

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Finance Docket No. 36500

ENTERED
Office of Proceedings
June 9, 2022
Part of
Public Record

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE &
QUEBEC RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN
RAILROAD CORPORATION; AND DELAWARE & HUDSON RAILWAY
COMPANY, INC. – CONTROL – KANSAS CITY SOUTHERN, THE KANSAS
CITY SOUTHERN RAILWAY COMPANY, GATEWAY EASTERN RAILWAY
COMPANY, AND THE TEXAS MEXICAN RAILWAY COMPANY**

CN'S COMMENTS ON APPLICANTS' AMENDED OPERATING PLAN

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Dated: June 9, 2022

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INTRODUCTION

CN submits these Comments on Applicants' May 13, 2022 Amended Operating Plan to address the serious problems that remain in the Amended Operating Plan and the Application it supports. In accordance with Decision No. 17, these Comments are directed exclusively at "the new information in the amended Application."¹ CN will not repeat here the extensive comments that it submitted on February 28, 2022, which identify multiple shortcomings in the Application that constitute a failure of proof and that highlight the need for the Board to impose conditions sufficient to protect the public interest.²

The Amended Operating Plan attempts to justify Applicants' ill-conceived decision to predicate their operating plan analysis not on actual 2019 traffic levels, but rather on a set of modeled snapshot data that purportedly approximate 2019 traffic levels after being "calibrated." Applicants' claim that two Class I railroads were somehow unable to generate usable traffic density numbers for their chosen Base Year of 2019 from the traffic data they maintain in the normal course of business is implausible at best. There remains no persuasive explanation for Applicants' decision to forgo reliance on the actual 2019 data available to them. And the convoluted modeling exercise that Applicants undertook to generate base year

¹ Decision No. 17, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500, at 6 (STB served Apr. 27, 2022) ("Decision No. 17").

² See CN's Comments on Application and Request for Conditions, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500 (filed Feb. 28, 2022) ("CN February 28 Comments").

densities, trains per day, and yard activity have produced thoroughly unreliable results. As the enclosed Verified Statement of Jeff Makholm explains, Applicants’ “calibration methodology” violates basic statistical principles and standard practice for the development of “base year” statistics in regulatory proceedings. The Verified Statement of Carl Van Dyke identifies multiple examples where Applicants’ methodology produced segment-level densities that are plainly wrong and therefore unreliable as a basis for evaluating the operational, environmental, and community impacts of the proposed merger. Applicants proffer no evidence proving that their approach is statistically valid—because there is none.

Applicants have the burden of demonstrating that their Application is in the public interest, and they bear the responsibility to supply the Board with valid data that allow the Board and its staff to conduct a thorough analysis of the impacts of their proposed major merger. The Amended Operating Plan makes clear that they have once again failed in that responsibility.

Part I of these Comments explains why the Board needs reliable information on base year traffic densities to assess the impact of the proposed merger on traffic flows, service, operations, and the environment, and shows that Applicants have failed to provide it. Indeed, Applicants have not used *any* 2019 data in contriving base year tons and base year trains per day for every line segment, except to apply the same system-wide adjustment factors to every line segment to “calibrate” the tons so that the total 2019 base year contrived numbers match the total 2019 tonnage actuals. Part II details why Applicants’ attempt to “model” 2019 data—

rather than using actual 2019 data—is deeply flawed. The problems with Applicants’ approach are exposed by the unreliable—in some cases, absurd—results it generates. Part III demonstrates that Applicants’ rationale for using their jury-rigged model rather than actual 2019 data cannot withstand scrutiny, as Applicants simply manipulated the data to achieve a predetermined result. Part IV reaffirms that none of the numerous problems with Applicant’s initial Operating Plan and Application that were highlighted in CN’s February 28 Comments have been cured by the Amended Plan, and some problems are actually worse now.

These Comments are supported by four Verified Statements. First, the Verified Statement of Jeff Makholm explains that Applicants’ “calibration” approach is not statistically valid and does not produce the sort of reliable data that typically underlies major agency actions. Second, the Verified Statement of Carl Van Dyke examines Applicants’ “modeled” density data in detail, explains why there is no good reason for Applicants not to have used actual traffic data, and provides extensive examples of the distortions that Applicants’ “calibration” approach has on traffic densities at a segment level. Third, the Verified Statement of David Hunt explains that the changes in the Amended Operating Plan do not invalidate any of the criticisms that Mr. Hunt made in his February 28 Verified Statement. He further notes the distortions in the Amended Operating Plan that result from Applicants’ failure to use the same actual 2019 waybill data that they used to identify potential traffic diversions. Fourth, the Verified Statement of Hugh Randall explains that the Amended Operating Plan does not cure any of the

criticisms that Mr. Randall made regarding the original Operating Plan in his February 28 Verified Statement and indeed have made some worse by assuming that Applicants could handle a 41 percent increase in gross ton miles with 4.8 percent fewer revenue cars (even less than the 3.6 percent fewer cars that they assumed in their October 21, 2021 Application).

I. THE BOARD NEEDS THE RELIABLE BASE YEAR DATA IT REQUIRED FROM APPLICANTS.

Applicants suggest that the fact that they “modeled” 2019 base year densities rather than using actual densities is unimportant, because the Board can assess the proposed transaction based solely on the differences between pre- and post-transaction traffic.³ This is plainly wrong. The Board must receive reliable and consistent information on base year densities and trains per day (“Base Year Data”) to analyze the proposed merger’s impact on service, traffic flows, competition, the environment, and other criteria relevant to the Board’s statutorily mandated public interest assessment. To provide one concrete illustration, if the Board does not know how many cars and trains moved over a segment of the proposed CPKC network during the Base Year, it cannot accurately assess the effect of projected

³ See Amended Operating Plan, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500, ¶¶ 191–93 (filed May 13, 2022) (“Applicants’ Amended Operating Plan”) (arguing that using 2019 calibrated data would “wash away” impact of alleged inconsistencies in actual density data and that comparisons between 2019 calibrated data and projected growth plan would “provide a reliable basis for assessing the Transaction’s impact on traffic levels”); see also *id.* ¶ 180 (arguing that failure to use actual 2019 density data was unimportant because Applicants’ modeling “generated the *change in densities* anticipated from the incremental Transaction-related traffic growth and operational changes” (emphasis in original)).

traffic increases on that line segment and thus the effect of the transaction on service, train flows, operations, and the environment. A line that currently handles 8 trains per day may be able to accommodate 6 more trains, while a line already carrying 12 trains per day may not. The Board simply cannot fulfill its statutory duty without accurate Base Year Data. Moreover, because the flaws in Applicants’ “calibration methodology” generated inaccurate train, traffic density, and yard activity data for both the Base Year and the post-Transaction period, any attempt to assess the effects of the merger based on that data is essentially meaningless.

The Board’s merger regulations make clear that the Base Year selected by Applicants is the starting point for the Board’s analysis of a merger’s effects.⁴ Applicants are granted flexibility to choose which “Base Year” will be used for their Application. But once the Base Year is chosen, many of the required application exhibits and analyses flow directly from the Base Year.⁵ And while an Operating Plan can supplement actual Base Year Data with figures from later years, in none of the cases cited by Applicants did the latter wholly supplant the former, as is

⁴ 49 C.F.R. § 1180.4(b)(1)(ii) (Notice of applications shall “[i]ndicate the year to be used for the impact analysis”); 49 C.F.R. § 1180.8(b)(5) (“Data shown in the density chart shall be for the latest available full calendar year preceding the filing of the application.”).

⁵ For example, the market analysis required by 49 C.F.R. § 1180.7 and the operational plan required by 49 C.F.R. § 1180.8 each refer back to the “impact analysis” for Applicants’ chosen base year.

contemplated here.⁶ As Mr. Van Dyke explains in his Third Verified Statement, in past mergers like *CN/IC* and *UP/SP*, “the traffic data that was used to develop the operating plan ... was the applicants’ actual real-world traffic for the chosen base year, not an amalgam of sample time periods taken from other years,” and “the operating plan was based on a full year of traffic in order to average out seasonal effects and to capture the full breadth of operations throughout the year.”⁷

Moreover, Base Year Data is also the starting point for the Board’s environmental analysis, and here again its regulations highlight the importance of traffic densities for understanding a transaction’s effects.⁸

Remarkably, it was Applicants themselves who first questioned the reliability of their Base Year data, in a January 2022 filing that expressly stated that the traffic density figures they submitted in Exhibit 14 of their Application were not a reliable guide to the traffic changes that they expected to result from their merger.⁹

⁶ See Applicants’ Amended Operating Plan ¶ 77 n.10 (discussing how the operating plans in *CN/IC*, *UP/SP*, and *BN/SF* relied on data from later years in addition to the base year data).

⁷ See Exhibit 2, Third Verified Statement of Carl Van Dyke, at 16 (June 9, 2022) (“Van Dyke Third V.S.”).

⁸ See 49 C.F.R. § 1105.7(e)(5)(i)(A) & (e)(5)(ii)(A) (requiring data on expected increase in rail traffic, measured by percentage change in gross ton miles and increase in trains per day).

⁹ See Applicants’ Reply to Canadian National’s Description of Anticipated Responsive Application, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500, at 9 & n.7 (filed Jan. 28, 2022) (claiming that Applicants’ Exhibit 14 could not be used to make “an apples-to-oranges comparison” of projected changes in traffic densities); see also CN Letter, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500, at 3–4 (filed Feb. 4, 2022) (“Applicants purport to ‘correct’ the

In response, the Board directed Applicants to “explain further [this] apparent inconsistency between the 2019 baseline [] GT/M [] data in Exhibit 14 ... and the 2019 baseline [] GT/M data [] ... submitted to the [] OEA [], and to indicate which 2019 baseline data should be used in analyzing the environmental and transportation impacts of the Transaction, and the reasons why that data should be used.”¹⁰

Applicants responded by acknowledging that the density figures they submitted to the Board in Exhibit 14 “did not provide a reliable baseline for isolating the effects of Transaction-related traffic gains and operational changes” and explained that the Exhibit 14 data were not used in their Application.¹¹ Instead, Applicants indicated that the original Operating Plan was constructed from what they characterized as a “‘peak’ period of [carload and intermodal] traffic data from October 2020,”¹² not data from 2019 which Applicants had designated as their Base Year.¹³ In their Amended Operating Plan filed on May 13, 2022, Applicants acknowledged for the first time that they did not use *any* 2019 data to

KCS historical 2019 Springfield Line gross ton miles density numbers from Exhibit 14 with calculations from a highly confidential Applicant workpaper, which is not publicly available.”).

¹⁰ Decision No. 17 at 2.

¹¹ Applicants’ Response to Decision No. 16, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500, at 4–5 (“Applicants’ Response to Decision No. 16”) (filed Mar. 21, 2022).

¹² *Id.* at 9.

¹³ Decision No. 3, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500, at 3 (STB served Apr. 21, 2021); *see also* STB Docket No. FD 36500, Elphick & Orr Dep. 157:13–157:21, Feb. 18, 2022.

develop Base Year trains, tons, or yard activity for any line segment on KCS and CP.

Accordingly, in Decision No. 17, the Board required Applicants to amend their Operating Plan to include “an explicit identification of the baseline traffic density values used in the Operating Plan calculations and to be used in the environment review,” “a comprehensive explanation of how those values were generated,” and “a comprehensive explanation of the rationale underlying those methodological choices.”¹⁴ The Board explained that “us[ing] the same baseline density numbers best serves the goal of internally consistent decision-making.”¹⁵ However, the Board made clear that Decision No. 17 “should not be interpreted as a determination by the Board on the validity of the methodology used by Applicants to generate their baseline traffic density values” and that “[p]arties remain free to argue that Applicants’ data and methods are inappropriate such that Applicants cannot meet their burden to show that the Transaction would be in the public interest.”¹⁶

Thereafter, in their Amended Operating Plan, Applicants again opted not to use *any* 2019 data. Instead, they utilized traffic data for a single month (October 2020) to develop their operating plan for non-unit train traffic. For unit train traffic, Applicants relied on 2021 data for unit trains from March to June (for CP)

¹⁴ Decision No. 17 at 6.

¹⁵ *Id.* at 4.

¹⁶ Decision No. 17 at 5.

and February to May (for KCS).¹⁷ Applicants thus used 2021 data for unit train movements that occurred *after* their pre-filing notice dated March 22, 2021, to contrive 2019 base year tons and trains per day.

Applicants assert that “all comparisons between pre-Transaction (base year 2019) traffic levels and post-Transaction traffic levels should begin with the *2019 ‘Base’ data* reflected both in the Master Segment Table Provided to OEA [*i.e.*, the OEA Density Data] and in the workpapers that accompanied the Application”¹⁸ Applicants purport to have “calibrated the modeled GTMs for CP and KCS/KCSM [based on various months in 2020 and 2021] to the system-wide GTMs actually moved on those railroads in 2019.”¹⁹ According to Applicants, the resulting density values provide “a diverse base of traffic broadly representative of traffic flows on the CP and KCS” such that the “Base Plan design was a highly reasonable [] reflection of pre-Transaction operations that could be reliably used.”²⁰

This explanation of Applicants’ process for “modeling” Base Year data should raise alarms with the Board, rather than reassure it. In reality, Applicants did not use any 2019 data whatsoever. Instead, they cherry-picked months from other

¹⁷ Applicants’ Amended Operating Plan ¶¶ 79, 82 (“We concluded that it would not be reasonable to use traffic data from 2019 traffic to represent Base Plan operations because of the changes in traffic flows and operational design between 2019 and early 2021, which would have resulted in a mismatch and undermined the reliability of the Base Plan as a reflection of pre-Transaction conditions.” (citation omitted)).

¹⁸ Applicants’ Response to Decision No. 16 at 2 (emphasis added).

¹⁹ Applicants’ Amended Operating Plan ¶ 93.

²⁰ *Id.* ¶ 91.

years and then “calibrated” the resulting densities so that the *aggregate systemwide* ton miles for the “modeled” Base Year matched the actual *aggregate systemwide* gross ton miles on CP, KCS, and KCSM during 2019. Applicants then applied the same calibration factors that they calculated on a systemwide basis to each individual line segment of the proposed CPKC network. Applicants provide no credible explanation of why the snapshot months they chose—October 2020 for manifest and intermodal traffic and, for unit trains, February–May 2021 for KCS and March-June 2021 for CP—accurately represent 2019 traffic, nor do they explain how application of a systemwide “calibration factor” could conceivably produce an accurate measure of traffic density for each individual line segment. In short, nothing about the process Applicants used to develop their Base Year data suggests that the resulting data is reliable.

II. APPLICANTS’ DECISION TO MODEL 2019 TRAFFIC LEVELS RATHER THAN USE ACTUAL DATA LEADS TO ABSURD RESULTS.

The “calibration methodology” Applicants rely on in their Amended Operating Plan produces absurd results and cannot be the foundation of a reliable operating plan. As noted above, in order to represent a 2019 base year from non-2019 density data, Applicants “calibrated the modeled GTMs for CP and KCS/KCSM to the system-wide GTMs actually moved on those railroads in 2019.”²¹ And then, to approximate segment-level changes, Applicants “made modest calibrations in these figures railroad-by-railroad to precisely match actual 2019

²¹ *Id.* ¶ 93.

GTMs, and applied those calibration factors to each of segment-level figures.”²² So calibrated, Applicants claim that “the Base Plan GTMs are consistent with the traffic handled in the ordinary course by both CP and KCS/KCSM.”²³

There are several obvious flaws in Applicants’ methodology. As Dr. Makholm’s Verified Statement attached as Exhibit 1 concludes, “Applicants’ use of a variety of post-2019 data samples [] to estimate train counts and ton-miles on individual line segments, combined with [their] process of ‘calibration’ of the line segment results to square the estimates with actual systemwide data, renders Applicants’ train count and ton-mile data for 2019 essentially useless.”²⁴

First, Applicants’ choice of time periods—October 2020 (for scheduled intermodal and manifest trains) and two different periods in 2021 (for unit trains)—constitute “non-randomized partial year traffic samples” that “in no way represent[] a reasonable statistical analysis.” As Dr. Makholm explains, multiple factors, including seasonality, region, and numerous endogenous (*e.g.*, work stoppages) and exogenous (*e.g.*, weather and COVID-19) variables render such limited, non-randomized data unsuitable as a basis for projecting full-year density values.²⁵

Applicants claim that the actual data from 2019 must be adjusted, but the months

²² *Id.*

²³ *Id.* ¶ 94.

²⁴ Exhibit 1, Verified Statement of Jeff D. Makholm, Ph.D., at 3 (June 9, 2022) (“Makholm V.S.”).

²⁵ *Id.* at 4.

from the 2020 and 2021 data they use to make those adjustments are not representative, and Applicants provide no explanation that could support their use.

Second, Applicants' calibration process entirely fails to create data that resembles traffic in the 2019 Base Year. Instead of analyzing traffic on each line segment, Applicants simply applied the same system-wide adjustment factors to all line segments of CP, KCS, and KCSM. *In essence, Applicants' methodology assumes that the percentage difference in each Applicant railroad's systemwide traffic between 2019 and the periods in 2020/2021 that were used to develop Applicants' Operating Plan would be the same for every individual line segment on their respective systems.* To state the obvious, traffic levels on different line segments will be affected differently over time; assuming that all segments experience identical changes in traffic volume makes no sense. As Dr. Makholm explained, because the system-level calibration factors were applied "*uniformly* to each segment of the Canadian Pacific and Kansas City Southern networks ... [t]he damaging effect of such a 'calibrated' approach on the validity of route segments statistics, where *individual segment* data is important, is severe."²⁶

To evaluate the proposed transaction, the Board must be able to examine its effects segment by segment. To do so, the Board must compare traffic in that segment during the Base Year with the projected change in traffic. The Board cannot do that analysis where, as here, Applicants apply systemwide factors to all

²⁶ *Id.* at 5.

line segments and thus the Board does not have a reliable estimate of Base Year traffic for each segment.

Third, the problems with Applicants' methodology are not merely theoretical. As Mr. Van Dyke demonstrates, it is clear that the results produced by Applicants' "calibration methodology" are dramatically inaccurate in multiple cases.²⁷ "The result of this convoluted modeling approach is a set of train weights (and resulting densities) that vary dramatically between adjacent line segments"²⁸ For example, using Applicants' methodology, total tonnages on the KCS mainline between De Quincy, LA and Robstown, TX vary from a low of 16.5 million tons and an average train weight of 5,676 tons to a high of 27.3 million tons and an average train weight of 8,591 tons, depending on the segment.²⁹ These figures are totally inconsistent with the actual tonnages for 2019, which exhibit much less variability. These wild swings in average train weights are not occurring between the KCS mainline and branch lines that might have a different mix of shorter local trains—they all occur on a single KCS mainline between De Quincy and Robstown. The idea that a single KCS mainline features such extreme swings in average train weights segment by segment is absurd.

Post-transaction tonnage values are similarly suspect. As Mr. Van Dyke explains, Applicants "elected to use a convoluted process to estimate the changes in

²⁷ Van Dyke Third V.S. at 19.

²⁸ *Id.* at 20.

²⁹ *Id.* at 21.

tonnage based in part on the same historic train weights used for their (flawed) Base Year tonnage estimates,” with the result being “a set of clearly erroneous values that cannot be relied upon for evaluating the operational and environmental impacts of the proposed merger.”³⁰ For example, Applicants predict an inexplicable transaction-related increase in tonnage of 56%—or more than 12 million tons per year—between Muscatine, Iowa, and Airline Junction, Missouri, despite just a 6.4% increase in aggregate train count.³¹

Further, the Amended Operating Plan creates substantial doubt about the accuracy of Applicants’ post-transaction yard and train counts. This is most clearly evidenced when Applicants assert that “forecast intermodal movements from the Port of Lazaro Cardenas to Bensenville IMS were projected at 9,251 railcar feet per day.”³² But that cannot be right. As Mr. Van Dyke notes, this assertion is “not supported by the facts, and the actual value is at most {{ }} of that value.”³³ Indeed, in light of such discrepancies, Applicants’ methodology raises broader “questions as to overall accuracy ... of any train counts, yard activity counts, and tonnages based on this traffic.”³⁴

³⁰ *Id.* at 44.

³¹ *Id.* at 43–44.

³² Applicants’ Amended Operating Plan ¶ 109.

³³ Van Dyke Third V.S. at 51.

³⁴ *Id.* at 51–52.

In sum, the “calibration methodology” underlying Applicants’ Amended Operating Plan simply does not provide Base Year (or post-Transaction) density data upon which the Board can rely.³⁵

Moreover, in assessing “the validity of the methodology used by Applicants to generate their baseline traffic density values,” the Board should note that Applicants’ Exhibit 14 data thus far have undergone two major changes. In March 2022, Applicants insisted that the correct data for the Board’s analysis was the modeled data that Applicants had submitted to OEA as a “Master Segment Table,” and they submitted a new Exhibit 14 purportedly based on that data. But the Amended Operating Plan does not mirror that data, and instead puts forth a new Exhibit 14 with significantly different values, as demonstrated in the below table. The below table illustrates the substantial oscillations in the “modeled” 2019 values for line segments on the KCS Springfield Line:

³⁵ In addition, Applicants’ pre-transaction and post-transaction numbers do not include the 2.3 miles of CN-owned main line in Chicago between Tower B12 and Schiller Park for CP’s trains to reach Schiller Park Yard, which is shared by CP and CN. The Applicants included information showing increases in carloadings and truck activity at Schiller Park Yard as a result of the merger, which were high enough to exceed the Board’s thresholds for environmental review for the yard because of the 2440% increase in yard activity. And Applicants provided information for Metra’s track between Bensenville and Tower B12 showing a merger-related train per day increase of 6.43 trains in a non-attainment area of Chicago. Yet Applicants did not include any data whatsoever between Tower B12 and Schiller Park Yard. That CN-owned track between Tower B12 and Schiller Park does not appear anywhere in Applicants’ Operating Plan, Amended Operating Plan, or data submitted to the STB’s OEA.

