled the past two decades of phenomenal traffic growth fueled by trade with Asia. Since launching the DRZ in 2000, CN and CPKC have hauled a rising tide of bulk and merchandise traffic to export at Vancouver, as well as a surge in international container business to and from Canada's busiest port.

CN and CPKC sent an average of 58 trains per day through the DRZ in November 2023, according to RailState data, up from 48 or so per day back in 2000. But the

21% increase in daily train volume doesn't tell the whole story, because today's trains are far longer and heavier. In fact, when measured by tonnage, the DRZ now is the No. 2 multi-commodity main line in North America, trailing only Union Pacific's triple-track Overland Route across Nebraska.

That's right: The DRZ carries more tonnage than the continent's busiest main line, BNSF Railway's 80-plus-train-per-day Southern Transcon west of Clovis, N.M. And it handles twice the tonnage either CSX or Norfolk Southern funnel in and out of

Chicago on their multiple-track main lines.

In the DRZ, CN and CPKC face numerous constant challenges. The heavy volume, rugged canyons, complex Vancouver terminal, and unpredictable weather are always a formula for challenging railroading.

An old idea gains traction

At the turn of the 21st century, directional running in the canyons was not a new idea. It had been suggested — and rejected — for decades. "Neither CN nor CP wanted to do it. There was 75 years of



CN SD70M-2 No. 8887 and SD60 No. 5435 lead grain train C309 over the Thompson River at MP 59.5 in the directional running zone at Basque, B.C., on Aug. 18, 2017. Joel Hawthorn



CN crews change trains on opposite sides of the Fraser River on Sept. 26, 2023. At left, a crewman climbs aboard a Vancouver-bound grain train at Boston Bar, B.C., on the CN; at right, a crew is dropped off at a train of grain empties at North Bend, B.C., on CPKC. Two photos, Bill Stephens

distrust, mistrust, fear that the other guy was going to get an advantage and so on,” says Paul Miller, a now-retired CN executive who negotiated the complicated operations components of the DRZ agreement with his counterpart at CP, Mark Rickerby.

But in the mid 1990s, a Prairies transportation group wrote to then-CN CEO Paul Tellier to ask why the railroads weren’t sharing operations to speed the flow of freight to the West Coast. Directional running, they said, just made so much

sense. Tellier ordered CN operations officials in Edmonton to draft a response. Since neither they nor their CP counterparts wanted to proceed, they wrote a “kitchen sink” letter outlining all the reasons directional running couldn’t be done.

Tellier signed the letter. But the open-minded CEO penned a note at the bottom. “He wrote on it in his distinctive handwriting words to this effect: Despite what I’ve written here, I’m instructing my officers to take another look at this,” Miller recalls.

When E. Hunter Harrison became chief operating officer in 1998, he thought directional running was a no-brainer.

The DRZ sprang from CN and CP coordination of engineering work blocks. Their old canyons management agreement permitted detours on each other’s main lines when major projects were under way, such as bridge replacements. “If you choose not to coordinate and collaborate there, it will get you down the road because each railroad downstream in Vancouver is inter-

changing grain trains and potash trains and such. So if you choose to coordinate and collaborate through that whole zone then you have an excellent chance of keeping fluid,” says Rickerby, who retired in 2015 as general manager of CP’s operations in British Columbia.

The railways jointly planned and scheduled their canyons trackwork for all of 1999 and reached labor agreements so that train crews could operate on either main line. Then a working group was formed to explore permanent directional running.

At the time, both railways were beginning their longer-train strategies and were lengthening sidings east of Kamloops to handle trains that stretched up to 12,000 feet. Passing sidings through the Thompson and Fraser canyons were generally 6,400 feet long, and the inhospitable terrain made extending them prohibitively expensive.

CP chose the easier side of the rivers when it chiseled through the canyons, largely by hand, from 1883 to 1885. Canadian Northern came along 30 years later and had the advantage of mechanized equipment, but was forced to carve its railroad on the opposite — and far more challenging — riverbank. That put CN in more of a siding-extension pickle. But the incentive for creating the DRZ was for both railroads to avoid spending millions of loonies to blast new tunnels, build new bridges, and widen rights-of-way on their respective sides of the rivers.

