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Urgent Issues in Freight Rail Service

Presented to the Surface Transportation Board by:

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The Industry Is in the Midst of a **Service Crisis**

What's the Core Problem?



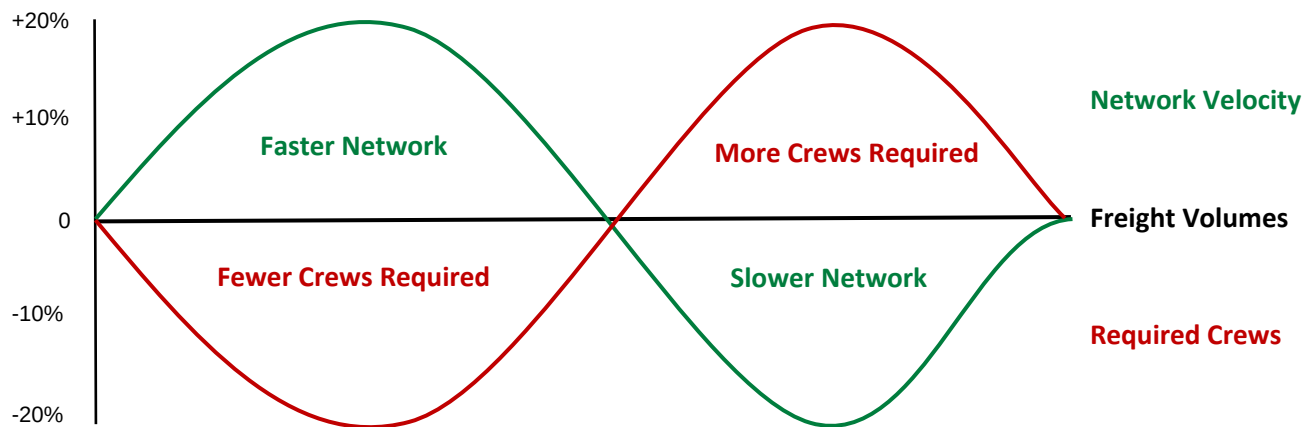
Shortages of Train CREWS

Crew Shortages Is Not a New Problem



- Railroads have experienced sporadic crew shortages for as long as the industry has existed.
- Most companies in America are currently struggling with hiring so the railroads are not unique in this regard. FedEx stumbled last year due to understaffed ground hubs before any of the railroads did, and the US Airlines are currently experiencing similar, chronic, crew shortages.
- **What is unique about the railroads is that the network dynamics in play result in service consequences from T&E shortfalls that are longer in duration than almost any other business.**
When the railroads get this wrong it typically takes ONE YEAR to fix. Here's why...

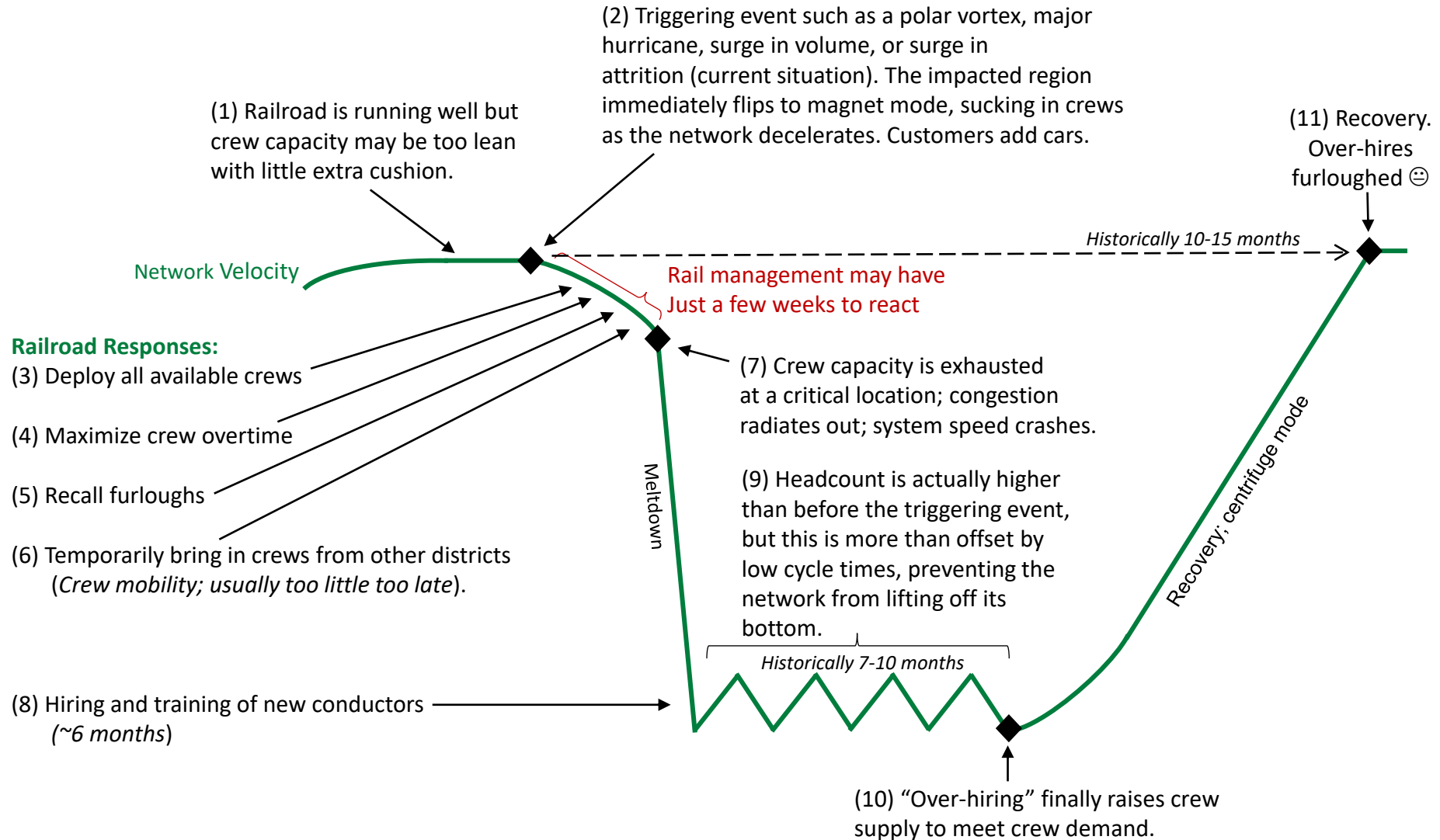
Crew Capacity 101: Magnets and Centrifuges



Crew capacity is a function of both headcount and network speed. An accelerating network will act like a centrifuge, spinning crews out; a decelerating network will act like a magnet, sucking crews in. The risk is therefore that a rapid downshift in speed; for any reason; can trigger a crew capacity crunch.