Subdivision	Segment	Actual 2019 Gross Tons per Mile Original Application Exhibit 14 ³⁶	Modeled 2019 Gross Tons Per Mile March 21 Exhibit 14 and OEA numbers ³⁷	Modeled 2019 Gross Tons Per Mile May 13 Exhibit 14 and Appendix T ³⁸
Mexico	Kansas City, MO – Slater, MO	10,376	5,833	6,166
Mexico	Slater, MO – Mexico, MO	8,809	3,714	4,281
Roodhouse	Mexico, MO – Roodhouse	6,655	3,390	4,019
Springfield	Roodhouse, MO – Murrayville, IL	3,090	25	998
Springfield	Murrayville, IL – Springfield, IL	43	25	168

A “calibration” process that presents such different results is not a reliable one, particularly since the Amended Operating Plan offers no reasonable explanation for why Applicants needed to correct the March 21 version of Exhibit 14 that itself was presented as a correction to the original Exhibit 14.

³⁶ See Railroad Control Application, Vol. 2 of 4, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500, at 497–99, Exhibit 14 (filed Oct. 29, 2021).

³⁷ See Applicants’ Response to OEA Information Request No. 1, Master Segment Table, *Canadian Pacific Railway Ltd., et al.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500 (filed October 28, 2021). These numbers were subsequently submitted to the Board in Applicants’ Response to Decision No. 16, at Appendix A, “KCS Operating Plan Base (2019).”

³⁸ See Applicants’ Amended Operating Plan, Exhibit 14 at 51–52, “KCS Operating Plan Base (2019)” and Appendix T at 7, 11, “Amended Master Segment Table.”

**III. APPLICANTS HAD NO LEGITIMATE REASON TO SUBSTITUTE
“MODELED” TRAFFIC DENSITY DATA FOR ACTUAL 2019 DATA.**

As the Board instructed, Applicants attempt to explain why they ignored the actual 2019 figures in Exhibit 14 as the Base Year for their Operating Plan. But none of their explanations is persuasive.

First, Applicants claim that they had to adjust the actual 2019 density data for CP, KCS, and KCSM because “the [modeled] Operating Plan Base and Year 3 Densities exclude locomotive tons, whereas the CP, KCS, and KCSM 2019 figures (*i.e.*, the Ordinary Course 2019 Exhibit 14 Densities) include that tonnage.”³⁹ But as Mr. Van Dyke explains, all Class I railroads (including CP and KCS) report their U.S.-system densities both with and without locomotives in the annual Analysis of Class I Railroads published by the Association of American Railroads, which is publicly available.⁴⁰ Thus, if Applicants desired to exclude locomotive tons from their Base Year density calculations, they could have easily done so by using the 2019 data reported to AAR. As Mr. Van Dyke testified, “Applicants’ ‘constructed’ OEA line segment density values make no sense, and in fact are underreporting the base period values by millions of tons per year for many key line segments.”⁴¹

Second, Applicants suggest that they were forced to adjust the actual 2019 density data because “the Operating Plan Base and Year 3 Densities assign[ed]

³⁹ Applicants’ Amended Operating Plan ¶ 186.

⁴⁰ Van Dyke Third V.S. at 27–28.

⁴¹ CN February 28 Comments, Exhibit 2, Verified Statement of Car Van Dyke, at 15 (“Van Dyke First V.S.”).

GTMs based on the number of miles that a gross ton is moved across the segment, whereas for KCS's and KCSM's 2019 figures any tons touching the segment were treated as if they traversed the entire segment, resulting in [] higher GTMs per mile in the KCS and KCSM 2019 Exhibit 14 segment-level density figures for many segments.”⁴² *But there is no indication in the Application or workpapers that Applicants actually adjusted the KCS density data to reflect only the actual miles of a segment traversed by each train.* Instead, if a train traversed at least 25 percent of the stations on a line segment, Applicants treated that train as if it traversed the entire line segment. Conversely, trains that traversed less than 25 percent of the stations on a line segment were removed entirely from the Amended Operating Plan. Moreover, Applicants' Amended Operating Plan uses line-segment values which illogically assume “that the percentage difference between the tonnage that moved during the time periods (in 2020 and 2021) that Applicants used in their Amended Operating Plan [] and the tonnage that actually moved over [their] lines during 2019 was *the same for every segment on their respective railroads!*”⁴³

Third, Applicants submit that “KCS's Ordinary Course Exhibit 14 2019 density figures for certain segments reflected anomalous assignments of tonnage to particular segments that made their use problematic for purposes of pre- and post-Transaction comparisons, and those anomalies drive differences between the Ordinary Course Exhibit 14 2019 Densities and the Operating Plan Year 3

⁴² Applicants' Amended Operating Plan ¶ 187.

⁴³ Van Dyke Third V.S. at 25.

Densities.”⁴⁴ But Applicants do not identify such issues in their Amended Operating Plan, nor do they explain how they corrected those issues in preparing their Amended Operating Plan. And the Amended Operating Plan in fact incorporates different anomalies and inaccuracies. As Mr. Van Dyke explains, “[t]urning to the comparison of tonnage values by line segment in the Amended Operating Plan and work papers with Applicants’ real world experience, we can observe anomalous values on many lines.”⁴⁵

For example, for the CP line through Ottumwa and Davenport, Iowa, there are “significant differences between Applicants’ Amended Operating Plan and their real world 2019 density values”⁴⁶ As Mr. Van Dyke explains, Applicants’ Amended Operating Plan has “consistent underreporting” across “segments of the Ottumwa line (in the range of 5-10 percent)” as well as “large differences, in the neighborhood of 50 percent, for the Marquette and Davis Junction lines that feed into the Ottumwa line.”⁴⁷ These, and many other discrepancies, illustrate the clear error in Applicants’ density methodology and their Amended Operating Plan as a whole.⁴⁸

⁴⁴ Applicants’ Amended Operating Plan ¶ 188.

⁴⁵ Van Dyke Third V.S. at 27.

⁴⁶ *Id.* at 28–29.

⁴⁷ *Id.* at 30.

⁴⁸ *See, e.g., id.* at 28–40 (discussing multiple inconsistencies in modeled density for the KCS Mainline)

At bottom, Applicants cannot justify their decision to abandon their commitment to “use the year 2019 as the base year for purposes of the impact analyses to be included with the Application [which remains the last full year unaffected by the COVID pandemic for which data are available],”⁴⁹ a commitment that the Board expressly accepted, Applicants reaffirmed in their Amended Notice of Intent, and other parties relied on. Applicants’ purported explanations are either wrong or create problems far greater than any presented by the 2019 density and trains per day data.⁵⁰ Applicants thus have failed to provide a credible rationale for basing their evidence on inconsistent and flawed data with no nexus to their chosen Base Year.

IV. APPLICANTS’ AMENDED OPERATING PLAN DOES NOT CURE ANY OF THE OTHER PROBLEMS WITH THEIR APPLICATION.

Applicants’ Amended Operating Plan fails to cure the many other flaws that CN identified in its February 28 Comments.⁵¹ Examples abound.

First, as Mr. Hunt notes in his Verified Statement attached as Exhibit 3, “Applicants’ projected revenue gain of \$1.02 billion from traffic diversions and (supposed) new traffic opportunities is overstated by approximately \$520 million.”⁵²

⁴⁹ See Notice of Intent to File Application for Approval of Transaction Subject to 49 U.S.C. §§ 11323-25, *Canadian Pacific Railway Ltd.—Control—Kansas City Southern, et al.*, STB Docket No. FD 36500, at 1 (filed Mar. 22, 2021) (“Applicants’ Notice of Intent”).

⁵⁰ CN February 28 Comments at 28–32, 59–64.

⁵¹ See Applicants’ Notice of Intent at 1.

⁵² Exhibit 3, Second Verified Statement of David T. Hunt, at 3 (June 9, 2022) (“Hunt Second V.S.”).

In their Amended Operating Plan, Applicants apparently persist in their illogical assumption that the merged railroad will be able to divert significant amounts of traffic from existing single-line options, even though the merged CPKC routes will be substantially longer.⁵³ For reasons CN has explained, this assumption is contrary to all practical experience.⁵⁴

Second, 40 percent of the merged railroad's revenues from projected growth continue to be based on supplemental projections by CP and KCS personnel over and above the estimates of the Applicants' experts purportedly performing a diversion analysis.⁵⁵ These supplemental projections are wildly exaggerated, in part by including potential traffic growth that is plainly not merger-related, whether because the traffic is already interline CP-KCS traffic or because it is traffic that would only move over the existing KCS system.⁵⁶

Third, Applicants continue to underestimate their operating expenses for the first three years by at least \$2 billion.⁵⁷ As Mr. Randall notes in his First Verified Statement, which continues to apply to Applicants' Amended Operating Plan, Applicants' operating expense estimate is sufficient only if one assumes that the merged CPKC will achieve an operating ratio of 30 percent on its new traffic,

⁵³ *Id.* at 3–4.

⁵⁴ CN February 28 Comments at 18–19.

⁵⁵ *Id.* at 19–20.

⁵⁶ *Id.*

⁵⁷ Exhibit 4, Second Verified Statement of Hugh Randall, at 4 (June 9, 2022) (“Randall Second V.S.”).

“something no Class I railroad in North America has ever achieved on either baseload or incremental traffic.”⁵⁸ Indeed, while Applicants acknowledge that KCS has already adopted PSR principles pre-merger, they “have not reduced their assumed { } increase in Year 1 productivity” accordingly.⁵⁹

Fourth, in light of the financial strain the combined company would inevitably be under,⁶⁰ it is perhaps not surprising that while Applicants claim that their combined system will have { } more traffic by the end of Year 3, their capital investments as a percentage of revenue remains unchanged.⁶¹ And of the \$5.7 billion that Applicants say they will invest in their system, only a fraction has actually been described in any meaningful way for the Board or other interested parties to evaluate.⁶² That is, “Applicants have still failed to identify or to prove the adequacy of their planned capital investments.”⁶³ Indeed, in their new workpapers—but *not* in their Amended Operating Plan—Applicants have now identified under a Highly Confidential designation plans to construct *five* additional

⁵⁸ CN February 28 Comments at 32; *id.*, Exhibit 3, Verified Statement of Hugh Randall, at 32 (“Randall First V.S.”) at 24; *see* Randall Second V.S. at 5.

⁵⁹ Randall Second V.S. at 4.

⁶⁰ One need only apply CP’s own standards to see why. As CN’s expert Professor Mark Zmijewski previously calculated, CP’s leverage ratios are not only no lower than those it criticized in connection with CN’s proposed acquisition of KCS, but would be “materially higher than that of any other Class I railroad over the last decade.” CN February 28 Comments, Exhibit 4, Verified Statement of Mark E. Zmijewski ¶ 28 (quoting Velani V.S. at 8–9).

⁶¹ *See* Randall Second V.S. at 4; Randall First V.S. at 8–9.

⁶² *See* Randall Second V.S. at 2; Randall First V.S. at 8–9.

⁶³ Randall Second V.S. at 2.

long sidings and extend two sidings so they can handle {{ }} trains.⁶⁴

Applicants have not made those locations public for stakeholders to review and address in their amended comments or in the forthcoming environmental review.

Applicants have not included these new investments in their merger-related capital budgets, instead categorizing these newly proposed investments as normal 2022 capex and not transaction-related.⁶⁵

Shreveport provides a clear example of Applicants' failure to account for the investments it will be required to make. As Mr. Randall highlights, it is still the case that "Applicants propose no new capital investment at Shreveport" despite the fact that "trains per day [will] more than double, [with] {{ }} more cars to switch [and] {{ }} more blocks to make."⁶⁶ In sum, given the inadequate and vague nature of Applicants' commitments to make capital investments, there is no underlying financial basis to assure the Board that approving Applicants' merger will not create service disruptions that could have cascading effects on the supply chain.⁶⁷

⁶⁴ *Id.* at 2–3 (citing Applicants' workpapers 24.6.1.7_Yard Cars Per Day.xlsx, 24.6.2.2_CP-KCS Capacity Projects.xlsx).

⁶⁵ *Id.*

⁶⁶ *Id.* at 3.

⁶⁷ That Applicants' MultiRail model excludes train counts and tonnages that did not traverse 25 percent or more of the nodes in a given subdivision constitutes an additional ground for believing that the Amended Operating Plan underestimates traffic and will therefore create service disruptions. *See* Hunt First V.S. at 12; Hunt Second V.S. at 2.

CONCLUSION

For the reasons set forth above and in its original Comments, CN respectfully submits that the Board should condition any approval of the proposed merger on the conditions CN has requested. Applicants' Amended Operating Plan is not reliable for multiple reasons, including its failure to rest on a reliable foundation for Base Year traffic.

Respectfully submitted,

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*Counsel for Canadian National Railway Company, Grand Trunk Corporation, and
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Dated: June 9, 2022

CERTIFICATE OF SERVICE

I hereby certify that on this 9th day of June 2022, a copy of the foregoing
Comments on Applicants' Amended Operating Plan was served by first class mail or
email on the service list for Finance Docket No. 36500.

/s/ Matthew J. Warren
Matthew J. Warren

EXHIBIT 1

**Verified Statement of
Jeff. D Makhholm, Ph.D.**

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB FINANCE DOCKET NO. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY, AND THE
TEXAS MEXICAN RAILWAY COMPANY**

CN'S COMMENTS ON APPLICANTS' AMENDED OPERATING PLAN

Verified Statement of Jeff D. Makhholm, Ph.D.

Managing Director

National Economic Research Associates, Inc. (NERA)

June 9, 2022

PUBLIC REDACTED VERSION

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1. Qualifications

My name is Jeff D. Makholm. I am the senior partner and a Managing Director at National Economic Research Associates Inc. (NERA). NERA, the world's oldest and largest firm of independent consulting economists, was formed in 1961 by Professor Alfred E. Kahn—Professor, Dean and Trustee at Cornell University, Chair of the New York Public Service Commission and US Civil Aeronautics Board—and his students/associates. I hold a Ph.D. in Economics from the University of Wisconsin-Madison. My major field for my Ph.D. was Industrial Organization, with a minor field of Econometrics. I have been affiliated with NERA since 1984.

I attach my CV as Appendix A.

2. Assignment

I have been retained by Canadian National Railway Company (“CN”) in connection with STB Finance Docket No. 36500 – *Canadian Pacific Railway et al. – Control – Kansas City Southern et al.* to comment on the decision by Canadian Pacific Railway Co. and Kansas City Southern (“the Applicants”) to develop 2019 base year data for their merger application through a modeling exercise using sampled months from 2020 and 2021, rather than using actual 2019 traffic data, and then to “calibrate” those data from later years to be consistent with aggregate 2019 data to constitute Applicants’ 2019 Base Year. Specifically, I have been asked to comment on the following questions:

- Is such a process to produce Applicants’ 2019 Base Year, including such “calibration,” reasonable as a statistical matter?
- Is it reasonable from the perspective of US regulatory control generally to use such a procedure, including “calibration” of post-Base Year data samples, to form a Base Year as a foundation for its merger application before the Surface Transportation Board (STB)?

3. Summary of Findings

I have reviewed the methodology used by Applicants. Based upon this review and my knowledge of the customary approach to preparing statistical data in regulatory and legal proceedings, I have made three findings, which I will elaborate upon in subsequent sections of this statement:

- Applicants’ use of a variety of post-2019 data samples (drawn from different months and years) to estimate train counts and ton-miles (traffic density) on individual line segments, combined with its process of “calibration” of the line segment results to square the calibrated estimates with actual Base Year systemwide data, renders Applicants’ train count and traffic density data for 2019 essentially useless to the Surface Transportation Board (“the Board”) in conducting environmental, community impact, capacity, and other critical analyses required to evaluate the proposed merger.
- The approach taken by the Applicants involving complex estimates and adjustments to the data presented to the Board is inconsistent with customary practice in preparing regulatory filings, which demands the use of factual data rather than estimates and opinions—especially when such estimates and opinions are vague and/or unjustified.
- Actual data for 2019 traffic on Canadian Pacific and Kansas City Southern was available to Applicants. Therefore, the approach taken by the Applicants involving estimates and calibration was unnecessary.

4. Applicants’ Approach Violates Basic Statistical Practice

Having selected 2019 as the Base Year for its merger application, Applicants chose not to use actual 2019 traffic data in preparing their Operating Plan. Such 2019 data was apparently available and, indeed, has been used by other parties in this proceeding to calculate Base Year traffic data and to develop their operating evidence. Applicants instead “modeled” hypothetical 2019 traffic data based on a one-month sample of data in 2020 for manifest and intermodal traffic (or “Scheduled” train data) and on two different periods in 2021 for bulk unit train (or

“On Demand”) traffic. Such a sampling procedure, using non-randomized partial year traffic samples to estimate full year results for a prior year, in no way represents a reasonable statistical analysis. In particular:

- Seasonality is one of the principal attributes of railroading that requires careful statistical treatment. In the railroad industry, large segments of traffic are highly seasonal. For example, sampling fertilizer traffic in August would miss the seasonal surge of such traffic in the early Spring. Or sampling propane traffic in July would miss much of the surge in such traffic during cold weather heating months.
- Furthermore, seasonal surges are often regional, stressing different portions of the rail network at different times of the year. No aggregation of partial year data for a seasonal industry is justifiable as a means of establishing a “normal” or “average” year’s operation. Applicants’ decision to eschew the use of actual 2019 traffic data and to attempt to estimate that data based on limited data samples from different years violates basic and reasonable statistical practices in this respect.
- The railroad industry is continually subject to variations in traffic due to both internal and external factors. Internal factors include events such as work stoppages, such as occurred on Canadian Pacific in March of this year, and shortages of locomotives, rolling stock, and crews, as is occurring now on several Class I railroads. External factors include events such as severe weather, which regularly affects railroads in Canada and the northern United States; changes in tariffs, which caused a spike in lumber traffic from Canada to the United States in advance of a 2021 increase in US tariffs on lumber; changes in international crude oil markets, which affected the volume of crude by rail shipments since 2015; changes in the volume of annual grain harvests; and “Black Swan” events (unpredictable events with severe consequences) such as the COVID pandemic. Indeed, Applicants’ decision to use October 2020 data to estimate 2019

merchandise and intermodal traffic would appear to be especially questionable, given the impact of the COVID-19 pandemic on economic activity during 2020.

As I have described, Applicants used data taken from different time periods for manifest and intermodal traffic, on the one hand, and bulk traffic on the other to create hypothetical 2019 Base Year train and ton-mile estimates by route segment. However, the sum of the ton-miles for the route segments did not equal the actual aggregate 2019 system ton miles for either Canadian Pacific or Kansas City Southern. To address this problem, Applicants created different “calibration” factors for Canadian Pacific segments and Kansas City Southern segments. Applicants applied these “calibration” factors *uniformly* to each segment of the Canadian Pacific and Kansas City Southern networks.

That is, for CP traffic the “calibration” was to *uniformly increase* the gross ton-miles (GTMs) across all line segments (since total GTMs had *declined* from 2019 levels).¹ For KCS traffic the “calibration” was to *uniformly decrease* the GTMs across all line segments (since total GTMs had *increased* from 2019 levels).² Thus, the “calibration” factors were designed by Applicants to make the *sum* of the 2019 ton-miles for the route segments equal to the total 2019 ton-miles for the Canadian Pacific and Kansas City Southern systems. The damaging effect of such a “calibrated” approach on the validity of route segment statistics, particularly where, as here, *individual segment* data is important, is severe. Indeed, the statistical problem with such an approach, to a case where *individual segment* data is the fulcrum upon which subsequent regulatory action will pivot, is apparent.

Consider an illustration. The US Census has several official uses outside of the apportionment of Congressional seats—among them the allocation of funding for Federal and state programs. For example, the Commonwealth of Virginia is divided into 95 counties, along with 38 independent cities that are considered county-equivalents for Census purposes. Between the 2010 and 2020 Censuses, Virginia’s total population increased 7.9 percent. If that statewide percentage had been applied to 2010 Census data to estimate the 2020 population of each

¹ The CP GTM “calibration” was to multiply each line segment by 1.042 since actual 2019 GTMs were higher than the sampled 2020 and 2021 data. See Van Dyke, Exhibit A-1, Step 7.

² The KCS GTM “calibration” was to multiply each line segment by 0.957 since actual 2019 GTMs were lower than the sampled 2020 and 2021 data. See Van Dyke, Exhibit A-1, Step 7.

individual county and independent city in Virginia (a “calibration” like Applicants’), it would have produced wildly inaccurate results. Loudoun County, for example, which actually grew 34.1 percent, would have had its population significantly undercounted. Allegheny County, which actually declined in population by 8.1 percent, would have had its 2020 population significantly overcounted. Given the results, it seems obvious that estimating the population changes of each sub-unit of Virginia using the statewide average change would lead to incorrect and useless results at the sub-unit level—even though the aggregate changes would appear to be accurately “calibrated.” Yet that is precisely what Applicants have done—applying a system average change in ton-miles for Canadian Pacific to each line segment on the Canadian Pacific and a *different* average change in ton-miles for Kansas City Southern to each line segment on Kansas City Southern. The results of this process at the line segment level for 2019 manifestly cannot be valid for the Board’s subsequent regulatory purposes.

The errors introduced by Applicants’ approach for its 2019 Base Year undermines many of the core tasks of the Board in evaluating the Applicants’ merger application. The Board’s evaluation of the environmental impacts of the proposed merger relies on accurate train and ton-mile data at the line segment level. That is, if, due to their approach, Applicants understate the change in trains and ton-miles on a segment due to the proposed merger it may forego the appropriate level of environmental analysis for that segment. Similarly, if Applicants overstate the change in traffic, the Board may waste resources that could have been better employed in evaluating segments with a large change in trains and ton-miles. Similarly, the Board relies on accurate data at the line segment level to respond to community concerns based on increased traffic and to evaluate the adequacy of the operating plan, capital investment, crew supply, locomotive supply, and yard capacity at the line segment level. Given its concerns regarding the adequacy of railroad service, the Board is aware of the consequences of underestimating any of these inputs to providing adequate service to the public, yet Applicants’ approach renders the line segment level data needed for the Board’s analysis meaningless.