When Miller and Rickerby first met to discuss operational aspects of the directional running zone, they laid all their cards on the table, found they had good chemistry, and within an hour had sketched out how to proceed. Their working relationship and spirit of cooperation set the tone for the rest of the negotiations.

The basic agreement was straightforward. The DRZ would begin at the railways’ connection roughly 67 miles west of Kamloops, which CN calls Coho and is Nepa on CP. From there it would extend through the Thompson and Fraser canyons and out onto the broad plain of the Lower Mainland. Its western end would be at Matsqui Junction on CN and Mission Junction on CP, which are connected by the CP swing bridge over the Fraser. Crew changes would be at the division-point towns of Boston Bar on CN, and, across the Fraser, at North Bend on CP. The canyon agreement also spells out how to handle detours in the event that one main line is out of service, with volume apportioned based on each railroad’s traffic levels from the previous months.

Thanks to its gentle grades of no more than 0.4%, CN’s main line was selected to host westbound traffic, which consists primarily of heavy unit trains hauling coal,

grain, potash, and sulphur, plus merchandise loads of lumber, pulp, chemicals, and fuels. Eastbound traffic, which includes the return of empty cars and unit trains along with relatively light loaded intermodal and automotive traffic, runs on CP’s undulating main and its ascending grades of up to 1.5%.

CN and CP began testing directional running in November 1999 and never looked back. “We didn’t stop the tests,” Miller says. “We kept going.”

The final DRZ agreement, signed in 2000, was a huge capacity boost. “You go from a network on each side that was maybe capable of 18 trains each way for each railroad. Now you could run them like streetcars,” Rickerby says.

Directional running also meant trains were no longer constrained by siding length. Over time, coal trains went from 100 cars to 152, pushing length to just over 8,000 feet from 5,300. CN runs monster grain trains of 200 cars or more that stretch 11,000 feet, while CPKC operates 8,500-foot grain trains with at least 134 cars. And stack trains are generally in the 12,000-foot range.

In 2006 the railways layered on a coproduction agreement designed to simplify operations and reduce CN-CP interchange moves in and around Vancouver. Rather than hand off westbound traffic at Sapperton, New Westminster, and Vancouver, CN and CP exchange westbounds at Boston Bar. CN crews run both railways’ trains to destinations on the CN-served North Shore of the Burrard Inlet. CP crews,

meanwhile, handle both railways’ trains bound for the South Shore, where it’s the serving railroad. CP also operates both railways’ coal trains between Boston Bar and the Westshore Terminals at Roberts Bank. The process works in reverse for eastbound trains, which are exchanged at North Bend.

Combined CN and CPKC Directional Running Zone Volume

Westbound	Average per day
Manifest	6.7
Intermodal	7.4
Grain	7.2
Coal	5.4
Potash	1.3
Petroleum	1.1
Other	1.5
Total	30.6
Eastbound	
Manifest	9.2
Intermodal	7.2
Grain	3.2
Coal	4.6
Potash	1.2
Petroleum	0.6
Other	1.1
Total	27.1
Total by railroad	
CN	30
CPKC	28
Source: RailState data for November 2023	



Canadian Pacific AC4400CW No. 8529 leads a seemingly endless string of grain hoppers eastbound on CP’s Thompson Subdivision along the Thompson River west of Spences Bridge, B.C., on Oct. 7, 2010. Tom Kline



A growth enabler

Precise growth figures for the DRZ are hard to come by. But consider these stats:

First, from 2000 to 2020 revenue ton-miles in British Columbia doubled — far above the 37% overall growth in Canada, according to data from the Railway Association of Canada. (Yes, some of that B.C. increase came from the CN-served Port of Prince Rupert, which went from intermodal zero to hero after Rupert became a fast-growing container port in 2007.)

Second, total tonnage at the Port of Vancouver grew 28% between 2008 and 2022, according to the Vancouver Fraser Port Authority, which was created in 2008 from three separate port groups.