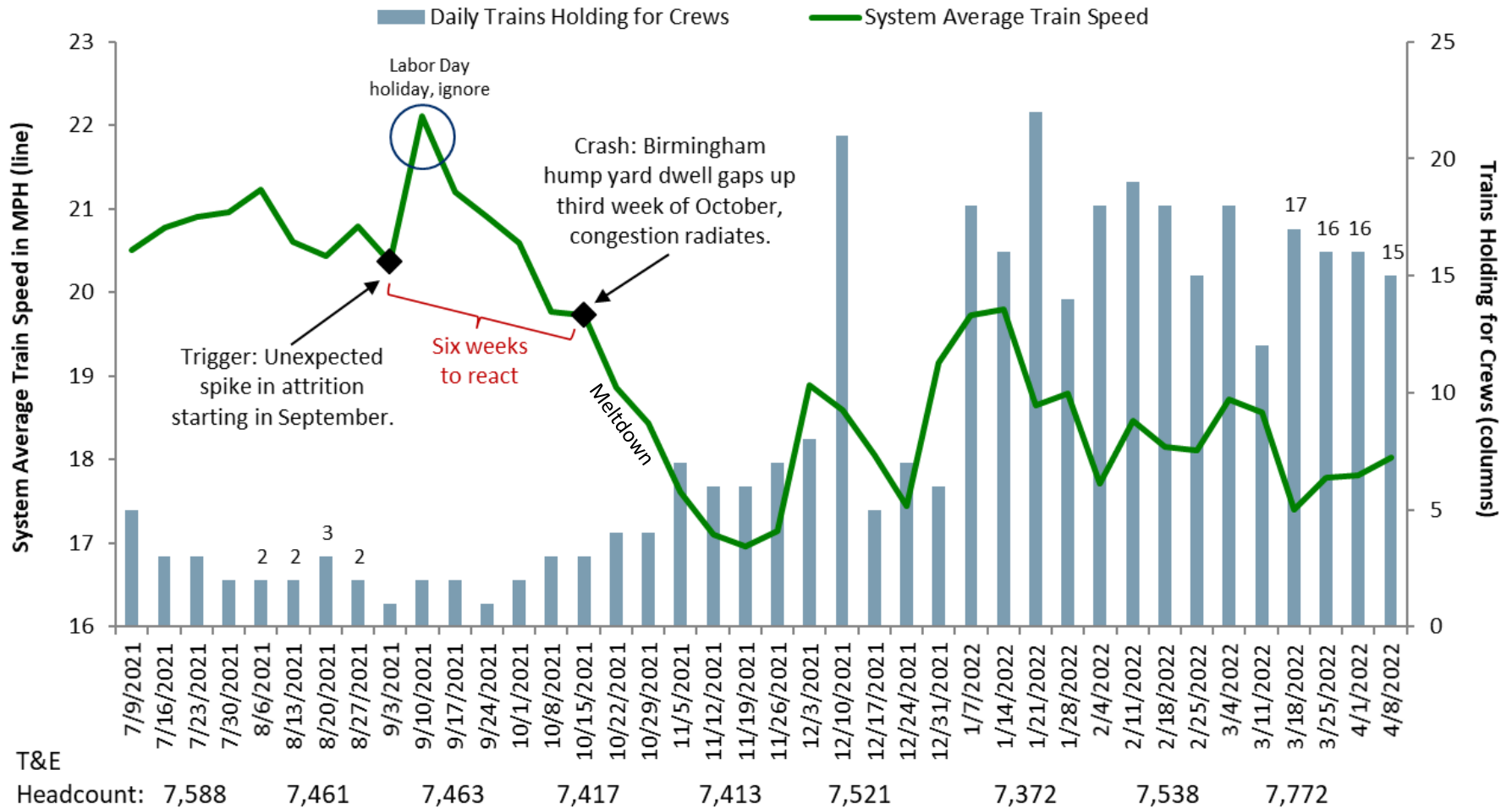
Source: Loop Capital

Here's How a Crew Capacity Crunch Often Plays Out



Source: Loop Capital

Real World Example: Norfolk Southern July 2021-Present



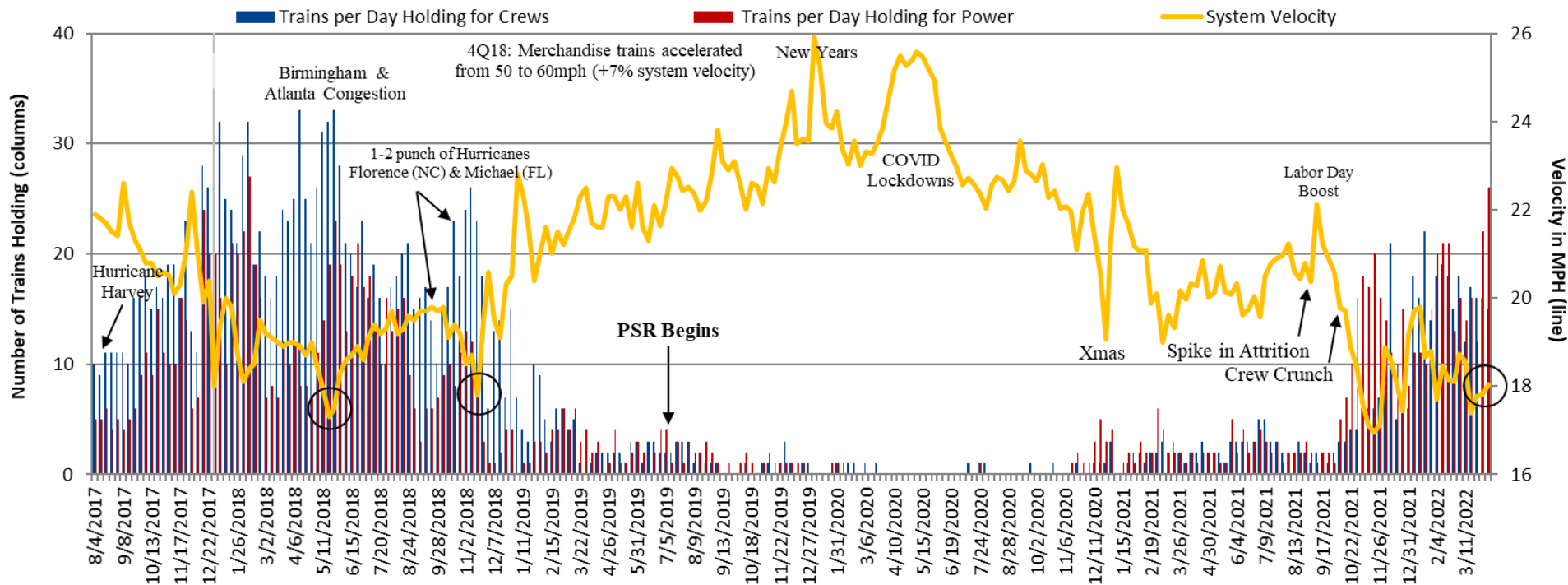
Headcount up 4% but cycle times down 12%, so NS – in theory – may need to add another 8% T&E (~600 people) to restore service.

Source: Norfolk Southern and Loop Capital

Norfolk Southern: Zooming Out to a Five Year View



- Asset turns and service levels are at lows not seen since the 1-2 punch of hurricanes Florence and Michael in late 2018, and before that the congestion in Birmingham and Atlanta in May 2018.
- Note the rising red columns on the far right. Slow asset turns caused by the crew problem is now creating a power (locomotive) problem. This is increasingly industry-wide and not exclusive to NS.

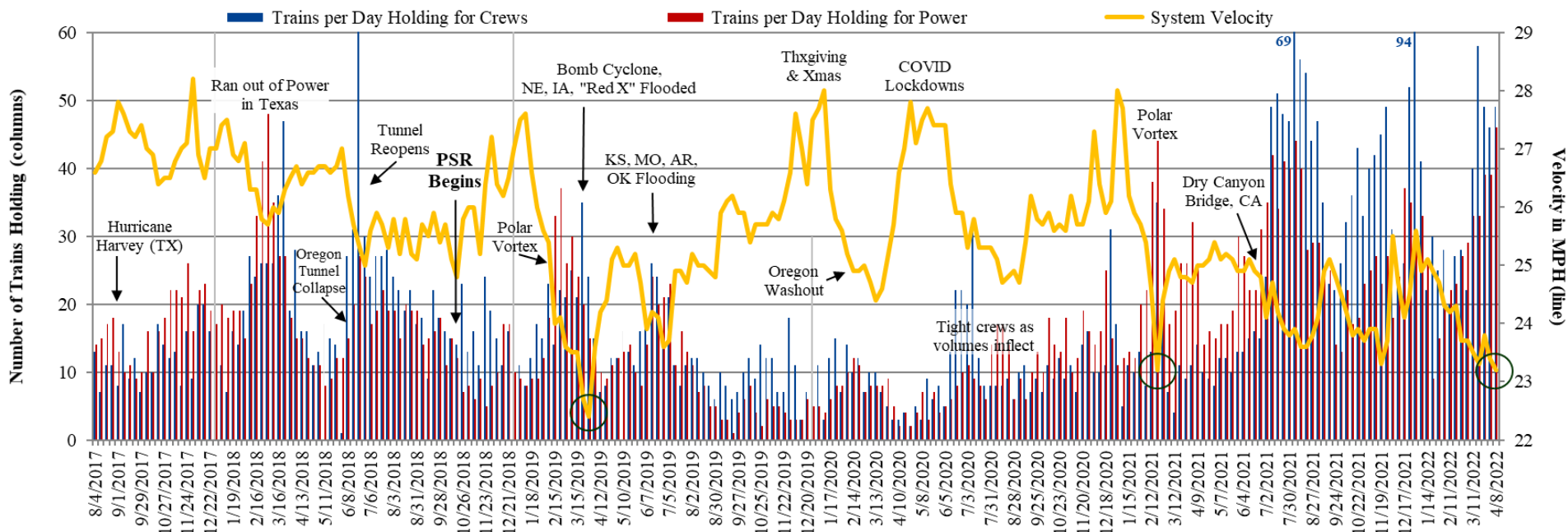


Source: Norfolk Southern and Loop Capital, data is through April 8, 2022.

Union Pacific: Last Five Years



- Managing UP's network is difficult due to its scale, diversity of commodities hauled, and range of external shocks it's subject to: hurricanes in the south, polar vortexes in the north, and wildfires in the west. It's basically 23 state whack-a-mole and there's always an emergency somewhere.
- Asset turns are currently at lows not seen since the polar vortex in February 2021 and the only time in recent years service has been worse was during the Midwest flooding in 2019.
- Again, the red columns are rising on the far right as a slowing network in "magnet mode" continues to suck in more locomotives.

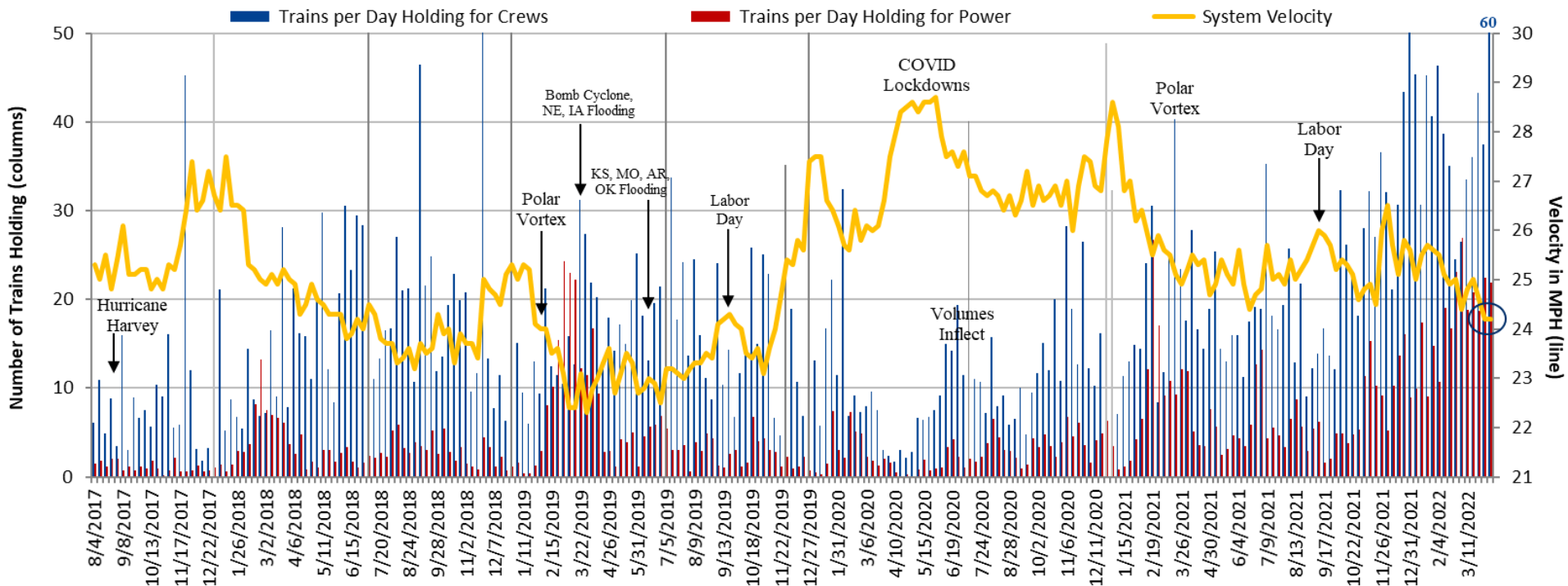


Source: Union Pacific and Loop Capital, data is through April 8, 2022.

BNSF: Last Five Years



- BN looks a little better, but asset turns are still at a low we haven't seen since November 2019.
- Over the last two weeks more than 50 trains per day were delayed due to crew shortages and power availability has tightened. Cars sitting idle for 48 hours or more has predictably increased, including a 5+ year high of loaded intermodal platforms slow to move.
- From the outside looking in it feels like the network remains under pressure and the gravity here is still to the downside.