5. Applicants' Approach Violates Established "Known and Measurable" Accounting and Regulatory Principles

The regulatory assessment of every company subject to forms of regulation begins with an agreed snapshot of a "test year" or "base year." The concept of an objective "base year" foundation for examining rate revisions, automatic adjustments, or subjects for arbitration is well established in the accepted regulatory accounting literature.³ Objectivity is paramount for such regulation to work effectively, and that is where Applicants' "calibrated" 2019 Base Year fails—precisely because it is so clearly an obscure/unjustified re-statement of what would normally be actual 2019 measurements. There are times when adjustments to base years are proper for specific reasons, such as "abnormal years" or unusual non-recurring costs. But examples of such adjustments start with actual base year data, which can be adjusted to account for specific matters (i.e., weather, expense levels, inflation, unrepresentative service growth, etc.).⁴ It is expected that the effects of these individual facts will be reasonably well-defined. Such is not the case with Applicants' use of later year/partial-year data and its calibration to square to 2019 totals.

The requirement that Applicants in a merger proceeding must develop a fact-based Base Year is consistent with the application of regulatory policy across industries in the United States, which display a strong preference for actual data—adjusted, if at all, for "known and measurable" factors. Such a preference for actual data as the basis for regulation has a strong judicial and legislative foundation, which every scholarly economic treatment of the economics of regulation deals with out of necessity (including that of my late colleague Professor Kahn).⁵

The accounting standards and principles of accuracy involving regulated property, for both US railroads and utilities, reflect these foundational decisions. The financial records reflect the property involved—as a factual, not a judgmental, matter. While railroads no longer are subject to utility-style regulation of their rates of return, the concept of using a base year that can be compared to future years is a central aspect of the STB's merger regulations. The notion that

³ Goodman, *The Process of Ratemaking*, Volume I, Public Utilities Reports, Arlington VA (1998), pp. 144-45.

⁴ Goodman, *The Process of Ratemaking*, Volume I, pp. 287-289.

⁵ Kahn, A.E., *The Economics of Regulation: Principles and Institutions* (Two Volumes), John Wiley & Sons, New York (1971).

base year data needs to be accurate is consistent with these basic and uncontroversial concepts lying at the center US regulation, including for the regulated aspects of US railroads.⁶

6. Applicants' Reliance on Estimates is Unnecessary and Counterproductive

There are times, in the application of empirical economic analysis or regulation, where actual data is unavailable and thus the next best solution is to rely upon estimates. But this is not one of the instances. Applicants had available, and still have available, the actual full-year waybill data for the Canadian Pacific and Kansas City Southern systems in 2019. The traffic data contains all the information required to develop accurate train count and ton-mile data at the line segment level. The sum of this line segment data will equal the system level data without need of "calibration."

I understand that other parties in this proceeding have used the 2019 traffic data without difficulty to develop the 2019 Base Year at both the line segment and system level. Witnesses for Applicants Bengt Muten⁷ and Richard W. Brown and Nathan S. Zebrowski⁸ used 2019 traffic data. Carl Van Dyke and Derek Taylor, witnesses for CN, also used 2019 traffic data.⁹

⁶ Bonbright, J.C., *Principles of Public Utility Rates*, Columbia University Press, New York (1961), pp. 165-166.

⁷ STB Finance Docket No. 36500, Verified Statement of Bengt Muten, 2021 October 28, para. 6, 37:

In my analysis, I relied upon the truck flows that are reflected in the IHS Markit Transearch® database for 2019, the intermodal flows from CP and KCS waybill data for 2019, and the 2019 STB Carload Waybill Sample. ... For Intermodal Rail Flows I used the combined 2019 CP/KCS 100% waybill data provided by FTI (covering both U.S. and Canada for CP and U.S. and Mexico for KCS).

⁸ STB Finance Docket No. 36500, Verified Statement of Richard W. Brown and Nathan S. Zebrowski, 2021 October 28, para. 20:

Our analysis started by compiling a comprehensive dataset of 2019 North American freight railroad traffic movements. For this we relied on complete 2019 traffic tape data provided by CP and KCS to identify all loaded revenue traffic movements handled by CP or KCS, and the Board's 2019 Confidential Carload Waybill Sample ("CWS") data to identify all other loaded revenue traffic movements handled by other carriers.

⁹ STB Finance Docket No. 36500, CN Responsive Application, February 28, 2022, Exhibit 13, Operating Plan for Springfield Divestiture, Verified by Carl Van Dyke and Derek Taylor, p. 11:

To develop Base Year 2019 carload volumes, we analyzed the 2019 full-year CN waybill data and the 2019 waybill data for CP and KCS.

Applicants have offered several excuses for their decision to eschew the use of factual 2019 data. Carl Van Dyke is providing the Board with an analysis that demonstrates that none of the explanations are plausible.¹⁰

Applicants chose to estimate 2019 traffic data using a sample of one month from 2020 and selected months from 2021, rather than using the full population of 2019 traffic data. From a statistical sampling perspective, there are four reasons why a sample may be preferred to the full population when conducting an analysis with empirical data. These are described in Section 1.1 of the well-known and authoritative book on sampling by William Cochran.¹¹

- Reduced Cost: If data are secured from only a small fraction of the aggregate, expenditures are smaller
- Greater Speed: Data can be collected and summarized more quickly
- Greater Scope: Surveys that rely on sampling have more scope and flexibility regarding the types of information that can be obtained
- Greater Accuracy: Because the volume of work is reduced, a sample may in some instances produce more accurate results than the kind of complete enumeration that can be taken

Cochran's list reflects common sense when collecting and processing large data sets, like the United States Census. However, in this proceeding, where the 2019 traffic files were available, used by Applicants in their normal course of business, and provided to other witnesses and outside parties, use of sampling would run counter to all such reasons for sampling. Estimating 2019 traffic data from sampled 2020 and 2021 data likely required additional cost and time beyond simply using the full 2019 traffic files. Not all aspects of the 2019 traffic files were reproduced, so the scope was reduced rather than expanded. Finally, and most importantly, the sampled data and "calibration" methodology employed by Applicants lead to a reduction in data accuracy. It is difficult to justify the use of a sample in this case, where the entire 2019 traffic file was available.

Finally, it is worth noting, however, that Applicants selected 2019 as the base year in their Notice of Intent to File Application:

¹⁰ STB Finance Docket No. 36500, CN's Comments on Application and Request for Conditions, June 9, 2022, Section 3.2, Verified Statement of Carl Van Dyke.

¹¹ Cochran, William G., "Sampling Techniques," 3rd Edition, John Wiley & Sons, New York, 1977, pp. 1-2.

They [Applicants] will use the year 2019 as the base year for purposes of the impact analyses to be included with the Application.¹²

Yet, in the Amended Operating Plan witnesses Elphick and Orr claim 2019 traffic could not be used, despite CP and KCS having selected that year:

We concluded that it would not be reasonable to use traffic data from 2019 traffic to represent Base Plan operations because of the changes in traffic flows and operational design between 2019 and early 2021, which would have resulted in a mismatch that undermined the reliability of the Base Plan as a reflection of pre-Transaction conditions.¹³

If it was not reasonable to use 2019 traffic for the Base Plan, and Applicants were aware of that at the outset of their work on the merger application, then Applicants should have selected a year they considered to be reasonable for purposes of impact analyses, rather than using a partial-future-year “calibration” process that so clearly undermines the concept of a base year generally for subsequent regulatory purposes.

7. Specific Computational Faults with Applicants’ “Calibration”

The “calibration” process not only defies statistical and US regulatory principles (by introducing a subjective and obscure replacement for what should be a factual Base Year in the Application), it is also logically and mathematically problematic, for two reasons:

- First, extrapolating a few months of data to an entire year is unreliable generally, as it not only fails to capture seasonality in the data, it also introduces the possibility of expanding any unusual month-to-month variability (i.e., magnifying an unusual event or variation to the full year).
- Second, system-wide aggregation ignores location-specific impacts, which are the primary subject of study for the operating plan assessment (i.e., the evaluation of

¹² Notice of Intent to File Application for Approval of Transaction Subject to 49 U.S.C. §§11323-25, March 22, 2021, pp. 1-2.

¹³ Amended Operating Plan (Exhibit 13), Verified by Raymond A. Elphick and John F. Orr, May 13, 2022, p. 33, para. 79.

capacity constraints, environmental impacts, congestion, community impacts, capital needs, etc. are all highly location-specific).

I present examples of each problem below.

7.1 Extrapolating a few months of data to create the Base Year leads to unreliable results

Extrapolation of a few months of data to an entire year fails to capture seasonal difference in the data. Applicants compound this problem by selecting a small number of months from years other than the Base Year.

The Applicants developed an operating plan for base year 2019 from the following sources:

- Scheduled train data from October 2020 for CP and KCS.¹⁴
- On-demand trains from February-May 2021 for KCS.¹⁵
- On-demand trains from March-June 2021 for CP.¹⁶
- Blocking and train designs from Q1 2021.¹⁷

As I show in the image below (provided by Applicants), they used such sources to create the “2019 Base Plan,” which they then used to calculate traffic in subsequent periods by adding diverted traffic.¹⁸ Such an amalgamation of data from different time periods means that, before the “calibration” is applied, the Base Year data will reflect traffic patterns from October 2020 for scheduled trains on the Canadian Pacific and Kansas City Southern networks, as well as traffic patterns from February-May 2021 for Kansas City Southern, and from March-June 2021 for Canadian Pacific on-demand trains. In other words, any variations in these few “sample” months selected by Applicants (whether that variation is part of normal seasonality, or the result of any other factor impacting traffic) will necessarily be amplified and applied across the entire base year traffic. This is true not only at an aggregate level, but also in every specific location: any portion of the network experiencing higher-than-normal or lower-than-normal traffic during the sample periods, for any reason (seasonality, weather events, plant shutdowns, labor action, etc.)

¹⁴ Amended Operating Plan (Exhibit 13), Verified by Raymond A. Elphick and John F. Orr, May 13, 2022 (“Elphick and Orr”), p. 30

¹⁵ Elphick and Orr, p. 37, footnote 19

¹⁶ Elphick and Orr, p. 37, footnote 19

¹⁷ Elphick and Orr, p. 30.

¹⁸ Carl Van Dyke examines the calculations in detail in Appendix A of his statement.

will see these abnormal traffic patterns replicated—and expanded—in the Base Year traffic. Clearly, there is no reason to assume that these time periods selected by Applicants accurately reflect a full year of traffic, and especially not in every specific location, even if the overall traffic volumes are then scaled up or down system-wide using a “calibration,” as I explain in the paragraphs that follow.

Figure 1: System Calibration¹⁹

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7.2 The use of a system-wide “calibration” factor is problematic

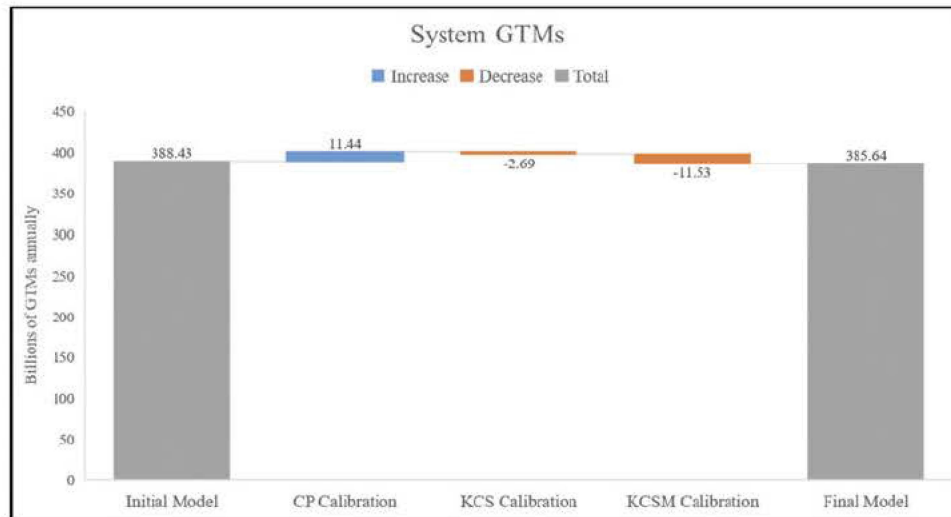
Applicants applied average train weight data to establish gross ton-miles (GTMs) for the 2021 base. They used 2019 total GTMs for CP, KCS and KCSM to establish a railroad specific “calibration” factor to convert the “2021 Base Plan” to a “2019 Base Plan.” The Application provided further “calibrations” by GTMs for the Merger Growth (diverted traffic) and the Organic Growth.

¹⁹ Source: CP-KCS Data Room: 24.1.1.2.3.4: “System Calibration.docx.”

Applicants claim that the adjustments from the calibration factors were “modest”—providing the following figure and text as evidence:

Figure 2: Excerpt from Applicants’ Amended Operating Plan²⁰

**FIGURE 9
CALIBRATION OF BASE OPERATING PLAN TO MATCH 2019 GTMS²³**



94. As a result of this calibration, the Base Plan GTMs are consistent with the traffic handled in the ordinary course by both CP and KCS/KCSM. The actual system-level GTMs underlying the 2019 segment densities reported in CP’s and KCS’s ordinary course density reporting (set forth in Part A of Exhibit 14) precisely match the sum of the segment level densities underlying the Base Plan, as shown in Table 1 below.

**TABLE 1
SYSTEM-WIDE GTMS
(ANNUAL GTMS)²⁴**

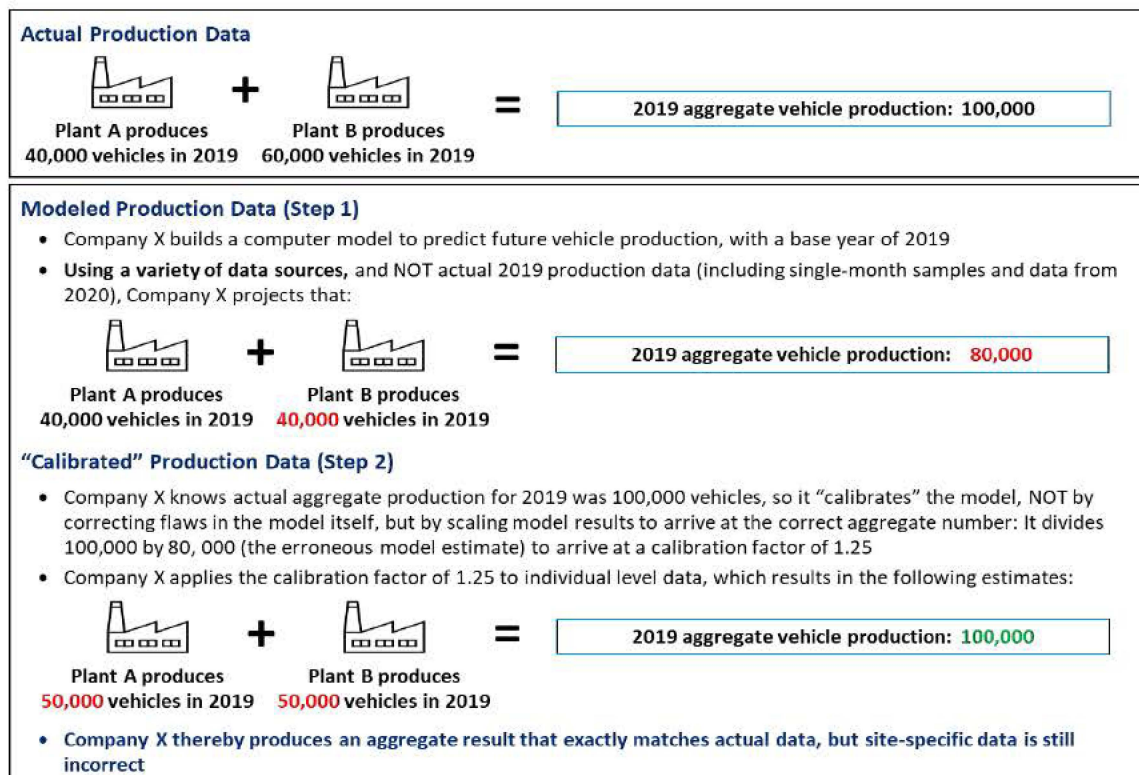
System	2019 Actuals	Operating Plan
CP	280.72B	280.72B
KCS	60.81B	60.81B
KCSM	44.11B	44.11B
Total	385.64B	385.64B

²⁰ Amended Operating Plan (Exhibit 13), Verified by Raymond A. Elphick and John F. Orr, May 13, 2022, p. 40, Figure 9.

The “proofs” provided by Applicants are, of course, circular. Applicants simply scaled whatever traffic they had in what they have labeled their “2021 Base Year” by a factor *specifically* derived to ensure that Base Year aggregate traffic figures *exactly* matched 2019 traffic an aggregate level. This computation does not demonstrate in any way the accuracy or soundness of the selected approach; it only demonstrates that Applicants could perform a simple mathematical calculation to find a factor which, when multiplied by their constructed base year, would make aggregate numbers add up to the number they aimed for.

Such a system average adjustment is invalid anyway. Line segment data is important. Such information is necessary properly to assess capacity concerns, capital investment needs, and community and environmental impacts. I illustrate the problem associated with failing property to account for segment characteristics below.

Figure 3: Statistical Problems from Aggregating Data



- The bar charts in Applicants’ Figure 9 (Figure 2 here) showing GTM adjustments described by the Applicants as “modest”, understates the error created by this calibration. If in Figure 3 the Modeled Production Data had predicted 60,000 for Plant A and 40,000

for Plant B, then no adjustment would have been made, yet the model would be off by 10,000 units at each plant. Figure 2 would show this a zero error.

- Consider a more extreme case where in the sampled period (e.g., “October 2020”), one of the plants had to stop production (due to chip shortages, labor action, renovations, etc.). By applying the CP-KCS “calibration” we would be “forcing” the other plant to possibly *double* its production to meet “aggregate targets”.
- The example of the plant in Figure 3 is useful for demonstrating the nature of the errors created by the CP-KCS “calibration.” Specific examples of these errors in the CP-KCS Amended Operating Plan can be found in the statement of CN witness Van Dyke.

Ultimately, a base year is intended to provide a reliable foundation by which to evaluate hypothetical scenarios. Post base years have uncertainties; starting with a historically accurate snapshot provides this foundation for comparison. Prior rail mergers have compared an objective historical snapshot base year against a hypothetical scenario (what the world would have looked like without the merger). Such comparisons allow the isolation of the merger impacts from all the other changes that have or may occur.

Applicants’ “calibration” methodology creates an unjustified and aggregated hypothetical foundation on which to compare a hypothetical merger scenario. As such, and as simply a basic statistical matter, the Applicant have made it impossible accurately or consistently to isolate the merger impacts.

8. Conclusion

My conclusion is therefore that the methodology used by the Applicant to construct a “Base Year” for their merger Application is faulty and unreliable. First, there are significant statistical shortcomings to the methodology (primarily, the use of an amalgam of samples from different and short time periods to construct an initial “Base Year,” compounded by the application of aggregate “calibration” factors across the network). Second, being subjective and obscure in nature, the methodology is inimical to the principles of establishing a Base Year as a foundation for reasonable regulatory review. These shortcomings make the proposed Base Year unreliable at a segment-level and impede a comprehensive and accurate assessment of merger-related impacts in isolation from other impacts by the STB, the OEA or other interested parties.

Appendix A. CV of Jeff D. Makhholm, Ph.D.

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Dr. Makhholm concentrates on the issues surrounding the market and regulation for energy (electricity and gas), transportation (road and rail), and mining —those that operate networks (pipelines, electricity transmission networks, rail and road networks, telecommunications and water utility systems) and those operating infrastructure business at specific sites, such as mines, hydrocarbon rigs, oil refineries, electricity generation plants, oil and gas storage facilities, gas treatment plants, sewage treatment plants and airports. These issues include the broad categories of project valuation, efficient pricing, market definition and the components of reasonable regulatory practices. Specific valuation issues in the extractive industries include the value of permits for include the right to explore and develop natural resources. Specific pricing issues include tariff design, incentive ratemaking, and the unbundling of prices and services, and analysis of energy commodities markets (including derivative markets comprising forwards, futures and swaps for commodities and liquefied natural gas—LNG). Issues of market definition include assessments of mergers, including the identification and measurement of market power. Issues of reasonable regulatory practices include the creation of credible and sustainable accounting rules for ratemaking as well as the establishment of administrative procedures for regulatory rulemaking and adjudication. On such issues among others, Dr. Makhholm has prepared expert testimony, reports and statements, and has appeared as an expert witness in many states, federal and U.S. district court proceedings as well as before courts, international arbitrations and regulatory bodies and Parliamentary panels abroad.

Dr. Makhholm's clients in the United States include privately held oil, gas and utility corporations, rail companies, public corporations, and government agencies. He has represented dozens of gas and electric distribution utilities, as well as both intrastate and interstate oil and gas pipeline companies and oil, gas and electricity producers. Dr. Makhholm has also worked with many leading law firms engaged in issues pertaining to the local and interstate regulation of energy utilities.

Internationally, Dr. Makhholm has directed an extensive number of projects in the mining, utility and energy transportation businesses in 20 countries on six continents. These projects have involved work for investor-owned and regulated business as well as for governments and the World Bank. These projects have included advance pricing and regulatory work prior to major gas, railroad and toll highway privatizations (Poland, Argentina, Bolivia, Mexico, Chile and Australia), gas industry restructuring and/or pricing studies (Canada, China, Spain, Morocco, Mexico and the United Kingdom), utility mergers and market power analyses (New Zealand), gas development and and/or contract and financing studies (Tanzania, Egypt, Israel and Peru), regulatory studies (Chile, Argentina), and oil pipeline transport financing and regulation (Russia). As part of this work, Dr. Makhholm has prepared reports, drafted regulations and conducted training sessions for many government, industry and regulatory personnel.