Third, over that period Vancouver export grain tonnage was up 46%, potash tonnage was up 35%, and exports of processed foods like vegetable oils grew 14%. Contributing to a lesser extent were exports of chemicals, metals, and minerals (+8%); metallurgical coal (+7%), and forest products (+1%).

Finally, container traffic at Vancouver nearly tripled, going from 1.23 million TEUs, or 20-foot equivalents, in 2000 to 3.57 million in 2022. Along the way, Vancouver landed business from U.S. West Coast ports and became a gateway to Chicago and the Midwest. Back in 2000, CP could only muster about 3,000 feet of container traffic per day out of Vancouver and would fill out train 198 with merchandise traffic. Now CPKC routinely originates

three 12,000-foot stack trains from Vancouver every day, according to data from Rail-Stat, which tabulates train data collected from a network of sensors along rail lines.

All of this traffic bound to and from Vancouver has moved in ever-longer trains. The average train in Canada had 73 cars in 2000, according to RAC data. By 2021 the average had jumped to 121 cars — a 66% increase. Average train weight, meanwhile, grew 31% between 2011 and 2020.

Trade with Asia is the driving force behind the growth at Vancouver, which handled \$305 billion worth of cargo last year. Simply put, Western Canadian natural resources are in demand in Asia, particularly in China, Japan, and South Korea. Some of the exported raw materials return to Vancouver in the form of automobiles, auto parts, and containers filled with consumer goods. And all of it depends on the railways, which nearly evenly split Vancouver port volume.

A link in the chain

Although the CP-CN rivalry dates to 1919, it has intensified in recent years and reached a crescendo in their 2021 tug-of-war to acquire KCS. Executives frequently traded barbs during the seesaw four-month battle to create the first railroad linking Canada, the United States, and Mexico. After CP won, CN still raised a ruckus with regulators, even seeking a forced divestiture of the KCS line connecting Springfield, Ill., with Kansas City so it

Freshly painted AC4400CW No. 9835 leads CP potash train 603 through New Westminster, B.C., on Canadian National on Aug. 12, 2017. Keeping operations fluid in the Vancouver area takes extensive coordination between the two railroads' staffs, who can watch each others' dispatching moves. Corwin Doeksen

could create its own route linking Eastern Canada and Detroit with KC.

None of this corporate drama matters to the railroaders who keep the trains rolling through the canyons, out onto the Lower Mainland, and into Vancouver's tangle of trackage and waterfront terminals.

"While we are absolute competitors in Canada, we have to coexist in that region. What is best for Canada and best for both railways is this DRZ, coupled with the co-production agreement that has allowed us to expand the GTMs and allow us to grow by 30% to 40% for both railways," says Greg Squires, CPKC's senior vice president of western operations.

Taylor, who was CN's Vancouver-based general superintendent of operations from 2009 to 2012, says the DRZ and "co-pro" area works smoothly without any friction between the railways. "Make no mistake: While we compete for volume going into Vancouver, of course, we also work very closely together to make sure it remains a fluid rail terminal," he says.

Coordination is key. "It's nonstop, 24 hours a day," Squires says.

And managing Vancouver — with its scattered 29 rail-served marine terminals,

pinch points like the New Westminster swing bridge, and interchange with BNSF Railway and Southern Railway of British Columbia — is no small task. CN's main facility is Thornton Yard, which sprawls along the Fraser's south bank. Across the river and 2 miles to the northeast sits CPKC's Coquitlam Yard. Both classify cars bound for customers in Vancouver and serve as holding tanks for unit trains awaiting their turn at port terminals or to head back to their origins in Western Canada.

"You can start right in Vancouver, with both operating teams, CPKC and CN, multiple times a day on conference calls discussing which trains are coming in, what we're spotting, what we're pulling, when we're getting our cars back from the North Shore, when we're spotting at the South Shore for CN," Squires says. "Then you move it to our OCs, our Calgary operations center, multiple times a day with theirs. Which trains are ready to go? We have got to feather them in at Mission and then we feather them in at Nepa."