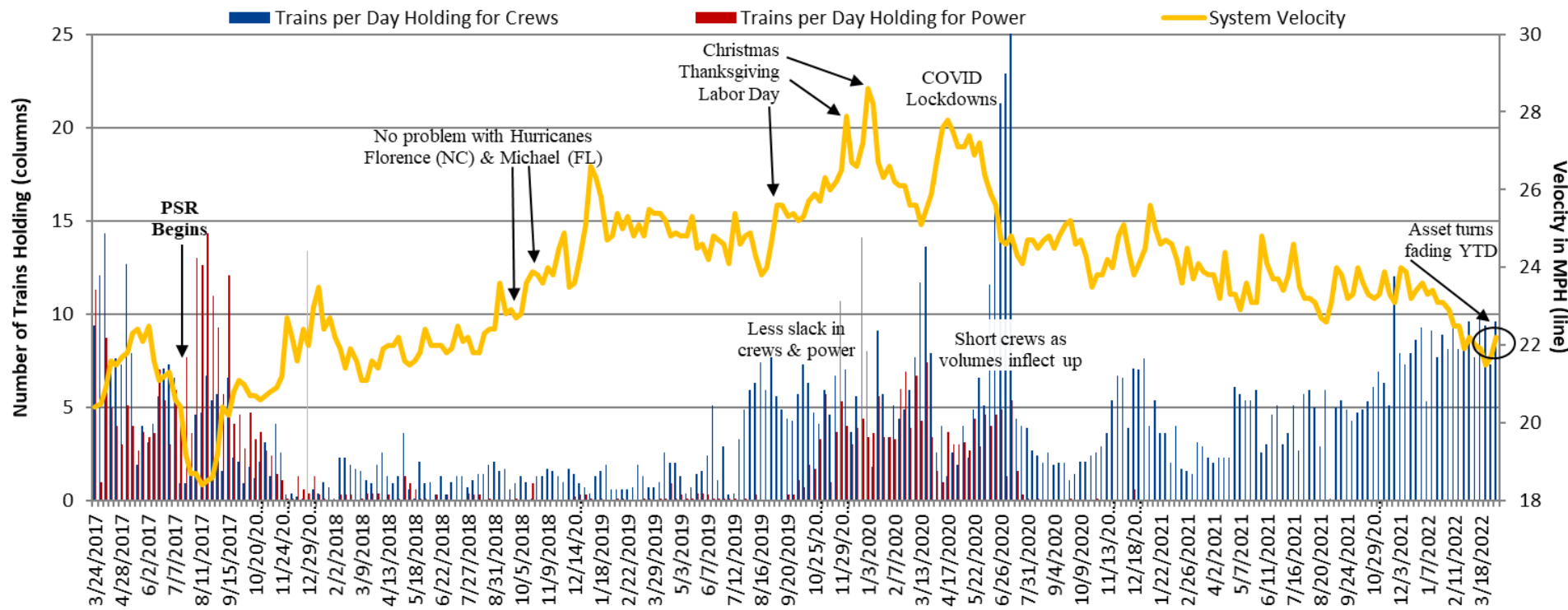


Source: BNSF and Loop Capital, data is through April 8, 2022.

CSX: Last Five Years



- CSX is the “less bad” standard bearer in the east, but network speed is not far from a 3.5 year low.
- Trains holding for crews began to rise in November 2021 from five per day to nine per day through mid-January; at which point the network began a grinding deceleration through the third week of March.
- Unlike its US peers, CSX is not reporting any trains holding for power; it’s exclusively crews.

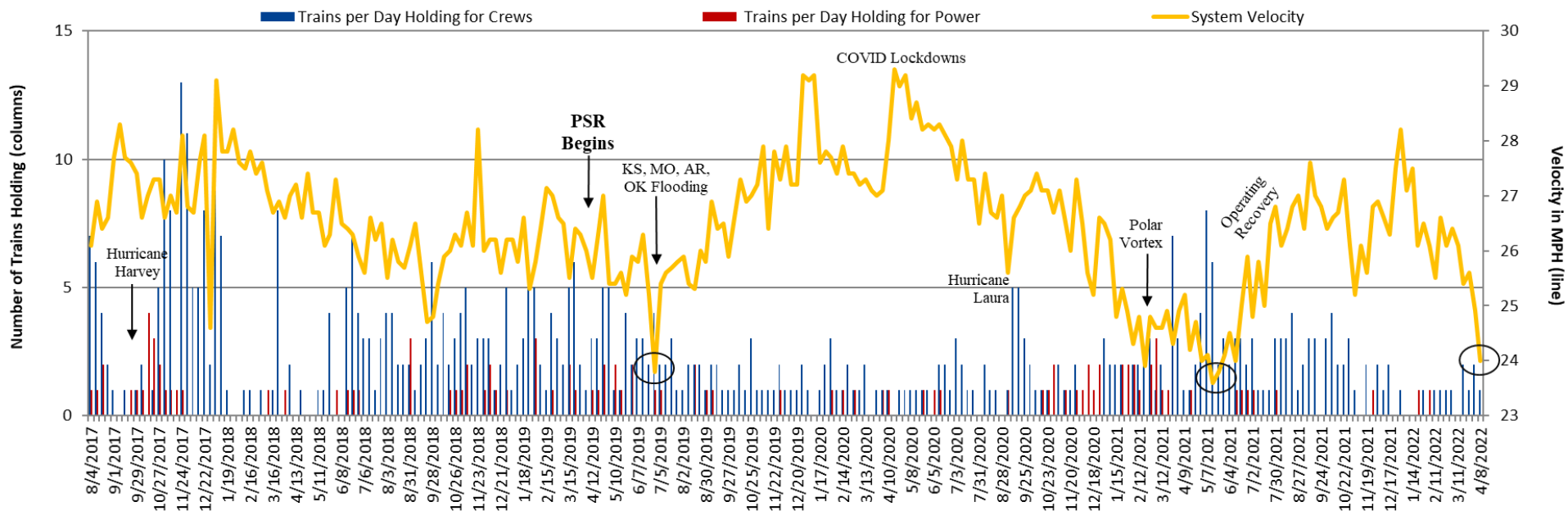


Source: CSX and Loop Capital, data is through April 8, 2022.

Kansas City Southern (US Network): Last Five Years



- KCS has been the best performing network since last summer, but even the mighty KCS has stumbled recently, with a big tail off in train speed since mid-February.
- KCS is the rare railroad at present that doesn't suffer from material labor and power constraints, but it's overwhelmingly an interchange railroad and is being dragged down, in part, by crew shortages and congestion at its interchange and service partners, primarily in Texas.

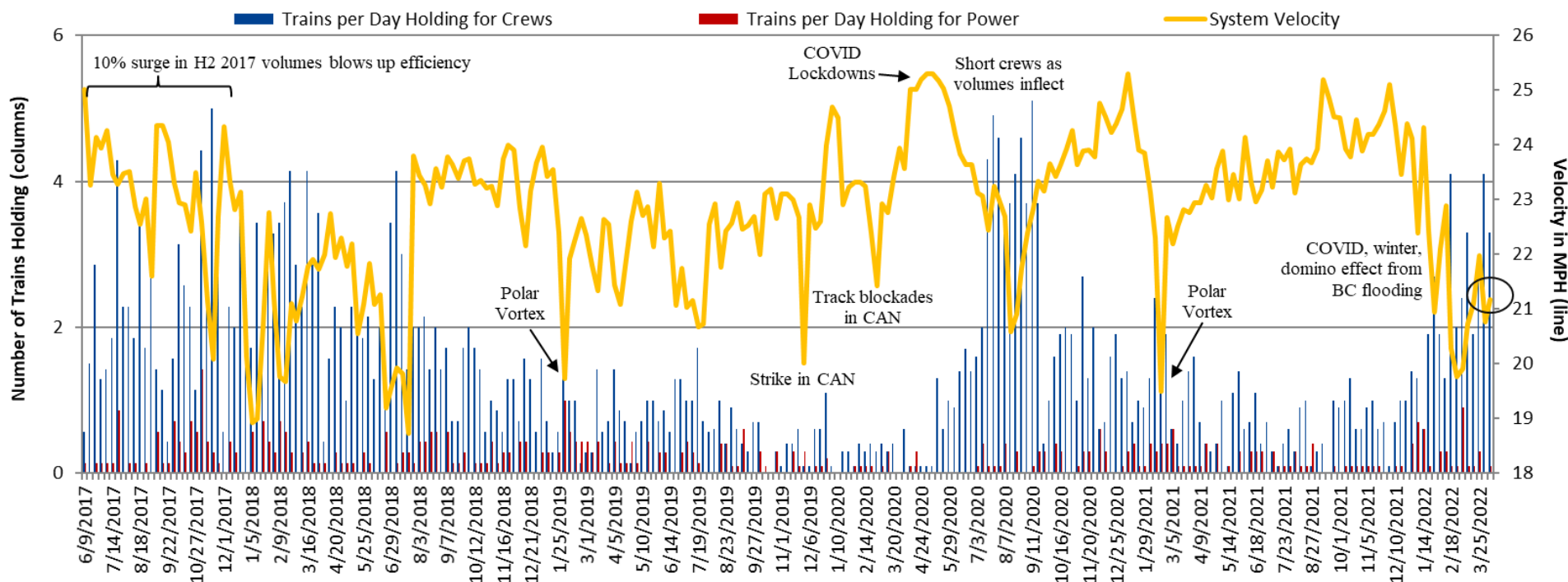


Source: Kansas City Southern and Loop Capital, data is through April 8, 2022.

Canadian National (US Network): Last Five Years



- CN has been dealing with the 1-2-3 punch of British Columbia flooding late last year, leading into a colder than normal winter, plus the Omicron surge in January. The network is now in recovery mode.
- Train speeds in the US are still below average and trains holding for crews have increased to 18-month highs in recent weeks; although remain small in absolute terms (3 or 4 per day in the US).