Dr. Makhholm has published many papers in various peer-reviewed and editor-reviewed publications (*Review of Environmental Economics and Policy*, *Economics of Energy & Environmental Policy*, *Public Utilities Fortnightly*, *Natural Gas and Electricity*, *The Electricity Journal*, *The Energy Law Journal*, and *Competition and Regulation in Network Industries*)—involving a wide range of subjects pertaining to his research work. He is a frequent speaker in the U.S., Europe and elsewhere at conferences and seminars addressing market, pricing and regulatory issues for the energy, commodity and transportation sectors. His latest book, *The Political Economy of Pipelines: A Century of Comparative Institutional Development*, was published by the University of Chicago Press in 2012 and re-issued in Chinese in 2016 by Beijing's Petroleum Institute Press.

EDUCATION

UNIVERSITY OF WISCONSIN-MADISON,
MADISON, WISCONSIN
Ph.D., Economics, 1986
Dissertation: Sources of Total Factor Productivity in the Electric Utility Industry
M.A., Economics, 1985

BROWN UNIVERSITY
PROVIDENCE, RHODE ISLAND
Graduate Study, 1980-1981

UNIVERSITY OF WISCONSIN-MILWAUKEE
MILWAUKEE, WISCONSIN
M.A., Economics, 1980
B.A., Economics, 1978

EMPLOYMENT

1996-present	<u>Managing Director/Senior Vice President.</u> National Economic Research Associates, Inc., (NERA) Boston, Massachusetts.
1986-1996	<u>Vice President/Senior Consultant.</u> National Economic Research Associates, Inc., (NERA) Boston, Massachusetts.
1987-1989	<u>Adjunct Professor.</u> College of Business Administration, Northeastern University, Boston, Massachusetts
1984-1986	<u>Consulting Economist.</u> National Economic Research Associates, Inc., (NERA) Madison, Wisconsin.
1983-1984	<u>Consulting Economist.</u> Madison Consulting Group, Madison, Wisconsin.
1981-1983	<u>Staff Economist.</u> Associated Utility Services, Inc., Moorestown, New Jersey.

J.D. MAKHOLM TESTIMONY SINCE 2012

Before the State Corporation Commission of Kansas, Reply Testimony on behalf of the Kansas Industrial Group, Docket No. 22-NETE-419-COC, May 27, 2022. Subject: State certification of transmission capacity.

Before the State Corporation Commission of Kansas, Direct Testimony on behalf of the Kansas Industrial Group, Docket No. 22-NETE-419-COC, May 17, 2022. Subject: State certification of transmission capacity.

Before the Régie de l'Énergie, Direct Testimony on behalf of Hydro-Québec TransÉnergie, Docket No. R-4167-2021, February 25, 2022. Subject: Structure of a forecast-based PBR plan for capital additions.

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Before the Ontario Superior Court of Justice, Rebuttal Expert Report of Jeff D. Makhholm and Faten Sabry in Support of TransAlta in The Mangrove Partners Master Fund, Ltd. ("Plaintiff") v. TransAlta Corporation, Brookfield BRP Holdings (Canada) Inc., et al. (CV-19-00618554-000), March 22, 2021, Subject: Minority shareholder dispute.

Before the United States Bankruptcy Court Southern District of Texas Houston Division, Declaration in support of Gulfport Energy Corporation's Reply in Support of Motion for Entry of an Order (I) Authorizing Rejection of Certain Negotiated Rate Firm Transportation Agreements and Related Contracts Effective as of the Petition Date and (II) Granting Related Relief with TC Energy Effective as of the Petition Date, Case No. 20-35562-11, February 3, 2021. Subject: Response to objection to reject a gas pipeline firm transportation agreement in bankruptcy.

Before the United States Bankruptcy Court Southern District of Texas Houston Division, Declaration in support of Gulfport Energy Corporation's Reply in Support of Motion for Entry of an Order (I) Authorizing Rejection of the Firm Transportation Negotiated Rate Agreement with Rover Pipeline Company and Related Contracts Effective as of the Petition Date and (II) Granting Related Relief, Case No. 20-35562-11, February 3, 2021. Subject: Response to objection to reject a gas pipeline firm transportation agreement in bankruptcy.

Before the Canadian Energy Regulator, Reply Testimony in support of the Canadian Shippers Group in Enbridge Pipelines Inc. Canadian Mainline Contracting Application, Hearing Order RH-001-2020, December 7, 2020. Subject: Economic effects of a switch from common carriage to contract carriage on the largest pipeline originating in the Western Canada Sedimentary Basin (WCSB).

Before the Federal Energy Regulatory Commission, Reply Declaration in support of Gulfport Energy Corporation's Rebuttal Submission in response to Rover Pipeline LLC, Docket No. RP20-1233, October 26, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Reply Declaration in support of Gulfport Energy Corporation's Rebuttal Submission in response to ANR Pipeline Company, Columbia Gas Transmission, LLC, and Colombia Gulf Transmission LLC, Docket No. RP20-1236, October 26, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Declaration in support of Gulfport Energy Corporation's Motion to Intervene and Initial Submission responding to the Order on Petition for

Declaratory Order filed by Rover Pipeline LLC, Docket No. RP20-1233, October 19, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Declaration in support of Gulfport Energy Corporation's Motion to Intervene and Initial Submission responding to the Order on Petition for Declaratory Order filed by ANR Pipeline Company, Columbia Gas Transmission, LLC, and Colombia Gulf Transmission LLC, Docket No. RP20-1236, October 19, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Declaration in support of Gulfport Energy Corporation's Motion to Intervene and Initial Submission responding to the Order on Petition for Declaratory Order filed by Midship Pipeline Company, LLC, Docket No. RP20-1237, October 16, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Reply Declaration in support of Gulfport Energy Corporation's Rebuttal Submission in response to Rockies Express Pipeline, LLC Direct Case, Docket No. RP20-1220, October 16, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the Federal Energy Regulatory Commission, Declaration in support of Gulfport Energy Corporation's Motion to Intervene and Initial Submission responding to the Order on Petition for Declaratory Order filed by Rockies Express Pipeline, LLC, Docket No. RP20-1220, October 9, 2020. Subject: Public interest matters related to abrogation or modification of gas pipeline contracts.

Before the United States Bankruptcy Court for the District of Delaware, Declaration in support of Extraction Oil & Gas, Inc's Omnibus Motion for Entry of An Order (1) Authorizing Rejection of Unexpired Leases of Nonresidential Real Property and Executory Contracts, Case No. 20-11548, September 21, 2020. Subject: Response to objection to reject oil pipeline transportation services agreements with Grand Mesa Pipeline, LLC in bankruptcy.

Before the United States Bankruptcy Court for the District of Delaware, Declaration in support of Extraction Oil & Gas, Inc's Omnibus Motion for Entry of An Order (1) Authorizing Rejection of Unexpired Leases of Nonresidential Real Property and Executory Contracts, Case No. 20-11548, September 18, 2020. Subject: Response to objection to reject oil pipeline transportation services agreements with Platte River Midstream, LLC and DJ South Gathering, LLC in bankruptcy.

Before the United States Bankruptcy Court Southern District of Texas Houston Division, Declaration in support of Ultra Petroleum Inc.'s Reply in Support of Motion for Entry of an Order Authorizing Rejection of the Firm Transportation Negotiated Rate Agreement with Rockies Express Pipeline LLC Effective as of the Petition Date, Case No. 20-32631, July 2, 2020. Subject: Response to objection to reject a gas pipeline firm transportation agreement in bankruptcy.

Before the United States District Court for the District of Columbia, Second Declaration in Support of Dakota Access, LLC Brief of the Question of Remedy in Standing Rock Sioux Tribe v. United States Army Corps of Engineers, Case No. 1:16-cv-1534-JEB (and Consolidated Case Nos. 16-cv-1796 and 17-cv-267), May 27, 2020. Subject: Response to motion to vacate an easement while the Army Corps of Engineers conducts an environmental impact statement.

Before the Illinois Commerce Commission, Declaration in Support of Motion of Dakota Access, LLC and Energy Transfer Crude Oil Company, LLC. Answer in Opposition to the Petition for Interlocutory Review, Docket No. 19-0673, May 19, 2020. Subject: Authority to expanding pumping capacity on Certificated Pipelines in the State of Illinois.

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Before the United States District Court for the District of Nebraska, Expert Report in Laredo Ridge Wind, LLC; Broken Bow Wind, LLC; and Crofton Bluffs Wind, LLC v. Nebraska Public Power District, Case No. 8:19-cv-45. Subject: Change of control/assignment of contract right provisions in a contract for wind generation.

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Before the 298th Judicial District Court of Dallas County, Texas, Expert Testimony on behalf of plaintiff in Energy Transfer Partners, L.P., and Energy Transfer Fuel, L.P. v. Enterprise Products Partners, L.P., Enbridge (US) Inc., and Enterprise Products Operating LLC, Cause No. 11-12667, February 2014. Subject: Assessment of causation and valuation of damages from lost crude oil pipeline opportunity.

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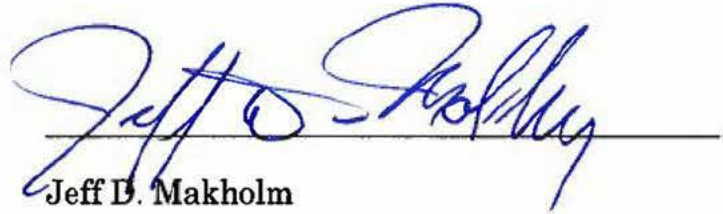
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VERIFICATION

I, Jeff D. Makholm, declare under penalty of perjury under the laws of the United States that the foregoing information is true and correct. Further, I certify that I am qualified and authorized to file this statement.

Executed on this 9th day of June, 2022.



Jeff D. Makholm

EXHIBIT 2

Third Verified Statement of Carl Van Dyke

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Finance Docket No. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY, AND THE
TEXAS MEXICAN RAILWAY COMPANY**

CN'S COMMENTS ON APPLICANTS' AMENDED OPERATING PLAN

**PUBLIC
REDACTED VERSION**

**Third Verified Statement of Carl Van Dyke
June 9, 2022**

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1. Qualifications

My name is Carl Van Dyke. I am a Senior Advisor to, and a Partner Emeritus at, Oliver Wyman, a global general management consulting firm with more than 60 offices in 31 countries. My office address is One University Square Drive, Suite 100, Princeton, NJ 08540. I have been engaged in the design, development, and application of software tools to model, evaluate, and improve the operations of railroads for more than 40 years. I previously sponsored a Verified Statement filed with CN's February 28, 2022 Comments, which provides further details of my qualifications and resume.¹

2. Assignment and Summary of Findings

The purpose of this third Verified Statement is threefold: First, I address the methodology underlying the traffic density values set forth by Applicants² in the Amended Operating Plan and the accuracy of the resulting values. As my testimony (and the Verified Statement of witness Makhholm) demonstrate, the methodology applied by Applicants to develop that data is conceptually flawed and has produced density values that are, in many instances, clearly incorrect – indeed, nonsensical. Second, I identify (and sponsor) the revisions made to CN's Responsive Application pursuant to the Board's *Decision No. 17*.³ Finally, I assess whether Applicants' Amended Operating Plan changes any of the findings contained in my Verified

¹ STB Finance Docket No. 36500, CN's Comments on Application and Request for Conditions, February 28, 2022 (CN-13), Exhibit 2, Verified Statement of Carl Van Dyke – hereinafter "Van Dyke First Verified Statement."

² Applicants are Canadian Pacific Railway Limited, Canadian Pacific Railway Company, and their US rail carrier subsidiaries Soo Line Railroad Company, Central Maine & Quebec Railway US Inc., Dakota, Minnesota & Eastern Railroad Corporation, and Delaware and Hudson Railway Company, Inc. (collectively "CP" or "Canadian Pacific Applicants") and Kansas City Southern and its US rail carrier subsidiaries The Kansas City Southern Railway Company, Gateway Eastern Railway Company, and The Texas Mexican Railway Company (collectively "KCS" or "Kansas City Southern Applicants").

³ STB Finance Docket No. 36500, Canadian Pacific Railway Ltd. – Control – Kansas City Southern, et al, Decision No. 17, April 27, 2022.

Statement from February 28, 2022, filed as part of CN's Comments on the Application.⁴ Results from this final step are presented in Appendix C in this document.

In the context of line segment density data and related train counts and yard activity measures, I have been asked to review Applicants' response to the Board's *Decision No. 17*, which directed Applicants to "amend their Operating Plan to include: (1) an explicit identification of the baseline traffic density values used in the Operating Plan calculations and to be used in the environmental review; (2) a comprehensive explanation of how those values were generated; and (3) a comprehensive explanation of the rationale underlying those methodological choices."⁵

Specifically, Applicants propose to use the "adjusted" line density values submitted to the OEA and in their supporting work papers (hereinafter the "Applicants' proposed density data"), as set forth in their May 13, 2022 filing to the Board, in lieu of the actual historic tonnage values published in Exhibit 14 of the October 29, 2021 Application. Based on my review, I conclude that Applicants' use of their "adjusted" proposed density data do not result in an accurate representation of either Base Year 2019 density values or post-transaction Year 3 or 5 values.⁶

In essence, Applicants propose to replace the historic Base Year values that they developed in the normal course of business with questionable "2019 baseline" data derived through a fundamentally flawed amalgamation of data from different sources and time periods, followed by a supposed "calibration" to make the aggregate gross ton-mile (GTM) figures in their baseline match the aggregate 2019 traffic metrics (while leaving train counts and car handlings

⁴ Van Dyke First Verified Statement

⁵ STB Finance Docket No. 36500, Decision No. 17, op. cit., April, 27, 2022.

⁶ See STB Finance Docket No. 36500, Canadian Pacific Railway Ltd. – Control – Kansas City Southern, et al, Decision No. 16, March 16, 2022.

uncalibrated).⁷ Use of this questionable “base year” data for Applicants’ proposed density data submission, in combination with further “adjustments” described in Applicants’ May 13, 2022 filing, result in the use of segment-specific line GTM densities, train counts, and yard counts that are inaccurate and misleading.

Applicants compound these issues by applying an overly complex and error-prone process to the development of post-transaction tonnage values that results in demonstrably inaccurate tonnage estimates, with values that are in some cases too low and in other cases too high. For example, post-transaction tonnage estimates for the critical Sabula, Iowa to Airline Junction, Missouri line are in some cases understated by more than 10 million tons per year.⁸ And in some cases, projected merger-related tonnage increases on segments of the Springfield line are disconnected from Applicants’ own underlying traffic analysis.⁹

The fundamental problems with Applicants’ use of this modeling process include the following:

- **Use of non-representative traffic as a starting point:** Traffic snapshots from different time periods (in some cases as short as a single month) from multiple years (but not including any traffic data from 2019) were used to create Base Year 2019 tonnages in Applicants’ proposed density data. Applicants have failed to prove that the substitute data used is representative of full-year traffic for the Base Year 2019, and there is no reason to believe it is. Specifically, there is no reason to believe that the baseline data proposed by Applicants will yield an accurate segment-by-segment representation of tonnage and train counts, so as to allow the Board and OEA to accurately assess merger-specific impacts. Further adjustments described in Applicants’ May 13, 2022 filing are insufficient to remediate this concern.
- **Application of “calibration factors” is meaningless and flawed:** Applicants force-fits aggregate GTM values by using “calibration factors” to align systemwide operating metrics

⁷ CP-KCS explains calibration process in CP-KCS Amended Operating Plan, pp. 39-40.

⁸ See Exhibit 4-8 in this statement; See Appendix A.3 following statement.

⁹ See Section 5 in this statement.

for GTMs so that actual, aggregate 2019 tonnage metrics match Applicants’ proposed density data submissions on a systemwide basis. This “calibration” is a meaningless scaling exercise designed only to make aggregate metrics match (by definition, since the scaling factor is specifically derived to force numbers to match). At the same time, train counts and yard activity measures are not “calibrated” in any way, and one is left to assume that those metrics represent some amalgam of the October 2020 and early 2021 traffic levels upon which they are based. Significant differences on a line segment and yard location basis still exist between Applicants’ proposed “base year” data submissions and the actual 2019 numbers for GTMs, trains, and car handlings.

- **Fractured modeling process:** Applicants’ proposed density data tonnages are not the outputs of a coherent MultiRail-based planning process as implied by Applicants. Instead, they are the product of a fractured and highly convoluted process that used values from a variety of independent sources, altered through the use of various “calibration” factors, making it impossible to produce reliable, consistent results. Application of the “adjustments” proposed in Applicants’ May 13, 2022 filing do not correct the impact of these deficiencies. Direct inspection of the proposed base year values and post-transaction values reveal a variety of inconsistencies and suspicious results that can only lead one to conclude that those values are unreliable. Deeper analysis of the pre- and post-transaction values and modeling methods only confirms these suspicions.¹⁰
- **Projections of post-transaction tonnages are invalid and cannot be relied on:** Since the OEA Base Year 2019 values are unreliable, and Applicants have introduced significant methodological errors, projections of post-transaction tonnages also are invalid and cannot be relied on. I demonstrated the flaws in the post-transaction tonnages in my first Verified Statement,¹¹ and further expand on the unreliable nature of these values below. Applicants’ adjustments made to the “Base Year 2019 modeled tonnages” or post-transaction tonnages do not change my conclusion with regard to these projections.

¹⁰ See Sections 4 and 5 in this statement; See Appendix A following statement.

¹¹ Van Dyke First Verified Statement, Sections 5.1 and 6.1.

The evidence and logic to support these findings are presented herein. I also briefly describe the updates to CN's Responsive Application's operating plan, which are included in a separately filed amended operating plan for the Springfield line.¹²

3. Applicants' Base Year Operating Plan is Based on Traffic Density Data that is Conceptually Flawed and Demonstrably Incorrect

In their original Notice of Intent to File Application filed on March 22, 2021, Applicants selected 2019 as the Base Year for purposes of this control proceeding.¹³ In *Decision No. 3*, the Board adopted Applicants' choice.¹⁴ Thereafter, in an Amended Notice of Intent filed on September 15, 2021, Applicants again designated 2019 as the Base Year, stating that "[it] remains the last full year unaffected by the COVID pandemic for which data are available."¹⁵ Having made – and reaffirmed – their choice of Base Year, it was incumbent on Applicants to present an operating plan and segment-specific line density data that accurately portray CP's and KCS's 2019 traffic and operations.

Applicants did, in fact, base their traffic diversion studies, cost evidence, and financial exhibits set forth in the Application on CP's and KCS's Base Year (2019) data.¹⁶ However,

¹² STB Finance Docket No. 36500 (Sub-No. 3), Canadian National Railway Company and Illinois Central Railroad Company—Control—Gateway Eastern Railway Company, Amended Operating Plan, June 9, 2022.

¹³ STB Docket No. FD 36500, Canadian Pacific Railway Ltd. – Control – Kansas City Southern, et al, Notice of Intent to File Application for Approval of Transaction Subject to 49 U.S.C. §§ 11323-25, Mar. 22, 2021, p. 1.

¹⁴ STB Docket No. FD 36500, Canadian Pacific Railway Ltd. – Control – Kansas City Southern, et al, Decision No. 3, April 21, 2021, p. 3. ("Applicants indicate that they will use 2019 as the base year for the impact analysis in the application.")

¹⁵ STB Docket No. FD 36500, Canadian Pacific Railway Ltd. – Control – Kansas City Southern, et al, Amended Notice of Intent to File Application for Approval of Transaction Subject to 49 U.S.C. §§ 11323-25, September 15, 2021, p. 3.

¹⁶ See, e.g., Verified Statement of Brown/Zebrowski from CP-KCS Application, Vol. 2, footnote 1. ("The Board has made 2015-2019 CWS data available for this proceeding. We rely on 2019 data for measuring representative traffic patterns because it is the most recent period of full-year data available in both traffic tape data and CWS data sources, which are analyzed together in our work"; Verified Statement of Bengt Muten from CP-KCS Application,

neither the Operating Plan filed as part of the Application on October 29, 2021 nor the Amended Operating Plan filed on May 13, 2022 is based on Applicants' actual 2019 traffic. Rather, Applicants' Amended Operating Plan was prepared using CP and KCS traffic for the following time periods:

- CP and KCS non-unit train traffic from a single month, October 2020¹⁷
- CP unit train traffic from March-June 2021¹⁸
- KCS unit train traffic from February-May, 2021¹⁹
- Non-unit train service plans in effect on CP and KCS during the first quarter of 2021²⁰

Based on the description provided by Applicants, the non-unit train service plan was adjusted to match the October 2020 traffic,²¹ while the 2021 unit trains were used “as is.” It is noteworthy that the data used by Applicants to construct a “2019 base year” does not actually include *any* data from 2019. To develop Base Year traffic density values for use in their Amended Operating Plan and Exhibit 14, Applicants purportedly “calibrated” the traffic density data generated from these 2020-2021 data sources to make them consistent with CP’s and KCS’s actual 2019 aggregate full-year statistics.²² Specifically, Applicants adjusted the aggregate systemwide tonnages (GTMs) “modeled” by their 2020-2021-based operating plan constructed methodology to match Applicants’ *actual* aggregate systemwide GTMs from 2019. They then applied the resulting “calibration factors” by line segment to estimate 2019 Base Year tonnage and density for each segment. Applicants claim that this convoluted methodology generated line-

Vol. 2 at 3 (“In my analysis, I relied upon the truck flows that are reflected in the IHS Markit Transearch database for 2019, the intermodal flows from CP and KCS waybill data for 2019, and the 2019 STB Carload Waybill Sample.”)

¹⁷ CP-KCS Amended Operating Plan, p. 34, ¶82.

¹⁸ CP-KCS Amended Operating Plan, footnote 19, p. 37.

¹⁹ CP-KCS Amended Operating Plan, footnote 19, p. 37.

²⁰ CP-KCS Amended Operating Plan, p. 34, ¶82.

²¹ CP-KCS Amended Operating Plan, p. 34, ¶82.