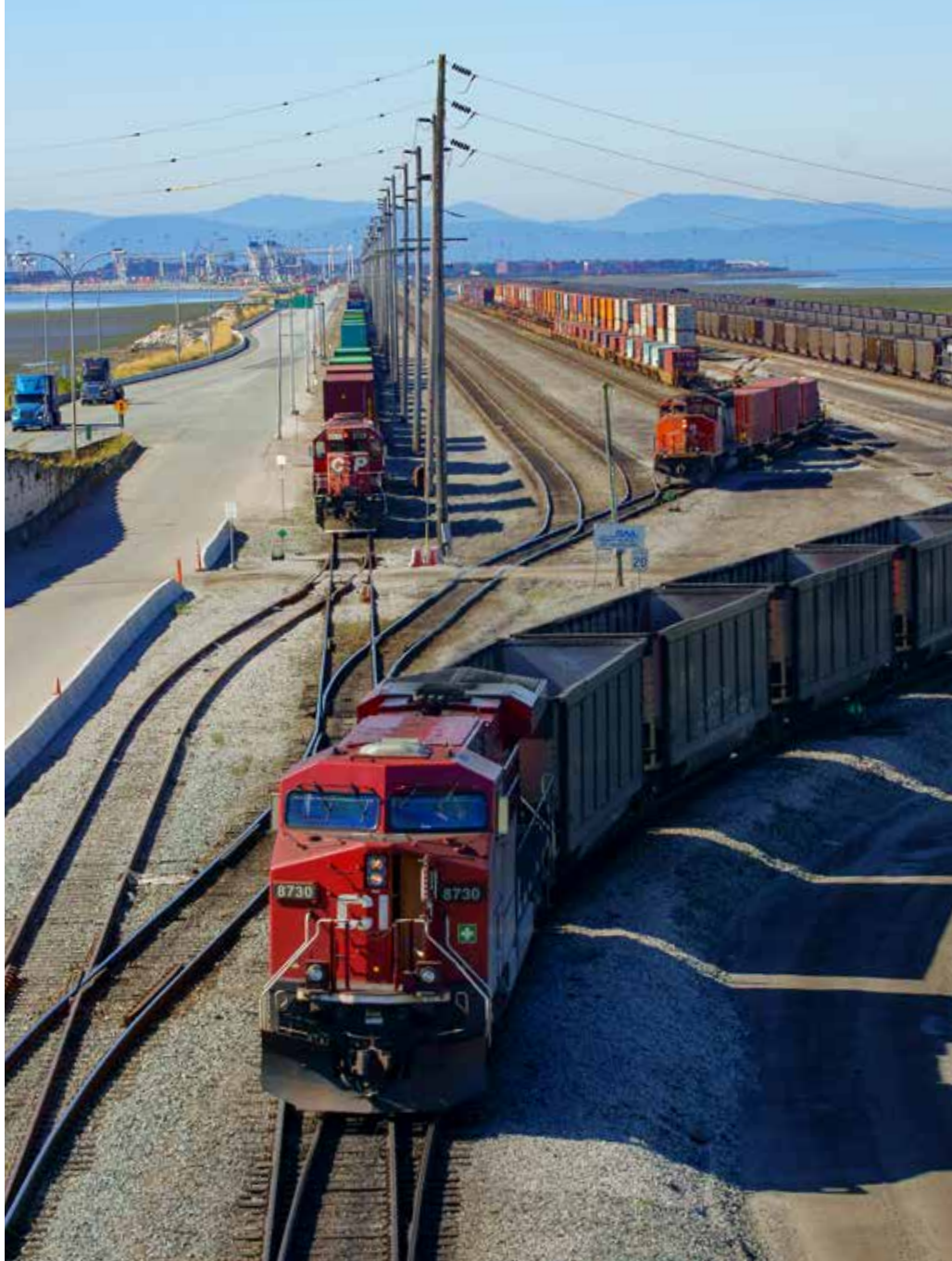
Both railroads also can peer over the fence and see what their neighbor is up to. "We share our central control systems, so on my computer I've got two screens," Squires says. "One's theirs and one's ours, so I can see what's coming in and see where mine are as well. I can look at what's coming out of Thornton and what's coming into Kamloops."