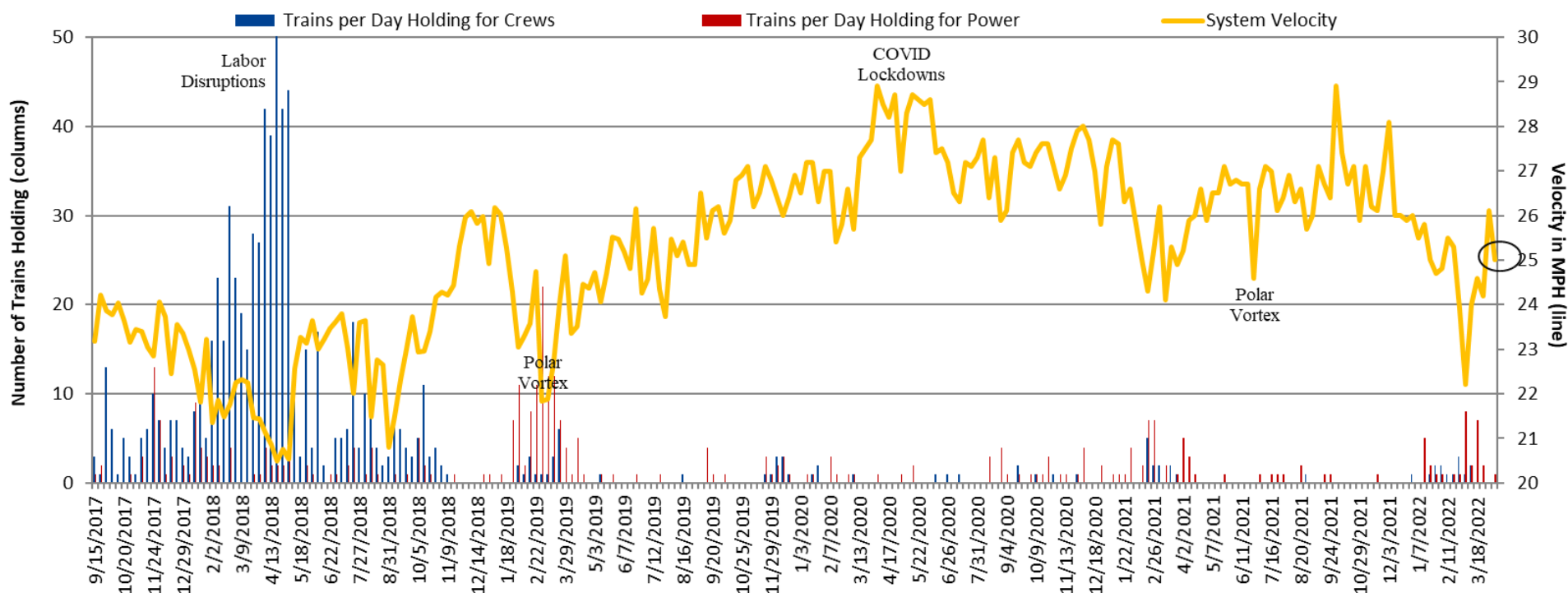


Source: Canadian National and Loop Capital, data is through April 8, 2022.

Canadian Pacific (US Network): Last Five Years



- CP has been dealing with the same headwinds as CN, plus a three-day labor strike in Canada between March 19-23. CP's US network has weathered these events as well as can be expected.
- Current operating data shows minimal trains delayed in the US due to crew and power shortages, but note CP only reports them if the delay exceeds 6 hours versus 4 hours or less for its peers.



Source: Canadian Pacific and Loop Capital, data is through April 8, 2022.

Back to Crews, and Here's the Problem...



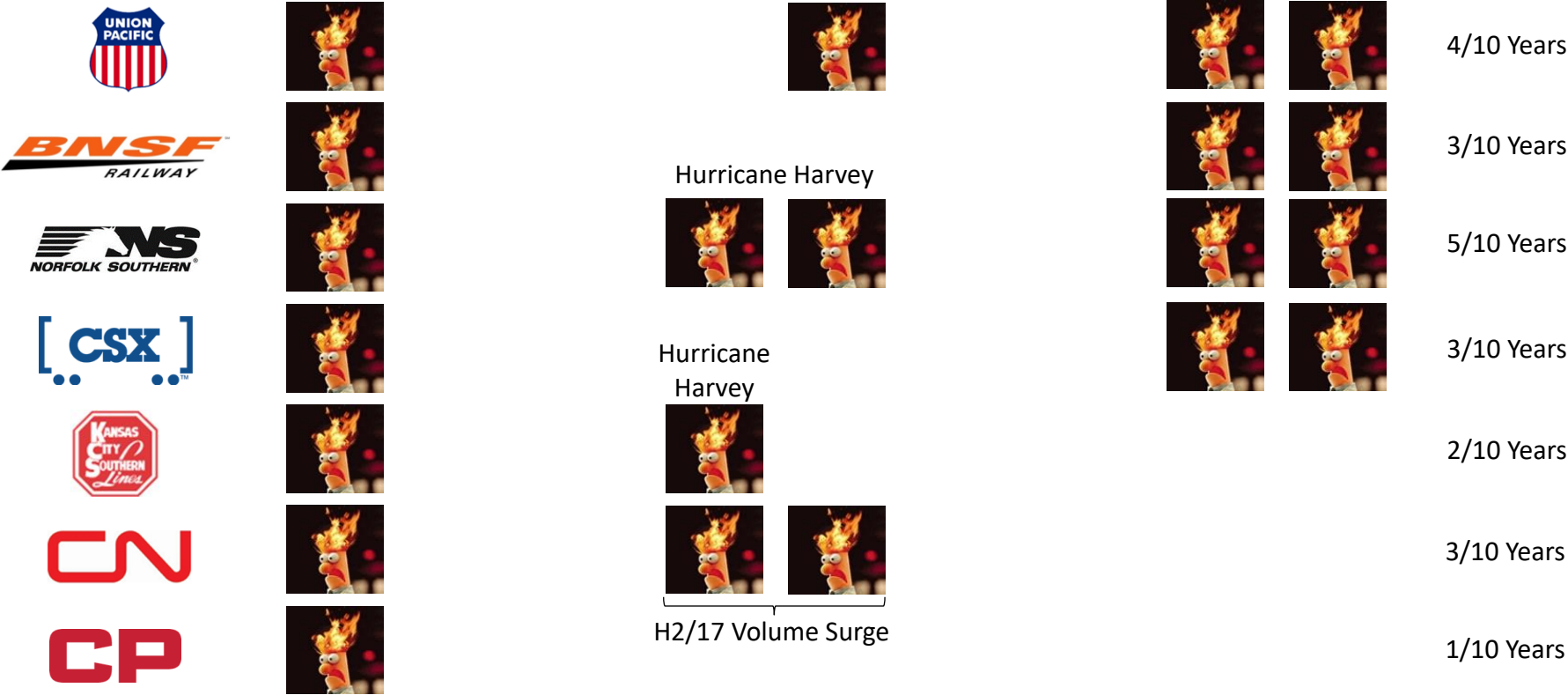
The current crew-driven meltdowns are not a ‘one-off’ problem. The railroads aren’t always just “unlucky”. This has been happening *all the time*. Here’s the industry’s track record on crew shortages that significantly impacted service over the last 10 years:

2013 2014 2015 2016 2017 2018 2019 2020 2021 2022

Polar Vortex

Oregon Tunnel Collapse

Surge in Attrition



Source: Loop Capital and The Muppets

Service Remains a Frustrating Patchwork for Customers

Adding in all the non-crew elements that also impact operations, here's the asset turn and service picture, by quarter, since 2015.

Green = Very good service.

Red = Poor service.

Yellow = Within 10% of normal.

Service Matrix: Equally-weighted Velocity + Terminal Dwell versus each Railroad's Post-recession Average

	1Q15	2Q15	3Q15	4Q15	1Q16	2Q16	3Q16	4Q16	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22
UP	-16%	-8%	-5%	-2%	3%	5%	0%	-2%	-11%	-4%	-10%	-21%	-24%	-11%	-13%	PSR -2%	-6%	-3%	7%	13%	8%	21%	11%	15%	8%	9%	3%	1%	3%
BNSF	-3%	2%	1%	13%	16%	24%	13%	10%	-6%	2%	8%	9.9%	4%	1%	-6%	-6%	-16%	-15%	-9%	-1%	2%	17%	-9%	-3%	-13%	-11%	-10%	-11%	-22%
CSX	-28%	-16%	-16%	-12%	-17%	-13%	-17%	-22%	-21%	-7%	PSR -30%	-11%	-4%	7%	19%	25%	33%	31%	32%	45%	45%	42%	25%	20%	17%	17%	14%	8%	1%
NS	-29%	-10%	-5%	4%	4%	10%	6%	3%	1%	-8%	-6%	-16%	-36%	-37%	-24%	-21%	5%	23%	PSR 27%	28%	30%	35%	22%	6%	-9%	-3%	2%	-29%	-28%
KCS	-10%	-16%	-16%	-3%	1%	0%	-13%	-15%	-10%	-7%	-3%	-13%	-9%	-13%	-33%	-27%	-5%	PSR 0%	8.9%	14%	19%	20%	-1%	-13%	-23%	-22%	10%	19%	17%
CN	-5%	14%	20%	21%	21%	26%	26%	17%	6%	14%	4%	-18%	-44%	-16%	-14%	-13%	-27%	0%	-8%	-11%	-19%	-14%	-34%	-13%	-19%	-5%	-4%	-8%	-35%
CP	-24%	16%	20%	22%	22%	30%	24%	26%	13%	36%	24%	14%	-6%	14%	13%	23%	-3%	23%	33%	31%	22%	20%	20%	16%	1%	14%	9.6%	6%	-13%

 	Railroad is turning assets <i>within</i> 10% of its post-recession average
 	Railroad is turning assets <i>>10% faster</i> than its post-recession average
 	Railroad is turning assets <i>>10% slower</i> than its post-recession average

Source: Company reports and Loop Capital Markets estimates.

Post-recession defined as Q1 2010 through the present.

How does the chart work?

e.g. Velocity 10% better than its post-recession average + dwell 10% better than its post-recession average = 20%.

Velocity 10% worse + Dwell 10% worse = -20%.

Velocity 10% better + Dwell 10% worse = 0%.