²² CP-KCS Amended Operating Plan, pp. 39-40.

specific densities that “reasonably reflected [CP’s and KCS’s] pre-Transaction operations.”²³ At the same time, no such calibration was applied to the train counts or yard handlings, leaving one to assume that they represent some amalgam of 2020 and 2021 values, with no connection to 2019.

In Decision No. 17, the Board instructed Applicants and other interested parties to use the density data “modeled” by Applicants “to ensure consistency of analysis.”²⁴ However, the Board made clear that:

*“This decision should not be interpreted as a determination by the Board on the validity of the methodology used by Applicants to generate their baseline traffic density values....Parties remain free to argue that Applicants’ data and methods are inappropriate such that Applicants cannot meet their burden to show that the Transaction would be in the public interest.”*²⁵ (emphasis added)

The Board instructed Applicants to submit with their Amended Operating Plan “(2) a comprehensive explanation of how those values were generated, and (3) a comprehensive explanation of the rationale underlying those methodologies.”²⁶

As this Verified Statement and the Verified Statement of witness Makhholm show, the traffic density values set forth in Applicants’ “Master Segment Table” are based on a conceptually flawed methodology that produced density values that are inconsistent and demonstrably incorrect, and this is not consistent with the regulatory intent of adopting a “base year” for the purpose of assessing the impacts of a merger transaction to determine whether the transaction is in the public interest.

²³ CP-KCS Amended Operating Plan, p. 30, ¶72.

²⁴ STB Finance Docket No. 36500, Decision No. 17, op. cit., April, 27, 2022, p. 5.

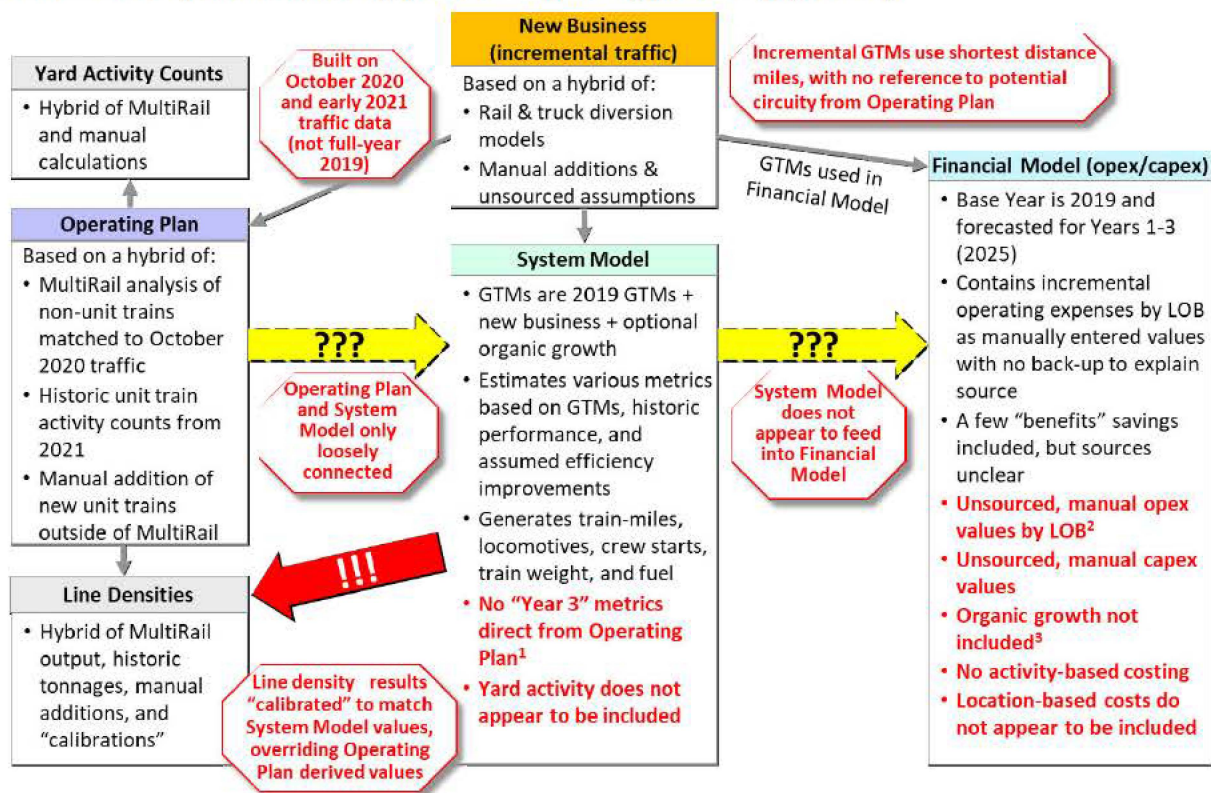
²⁵ STB Finance Docket No. 36500, Decision No. 17, op. cit., April, 27, 2022, p. 5.

²⁶ STB Finance Docket No. 36500, Decision No. 17, op. cit., April, 27, 2022, p. 5.

3.1 The methodology applied by Applicants to develop the Master Segment Table traffic density values is conceptually flawed

It is important to remember that Applicants used a complex, fractured, and fundamentally flawed approach to develop their Operating Plan and the various operating metrics. Many of the flaws in Applicants' methodology are discussed in detail in my first Verified Statement,²⁷ with significant additional details provided in Appendix A below. As a reminder of Applicants' approach, Exhibit 3-1 below depicts the logic (or illogic) flow employed by Applicants (updated from my prior Verified Statement to reflect additional understanding of the process employed).

Exhibit 3-1: Depiction of the Applicants' modeling process (updated)²⁸



Notes: 1. Except perhaps through selected "efficiency factors," such as changes in train weight or velocity. 2. While operating metrics in the System Model are not broken out by Line of Business. 3. Appears that organic growth may have been used only in the calibration of line densities.

²⁷ Van Dyke First Verified Statement, Section 4.4.

²⁸ Adapted from Van Dyke First Verified Statement, Exhibit 4-1.

Applicants continue to insist in their responses to Board *Decision No. 16* and the Amended Operating Plan filing that Applicants' proposed density data values were derived from a MultiRail analysis.²⁹ But that is simply not the case. The tonnage values used by Applicants in their proposed density data submissions are not the result of a well-structured MultiRail analysis but instead were manufactured through a complicated process based on numerous separate data sources and "calibrations" that have yielded highly suspect results.³⁰ One can see the illogic in the resulting tonnage numbers through a simple inspection of the proposed tonnage values, as detailed in subsequent sections of this Verified Statement. The ill-conceived attempt to "calibrate" Applicants' "constructed" density data to match CP, KCS, and KCSM actual aggregate 2019 values does nothing to remedy this fundamentally flawed process. Nor do other "adjustments" in Applicants' Amended Operating Plan result in base year data that is anywhere close to Applicants' actual 2019 traffic flows on a segment by segment and yard by yard basis.

Further, this process has been made even more complex for post-transaction values in the Amended Operating Plan, while carrying forward all of the flaws present in the original filing. The result is that in addition to suspect base year values, post-transaction tonnage values are equally invalid, if not even less accurate, than base year values.

Detailed, step by step, logic flows for both pre- and post-transaction calculations of segment-by-segment tonnages are provided in Appendix A. This includes examples of how these calculations were applied to specific line segments and a more detailed exploration of the resulting errors for selected line segments.

²⁹ See STB Finance Docket No. 36500, Applicants' Response to Decision No. 16, pp. 5-6, ¶¶8-9; CP-KCS Amended Operating Plan, pp. 30, 37, 57.

³⁰ Van Dyke First Verified Statement, Sections 4.1 and 4.3; See Sections 4 and 5 in this statement; See Appendix A following statement.

As witness Makhholm explains, Applicants’ attempt to “model” CP and KCS base year traffic densities is inconsistent with the regulatory purpose for adopting a “base year,” since Applicants use partial year extracts of data from multiple years, none of which is 2019.³¹ The result is a “model” that does not properly consider the impacts of seasonality, nor the normal “month to month” variability in traffic that can occur in specific portions of the network for a variety of reasons (demand patterns, operational reasons, labor issues, temporary plant closures, weather, etc.). Scaling samples from short time periods to full-year figures necessarily replicates – and augments – the impact of these variations which, even if small in the aggregate, can be substantial on a segment-by-segment, commodity-by-commodity basis.

Moreover, as my prior testimony shows,³² Applicants’ “calibration” methodology – which is simply an aggregate scaling of the “baseline” data to match CP’s and KCS’s respective systemwide traffic GTMs for the time periods used in their analysis – is simply not capable of producing accurate and reliable segment-specific density values. By applying the same network-wide “calibration factors” to adjust the line densities on each individual line segment on CP’s and KCS’s networks, Applicants are assuming that the percentage difference between the “modeled” (and uncalibrated) line densities and the actual line densities is the same for every segment of the network. To understand this, consider Exhibit 3-2:

Exhibit 3-2: Example of applying uniform calibration factors to equal proportional errors

Line Segment	A: Segment Mileage	B: Historic Tonnage	C: Uncalibrated “Model” Tonnage	D: Percent Difference	E: Calibration Factor	F: Calibrated “Model” Tonnage
Segment A	40	10	12.5	25%	0.8	10
Segment B	30	15	18.75	25%	0.8	15
Segment C	20	20	25	25%	0.8	20

³¹ STB Finance Docket No. 36500, CN’s Comments on Application and Request for Conditions, June 9, 2022, Verified Statement of Jeff Makhholm – hereinafter “Makhholm Verified Statement”, p. 4

³² STB Finance Docket No. 36500, CN’s Comments on Application and Request for Conditions, March 28, 2022, Verified Statement of Carl Van Dyke – hereinafter “Van Dyke Second Verified Statement”, Section 3.2.

Under Applicants' approach, the calibration factor is determined by computing GTMs associated with columns B and C and taking the ratio of the two. In the above example, B yields 1,250 GTMs and C yields 1,562.5 GTMs, giving us a calibration factor of 1250/1562.5 or 0.8. Now let us consider a case where the differences between the historic tonnage and uncalibrated model tonnage are not proportional, as shown in Exhibit 3-3:

Exhibit 3-3: Example of applying uniform calibration factors to unequal proportional errors

Line Segment	A: Segment Mileage	B: Historic Tonnage	C: Uncalibrated "Model" Tonnage	D: Percent Difference	E: Calibration Factor	F: Calibrated "Model" Tonnage
Segment A	40	10	15	50%	0.8	12
Segment B	30	15	18.75	25%	0.8	15
Segment C	20	20	20	0%	0.8	16

In the above example, the calibration factor remains the same, as the historic values are unchanged, and the uncalibrated model tonnage yields the same total number of GTMs when summed across all segments. However, the percentage differences (Column D) are very different, and the resulting "calibrated" tonnages no longer correspond to historic values, with an overestimate on Segment A and an underestimate on Segment C.

The above example demonstrates both the nature of CP-KCS's calibration process, and how this calibration process does nothing to mitigate fundamental errors in the modeling process.³³ Accordingly, Applicants' methodology cannot yield accurate traffic density values at a line segment level, which is essential to the primary purpose of the operating plan. Furthermore, based on my review of the CP-KCS Application, Amended Operating Plan, and work papers,

³³ To further highlight how this is problematic, consider a scenario where the base traffic in the sample month in a specific location is lower than expected *for a specific reason in one location* (e.g., labor action impacting a major shipper, or renovations being made at a plant). Logically, one would expect that once that factor subsides (e.g., the labor action is over), overall traffic levels will return to what they would have otherwise been, due to an *increase in traffic in that specific location*. However, the use of an aggregate scaling such as the one proposed by Applicants would instead force an increase in *all other segments* to make aggregate figures match, while *keeping that specific location depressed*. Clearly, the methodology will yield unreasonable results on a location-by-location basis.

Applicants made no effort to “calibrate” train counts or yard activity measures to in any way correspond to 2019 (not even at an aggregate level) – meaning that the trains and yard activity values in their Amended Operating Plan represent only a mix of October 2020 and early 2021 values, not 2019 values.

In the end, the accuracy of base year data matters because that data is critical to quantifying the impacts of a merger, including operating plan details, capital planning, capacity requirements, labor implications, environmental impact, and financial projections. If one or more elements of base year data are not reliable, the Board and interested parties lose the ability to accurately assess the effects of the merger. Particularly, the fact that the Applicants’ constructed Base Year 2019 does not correspond to *any* single time period (and certainly not 2019) impedes a reliable assessment of the merger’s impacts.

3.2 Applicants’ rationale for applying their convoluted approach to developing Base Year traffic densities are meritless

Despite 2019 being accepted as the Base Year by the Board based on the pre-filing notice of CP-KCS, the Applicants elected to walk away from actual 2019 data in their development of the post-transaction Operating Plan. They provide a number of rationalizations for doing so in their Amended Application, with the primary statement being as follows:

“We concluded that it would not be reasonable to use traffic data from 2019 to represent Base Plan operations because of the changes in traffic flows and operational design between 2019 and early 2021, which would have resulted in a mismatch that undermined the reliability of the Base Plan as a reflection of pre-Transaction conditions.”³⁴

Applicants then try to further justify this decision by citing various traffic and operational changes that occurred post-2019, such as the loss by CP of intermodal contracts, the acquisition

³⁴ CP-KCS Amended Operating Plan, p. 33, ¶79.

of the Central Maine & Quebec, and the reduction of coal traffic on KCS.³⁵ A review of the examples cited show that with the exception of a power plant closure on KCS, none of these changes would have any meaningful impact on the CP-KCS transaction and merger-related traffic movements. Surely, Applicants could have simply removed the coal traffic for the one impacted power plant, and otherwise used the 2019 traffic “as is” from a merger assessment perspective. At the same time, they dismiss the relevance of the shutdown of the Port of Lazaro Cardenas during their selected month of October 2020 for intermodal traffic as only impacting Mexico.³⁶ Given the plans for new traffic at Lazaro Cardenas, and the potential for congestion at the port or on the lines within Mexico, with a chance of spillover effects into the US, the failure to include this traffic would seem much more material to the merger than the loss of some CP intermodal traffic that does not in any way intersect with the KCS network, or CP’s acquisition of a rail line serving Quebec and the State of Maine. Furthermore, a permanent loss of traffic would tend to free up capacity, causing its overstatement to yield a more conservative assessment of the merger operating plan, while the omission of key traffic that is expected to recover would tend to overstate available capacity and mask the true impacts of traffic increases.

Based on 40 years of modeling railroad operations, I have learned that no period of time is perfect. Every year contains “anomalies,” such as work stoppages, plant openings or closings, weather issues, changing economic conditions, etc. One can work around these issues by making targeted adjustments, or perhaps simply making note of the issues in the description of the results. However, the fact is that Applicants adopted 2019 as their Base Year. If 2019 was an inappropriate period of time to use, then they could have – and should have -- proposed a different base year. Applicants cannot unilaterally walk away from the base year that they

³⁵ CP-KCS Amended Operating Plan, p. 33, ¶80.

³⁶ CP-KCS Amended Operating Plan, pp. 34-35, ¶83.

selected, use an amalgam of data from different time periods in multiple other years to build the operating plan, and then attempt to bury the details in the work papers while continuing to claim that 2019 was used as the base year. I see no reason, based on my professional experience, that Applicants could not have used the agreed upon base year, adjusting their 2021 blocking and train service plan to match the 2019 traffic, including perhaps adjusting this traffic in strategic ways to reflect the most significant differences, if any.

At the same time, Applicants state that one cannot rely on the tonnage values they collected in the normal course of business for two primary reasons: 1) these tonnages include locomotives, and 2) there were anomalous measurement practices on KCS resulting in distorted (primarily overstated) tonnage values.³⁷ As explained in Section 4.2 of this Verified Statement, the first issue could have been easily resolved by using publicly available data regarding CP and KCS tonnages with (or without) locomotive tons. While we understand that there may have been some over or under statement of tonnages on some KCS line segments due to internal data collection processes, we do not believe these defects were so serious as to prevent the historic tonnages from being used to validate the base year line densities.

3.2.1 Applicants' approach is not comparable to prior merger approaches

Applicants attempt to portray the methodologies underlying their Amended Operating Plan as being equivalent to those used in prior mergers.³⁸ Nothing could be further from the truth. Specifically, Applicants' (incorrectly) claim that the approach that they used was also used by applicants in several prior Class I merger proceedings:

See, e.g., CN/IC, Finance Docket No. 33556, Application Vol. 2 (CN/IC-7), Operating Plan (Exhibit 13) (filed July 16, 1998) at 127 ("Operating Plan was constructed using 1996 as the base traffic year;" "To provide as accurate an indication of current operating patterns as possible, CN and IC used freight train operations and other daily

³⁷ CP-KCS Amended Operating Plan, pp. 31, 35.

³⁸ CP-KCS Amended Operating Plan, p. 32.

operating data for the first quarter of 1998.”); *UP/SP*, Finance Docket No. 32760, Application Vol. 3 (UP/SP-24), Operating Plan (Exhibit 13) (filed Nov. 30, 1995) (Operating Plan built “using 1994 traffic levels;” “To provide as accurate an indication of operating patterns as possible, UP and SP planners identified freight train schedules and other operating data for the most recent period during 1995 for which this information was available when planning began.”); *BN/Santa Fe*, Finance Docket No. 32549, Application Vol. II (BN/SF-8), Operating Plan (Exhibit 13) (filed Oct. 1994) at 7 (traffic study used 1993 as base year, operating plan used “terminal blocking and train schedules ... in effect in mid 1994”).³⁹

I was personally involved in developing the operating plans submitted in both the CN/IC merger and the UP/SP merger.⁴⁰ While the operating plans in those cases did not rely entirely on the train service plan from the designated “base year,” there are several very important (and meaningful) distinctions between the approach taken in those mergers and the methodologies employed by Applicants in this proceeding:

- First, and most importantly, the traffic data that was used to develop the operating plan in both the CN/IC and UP/SP mergers was the applicants’ actual real-world traffic for the chosen base year, not an amalgam of sample time periods taken from other years.⁴¹ (Based upon the language from Applicants’ Amended Operating Plan quoted above, that also appears to have been the case in the BN/SF proceeding as well).
- The non-unit train operating plans in both CN/IC and UP/SP were adjusted to match the actual base year traffic.⁴² In other words, the train counts, yard activity levels, and tonnages in the operating plans submitted in those cases reflected the actual base year, not some other time period(s).
- In both CN/IC and UP/SP, the operating plan was based on a full year of traffic in order to average out seasonal effects and to capture the full breadth of operations throughout the year.⁴³

³⁹ CP-KCS Amended Operating Plan, see footnote 10, p. 32.

⁴⁰ I cannot speak to the details of the BN/Santa Fe merger filing.

⁴¹ *CN/IC*, Finance Docket No. 33556, Application Vol. 2 (CN/IC-7), *UP/SP*, Finance Docket No. 32760, Application Vol. 3 (UP/SP-24)

⁴² *CN/IC*, Finance Docket No. 33556, Application Vol. 2 (CN/IC-7), *UP/SP*, Finance Docket No. 32760, Application Vol. 3 (UP/SP-24)

⁴³ *CN/IC*, Finance Docket No. 33556, Application Vol. 2 (CN/IC-7), *UP/SP*, Finance Docket No. 32760, Application Vol. 3 (UP/SP-24)

- In both CN/IC and UP/SP, unit trains included in the base year operating plan were based on the actual unit train movements observed in the full-year, base year traffic.⁴⁴ There, was no reason to adopt unit trains from other time periods, when the actual historic unit train movements could be directly identified through the analysis of the base year waybills. The same is true for the CP-KCS merger, where full year 2019 waybill data was available.

Finally, as stated in my first Verified Statement, at least in the case of CN/IC and NS/Conrail, the actual base year train counts and system metrics were used to inform the capital planning process and to drive the financial analysis of the pre- and post-transaction scenarios.⁴⁵ No such relationship exists in the CP-KCS Application.

In short, the only element that Applicants' operating plan has in common with those presented in prior merger cases is the use of a blocking and/or train plan from an alternate time period as the starting point for developing the non-unit train operating plan. Here, Applicants decided to adjust their 2021 non-unit train plans to match their October 2020 traffic⁴⁶; it would have been no more difficult to match the full-year 2019 traffic instead. Moreover, because Applicants used a sample of unit trains from 2021 and did not even look at the actual unit train traffic at an O-D level for 2021 or compare it with actual 2019 unit train traffic and make appropriate adjustments⁴⁷, there is truly no analytic connection between Applicants' unit trains and the 2019 Base Year.

In conclusion, as a result of methodologically flawed "calibrations" applied by Applicants, the Amended Operating Plan is disconnected from any specific and identifiable Base Year and certainly is not based on CP's and KCS's actual 2019 experience. Both the original operating

⁴⁴ CN/IC, Finance Docket No. 33556, Application Vol. 2 (CN/IC-7), UP/SP, Finance Docket No. 32760, Application Vol. 3 (UP/SP-24)

⁴⁵ Van Dyke First Verified Statement, Sections 3 and 4.

⁴⁶ CP-KCS Amended Operating Plan, pp. 30, 34.

⁴⁷ CP-KCS Amended Operating Plan, pp. 30, 37.

plan submitted by Applicants and their more recent Amended Operating Plan are based on methodologies that render them unsuitable as a basis for assessing the impacts of the proposed merger on communities, customers, other railroads, and other interested parties, on a geographically specific, line-by-line basis.

The confusion related to the interpretation of Applicants' operating plan data, inconsistent data, and the requirement to file an amended operating plan are a direct result of the complex and convoluted approach Applicants took in developing their post-merger operating plan. If Applicants had taken the straightforward approach of using full-year 2019 traffic, including unit trains, within MultiRail, and producing all of their key line and yard metrics using MultiRail, none of the issues Applicants now confront would have arisen.