Keeping Vancouver fluid takes the entire supply chain — mines, Prairie elevators, 22 bulk terminals, four on-dock container terminals, ocean vessels, and railways — working together. "The toughest thing that we've got is managing the supply chain," Squires says.

Vancouver sees rain on a majority of days for five months out of the year. Amazingly, the port's grain terminals can't load ships when it's raining. And that can create a backlog that forces the railways to stage unit trains at their yards in Vancouver, Boston Bar, Kamloops, and beyond.

CN and CPKC cooperation alone isn't enough to keep Vancouver fluid. "While the DRZ's very successful, the supply chain is what makes it all work," Taylor says.

Shippers, terminal operators, and the railroads have made capacity investments to support ongoing growth. Among the more than \$2 billion invested over the past few years: Expansions at the Centerm, Vanterm, Fraser Surrey, and Deltaport dockside intermodal terminals; expansion of Neptune's coal and potash capacity; grain expansions at the Fibreco, Cargill, and Richardson, and Fraser Surrey terminals, plus a massive new G3 grain terminal. Meanwhile, the provincial and federal governments have approved plans for a new dockside intermodal terminal at Roberts Bank.



CP ES44AC No. 8730 moves empty coal gondolas past waiting coal trains as it leaves Roberts Bank, B.C., and heads onto the Roberts Bank Rail Corridor on Sept. 6, 2011. CPKC, CN, and BNSF all serve the coal and intermodal terminals at Roberts Bank. Radford Bean

CN's recent projects include upgrading the ventilation system in the 10,000-foot Thornton Tunnel, which increases throughput to and from the North Shore by allowing trains to proceed through the tunnel every 5 to 10 minutes, down from the prior 20-minute interval between trains. In a related move, CN added a third track between Thornton Yard and Thornton Tunnel. The 18,900-foot siding allows CN to stage trains closer to the tunnel rather than at Thornton Yard.

CN also added a 12,000-foot signaled bypass around Thornton Yard and built 6,000 feet of yard trackage. Coming next: The 3.7-mile Glen Valley double-track project, which will eliminate the last

section of single main track between Matsqui and Thornton Yard.

CPKC, which completed a round of expansion projects in 2017 and since has added transload centers and an auto compound, has additional passing sidings on the drawing board. "The best thing that we can do, though, is move the traffic faster," Squires says. "If we move it faster, we create our own capacity. And we've still got room to grow there."

In the canyons

At daybreak on CN's Yale Subdivision, you watch the tail end of a potash train crawl across the curved steel Anderson River trestle, 2 miles timetable west of



Canadian Pacific Kansas City intermodal train No. 149 from Bensenville, Ill., to the Roberts Bank, B.C., terminal, crosses the Anderson River trestle 2 miles west of Boston Bar on Sept. 26, 2023. Three photos, Bill Stephens