Hurricane Harvey
CSX Adopts PSR
CN Capacity Crunch

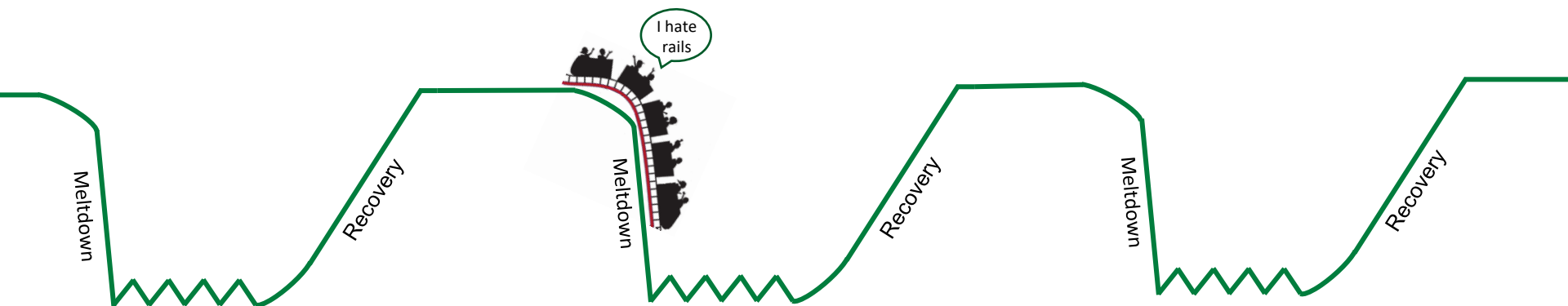
UP Adopts PSR
Midwest Flooding
KCS Adopts PSR
NS Adopts PSR

Record industry service, aided by COVID-driven lockdowns/freight drought

COVID
Polar Vortex

NS Crew Crunch.
BC Flooding
CP CA Strike

This Cannot Continue If the Rails Are Serious About Taking on Trucks



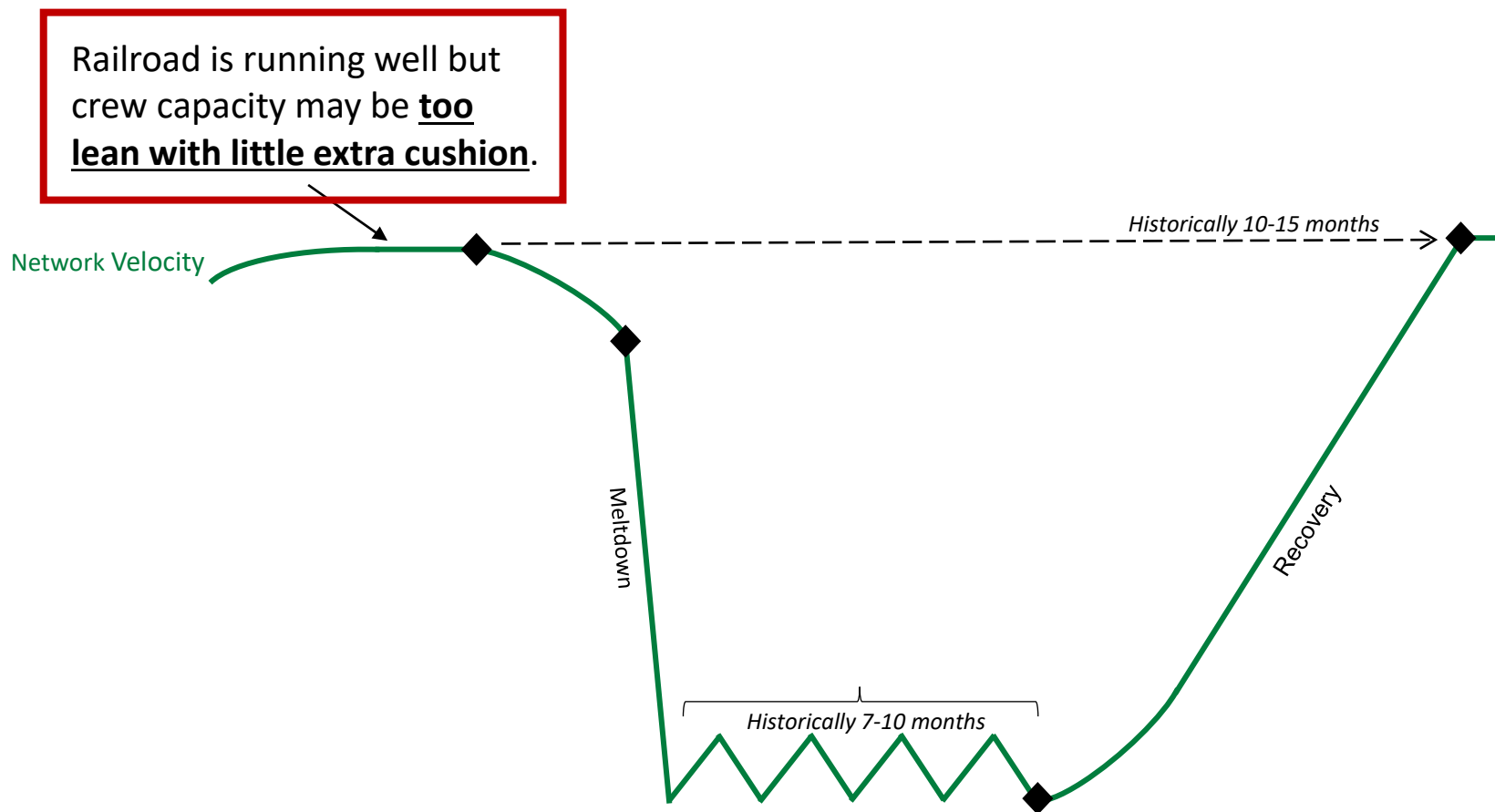
What do customers want from the railroads, at a reasonable price:

Resilient operations able to provide consistent service across all parts of the economic cycle

What have they been getting from the vast majority of them:

Fragile operations resulting in roller-coaster service with 'insult to injury' price increases

Why Are the Railroads Too Often Caught with Too Few Crews?



Source: Loop Capital

Too Few Crews Theory #1



Some Hubris when Things are Going Well:

- Class I CEO:

“The network is now running great...” 

“We’ve finally got this thing figured out and dialed in...” 

“These faster cycle times are freeing up crews so let’s furlough them to save money...” 

“Let’s schedule an Investor Day to talk about how awesome we are...” 

“Nothing is ever going to go wrong again...”

[Polar Vortex]

[Cat 6 Hurricane]

[California is on fire]

[Pandemic]

[Volume surge]



Source: Loop Capital and [jay-ithiel.github.io](https://github.com/jay-ithiel)

Too Few Crews Theory #2



It's Just Too Difficult:

- Because conductors take 6 months to train the railroads need to forecast business levels six months in advance, which is basically impossible to any degree of consistent accuracy. Under-forecasting volumes results in too few crews when you get there.
- Add in black swan events like the 2014 polar vortex and maybe it's a futile undertaking and nothing can be done to overcome the industry's core structural fragility.

Crew training lag + external shocks + magnet mode = structural fragility.

- We're not (quite) ready to give up and our view is that—yes—there's always the chance of a really exceptional circumstance that blows up the network, but surely the laws of probability suggest this should be closer to every ~10 years rather than every four or five.
- At the very least the railroads should be able to add sufficient resiliency that a single weather event or the loss of a single key piece of infrastructure (yard, bridge or tunnel) is insufficient to trigger an uncontrollable downward spiral.

Too Few Crews Theory #3



The Railroads Haven't Adequately Adjusted Capacity Buffers for Climate Change:

- Who had even heard the term “Polar Vortex” before 2014? Not us. They’re now the single most dangerous weather event these networks face because they severely compress both crew and power capacity on all the Class I’s simultaneously over a wide geographic area, and we’ve been averaging one polar vortex every two years since.
- Bigger and slower moving hurricanes: Hurricane Harvey decided to sit over UP and BN’s Houston yards and rain for a week.
- The wildfire that took out UP’s Dry Canyon Bridge last year, causing reroutes over the Rocky Mountains that absorbed huge amounts of power and crews, was the first time in our career that a *fire* threatened to melt down a Class I railroad.
- Wildfires in *Canada*.
- Are the railroads seasonally and regionally increasing crew cushions to take the rising probability of these events into account?
 - We don’t know but it doesn’t feel like it.

Too Few Crews Theory #4



The Language and Structure of the Labor Contracts:

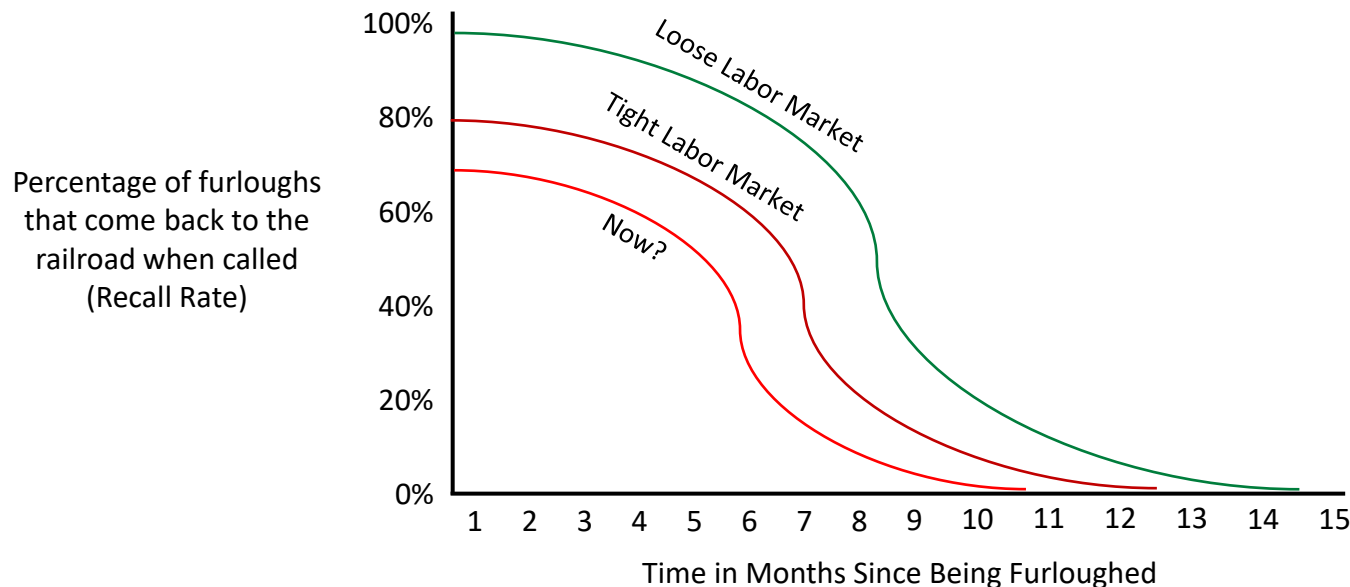
- The solution won't be as simple as "hire some extra crews and have them sitting around in case they're needed".
- Crews are paid by the trip, so no trips – no pay. Why would they stay?
- We've been told some of the agreements have monthly minimum trip guarantees and other complicating provisions that might discourage latent crew capacity.
- We don't have access to the contracts so don't know the details, but this is a rock someone needs to look under.
- Ideally, language in the labor agreements should also maximize crew mobility and response speed around the network, and possibly even across networks in emergencies (BN loans UP crews at a specific location to help avoid a meltdown; UP returns the favor when the situation is reversed.) Good for labor (more trips at a premium pay rate) and adds some incremental resiliency to the system. Admittedly a long shot but food for thought.