Applicants' need to disavow their historic tonnage values collected in the ordinary course of business is also a direct result of the flawed modeling approach they adopted. Surely, the issue of inclusion of locomotives in these values could have been addressed through appropriate adjustments, as I have set forth in this Verified Statement.⁴⁸ Based on the statistics published by the AAR, it is clear that KCS and CP know the amount of GTMs their locomotives generate separate from railcars.⁴⁹ The "disavowal" of their own corporate statistics by Applicants is again a direct result of the incompatibility of their Base Year models with the actual operations and traffic for 2019.

In short, the confusion, errors, and computational complexity associated with the Applicants' post-merger operating plan is a mess of their own making.

⁴⁸ See Section 4.2. in this statement.

⁴⁹ See Exhibit 4-6 in this statement.

4. Applicants' Base Year Tonnage and Train Counts Cannot be Validated Due To the Methodology Used

The Board, OEA, and interested parties must be able to validate that the operating plan and associated activity measures fairly and accurately represent both pre- and post-transaction conditions. This is required to ensure that communities, customers, other railroads, and other parties affected by the proposed merger can correctly assess the feasibility and impacts of the transaction on the environment, safety, service levels, congestion, and other metrics of interest.

As I described in the previous section, the approach taken by Applicants makes complete validation of their Base Year traffic densities impossible. Applicants disavow the real-world tonnage values set forth in their original Exhibit 14 and essentially ask the Board (and interested parties) to trust that the tonnage figures generated by their convoluted methodology provide an accurate reference point for assessing the merger.⁵⁰

As an initial matter, Applicants did not include in their work papers the waybill data for the periods in 2021 associated with the unit trains they used, so the record contains no method or data to validate that the unit train tonnages or counts used by Applicants accurately reflect early 2021 unit train traffic levels, or to explain how the underlying traffic levels from 2021 compare to 2019 Base Year values.

Nonetheless, I have attempted to validate Applicants' traffic density values, and to the extent possible, train counts. As described below, the tonnage values produced by Applicants' "calibration" methodology are dramatically inaccurate in multiple cases, supporting a conclusion that those density values – and Applicants' Amended Operating Plan – are simply not reliable.

⁵⁰ CP-KCS Amended Operating Plan, pp. 33-34.

4.1 Base Year (pre-transaction) reported tonnages are erroneous based on direct inspection of actual 2019 tonnage values

Based on my review of Applicants' traffic density methodology, Applicants did not use their selected 2020-2021 traffic to project tonnages by line segment. Instead, they appear to have projected trains by line segment, and then applied externally developed average train weights by segment to arrive at estimated tonnage values for each segment. Those values were then "calibrated" through Applicants' methodology to generate the segment-specific density values set forth in their Master Segment Table.⁵¹

The result of this convoluted modeling approach is a set of train weights (and resulting densities) that vary dramatically between adjacent line segments, even where trains appear to traverse those line segments without stopping to pick up or set off cars. Under Applicants' approach, no distinction was made between different types of trains or the effects of changing train frequency on average train weight. The significant anomalies created by this approach are readily apparent in the Base Year tonnage values upon which Applicants' Amended Operating Plan is based.

Exhibit 4-1 below illustrates this issue for the KCS mainline between Beaumont, TX and Robstown, TX:

⁵¹ See Appendix A below for details of methodology applied by Applicants.

Exhibit 4-1: Beaumont to Robstown train counts, tonnages, and average train weights

Subdivision	Line Segment	Applicants' Base Daily Train Count ⁵²	Applicants' Calibrated Base Year Tonnage (millions) ⁵³	Average Train Weight ⁵⁴	Adjusted 2019 Historic Tonnage ⁵⁵
Beaumont to Rosenberg	Beaumont, TX – Rosenberg, TX ⁵⁶	8.47	{{ }}	{{ }}	27.92
Rosenberg	Rosenberg, TX - Kendleton, TX	8.39	26.32	8,595	26.23
Rosenberg	Kendleton, TX – Victoria, TX	8.70	27.28	8,591	24.08
Victoria to Robstown	Victoria, TX – Placedo, TX (UP)	7.94	16.45	5,676	23.89
Victoria to Robstown	Placedo, TX – Robstown, TX (UP)	7.94	16.45	5,676	23.90
	Maximum Value	8.70	27.28	8,595	27.92
	Minimum Value ⁵⁷	7.94	16.45	5,676	23.89
	Percent Difference (Min. to Max.)	10%	66%	51%	17%

While the train count remains fairly consistent over the segments of this line, the annual total tonnage varies dramatically between segments, from a low of 16.5 million tons (with an average train weight of 5,676 tons) to a high of 27.3 million tons (with an average train weight of 8,591 tons). Comparing the inconsistent tonnage values generated by Applicants' methodology with the adjusted historic tonnages (and comparatively low variability in tonnages) in the far

⁵² CP-KCS Amended Operating Plan, Appendix T, p. 10.

⁵³ CP-KCS Amended Operating Plan, Appendix T, p. 11; Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx for Beaumont – Rosenberg segment.

⁵⁴ Calculated by annual tonnage / (daily train count * 365 days); See work paper for this statement "HC - Segment Tonnage Comparison – Applicant Submitted vs. Historical.xlsx" for more detail.

⁵⁵ The Adjustment is introduced to exclude locomotives from the tonnage reported in Exhibit 14 "Part A", based on the historical portion of GTMs corresponding to locomotives for KCS (as reported in the Analysis of Class I Railroads). See Exhibit 4-6 in this Statement for further details on this calculation. An analogous calculation is used to adjust tonnages for CP where appropriate. This adjustment was made by Oliver Wyman.

⁵⁶ For the Beaumont to Rosenberg subdivision, the Applicants' Amended Operating Plan shows there being one segment labeled "BEAUMONT TO ROSENBERG" in Appendix T with a significantly low 2.59 million annual tonnage. In the accompanying work paper, 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx, there are two segments for this subdivision labeled {} and {}

of which have different density values. We gave the benefit of the doubt and assumed the {} segment displayed the correct tonnage of {} based on the density values of the adjacent segments.

⁵⁷ Minimum value excludes the potentially erroneous Beaumont – Rosenberg segment.

right column, it is apparent that the Applicants' proposed tonnages are almost certainly wrong, particularly for the two UP line segments.

Applicants provide an estimate of the number of cars traversing each line in their work papers (and shown in Exhibit 4-2).⁵⁸ The car count is clearly fairly consistent over this line. If one takes this car count and multiplies it by an estimated average gross weight per car of 75 tons,⁵⁹ one can develop an independent estimate of the base tons for each line segment, as shown in Exhibit 4-2:

Exhibit 4-2: Beaumont to Robstown daily car counts and estimated annual tonnage

Line Segment	Non-Unit Train Daily Cars ⁶⁰	Unit Train Daily Cars ⁶¹	Total Daily Cars ⁶²	Annual Tonnage at 75 tons/car (millions)	Applicants' Calibrated Base Year Tonnage (millions)
Beaumont, TX – Rosenberg, TX	{ }	{ }	{ }	{ }	{ }
Rosenberg, TX - Kendleton, TX	{ }	{ }	1,015.2	27.8	26.32
Kendleton, TX – Victoria, TX	{ }	{ }	1,080.4	29.6	27.28
Victoria, TX – Placedo, TX (UP)	{ }	{ }	985.3	27.0	16.45
Placedo, TX - Robstown, TX (UP)	{ }	{ }	985.3	27.0	16.45

This cross-check creates values that are fairly consistent with the Rosenberg-Kendleton and Kendleton-Victoria segment tonnages as reported by Applicants and reinforces that the tonnage on the other three segments are likely underestimated by at least 10 million annual tons. Note that reducing the assumed average gross weight to 60 tons per car still yields an annual tonnage

⁵⁸ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

⁵⁹ Testing a wide set of assumptions about empty/loaded ratios and loaded and empty gross weights leads me to conclude that 75 gross tons per car is a conservative estimate. For example, assuming an equal loaded/empty ratio for grain yields something like 30 tons empty and 130 tons loaded, or 80 tons per car. CP for example uses 110 tons for a loaded intermodal car and 60 tons for an empty, and assumes about 25% of the cars are empty, yielding an average weight of 97.5 tons. Multilevels counterbalance this somewhat, perhaps weighing 50 tons empty, 70 tons loaded, with an average of 60 tons, assuming a 50/50 split of loaded to empty (higher if you assume more loads than empties).

⁶⁰ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

⁶¹ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

⁶² CP-KCS Amended Operating Plan, Appendix T, p. 12, elicited daily carloads by dividing annual carloads by 365 days; Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx for the Beaumont – Rosenberg segment.

on segments through Placedo of 21.6 million tons, representing 5 million tons under-reported. (It should be noted that 60 tons per car represents a very low estimate that is unlikely, in my opinion, to be the case in reality.)

The unreliable nature of Applicants' traffic density data is likewise apparent with respect to other segments of the proposed CPKC network. Exhibit 4-3 provides additional examples of line segments where large variations in train weight appear to drive differences in tonnage that may not be aligned with reality.

Exhibit 4-3: Examples of Tonnage Variations Caused By Suspect Train Weights

Subdivision	Line Segment	Applicants' Base Daily Train Count ⁶³	Applicants' Calibrated Base Year Tonnage (millions) ⁶⁴	Average Train Weight ⁶⁵	Adjusted 2019 Historic Tonnage ⁶⁶
Marquette	Bluff, MN - MN/IA Marquette, IA	7.66	13.05	7,672	18.82
Marquette	MN/IA Marquette, IA - Marquette, IA	4.66	16.37	9,624	18.84
Ottumwa	Nahant, IA – Muscatine, IA	6.09	13.31	5,988	14.02
Ottumwa	Muscatine, IA – Ottumwa, IA	4.30	14.77	9,411	16.06
Laredo	Ottumwa, IA - MO/IA Laredo, MO	3.17	10.37	8,962	11.51
Laredo	MO/IA Laredo, MO - Laredo, MO	3.17	10.37	8,962	11.46
Kansas City North	Laredo, MO - Polo, MO	3.74	12.36	9,054	11.46
Kansas City	Polo, MO Airline Jct, MO	3.62	10.49	7,939	11.22
Mexico	Slater, MO - Mexico, MO	1.85	4.28	6,338	8.19
Roodhouse	Mexico, MO - Roodhouse, IL	2.12	4.02	5,195	6.19
Springfield	Roodhouse, IL - Murrayville, IL	0.78	1.00	3,512	2.87
Jacksonville	Murrayville, IL - Jacksonville, IL	0.73	1.33	4,992	2.85
Godfrey	Roodhouse, IL - Godfrey, IL	1.57	1.05	1,832	3.55
East St Louis Term	Godfrey, IL - East St Louis, IL	3.71	6.84	5,051	5.10
Pittsburg	Pittsburg, KS - Kansas City, MO	15.14	36.81	6,661	47.67
Heavener	Watts, OK - Pittsburg, KS	14.14	41.89	8,116	37.92
Artesia	Tupelo, MS – Corinth, MS	1.71	3.26	5,223	2.68
Counce Branch	Corinth, MS – Sharps, MS	4.29	1.71	1,092	2.10

⁶³ CP-KCS Amended Operating Plan, Appendix T, pp. 2, 6, 10.

⁶⁴ CP-KCS Amended Operating Plan, Appendix T, pp. 3, 7, 11.

⁶⁵ Calculated by annual tonnage / (daily train count * 365 days); See work paper for this statement "Segment Tonnage Comparison – Applicant Submitted vs. Historical.xlsx" for more detail.

⁶⁶ CP-KCS Amended Operating Plan, Amended Exhibit 14, pp. 37, 39. Tonnages adjusted by Oliver Wyman to exclude the weight of locomotives for KCS, a calculation explained in Exhibit 4-6.

As a further example of using car counts as a cross check, Applicants report 625.5 cars per day on both segments of the Marquette subdivision, which at 75 tons per car would yield 17.1 million tons per year. Likewise, the Godfrey subdivision is reported to have 119.2 cars per day, while the Godfrey to East St. Louis segment is reported to have 120.1 cars per day. At 75 tons per car, 120 cars per day would yield 3.3 million tons per year, which compares favorably to the historic tonnage on the Godfrey subdivision, but not the East St. Louis Terminal subdivision . Based on this, one can only conclude one of the following: (a) the estimated car counts are wrong, (b) some combination of the train counts and average train weights are wrong, or (c) all of the above.

4.2 If Applicants’ methodology were sound, the segment-specific density data underlying the Amended Operating Plan should correlate to Applicants’ actual 2019 traffic, but it does not

If, as Applicants claim, their methodology produced traffic densities that “reasonably reflect pre-Transaction operations,”⁶⁷ one would expect that the segment-specific tonnage values and train counts in the Amended Operating Plan would reflect CP’s and KCS’s actual experience in 2019. However, because Applicants used a list of unit trains from early 2021, estimated the tonnage for those trains through a convoluted process not directly tied to the traffic they carried, and used non-unit trains matched to traffic from October 2020,⁶⁸ the connection to 2019 on a segment-specific basis is essentially nonexistent. This flaw in Applicants’ methodology was further exacerbated by their reliance on externally sourced average train weights instead of the actual tonnage for non-unit traffic that moved over their networks during October 2020.

⁶⁷ CP-KCS Amended Operating Plan, p. 30, ¶ 72.

⁶⁸ Because Applicants matched their non-unit train operating plan to October 2020 and made no “calibration” adjustments with respect to 2019, I can only conclude that the train counts are reflective not of 2019 but of October 2020.

Moreover, in a flawed attempt to develop tonnage estimates for individual line segments, Applicants simply applied to each segment within each merging railroad the same “calibration factor” that they used to make aggregate systemwide GTMs in the Amended Operating Plan model match the total systemwide GTMs of each of the merging railroads during 2019.⁶⁹ This process necessarily assumed that the percentage difference between the tonnage that moved during the time periods (in 2020 and 2021) that Applicants used in their Amended Operating Plan for each merging railroad and the tonnage that actually moved over each railroad’s lines during 2019 was *the same for every segment on CP and KCS, respectively!*

To test this (dubious) hypothesis, it is useful to benchmark the tonnage figures generated by Applicants’ methodology against their actual 2019 experience. Applicants’ actual Base Year tonnage values (while somewhat imperfect, as are most data sets) are the best available source of information for benchmarking purposes.⁷⁰ Another way to test the validity of Applicants’ traffic densities is to compare them with Applicants’ full year 2019 waybill data. As I demonstrate below, neither October 2020 nor early 2021 provide a representative view of 2019 traffic volumes, and the differences between Applicants’ “calibrated” density values and their 2019 real-world line densities are significant. Based on my analysis, it is fair to question the accuracy of the Base Year traffic densities presented in the Amended Operating Plan.

In my first Verified Statement, I demonstrated that October 2020 is not a representative period for non-unit train traffic⁷¹ as detailed in Exhibit 4-4.

⁶⁹ CP-KCS Amended Operating Plan, pp. 39-40.

⁷⁰ Applicants could have simply used the full year 2019 traffic data for both unit and non-unit traffic, eliminating the need for their convoluted modeling process.

⁷¹ Van Dyke First Verified Statement, Sections 5.2 and 6.3.1.

Exhibit 4-4: Examples of impacts from Applicants using non-representative traffic data

Traffic Type	Description	Impact
Intermodal	Due to a blockade by striking teachers, the Port of Lazaro Cardenas was effectively closed during October 2020	Applicants base period is missing about { } annual loaded northbound container moves, which would cause on the order of { } annual gross tons to not be included in the Mexican density data ⁷²
Carload	Fewer boxcar loadings on KCS/KCSM in October 2020 (when annualized) than observed for full year 2019	11% under-representation of loaded boxcar moves ⁷³
Automotive	Fewer multilevel loadings on KCS/KCSM in October 2020 (when annualized) than observed for full year 2019	13% under-representation of loaded multilevel moves ⁷⁴
Automotive	O-D patterns for multilevel traffic in October 2020 do not correspond to full year 2019 traffic patterns	Gains and losses of thousands of cars per year at an O-D by O-D level ⁷⁵

I also examined the unit train data for several segments, including oil trains over the CP line from Sabula, Iowa to Airline Junction, Missouri;

KCS { } trains to/from { }, and KCS { } trains to/from the { } on the Greenville subdivision in Texas. I have reviewed the revised unit train details provided in the work papers for Applicants' Amended Operating Plan,⁷⁶ and have updated my analysis of those three cases accordingly. The results are summarized in Exhibit 4-5 below.

Exhibit 4-5: Examples of impacts from Applicants using non-representative traffic data

Traffic Type	Description	Impact ⁷⁷
Unit Train	Only a fraction of unit crude oil trains are included in the train counts for the Sabula, Iowa to Airline Junction, Missouri line, even though significant numbers moved in 2019	Instead of the 2019 average of { } oil trains/month on the Davenport-Ottumwa line, the Applicants' Base Year values only reflect about { } oil trains/month, causing just under { } annual gross tons not to be included in the Applicants' density data for this line

⁷² Van Dyke First Verified Statement, Section 5.2.

⁷³ Van Dyke First Verified Statement, Section 6.3.1.

⁷⁴ Van Dyke First Verified Statement, Section 6.3.1.

⁷⁵ Van Dyke First Verified Statement, Section 6.3.1.

⁷⁶ Work paper 24.1.1.3.11-TPD Bulk Base CP.xlsx; Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx.

⁷⁷ See Appendix B for further details of the impact described.

Traffic Type	Description	Impact ⁷⁷
Unit Train	Minimal unit { } trains moved between { } and Mexico in the KCS unit train “snapshot” and were thus not represented in the Applicants’ base values	Caused on the order of { } annual gross tons not to be included in the Applicants’ density data on the Springfield line, and possibly on the entire route from { } to Laredo, TX and beyond
Unit Train	Underreporting of unit trains to/from the { } on the Greenville subdivision between Shreveport and Wylie	{ } trains traveling to/from { } are undervalued by { } trains a month, causing just over { } annual gross tons not to be included in the Applicants’ density data on the Greenville subdivision. This underreporting may extend as far north as Kansas City

The overall impact of the issues cited in Exhibit 4-5 is likely under reporting by millions of gross tons – for the studied CP and KCS mainline segments, and a corresponding underestimate of Base Year train counts. See Appendix B for further details of the unit train analysis presented above.

Turning to the comparison of the tonnage values by line segment in the Amended Operating Plan and work papers with Applicants’ real world experience, we can observe anomalous values on many lines. Many of these differences are too large in terms of both size of the differences and their geographic scope to be explained solely by 1) CP’s and KCS’s different treatment of locomotives in developing line density data in the ordinary course, or 2) alleged localized errors in the KCS data collection process. Indeed, as I demonstrate below, the same anomalous results appear on CP *lines* where no localized data collection errors were alleged by Applicants.

If Applicants’ actual 2019 tonnage values are adjusted to account for the difference in reporting of locomotive tons, then they should provide a reasonable point of comparison to tonnages submitted with Applicants’ Amended Operating Plan.

As noted in my prior testimony, GTMs with and without locomotives for the US operations of all Class I railroads (including KCS and CP) are publicly available in the annual Analysis of

Class I Railroads (lines 700-701 and 703-704) (see Exhibit 4-6 below). This data source shows that, during the year 2019, locomotives represented 5.6% of overall GTMs for the US operations of CP and 7.4% of GTMs for the US operations of KCS. Based on the knowledge that 5.6% of GTMs on CP's US lines are related to locomotives, taking 94.4% of the 2019 tonnage values for the CP lines, as listed in Exhibit 14 Part A, should produce a reliable estimate of GTMs without locomotives for CP.

Exhibit 4-6: 2019 Class I GTMS, from R-1 reports (US lines only) ⁷⁸

Line Item	CSX	NS	CN (GTC)	BNSF	KCS	CPSL	UP
700. Locomotives	28,856,795	30,429,239	7,763,728	109,762,761	4,928,962	4,198,385	72,880,060
701. Cars, Contents and Cabooses	386,301,629	369,908,032	126,171,491	1,158,585,109	61,737,927	70,743,019	836,209,187
703. Non-Revenue	2,120,408	2,810,057	1,209,914	11,191,234	32,507	428,316	10,406,772
704. Total Gross Ton-Miles	417,278,832	403,147,328	135,145,133	1,279,539,104	66,699,396	75,369,720	919,496,019
% of GTMs due to Locomotives	6.9%	7.5%	5.7%	8.6%	7.4%	5.6%	7.9%

A similar adjustment of 92.6% of tonnage values in the original 2019 Exhibit 14 Part A values for KCS should provide a comparable estimate for KCS. However, I note that Applicants have alleged that there are other errors in the KCS Exhibit 14 Part A tonnage measures⁷⁹, so we assumed to be conservative that some caution must be used when applying the adjusted KCS tonnage values to any comparisons.

4.2.1 Example 1: Benchmarking of the CP line through Ottumwa and Davenport

An examination of the CP line through Ottumwa and Davenport, Iowa (and associated feeder lines) reveals significant differences between Applicants' Amended Operating Plan and

⁷⁸ Analysis of Class I Railroads, Association of American Railroads (AAR).

⁷⁹ CP-KCS Amended Operating Plan, pp. 78-80.

their real world 2019 density values (adjusted to account for the difference in locomotive tonnage reporting).

The tonnage map for the Ottumwa-Davenport line published in the Amended Operating Plan is shown in Exhibit 4-7 below, and my benchmarking of the Master Segment Table density data⁸⁰ for these lines is presented in Exhibit 4-8.

Exhibit 4-7: 2019 tonnage map for Ottumwa-Davenport line, as published in the Application⁸¹



⁸⁰ Based on Appendix T in the CP-KCS Amended Operating Plan.

⁸¹ CP-KCS Application, Volume 2, Exhibit 14 traffic density maps, pp. 508, 510. CP-KCS Amended Operating Plan, Amended Exhibit 14, p. 37.