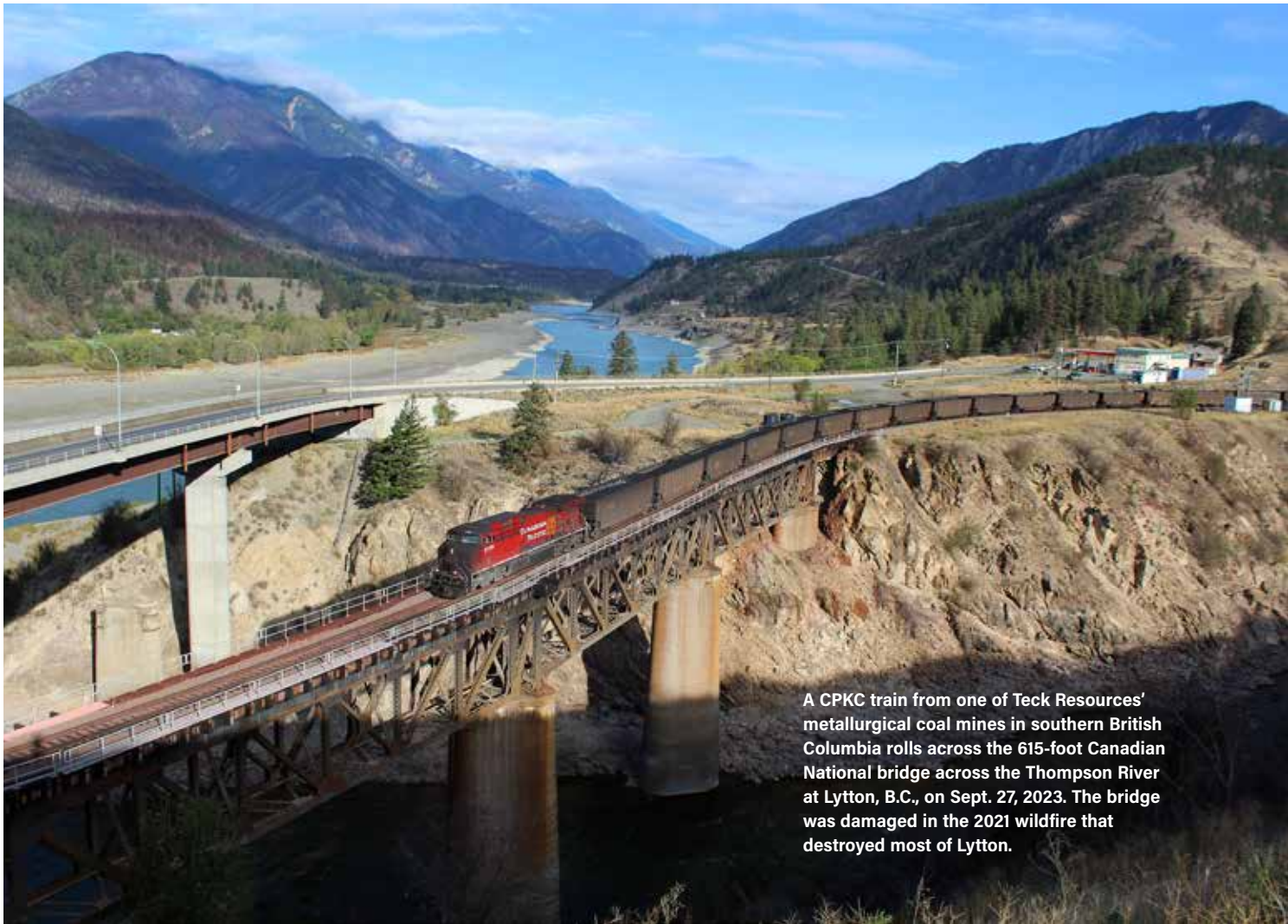
Slides are an issue throughout the DRZ, as is made clear as a westbound Canadian National potash train passes slide fences at a scarred hillside in the Thompson River Canyon east of Lytton, B.C., on Sept. 27, 2023.

Boston Bar. The crew lets the rail traffic controller in CN's Network Operations Center in Edmonton know the slide detector signal has been activated between Hicks and Komo. They get the OK to proceed at the maximum allowable 10 mph.

Right on its heels: CPKC stack train No. 149, with a CP AC4400CWM up front and KCS AC4400CW as the midtrain distributed power unit. With the hazard warning system signal still active, the 149 tiptoes across the 914-foot span, too. Neither train crew sees anything amiss, but a hi-rail truck is dispatched to take a closer look.

Gravity is always the enemy of mountain railroads. But here in the Fraser and Thompson river canyons, grades aren't the problem. Instead, trouble looms high above the tracks. Gravity is constantly tugging on rock that Mother Nature pries loose from the canyon walls, particularly during freeze-thaw cycles in the spring





A CPKC train from one of Teck Resources' metallurgical coal mines in southern British Columbia rolls across the 615-foot Canadian National bridge across the Thompson River at Lytton, B.C., on Sept. 27, 2023. The bridge was damaged in the 2021 wildfire that destroyed most of Lytton.

and fall. Says Justin Meyer, CPKC's senior vice president of mechanical and engineering: "Rock falls is one area both railways are concerned about. What's happening above us?"