Too Few Crews Theory #5



Are Furloughs Too Easy?

- There are two issues with the current furlough mechanism that may be counterproductive to healthy crew capacity:
 - It makes them quick and easy to fire** (while they're increasingly difficult to hire.) Is this too enticing as a “cut costs” button for management? (CFO: “OMG we’re tracking below our guidance. Quick, furlough some crews and sell some real estate!!”)
 - Perhaps a false sense of security.** Knowing furloughed crews are out there in the wild is reassuring but we imagine recall rates are difficult to monitor and negative surprises no doubt occur.



Source: Loop Capital. For illustrative purposes only; not based on real data.

Too Few Crews Theory #6



Is it Simply PSR?

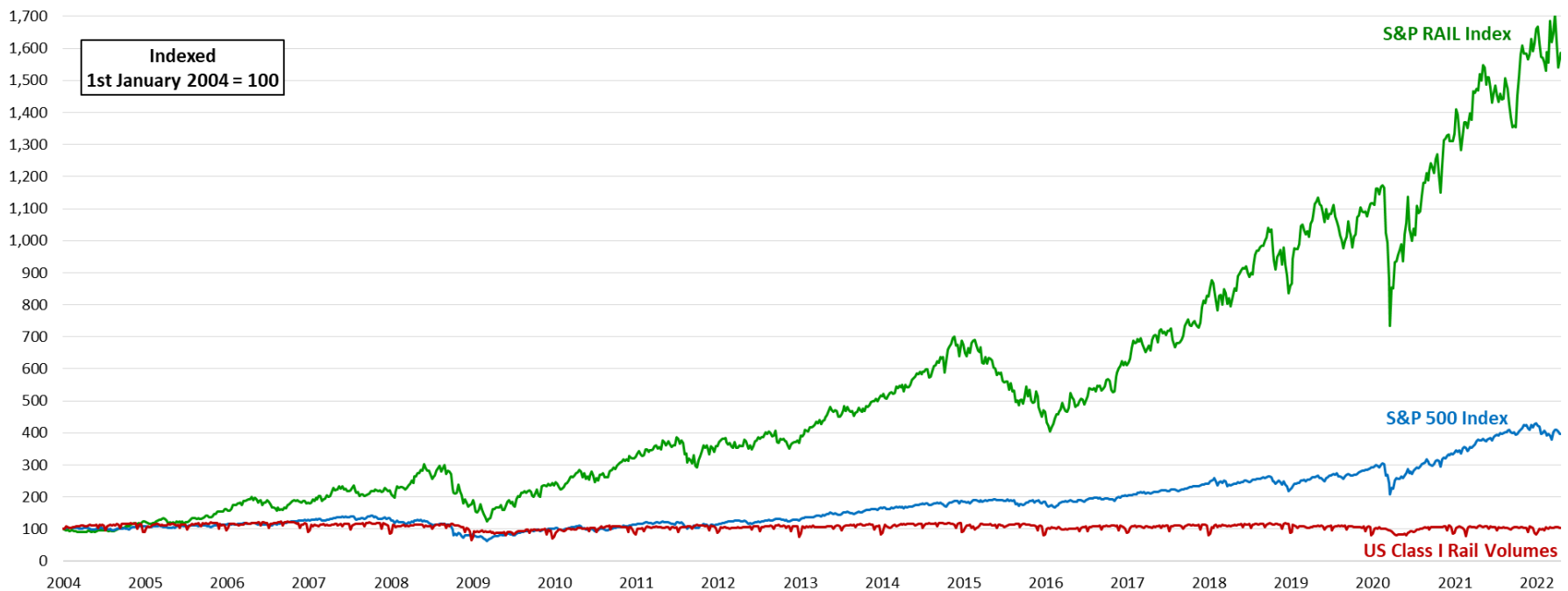
- PSR networks are *mathematically* more fragile because crew and power resources are much lower per load as a result of running fewer, longer, trains.
- The counter-argument is that the networks are easier to manage and optimize because you *are* running fewer trains in a simpler framework with less car handling, so less can go wrong.
- Real world experience tends to support the latter argument because the PSR early adopters, CN and CP, have had superior resiliency over the years compared to the US railroads, with the important caveats that they're smaller networks, had arguably superior operational talent (Harrison, Creel), and the US railroads still need time to fine tune their PSR operating plans.
- Our view is that, when it comes to crew capacity and related resiliency, PSR vs. non-PSR isn't the primary determinant because crew capacity regardless needs to be tuned, district by district, to the individual railroad's unique set of circumstances: operating model, geography, volume and weather seasonality, etc.

Theory #7: The Cult of OR (Operating Ratio: Op Costs/Sales)



The Cult of OR: Institutionalized into Rail Managements

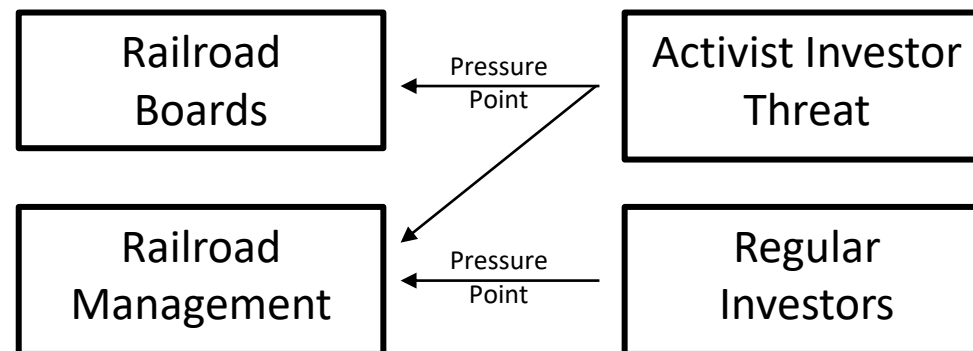
- Since the start of the pricing *Rail Renaissance* in 2004, when the industry woke up to the fact that it had pricing power (crystalized in the NS vs. Duke Energy rate case), the formula for financial success has become well established: pricing growth in excess of cost inflation and some volume growth if you can get it. It's been *wildly successful* with the average OR plummeting from 83% in 2004 to the high-50s. We now have a generation of rail management institutionalized into this way of thinking.



Source: Loop Capital, FactSet, Association of American Railroads.

Reinforced and “Policed” by Investors

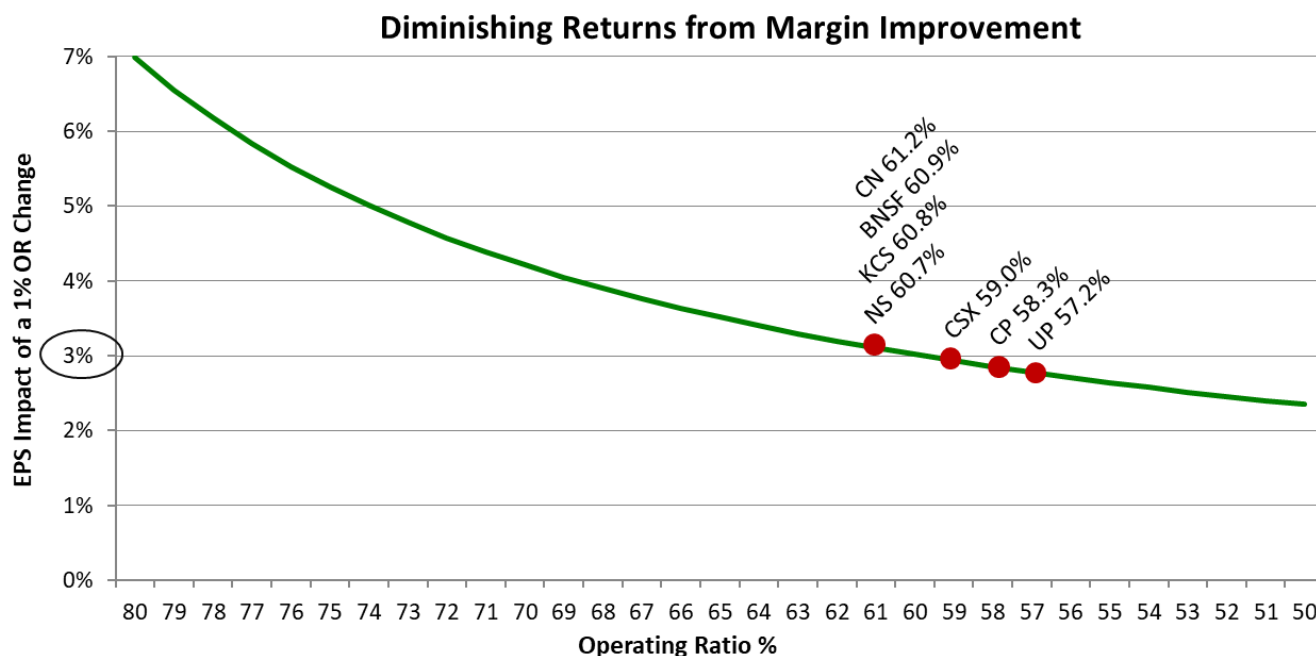
- It’s also become the norm that when an institutional investor asks a rail CEO or CFO where the operating ratio is going to go over the next 12-months, the only acceptable answer is “lower”. And the 12-months after that? “Lower again”. They’re expected to deliver.
- Additionally, lurking in the background is the constant threat of shareholder activism if any of the railroads’ operating ratios become outliers on the high side. The industry now has a track record of activists consistently making money going back to the TCI run at CSX in 2008. More recently, TCI cited CN’s high, outlier, operating ratio during its battle with that railroad last year.



Source: Loop Capital

Diminishing Returns and the Struggle to Pivot to Growth

- One of the problems with the operating ratio game is diminishing marginal returns. When operating ratios were in the 80s every 1% improvement was a big deal because it added more than 7% to bottom line profit. As the operating ratio now compresses from an increasingly smaller base, the math changes and every 1% improvement now adds just 3% to net income.
- Rail managements are well aware of this; hence the desire—among some—to try to pivot to more of a growth strategy...which requires customer confidence...which requires service consistency.



Source: Company reports and Loop Capital Markets. Full year 2021. Excludes extraordinary items and gains on real estate sales.