Exhibit 4-8: Benchmarking of selected CP line segments, Ottumwa-Davenport & feeder lines⁸²
 Millions of annual gross tons

Line Segment	Segment Miles ⁸³	Adjusted 2019 Historic Tonnage ⁸⁴	Applicants' Calibrated Base Year Tonnage ⁸⁵	Tonnage Difference	Percent Diff.
Marquette-Sabula	98.0	20.00	29.17	9.18	45.9%
Davis Jct.-Sabula	61.5	9.82	15.56	5.75	58.6%
Sabula-Clinton	16.5	22.72	22.08	-0.64	-2.8%
Clinton-Water Works	33.2	17.25	15.36	-1.89	-11.0%
Work Works-Nahant	4.5	17.41	15.36	-2.05	-11.8%
Nahant-Muscatine	24.6	14.02	13.31	-0.70	-5.0%
Muscatine-Ottumwa	82.5	16.06	14.77	-1.28	-8.0%
Ottumwa-MO/IA Laredo	61.2	11.51	10.37	-1.14	-9.9%
MO/IA Laredo-Laredo	41.1	11.46	10.37	-1.09	-9.5%
Laredo-Polo ⁸⁶	n/a	11.46	12.36	0.91	7.9%
Polo-Airline Jct.	42.1	11.22	10.49	-0.73	-6.5%

The benchmarking reveals mostly consistent underreporting in Applicants' "calibrated" Base Year tonnage data for some segments of the Ottumwa line (in the range of 5-10 percent), and large differences, in the neighborhood of approximately 50 percent, for the Marquette and Davis Junction lines that feed into the Ottumwa line. Unless Applicants assert that there are large errors (beyond the inclusion of locomotives) in the historic tonnage *values CP generates in the normal course of business*, it is clear that the density figures generated by Applicants' "calibration methodology" do not – contrary to what Applicants assert – "reasonably reflect pre-Transaction operations."

Applying the cross-check to the Applicants' reported base car counts for this line clearly demonstrates a number of modeling errors (Exhibit 4-9).

⁸² Oliver Wyman analysis.

⁸³ CP-KCS Amended Operating Plan, Appendix T, pp. 1, 5.

⁸⁴ CP-KCS Amended Operating Plan, Amended Exhibit 14, Part A, p. 37. Tonnages adjusted by Oliver Wyman to exclude the weight of locomotives for CP, a calculation explained in Exhibit 4-6.

⁸⁵ CP-KCS Amended Operating Plan, Appendix T, pp. 3, 7.

⁸⁶ Appears to be trackage rights on Union Pacific, and therefore omitted from some tables.

Exhibit 4-9: Marquette to Airline Junction car counts and estimated annual tonnage⁸⁷

Line Segment	Non-Unit Train Daily Cars ⁸⁸	Unit Train Daily Cars ⁸⁹	Total Daily Cars ⁹⁰	Annual Tonnage at 75 tons/car (millions)	Applicants' Calibrated Base Year Tonnage (millions)
Marquette-Sabula	{ }	{ }	1108.9	30.4	29.17
Davis Jct.-Sabula	{ }	{ }	595.3	16.3	15.56
Sabula-Clinton	{ }	{ }	983.9	26.9	22.08
Clinton-Water Works	{ }	{ }	855.4	23.4	15.36
Work Works-Nahant	{ }	{ }	855.4	23.4	15.36
Nahant-Muscatine	{ }	{ }	761.1	20.8	13.31
Muscatine-Ottumwa	{ }	{ }	720.6	19.7	14.77
Ottumwa-MO/IA Laredo	{ }	{ }	498.6	13.7	10.37
MO/IA Laredo-Laredo	{ }	{ }	424.7	11.6	10.37
Laredo-Polo ⁹¹	{ }	{ }	412.1	11.3	12.36
Polo-Airline Jct	{ }	{ }	409.8	11.2	10.49

Interestingly, the car counts and modeled tonnages for each of the Marquette-Sabula and David Junction-Sabula segments are fairly consistent with each other, yet differ significantly from the historic tonnages as shown in Exhibit 4-8 above. Whether the discrepancies on these segments are due to modeling errors such as inappropriately routing Chicago traffic over these segments, or due to modeling errors, is impossible for me to say. What is clear is that the process of creating the Base Year values has failed to produce results that correspond to actual 2019 line segment densities in this case.

Exhibit 4-9 also reinforces the underreporting of tonnage between Nahant and Ottumwa, and indicates the presence of various potential modeling errors in the Ottumwa to Airline Junction line, resulting in variances in the tonnages against both historic values and between adjacent line segments.

⁸⁷ CP-KCS Amended Operating Plan, Appendix T, p. 8.

⁸⁸ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

⁸⁹ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

⁹⁰ CP-KCS Amended Operating Plan, Appendix T, pp. 4, 8.

⁹¹ Appears to be trackage rights on Union Pacific, and therefore omitted from some tables.

4.2.2 Example 2: Benchmarking of the KCS Mainline Between Kansas City and Laredo

A side-by-side comparison of Applicants' actual 2019 tonnages (adjusted to account for the difference in locomotive reporting) for the KCS mainline between Kansas City and Laredo and the density values underlying the Amended Operating Plan likewise reveals variances that are too extreme to be credibly explained by differences in the methodologies used by KCS and CP in developing line densities in the normal course of business. Exhibit 4-10 below provides a summary view of the KCS mainline values – note that I used 92.6% of the original Exhibit 14 Part A values to account for the tonnage related to locomotives on KCS.

Exhibit 4-10: Comparison of historic 2019 tonnage from Applicants' Exhibit 14 Part A to the Applicants' proposed density data for KCS mainline

Millions of annual gross tons

Segment	Adjusted 2019 Historic Tonnage ⁹²	Applicants' Calibrated Base Year Tonnage ⁹³	Tonnage Difference	Percent Difference
Kansas City - Pittsburg	47.5	36.8	-10.7	-22%
Pittsburg - Watts	37.8	41.9	4.1	+11%
Watts - Poteau	35.4	36.1	0.7	+2%
Poteau - Heavener	36.1	37.4	1.4	+4%
Heavener - De Queen	38.9	34.2	-4.7	-12%
De Queen - Ashdown	39.8	41.3	1.5	+4%
Ashdown - Shreveport	42.4	34.3	-8.1	-19%
Shreveport - Leesville	31.2	24.7	-6.5	-21%
Leesville - De Quincy	27.9	25.5	-2.4	-8%
De Quincy - Beaumont	30.8	21.6	-9.2	-30%
Beaumont – Rosenberg ⁹⁴	27.9	{ }	{ }	{ }
Rosenberg - Kendleton	26.2	26.3	0.1	0%
Kendleton - Victoria	24.1	27.3	3.2	+13%
Victoria - Placedo	23.9	16.5	-7.4	-31%
Placedo - Robstown	23.9	16.5	-7.5	-31%

⁹² CP-KCS Amended Operating Plan, Amended Exhibit 14 Part A, p. 39 – Tonnages adjusted by Oliver Wyman to exclude the weight of locomotives for KCS, a calculation explained in Exhibit 4-6.

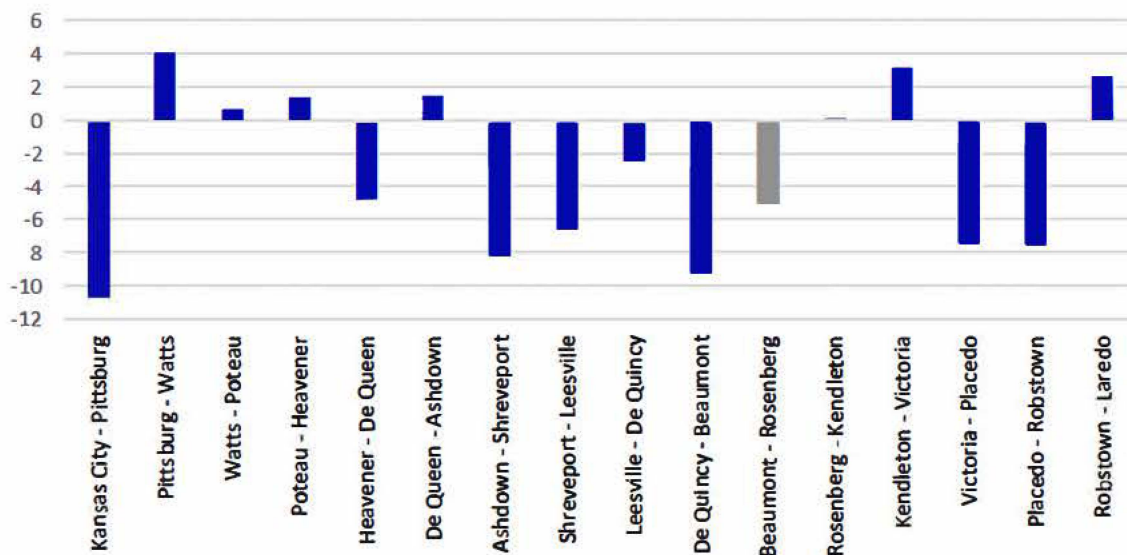
⁹³ CP-KCS Amended Operating Plan, Appendix T, p. 11.

⁹⁴ For the Beaumont - Rosenberg used tonnage from the { } segment in the work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx due to likely inaccuracy in the values published in Appendix T. See notes for Exhibit 4-1 for further details.

Segment	Adjusted 2019 Historic Tonnage ⁹²	Applicants' Calibrated Base Year Tonnage ⁹³	Tonnage Difference	Percent Difference
Robstown - Laredo	34.5	37.3	2.7	+8%

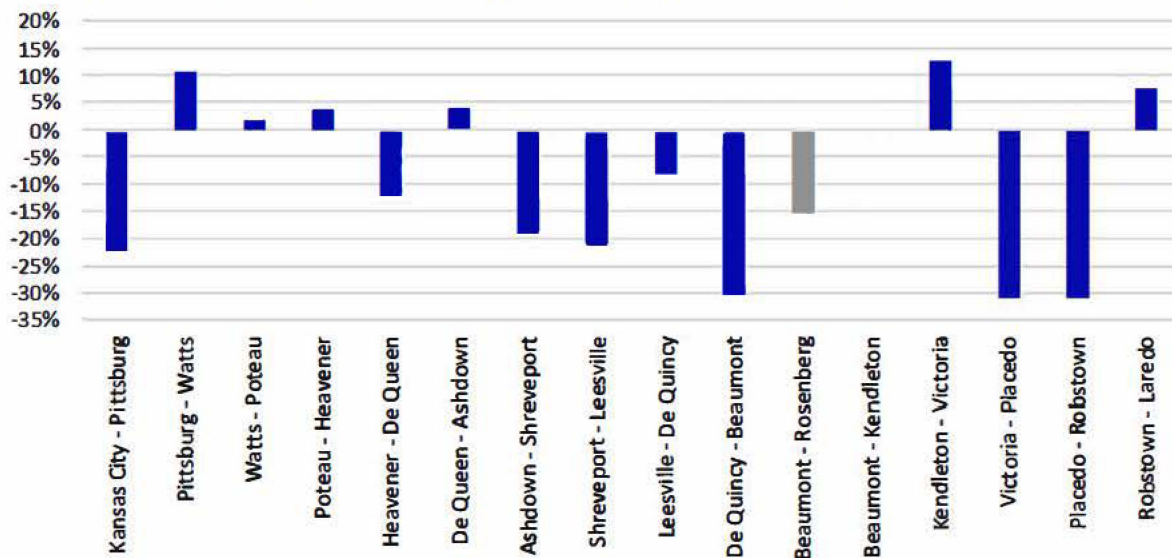
The charts depicted in Exhibits 4-11 and 4-12 provide a graphical view of the substantial variances between the data generated by Applicants' "calibration methodology" and their actual 2019 data, in terms of both absolute values and percentages. (See also the discussion of part of this line segment in Section 4.1 above.)

Exhibit 4-11: Tonnage differences between historic 2019 tonnage from the original Exhibit 14 Part A Density Data (adjusted) to the Applicants' proposed density data for KCS mainline⁹⁵
Millions of annual gross tons



⁹⁵ For the Beaumont - Rosenberg used tonnage from the {{ }} segment in the work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx. The absolute difference for this segment is {{ }}. See notes associated with Exhibit 4-1 for further details.

Exhibit 4-12: Percentage differences in historic 2019 tonnage from the original Exhibit 14 Part A Density Data (adjusted) versus the Applicants' proposed density data for KCS mainline⁹⁶



As one examines these differences, we can observe a logical and consistent pattern in the historic tonnages, with significant changes at Shreveport (where traffic likely disperses in many directions), and Robstown-Laredo, where interchange traffic bound to Mexico comes onto KCS. However, Applicants' data show a significant number of line segments that vary by more than 20% from the actual historic values. It is hard to believe that the KCS "normal course of business" numbers are so faulty as to result in errors of this magnitude. It is also curious that many of the segments between De Quincy and Robstown in particular are massively lower in Applicants' "modeled" line density data.

The real-world 2019 values reflect a measured and consistent pattern, so it does not appear credible that the differences between this data and the density values in Applicants' Amended Operating Plan can be explained by KCS historic numbers overstating density, or traffic that

⁹⁶ For the Beaumont - Rosenberg used tonnage from the {{ }} segment in the work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx. The percent difference for this segment is {{ }}. See notes associated with Exhibit 4-1 for further details.

moved over only a portion of each and every one of these segments, or issues of misallocation of traffic between segments. Certainly, the inclusion or exclusion of locomotives cannot explain a 30% difference in tonnage, when we know that locomotives represented only 7.4% of overall GTMs on KCS in the Base Year. It is far more likely that the discrepancies between Applicants’ “modeled” density figures and the data compiled in the normal course of business are attributable to the cumulative effects of using non-representative traffic and fundamental flaws in Applicants’ calibration-based methodology.

4.2.3 Example 3: Shreveport – Wylie Line

KCS’s line between Shreveport, Louisiana and Wylie, Texas presents another set of highly questionable tonnage values. Below is a comparison of Applicants’ actual 2019 density data (adjusted for locomotives) and the density values underlying the Amended Operating Plan.

Exhibit 4-13: Comparison of historic 2019 tonnage from the original Exhibit 14 Part A to the Applicants’ proposed density data for Shreveport to Wylie line segments
Millions of annual gross tons

Segment		Adjusted 2019 Historic Tonnage ⁹⁷	Applicants’ Calibrated Base Year Tonnage ⁹⁸	Tonnage Difference	Percent Difference
Shreveport	Greenville	21.0	12.9	-8.0	-38%
Greenville - Wylie		16.4	13.9	-2.5	-15%

Of particular relevance in this exhibit is not only the large 38% difference in tonnage on the Shreveport – Greenville segment, but the change in tonnage between the segments. In the historic 2019 data, the tonnage *decreased* by 4.6 million tons on the Greenville-Wylie segment relative to the Shreveport-Greenville segment, while in Applicants’ modeled data, we instead see an *increase* of 1 million tons.

⁹⁷ CP-KCS Amended Operating Plan, Amended Exhibit 14 Part A, p. 39 – Tonnages adjusted by Oliver Wyman to exclude the weight of locomotives for KCS, a calculation explained in Exhibit 4-6.

⁹⁸ CP-KCS Amended Operating Plan, Appendix T, p. 11.

An examination of the 2019 full year waybill data reveals that there is a major consumer of {{ }} at {{ }}, which is located roughly at the {{ }} of the Shreveport – Greenville line segment.⁹⁹ According to the waybill data, this customer received {{ }} loaded {{ }} shipments and dispatched {{ }} empty {{ }} cars during 2019. If one assumes {{ }} tons per car for the loads and {{ }} tons per car for the empties, this equates to {{ }} gross tons per year.¹⁰⁰ All of this traffic arrived at {{ }} from Kansas City via Shreveport and is likely a main driver for the historic drop in tonnage on this line as one moves west from Shreveport to Greenville to Wylie.

At an average of {{ }} cars per train,¹⁰¹ this volume represents {{ }} trains per year (both loaded and empty combined), {{ }} trains per month, or {{ }} trains per day. The work paper upon which the Applicants' modeled density data is based¹⁰² shows {{ }} unit trains per day. While still a {{ }} undercount, it is at least somewhat close to the historic values. That being said, this same spreadsheet lists the post-calibrated average train weight for both the Shreveport – Greenville and the Greenville – Wylie segments at {{ }} tons¹⁰³. The average loaded {{ }} train would be about {{ }} tons (at {{ }} cars at {{ }} tons per car), and an empty train would be about {{ }} tons (at {{ }} cars at {{ }} tons per car), for an average unit {{ }} train weight of {{ }} tons, based on the mix in the Base Year. With these heavy trains not traversing the segment between Greenville and Wylie, it is simply not credible that both of these segments have the same average, historic train weight. Thus, Applicants' use of the same train weight for both segments is likely another cause for

⁹⁹ See 100% CP-KCS waybill data in FD 36500 – Work Paper – HC 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt.

¹⁰⁰ See appendix B for more information on deriving tonnage numbers.

¹⁰¹ Based on the entries for Greenville subdivision in Work paper 24.1.1.3.2.3-KCS KCSM Bulk Trains per Day by Subdivision.xlsx

¹⁰² Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx.

¹⁰³ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

errors in their traffic density values for this line. Using these average train weight and trains per day values, the applicant implies annual tonnage for {{ }} traveling to/and from {{ }} of {{ }} tons, a {{ }} ton understatement.

While I will not speculate on the reasons why Applicants' density data shows an increase in tonnage as one moves from Shreveport toward Wylie, versus a decrease in the historic data, I observe that this {{ }} has sufficient volume to explain {{ }} the decrease shown in the historic data.¹⁰⁴ Once again, I believe this clearly demonstrates the flaws in Applicants' methodology, and why the resulting "modeled" density data is a poor substitute for CP's and KCS's actual 2019 density data. Furthermore, given that this traffic also would traverse the KCS mainline from Kansas City, it is quite likely this underreporting also impacts the reliability of tonnage values all the way from Shreveport, Louisiana to Kansas City, Missouri.

4.2.4 Example 4: Jacksonville, IL and the Springfield Line

In connection with CN's Responsive Application seeking divestiture of the Springfield Line, I undertook an extensive analysis of this line, including using MultiRail to develop an operating plan and to assess line densities. The results of the Springfield Line analysis from a "base year" tonnage perspective are presented in Exhibit 4-14.

¹⁰⁴ Around {{ }} tons that should terminate before Greenville are missing, which explains {{ }} of the 5.4M discrepancy in the change of tonnage at Greenville between historical data and the Applicants' calibrated tonnages, since $\frac{{{{}}}}{5.4M} = \frac{{{{}}}}{100}\%$.

Exhibit 4-14: Benchmarking of KCS Springfield Line segments
Millions of annual gross tons

Subdivision Start	Subdivision End	Historic 2019 Tonnage ¹⁰⁵	Adjusted 2019 Historic Tonnage ¹⁰⁶	Applicants' Calibrated Base Year Tonnage ¹⁰⁷	MultiRail Estimated Trailing Tonnage ¹⁰⁸	Adjusted Historic vs. Applicants' Tonnage Percent Difference	Adjusted Historic vs. MultiRail Percent Difference
Airline Jct. MO	Slater MO	10.38	9.65	6.17	{ }	-36%	{ }
Slater MO	Mexico MO	8.81	8.19	4.28	{ }	-48%	{ }
Mexico MO	Roodhouse IL	6.66	6.19	4.02	{ }	-35%	{ }
Roodhouse IL	Godfrey IL	3.82	3.55	1.05	{ }	-70%	{ }
Godfrey IL	East St. Louis	5.48	5.10	6.84	{ }	34%	{ }
Roodhouse IL	Murrayville IL	3.09	2.87	1.00	{ }	-65%	{ }
Murrayville IL	Jacksonville IL	3.06	2.85	1.33	{ }	-53%	{ }
Murrayville IL	Springfield IL	0.04	0.04	0.17	{ }	352%	{ }

The differences between the historical Base Year density data for the Springfield Line (which appears in Applicants' Exhibit 14 Part A¹⁰⁹) and the density figures reflected in their Amended Operating Plan are so extreme that it is simply not possible to give any credibility to Applicants' data, unless one assumes that the 2019 tonnage values that KCS collected in its normal course of business had no connection to reality. While my MultiRail analysis also exhibited some differences against the original Exhibit 14 Part A values, the broad indicators are that based on full year 2019 traffic data used in MultiRail, the Exhibit 14 Part A values are far closer to reality than the ones in the Amended Operating Plan.

As a further cross-check, I investigated what traffic the full year 2019 waybills showed as originating or terminating in the { }, IL area. What I found is that { } loads, and { } empties originated or terminated at { } in 2019 based on the

¹⁰⁵ CP-KCS Amended Operating Plan, Amended Exhibit 14 Part A, p. 37.

¹⁰⁶ CP-KCS Amended Operating Plan, Amended Exhibit 14 Part A, p. 37 – Tonnages adjusted by Oliver Wyman to exclude the weight of locomotives for KCS, a calculation explained in Exhibit 4-6..

¹⁰⁷ See STB Finance Docket No. 36500, EI-31353, October 28, 2021.

¹⁰⁸ See work papers for this statement "HC - Springfield Line - Applicant vs Ex 14 vs Multirail.xlsx".

¹⁰⁹ CP-KCS Amended Operating Plan, Amended Exhibit 14 Part A, p. 37.

full year waybill data supplied by Applicants.¹¹⁰ This traffic was almost all {{ }} traffic to/from Mexico via Laredo, which represents approximately {{ }} tons per year.¹¹¹

Applicants' work papers indicate that the unit {{ }} trains on the {{ }} subdivision average {{ }} cars per train¹¹², and that there were a total of {{ }} trains during the sample three-month period from 2021 that they used for KCS unit trains in preparing their Application.¹¹³ That equates to {{ }} trains per day or {{ }} trains per month. The {{ }} loaded and {{ }} empty {{ }} cars moving into and out of {{ }} during 2019 documented in the previously referenced waybill data and applying the {{ }} cars per train value yields a traffic-driven estimate of {{ }} trains per month or {{ }} unit trains per day, fully 77% higher than the {{ }} unit trains per day reflected in Applicants' density data. Applicants used a calibrated average train weight for {{ }} to {{ }} of {{ }} tons¹¹⁴, making the above {{ }} trains per day equivalent to {{ }} tons per year, versus the actual 2019 value of approximately {{ }} tons.¹¹⁵

Clearly, Applicants failed to capture accurate volumes and tonnages for these line segments, likely due to the use of unrepresentative, snapshots of unit trains and compounded by underestimating train weights. It is interesting to note that if this {{ }} data is added to the entire routing from {{ }} to Kansas City, Applicants' density values for the line would be much closer to the historic data. Furthermore, based on the waybill data, much of this traffic travels all of the way to Mexico. Accordingly, failing to account for this missing

¹¹⁰ 100% CP-KCS waybill data from work paper FD 36500 – Work Paper – HC 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt.