What indeed. You peer down on a pair of CN ES44ACs leading a 200-car potash train in the White Canyon just east of Lytton. Twin scars run down the mountainside and end at a pair of slide fences beside the main. After the rear end ET44AC distributed power unit rounds the bend into Wrexham Tunnel, you hear a curious sound. But what? It turns out that vibration from the passing train set off a cascade of small rocks and sent them tumbling over the edge of the slide, where they fall harmlessly into a pile next to the tracks. "Our slide fences work. ... Our predecessors found out where to put them for a good reason," Meyer says. "And they really do protect us."

The multiple rock/snow sheds and the multitude of wayside detectors guarding the DRZ — miles of slide fences, plus alarms to warn of high water, high winds, washouts, and derailments — say a lot about how

challenging the 155.3 miles on CPKC and 156.2 miles on CN can be. "Challenging would be an understatement," Taylor says.

The subdivisions that comprise the DRZ are as rugged as they come. They include CN's Ashcroft Sub (Kamloops-Coho-Boston Bar) and Yale Sub (Boston Bar-Matsqui-Douglas Island) and CPKC's Thompson Sub (Kamloops-Nepa-North Bend) and Cascade Sub (North Bend-Mission-Vancouver).

From Kamloops until it exits the Cascade Mountains at Hope, CN's main includes 15 tunnels and eight rock sheds/slide chutes on the Ashcroft Sub, plus 16 tunnels on a 26-mile stretch of the Yale Sub. CPKC's Thompson Sub runs through 10 tunnels, while its Cascade Sub features 14 bores.

Both systems keep heavy equipment and supplies at strategic locations in order to respond to slides and avalanches. Sparse highway access makes it difficult to reach problem areas. "You can only access about 10% of our railroad in the canyons by road," Taylor says. The rest must be reached by helicopter or hi-rail vehicle.

With such heavy volume, any glitch in the canyons quickly causes headaches. "When we have an issue on either one of those single tracks in the DRZ, it's two-fold," Squires says. "Now you're trying to get equipment in, and there's not a lot of access. You've got the river right there, and you've got the mountain beside you. There's always 15 to 20 trains in each direction ... when the first one stops, it's just a big domino effect. It's tough to get crews off that train. We have an issue with train one and now you're trying to get the guys off of train five safely and get them re-crewed. It's challenging."

CN and CPKC take every proactive step they can to prevent slides, including removal of loose or potential unstable rocks, slope stabilization projects, and regular inspections by helicopter.

Sometimes there is no escape from Mother Nature's wrath. The British Columbia wildfire season has grown more intense in the past five years, with bigger and more frequent fires disrupting the railways, damaging track and bridges, and leaving miles of forest blackened along the main lines.

A Royal Canadian Pacific excursion train exits Jackass Mountain Tunnel on CN track-
age on Sept. 5, 2010. This area was hit hard
by flooding in November 2021, with more
than 60 washouts. Steve Glischinski



The town of Lytton, which sits at the confluence of the Thompson and Fraser rivers, was almost completely destroyed by a wildfire that began on June 30, 2021, and killed two residents. It took CN 13 days to repair fire damage to its 615-foot bridge over the Thompson River. Lytton remains a ghost town, with crosswalks leading to rubble-strewn lots on either side of Main Street.

CN and CPKC now field firefighting trains. CN's Poseidon fire train will get reinforcements this year with the arrival of matching trains dubbed Neptune and Triton. They can be run individually or as a larger, more powerful apparatus. "We're learning to resource appropriately to help not just the railroad, but to help the communities and the environments which we operate in," Meyer says.

Wildfires leave the ground charred, barren, and unable to absorb water. In essence, one 2021 disaster in the canyons set the stage for another.

Fire and rain

The weather forecast leading up to Nov. 14, 2021, included ominous warnings about an atmospheric river that would lash British Columbia with waves of rain. CN and CP prepared for a repeat of catastrophic January 2019 storms and washouts.