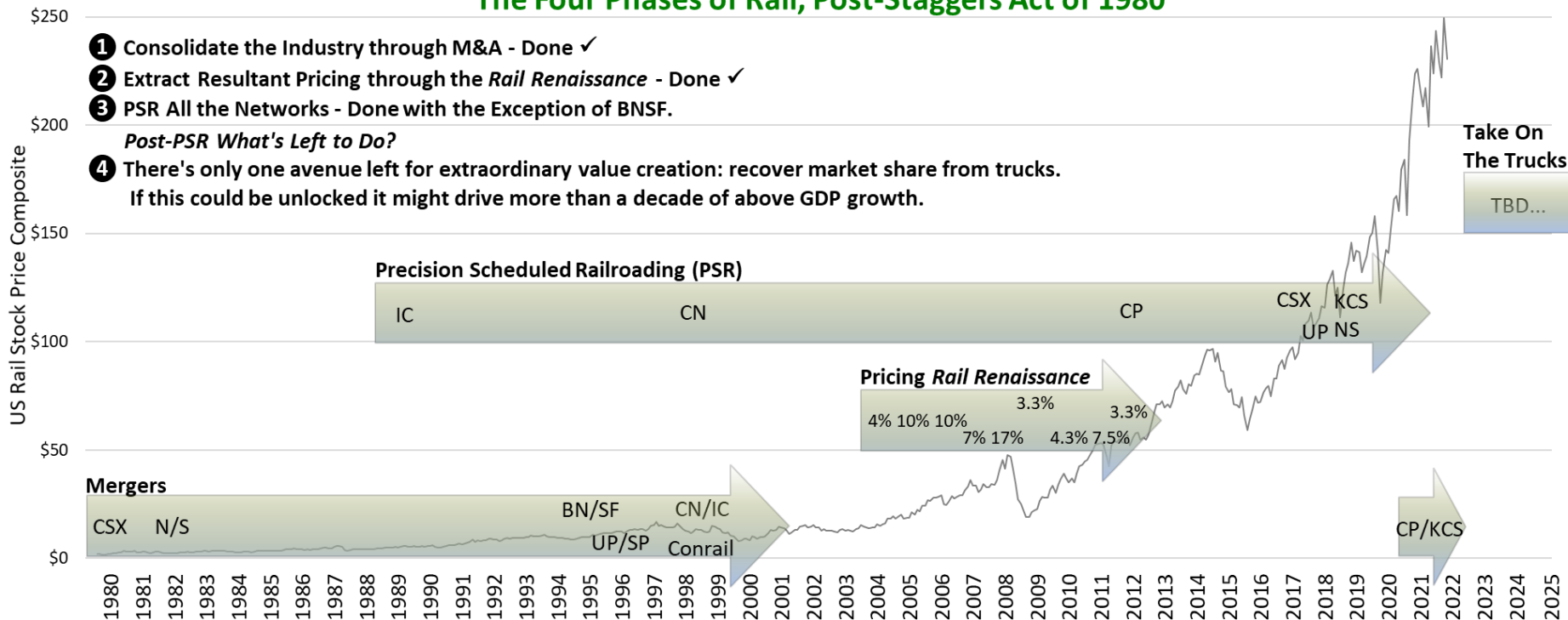
The Cult of OR



The Pivot to Growth Should also Represent the Industry's Logical End Game

- Assuming final approval of CP/KCS we've now reached what is probably the end in terms of industry structure; pricing power has been in place since 2004, and all the networks have been PSR'd apart from BN. All these initiatives significantly increased shareholder value. What's left to do with potentially similar benefits? There's only one thing – take back market share from trucks.

The Four Phases of Rail, Post-Staggers Act of 1980



Why has the US Pivot to Growth So Far Failed?

- Primacy of OR clashes with the fact that capacity buffers cost money; hence lean crews.
- Possible reluctance to take on new business that is dilutive to the OR.
 - For example, 35% operating margin business may be perceived as “bad business” if management has promised investors 45% (55 OR), usually with a self-imposed deadline.
- A lower OR is “instant gratification” financially, while building a truly truck-competitive service platform would take years in terms of creating a track record that customers can trust before they flip the volume switch from truck to rail. In the interim the OR is going to be 3-4% higher than it otherwise would be, which paints a target on the railroad’s back for activists.

Regulatory Options



1. Wait and Pray.

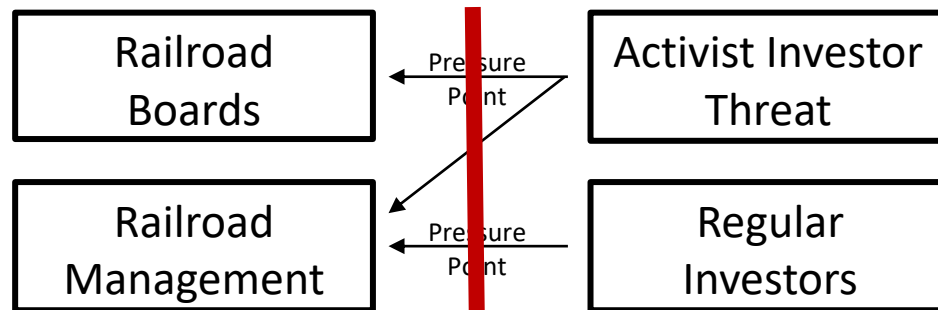
- Hope #1, that the railroads have now learned their lesson during the current crisis and will add the necessary padding to crews going forward (we've been here before).
- Hope #2, that over time the operating ratio diminishing returns argument wins out, but this is uncertain and wouldn't happen quickly if it did. We could be looking at sub-50 ORs before it does.
- If nothing changes there will come a day in the not-too-distant future when a railroad with poor service and a 49.9 OR walks into a customer's office and extracts an above-inflation price increase. That feels wrong to us and will no doubt feel wrong to the customer. How does the STB feel about it? Start thinking about this now.

Regulatory Options



2. Try to Short-circuit the Cult of OR

- Clearly this would be very difficult because it's so entrenched and subtlety isn't going to get it done. As an academic exercise (as opposed to a recommendation) here's how you'd do it:
 - *Present a real or perceived regulatory consequence for falling below a stated operating ratio red line for those railroads unable to demonstrate a track record of service consistency.*
- It's something of a last resort, but this is what it might take. It immediately breaks the investor pressure points and changes the conversation between the companies and their shareholders:
 - Investor: *"We'd like to see an operating ratio that starts with a 4 please."*
 - Company: *"No can do because, as I'm sure you're aware, that could trigger regulatory action and we can't take that risk. We need to focus on growth instead."*
- It's basically giving management the political cover to pivot to growth, and rest assured they *do* want to improve service and grow. Railroads are proud and nobody wants a reputation for bad service and no growth.



Source: Loop Capital

Beware of Unintended Consequences

- Clearly, this would be disrupting corporate calculus and behavior and therefore comes with the risk of unintended consequences.
- For example, what you want is Scenario A:
 - The railroads slow price increases to customers and invest more in crews and power to improve service consistency.
- ...but you can't rule out Scenario B:
 - Price increases to captive shippers continue at the same pace and price is reduced to truck-competitive customers where there's a high price elasticity of demand in order to accelerate volume growth, but investing in additional crews doesn't happen and the sporadic meltdowns continue. In other words, growth is accelerated exclusively by price, not service.

Final Thoughts – There's probably no elegant solution to structurally fix rail service, but we're all tired of going down this road and something needs to change. I hope the contents of this presentation is at least food for thought in this regard and thank you for allowing me to participate in this important hearing.

Public Companies Mentioned in this Report



Union Pacific Corporation (UNP:\$244.40-BUY)

CSX Corporation (CSX:\$36.30-HOLD)

Norfolk Southern Corporation (NSC:\$269.82-BUY)

Canadian National Railway Company (CNR-TSE:C\$160.23-HOLD)

Canadian Pacific Railway Limited (CP-TSE:C\$97.56-BUY)

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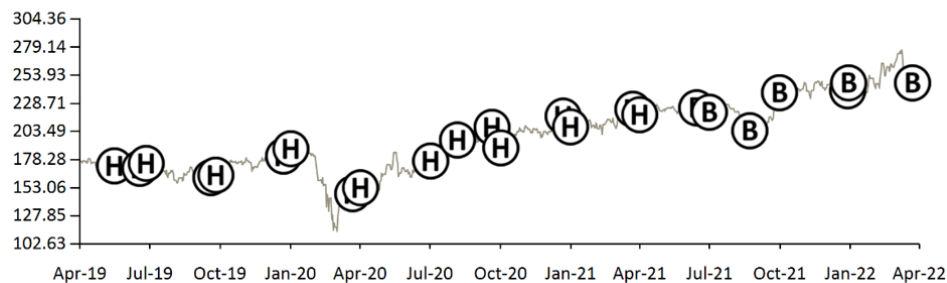
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Disclosures, continued



Union Pacific Corporation Rating History as of 04/21/2022

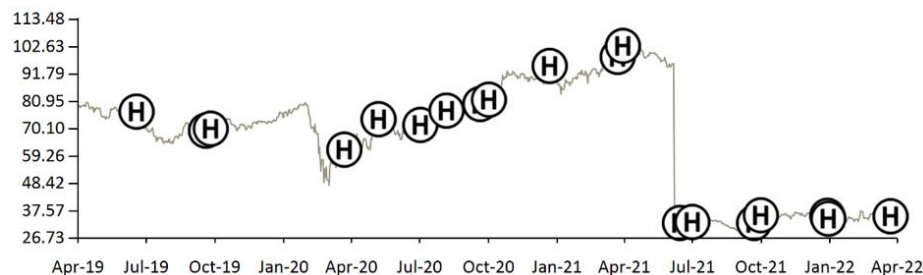


Date	Closing Price (\$)	Target Price (\$)	Analyst	Rating
07-Jun-19	171.97	185.00	Rick Paterson	HOLD
10-Jul-19	169.57	179.00	Rick Paterson	HOLD
18-Jul-19	174.25	191.00	Rick Paterson	HOLD
11-Oct-19	161.39	185.00	Rick Paterson	HOLD
17-Oct-19	163.68	182.00	Rick Paterson	HOLD
14-Jan-20	180.80	186.00	Rick Paterson	HOLD
23-Jan-20	187.19	192.00	Rick Paterson	HOLD
13-Apr-20	146.90	165.00	Rick Paterson	HOLD
23-Apr-20	152.29	180.00	Rick Paterson	HOLD
24-Jul-20	176.12	178.00	Rick Paterson	HOLD
28-Aug-20	195.13	196.00	Rick Paterson	HOLD
12-Oct-20	206.35	214.00	Rick Paterson	HOLD
23-Oct-20	188.14	208.00	Rick Paterson	HOLD
13-Jan-21	216.61	210.00	Rick Paterson	HOLD
22-Jan-21	207.13	226.00	Rick Paterson	HOLD
14-Apr-21	222.60	235.00	Rick Paterson	HOLD
22-Apr-21	217.98	242.00	Rick Paterson	HOLD
06-Jul-21	223.81	269.00	Rick Paterson	BUY
23-Jul-21	220.15	270.00	Rick Paterson	BUY
14-Sep-21	203.41	252.00	Rick Paterson	BUY
22-Oct-21	237.59	259.00	Rick Paterson	BUY
19-Jan-22	239.49	261.00	Rick Paterson	BUY
21-Jan-22	246.33	271.00	Rick Paterson	BUY
14-Apr-22	246.21	278.00	Rick Paterson	BUY