The Pineapple Express downpours began as predicted. When the weather cleared two days later, some two months' worth of rain had fallen, measuring anywhere from 8 inches to nearly a foot in Hope, B.C. Making matters worse: High temperatures melted the snowpack of the high peaks, adding yet another month's worth of precipitation in the canyons. Damage from the deluge was unprecedented.

Jackass Peak, named for the mule trains bound for the Cariboo gold fields in the rush of 1858, towers 6,000 feet above mile-post 110.5 of CN's Ashcroft Subdivision. Tributaries from the mountain feed Falls Creek Falls, which plunges 331 feet in four tiers right above the Trans-Canada Highway and, a couple hundred feet below, the CN main. Both were in the way. The raging waters took them out, blowing a hole in the main line that was 200 feet wide and 200 feet deep.

In all, CN and CP were hit with more than 60 washouts in the canyons. Two more atmospheric rivers only exacerbated the monumental task of putting their main lines back in service.

With the highway out, both railways attacked the damage from Kamloops and Vancouver, repairing as they went. "There were 30 locations on the western corridor, with 20 of those that were significant, significant events that needed to be rebuilt"





Squires says. “When we have an outage like that, we obviously get it back up and running as quick as we can because the nation’s economy’s at stake.”

CP’s main was restored in eight days, allowing some traffic to move in directional fleets. It was, CP CEO Keith Creel said, “a miraculous effort.”

Thanks to a 400-person army of employees and contractors using more than 110 pieces of heavy equipment, CN reopened its main on the weekend of Nov. 27-28, but another storm dropped more than 5 inches of rain and set back recovery efforts. CN’s main was returned to service on Dec. 4 after crews built a five-span, 219-foot bridge over Falls Creek.

CN’s rebuilding efforts included moving 282,000 cubic yards of rock and soil, enough to fill 25,000 trucks, to washout locations.

Recovering from “the big one” is a credit to CN’s people, Taylor says. “To be a rail-roader means something. There’s a lot of lifestyle choices and sacrifices that come with that,” he says. “But our folks are second to none, whether it’s the engineering team, [or] the bridge and buildings teams. All those folks that came together to make that happen was nothing short of incredible.”

Looking ahead

With climate change driving more frequent extreme weather, CN and CPKC are taking steps to harden their railways through the canyons. “When there is a disruption, we build something that’s definitely more robust and more willing to take a 500-year storm,” Taylor says.

An example: At Tank Hill, milepost 85 on the Thompson Sub, CPKC replaced a bridge that was lost and added another span to help prevent future washouts. Similar improvements are being made elsewhere in the canyons as the railways chip away at problem areas every year.

“It’s going to be a challenge, though, not knowing exactly what climate change and what the changing world we live in holds for us tomorrow,” Meyer says. “We’ve got to keep advancing and doing better each day.”

To get advanced warning of weather events and trackside trouble, railways are partnering with weather forecasters and putting more technology to work. CPKC is relying on satellites to monitor changes in water levels at high-risk locations, for example, while one of CN’s autonomous track inspection boxcars continuously cycles back and forth between Kamloops

A westbound Canadian National container train led by C44-9W No. 2569 follows the Thompson River near MP 74 on CN’s Ashcroft Subdivision as it approaches Spences Bridge, B.C., near the east end of the Directional Running Zone, on June 8, 2019.

Matthew Robson

and Vancouver. The car’s lasers measure changes in track geometry, and its cross-plane Lidar system monitors the right of way and creates maps of the canyons.

Whatever the weather may bring, the DRZ corridor has more freight heading its way. Prairie farmers continue to harvest larger grain crops. A new dual-served potash mine, set to open in Saskatchewan in 2026, may boost Canada’s potash production by 22%. And in the Alberta Industrial Heartland northeast of Edmonton, petrochemical plants are cranking out more plastics, chemicals, and fuels.

CN and CPKC say they’re ready to handle it. “I don’t see a capacity issue in the coming years. I don’t think that there’s one limiting factor,” Squires says. “The supply chain has to work: The beginning, the middle, the end. It all has to flow — and when it does we see record volumes going through the port.” **I**