Disclosures, continued

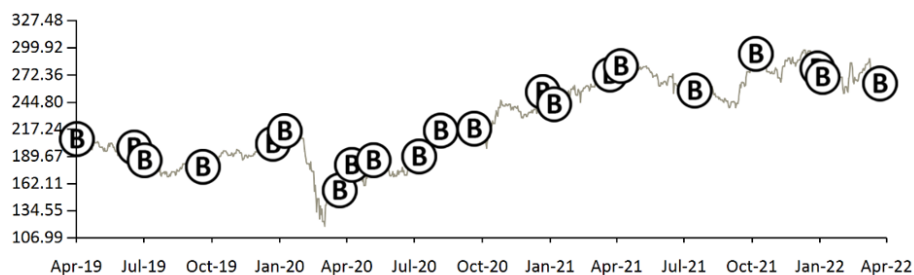


CSX Corporation Rating History as of 04/21/2022



Date	Closing Price (\$)	Target Price (\$)	Analyst	Rating
10-Jul-19	76.58	81.00	Rick Paterson	HOLD
11-Oct-19	69.05	78.00	Rick Paterson	HOLD
17-Oct-19	69.78	81.00	Rick Paterson	HOLD
13-Apr-20	61.57	73.00	Rick Paterson	HOLD
29-May-20	73.60	76.00	Rick Paterson	HOLD
24-Jul-20	71.34	79.00	Rick Paterson	HOLD
28-Aug-20	77.07	86.00	Rick Paterson	HOLD
12-Oct-20	79.56	84.00	Rick Paterson	HOLD
23-Oct-20	81.29	86.00	Rick Paterson	HOLD
13-Jan-21	94.64	96.00	Rick Paterson	HOLD
14-Apr-21	98.36	102.00	Rick Paterson	HOLD
21-Apr-21	102.69	107.00	Rick Paterson	HOLD
06-Jul-21	32.40	36.00	Rick Paterson	HOLD
23-Jul-21	32.81	38.00	Rick Paterson	HOLD
13-Oct-21	32.58	35.00	Rick Paterson	HOLD
22-Oct-21	35.42	37.00	Rick Paterson	HOLD
19-Jan-22	35.25	40.00	Rick Paterson	HOLD
21-Jan-22	34.10	41.00	Rick Paterson	HOLD
14-Apr-22	35.06	38.00	Rick Paterson	HOLD

Norfolk Southern Corporation Rating History as of 04/21/2022

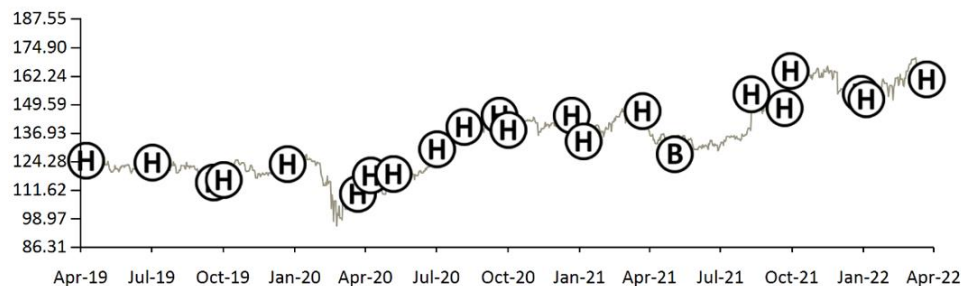


Date	Closing Price (\$)	Target Price (\$)	Analyst	Rating
24-Apr-19	206.70	237.00	Rick Paterson	BUY
10-Jul-19	198.21	233.00	Rick Paterson	BUY
24-Jul-19	184.99	236.00	Rick Paterson	BUY
11-Oct-19	178.50	227.00	Rick Paterson	BUY
14-Jan-20	201.70	235.00	Rick Paterson	BUY
29-Jan-20	214.83	237.00	Rick Paterson	BUY
13-Apr-20	154.29	208.00	Rick Paterson	BUY
29-Apr-20	180.33	214.00	Rick Paterson	BUY
29-May-20	184.98	221.00	Rick Paterson	BUY
30-Jul-20	188.87	235.00	Rick Paterson	BUY
28-Aug-20	215.03	255.00	Rick Paterson	BUY
12-Oct-20	217.23	246.00	Rick Paterson	BUY
13-Jan-21	254.48	273.00	Rick Paterson	BUY
28-Jan-21	241.79	279.00	Rick Paterson	BUY
14-Apr-21	271.84	295.00	Rick Paterson	BUY
29-Apr-21	280.70	321.00	Rick Paterson	BUY
06-Aug-21	256.01	312.00	Rick Paterson	BUY
28-Oct-21	293.17	325.00	Rick Paterson	BUY
19-Jan-22	278.06	317.00	Rick Paterson	BUY
27-Jan-22	269.75	326.00	Rick Paterson	BUY
14-Apr-22	263.06	323.00	Rick Paterson	BUY

Disclosures, continued

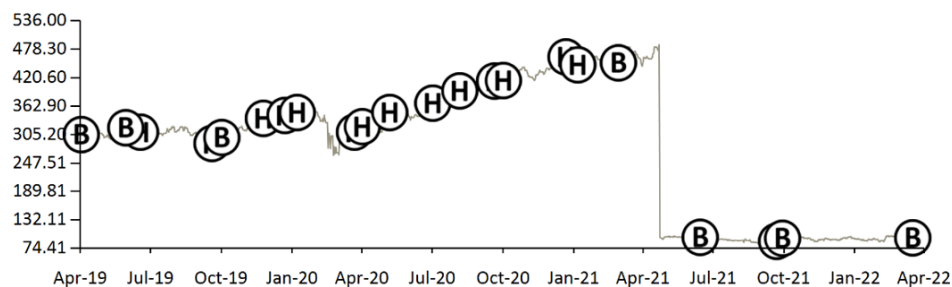


Canadian National Railway Company Rating History as of 04/21/2022



Date	Closing Price (C\$)	Target Price (C\$)	Analyst	Rating
30-Apr-19	124.44	130.00	Rick Paterson	HOLD
24-Jul-19	123.46	131.00	Rick Paterson	HOLD
11-Oct-19	114.78	126.00	Rick Paterson	HOLD
24-Oct-19	115.98	119.00	Rick Paterson	HOLD
14-Jan-20	122.95	124.00	Rick Paterson	HOLD
13-Apr-20	109.78	114.00	Rick Paterson	HOLD
29-Apr-20	117.81	121.00	Rick Paterson	HOLD
29-May-20	118.60	122.00	Rick Paterson	HOLD
24-Jul-20	129.53	127.00	Rick Paterson	HOLD
28-Aug-20	139.30	139.00	Rick Paterson	HOLD
12-Oct-20	144.43	146.00	Rick Paterson	HOLD
23-Oct-20	137.98	149.00	Rick Paterson	HOLD
13-Jan-21	144.40	151.00	Rick Paterson	HOLD
28-Jan-21	133.11	142.00	Rick Paterson	HOLD
14-Apr-21	146.42	150.00	Rick Paterson	HOLD
25-May-21	127.24	155.00	Rick Paterson	BUY
01-Sep-21	154.00	157.00	Rick Paterson	HOLD
13-Oct-21	147.81	158.00	Rick Paterson	HOLD
21-Oct-21	164.24	162.00	Rick Paterson	HOLD
19-Jan-22	154.05	166.00	Rick Paterson	HOLD
27-Jan-22	151.59	174.00	Rick Paterson	HOLD
14-Apr-22	160.43	171.00	Rick Paterson	HOLD

Canadian Pacific Railway Limited Rating History as of 04/21/2022



Date	Closing Price (C\$)	Target Price (C\$)	Analyst	Rating
24-Apr-19	302.96	334.00	Rick Paterson	BUY
21-Jun-19	317.31	340.00	Rick Paterson	BUY
10-Jul-19	307.91	338.00	Rick Paterson	HOLD
11-Oct-19	285.35	332.00	Rick Paterson	HOLD
24-Oct-19	297.21	340.00	Rick Paterson	BUY
17-Dec-19	336.19	340.00	Rick Paterson	HOLD
14-Jan-20	342.12	351.00	Rick Paterson	HOLD
29-Jan-20	348.56	365.00	Rick Paterson	HOLD
13-Apr-20	308.44	333.00	Rick Paterson	HOLD
23-Apr-20	319.27	338.00	Rick Paterson	HOLD
29-May-20	348.59	352.00	Rick Paterson	HOLD
24-Jul-20	367.70	382.00	Rick Paterson	HOLD
28-Aug-20	391.90	399.00	Rick Paterson	HOLD
12-Oct-20	412.11	417.00	Rick Paterson	HOLD
23-Oct-20	413.50	442.00	Rick Paterson	HOLD
13-Jan-21	461.45	480.00	Rick Paterson	HOLD
28-Jan-21	444.69	469.00	Rick Paterson	HOLD
22-Mar-21	448.60	553.00	Rick Paterson	BUY
06-Jul-21	95.09	105.00	Rick Paterson	BUY
13-Oct-21	86.69	103.00	Rick Paterson	BUY
21-Oct-21	92.74	104.00	Rick Paterson	BUY
08-Apr-22	94.35	111.00	Rick Paterson	BUY

Disclosures, continued



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Buy - The stock is expected to trade higher on an absolute basis or outperform relative to the market or its peer stocks over the next 12 months.

Hold - The stock is expected to perform in line with the market or its peer stocks over the next 12 months.

Sell - The stock is expected to trade lower on an absolute basis or underperform relative to the market or its peer stocks over the next 12 months.

Ratings Distribution for Loop Capital Markets as of April 21, 2022

	Count	% of total	IB Serv./Past 12 Mos.	
			Count	% of total
Buy	169	60.36%	35	20.71%
Hold	105	37.50%	13	12.38%
Sell	6	2.14%	0	0.00%

Source: Loop Capital Markets

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