¹¹¹ See appendix B for more information on deriving tonnage numbers.

¹¹² Work paper 24.1.1.3.2.3-KCS KCSM Bulk Trains per Day by Subdivision.xlsx

¹¹³ Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx

¹¹⁴ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

¹¹⁵ See appendix B for more information on deriving these tonnage numbers.

{{ }} gross tons of traffic impacts the reliability of Applicants' density values for the entire KCS mainline from Kansas City, Missouri to Laredo, Texas (and beyond).

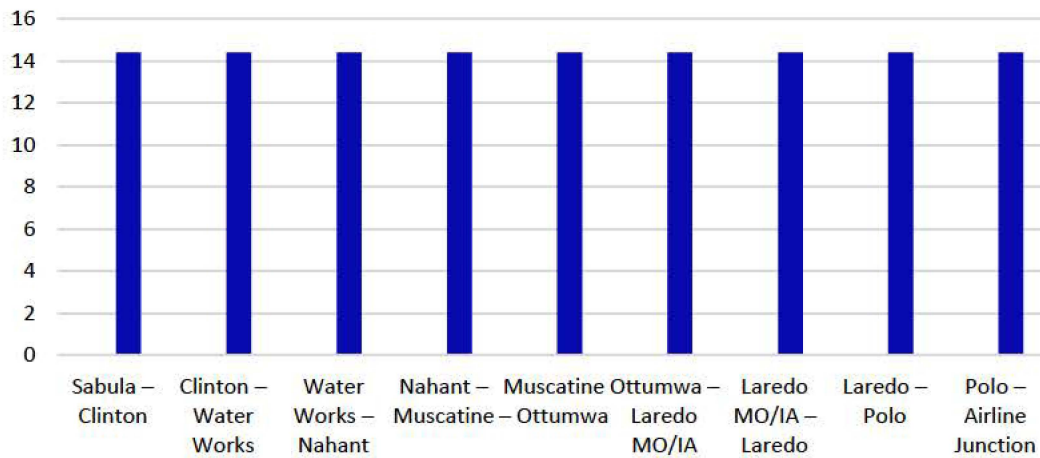
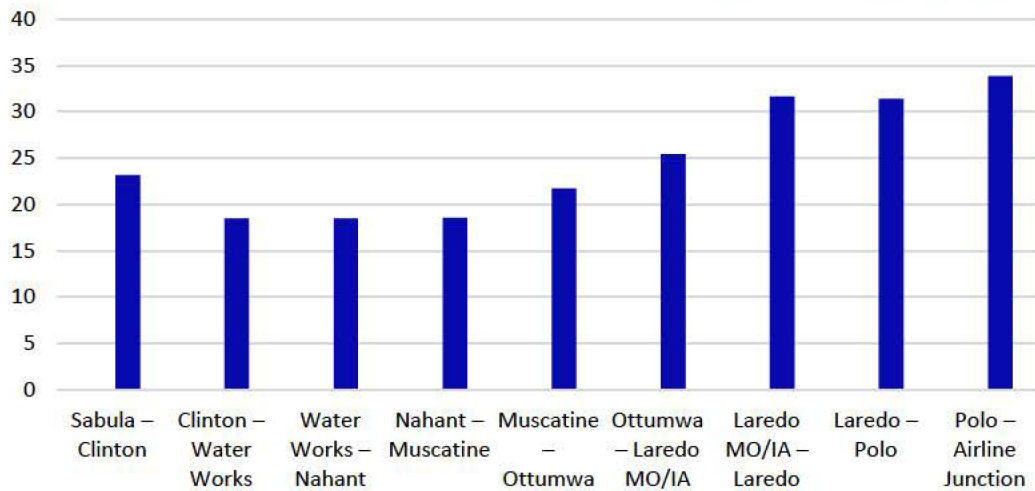
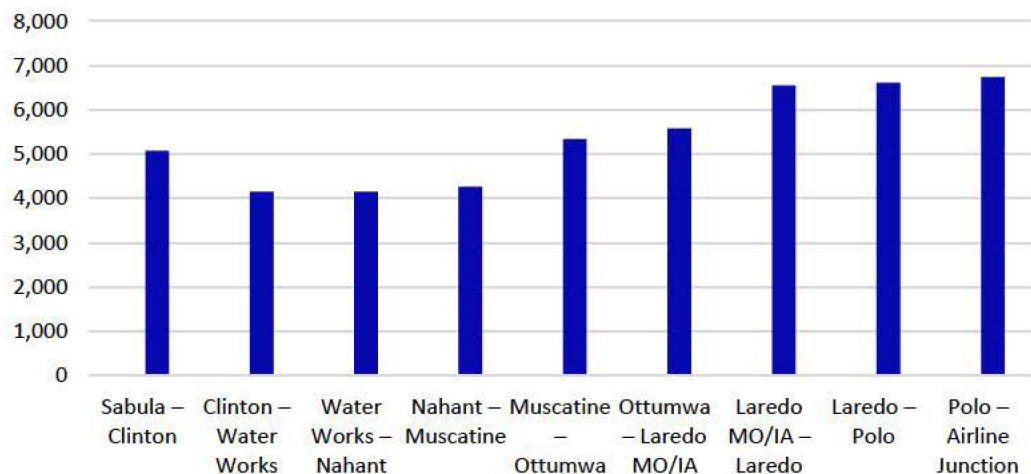
5. Post-Transaction Reported Line Segment Metrics on Key Mainlines Are Clearly Erroneous

While the errors discussed above in the base tonnage numbers are problematic, the errors in Applicants' segment-specific post-transaction tonnage values are even more concerning. In Appendix T of their Amended Operating Plan, Applicants purport to specify the transaction-related changes in both train counts and the tonnages. While some changes in total tonnage may be associated with increases in the weight of existing trains, the significant variations in the size of the total tonnage increases between adjacent line segments cannot be explained by this consideration. An examination of these values reveals a pattern of serious errors in the estimates for post-transaction tonnage increases. These errors are so substantial that a simple inspection of the tonnage values posited by Applicants make it clear that those values are totally unreliable. Exhibits 5-1 through 5-4 demonstrate this issue clearly for one of the most important and impacted lines on the entire CP-KCS network, Sabula, Iowa to Airline Junction, Missouri.

Exhibit 5-1: Sabula to Airline Junction transaction-related changes in train count and tonnage

Subdivision	Line Segment	Base Train Counts ¹¹⁶	Post-Transaction-Train Count Change ¹¹⁷	Total Post-Transaction Trains/Day ¹¹⁸	Transaction-Related Annual Tonnage Change (millions) ¹¹⁹	Total Post-Transaction Annual Tons (millions) ¹²⁰	Overall Average Train Weight ¹²¹
Davenport	Sabula – Clinton	10.00	14.40	24.40	23.13	45.21	5,076
Davenport	Clinton – Water Works	7.97	14.40	22.37	18.47	33.83	4,143
Davenport	Water Works – Nahant	7.97	14.40	22.37	18.47	33.83	4,143
Ottumwa	Nahant – Muscatine	6.09	14.40	20.49	18.54	31.85	4,259
Ottumwa	Muscatine – Ottumwa	4.3	14.40	18.70	21.68	36.45	5,340
Laredo	Ottumwa – Laredo MO/IA	3.17	14.40	17.57	25.42	35.79	5,581
Laredo	Laredo MO/IA – Laredo	3.17	14.40	17.57	31.66	42.03	6,554
Kansas City North	Laredo – Polo	3.74	14.40	18.14	31.42	43.78	6,612
Kansas City	Polo – Airline Junction	3.62	14.40	18.02	33.83	44.32	6,738
Maximum Value			14.40		33.83		6,738
Minimum Value			14.40		18.47		4,143
Percent Difference - Min to Max			0%		83%		63%

¹¹⁶ CP-KCS Amended Operating Plan, Appendix T, p. 6.¹¹⁷ CP-KCS Amended Operating Plan, Appendix T, p. 6.¹¹⁸ Calculated by adding base train counts with post-transaction train counts; See work paper for this statement “Post-transaction train weights.xlsx” for more detail.¹¹⁹ CP-KCS Amended Operating Plan, Appendix T, p. 7.¹²⁰ CP-KCS Amended Operating Plan, Appendix T, p. 7; “2017 With Merger” tonnage minus “Organic Growth” tonnage.¹²¹ Calculated by post-transaction annual tonnage / (post-transaction daily train count * 365 days); See work paper for this statement “Post-transaction train weights.xlsx” for more detail.

Exhibit 5-2: Sabula to Airline Junction transaction-related change in train count by segment**Exhibit 5-3: Sabula to Airline Junction transaction-related change in tonnage by segment****Exhibit 5-4: Sabula to Airline Junction overall average train weight post-transaction by segment**

A detailed review of the Amended Operating Plan and Applicants' traffic diversion evidence indicates that very little new traffic originates/terminates on this line, and that only one train pair (Trains 160/161) included in the 14.4 new trains per day does any work on this line.¹²² Trains 160/161 set out and pick up blocks at Nahant. Trains 260/261 also do work at Nahant, but because these represent adaptations of existing trains, they are not included in the 14.4 new trains per day identified by Applicants.¹²³ These 14.4 new trains consist of 4.4 bulk/unit trains per day¹²⁴, plus the following daily train pairs: 160/161, 162/163, 170/171, 174/175, and 176/177.¹²⁵

What is clear from Applicants' Amended Operating Plan is that no work is done by any of these trains at intermediate points between Nahant and Airline Junction. Accordingly, there is no logical reason for any of the trains to change weight while traversing the Nahant – Airline Junction segment. The same should also be true for Trains 160/161.

For the same reason, one would not expect to see any material variation in total gross tons between Nahant and Airline Junction resulting from the merger transaction. While there are some bulk trains on the line north of Muscatine, given that organic growth was excluded from these numbers, these existing trains should not experience a change in weight. That being said, Applicants report a wide range in annual tonnage increases, from a low of 18.5 million tons to a high of 33.8 million tons – an 83% variance from low to high, with the smallest changes in annual gross tons on segments with the greatest number of existing trains. Focusing just on the segment between Muscatine, Iowa and Airline Junction, Missouri, the aggregate train count varies by about 6.4% in the post-transaction case, while the increase in total gross tons varies by

¹²² CP-KCS Amended Operating Plan, Appendix I, p. 2.

¹²³ Growth train count retrieved from CP-KCS Amended Operating Plan, Appendix T, p. 6; Information on trains 260/261 retrieved from CP-KCS Amended Operating Plan, Appendix H, p. 1.

¹²⁴ Total growth trains from CP-KCS Amended Operating Plan, Appendix T, p. 6 subtracted by daily trains listed from CP-KCS Amended Operating Plan, pp. 70-71.

¹²⁵ CP-KCS Amended Operating Plan, pp. 70-71.

56% or over 12 million tons per year. All of these large variations in tonnage are simply not supported by the details of the CP-KCS operating plan or traffic studies, and clearly represent serious errors arising from the overly complex and convoluted modeling process employed by Applicants.

Applicants employed a complex methodology to estimate post-transaction increases in tonnage by line segment. Applicants portray their analysis as a well-grounded process that combined changes in the train plans as implemented in MultiRail with a set of manually identified new unit trains that were created based on merger-related traffic projections.¹²⁶ However, upon closer inspection, it appears that Applicants did not actually use tonnage values based on the traffic projections to determine post-transaction tonnage or train weights. Instead, they elected to use a convoluted process to estimate the changes in tonnage based in part on the same historic train weights used for their (flawed) Base Year tonnage estimates. As a result, Applicants' methodology generated a set of clearly erroneous values that cannot be relied upon for evaluating the operational and environmental impacts of the proposed merger. Applicants further compounded these issues in the Amended Operating Plan by making the computation of post-transaction tonnages even more complex and error prone.¹²⁷ See Appendix A for further details on this process.

5.1 Two cross-checks of Sabula-Airline Junction tonnages

A careful examination of Applicants' Amended Operating Plan and associated work papers enabled me to explicitly identify the composition of the 14.4 new trains per day on the Sabula-Airline Junction line and to estimate the incremental tonnage likely to be associated with these trains. As noted above, these additional trains consist of 4.4 bulk (unit) trains per day, and 10

¹²⁶ CP-KCS Amended Operating Plan, Appendix T, pp. 45-50.

¹²⁷ See Appendix A in this statement for further details

regularly scheduled trains. Based on the information provided by CP, one can estimate the tonnage as follows:

Exhibit 5-5: Likely annual tonnage associated with new trains on Sabula-Airline Junction line

Trains	Description	Low Estimate			High Estimate	
		Trains Per Day ¹²⁸	Estimated Avg. Train Weight ¹²⁹	Annual Million Gross Tons	Estimated Avg. Train Weight	Annual Million Gross Tons
160/161	Minneapolis IMS – Toluca: Mixed manifest & intermodal – many blocks on KCS and KCSM	2	3,500	2.56	6,000	4.38
162/163	Bensenville IMS - Wylie, TX: Primarily intermodal, some manifest	2	3,500	2.56	6,000	4.38
170/171	Toronto - Lazaro Cardenas: Primarily intermodal, some manifest	2	3,500	2.56	6,000	4.38
174/175	Bensenville IMS – Interpuerto: Mixed manifest and intermodal	2	3,500	2.56	6,000	4.38
176/177	Bensenville IMS - Lazaro Cardenas Service: Pure intermodal – CP specifies {{ }} cars each way, with {{ }} with associated car weights ({{ }} tons for loads, {{ }} for empties) ¹³⁰	2	{{ }}	{{ }}	{{ }}	{{ }}
Bulk Crude	Alberta – Texas: Exact frequency specified, {{ }} tons southbound, {{ }} tons northbound ¹³¹	{{ }}	{{ }}	{{ }}	{{ }}	{{ }}
Bulk Grain	Mostly Canada to Texas and Mexico: exact frequency specified, {{ }} tons southbound, {{ }} tons northbound ¹³²	{{ }}	{{ }}	{{ }}	{{ }}	{{ }}
Totals		14.40		{{ }}		{{ }}

¹²⁸ Initial 10 daily “scheduled” trains retrieved from CP-KCS Amended Operating Plan, pp. 70-71; bulk trains per day retrieved from Work paper 24.1.1.3.13-TPD Bulk Synergy Input.xlsx.

¹²⁹ Low average train weight estimates assume 70 cars per train at 50 tons per car. High average train weight estimates assume 80 cars per train at 75 tons per car.

¹³⁰ Work paper 24.1.1.3.3.5.1-CPKC Growth Intermodal.xlsx: Northbound = {{ }} loaded cars * {{ }} tons + {{ }} empty cars * {{ }} tons = {{ }} tons. Southbound = {{ }} loaded cars * {{ }} tons + {{ }} empty cars * {{ }} tons = {{ }} tons. Average of Southbound and Northbound = {{ }} tons.

¹³¹ Work paper 24.1.1.3.13-TPD Bulk Synergy Input.xlsx.

¹³² Work paper 24.1.1.3.13-TPD Bulk Synergy Input.xlsx.

Exhibit 5-5 provides a well-grounded estimate of the incremental tonnage likely to be associated with the proposed new trains on the Sabula-Airline Junction line, which demonstrates clearly that the Applicants' estimate of tonnage increases shown at Davenport and Ottumwa are significantly too low. Note that Exhibit 5-5 does not include the potential change in the size of any existing trains, including Trains 260/261. While it is difficult to know the exact weights of the first four train pairs listed in Exhibit 5-5, the Application espouses the principles of PSR and reflects Applicants' desire to run long trains. In that context, it is hard to conceive of CP-KCS planning to run daily train service using trains of less than 3,500 tons.

As discussed earlier, we can also look at the number of new cars traversing each line segment, as reported by the Applicants, and then apply an average car weight to estimate the annual tonnage associated with these cars. Looking at this data for the Sabula-Airline Junction line reveals the following:

Exhibit 5-6: Sabula to Airline Junction post-transaction Increase in car counts and estimated annual tonnage change

Line Segment	New Non-Unit Train Daily Cars ¹³³	New Unit Train Daily Cars ¹³⁴	Total New Post-Transaction Daily Cars ¹³⁵	Estimated Annual Tonnage Increase at 75 tons/car (millions)	Applicants' Calibrated Post-Transaction Tonnage Increase (millions)
Sabula – Clinton	{ }	{ }	1007.1	27.6	23.13
Clinton – Water Works	{ }	{ }	1008.4	27.6	18.47
Water Works – Nahant	{ }	{ }	1008.4	27.6	18.47
Nahant – Muscatine	{ }	{ }	1040.6	28.5	18.54
Muscatine – Ottumwa	{ }	{ }	1036.9	28.4	21.68
Ottumwa – Laredo MO/IA	{ }	{ }	1201.7	32.9	25.42
Laredo MO/IA – Laredo	{ }	{ }	1275.62	34.9	31.66
Laredo – Polo	{ }	{ }	1031.0	28.2	31.42
Polo – Airline Junction	{ }	{ }	1300.8	35.6	33.83

¹³³ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

¹³⁴ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

¹³⁵ CP-KCS Amended Operating Plan, Appendix T, p. 8.

While Exhibit 5-6 exhibits a myriad of issues, it does reinforce that the increase in tonnage reported by Applicants for the segment between Sabula to Ottumwa is significantly low. It also indicates that the non-unit train car counts are likely incorrect in a number of cases. It is unexplainable why the non-unit car count increases by roughly {{ }} cars per day at Ottumwa, and why the Laredo-Polo car count is so low. Based on the above numbers, the {{ }} non-unit trains per day would, in theory, be carrying {{ }} to {{ }} cars per train between Sabula and Ottumwa, which does not seem consistent with the Applicants' promotion of long trains in their operating plan.

5.2 Other examples of suspect post-transaction tonnages

There are other examples of situations where the transaction-related increases in tonnage posited by Applicants reflect differences between adjacent line segments that simply cannot be explained by significant changes in train operations or large amounts of originating/terminating traffic. Exhibit 5-7 below presents several of these cases (highlighted in yellow).

Exhibit 5-7: Example suspect post-transaction tonnage variations between adjacent line segments¹³⁶

Subdivision	Line Segment	Base Train Counts ¹³⁷	Post-Transaction-Train Count Change ¹³⁸	Total Post-Transaction Trains/Day ¹³⁹	Transaction-Related Annual Tonnage <u>Change</u> (millions) ¹⁴⁰	Total Post-Transaction Annual Tons (millions) ¹⁴¹	Overall Average Train Weight ¹⁴²
Marquette	Bluff Marquette MN/IA	4.66	6.00	10.66	11.65	24.70	6,348
Marquette	Marquette MN/IA - Marquette	4.66	6.00	10.66	14.62	30.99	7,965
Chicago	Sabula Davis Jct	6.35	8.00	14.35	17.10	32.66	6,236

¹³⁶ Values highlighted and bolded will be further discussed in the ensuing paragraph.

¹³⁷ CP-KCS Amended Operating Plan, Appendix T, p. 2, 6, 10.

¹³⁸ CP-KCS Amended Operating Plan, Appendix T, p. 2, 6, 10.

¹³⁹ Calculated by adding base train count with post-transaction train count; See work paper for this statement "Post-transaction train weights.xlsx" for more detail.

¹⁴⁰ CP-KCS Amended Operating Plan, Appendix T, p. 3, 7, 11.

¹⁴¹ CP-KCS Amended Operating Plan, Appendix T, p. 3, 7, 11; "2017 With Merger" tonnage minus "Organic Growth" tonnage.

¹⁴² Calculated by post-transaction annual tonnage / (post-transaction daily train count * 365 days); See work paper for this statement "Post-transaction train weights.xlsx" for more detail.

Subdivision	Line Segment	Base Train Counts ¹³⁷	Post-Transaction-Train Count Change ¹³⁸	Total Post-Transaction Trains/Day ¹³⁹	Transaction-Related Annual Tonnage Change (millions) ¹⁴⁰	Total Post-Transaction Annual Tons (millions) ¹⁴¹	Overall Average Train Weight ¹⁴²
Chicago	Davis Jct – Randall Rd	2.93	8.00	10.93	15.59	24.55	6,154
Elgin	Randall Rd – Bensenville	3.20	8.00	11.20	17.44	27.13	6,636
Beaumont	Shreveport - Leesville	10.01	10.83	20.84	26.31	51.00	6,705
Beaumont	Leesville – De Quincy	10.31	10.83	21.15	30.61	56.12	7,270
Beaumont	De Quincy - Beaumont	8.67	10.97	19.64	25.33	46.91	6,544
Heavener	Pittsburg – Watts	14.14	12.40	26.54	30.27	72.16	7,449
Heavener	Watts – Poteau	12.29	12.40	24.69	28.19	64.25	7,130
Heavener	Poteau – Heavener	12.77	12.40	25.17	29.93	67.37	7,333
Shreveport	Heavener – De Queen	11.96	12.40	24.36	28.28	62.48	7,027
Shreveport	De Queen - Ashdown	14.48	12.40	26.88	24.91	66.19	6,746
Shreveport	Ashdown – Shreveport	11.99	12.40	24.39	36.00	70.32	7,899
Merriam Park	St. Paul – St. Paul Fordson Jct	1	3.59	4.59	0	3.08	1,838

As a cross-check against the above findings, I examined the increase in the number of cars per day selected line segments are projected to carry by Applicants as a result of the merger (not including organic growth. For example, Applicants specify that the two Marquette line segments both will see an increase of 545.1 cars per day¹⁴³, which at 75 gross tons per car is equivalent to 14.9 million tons per year. Yet we see in the Applicant's density numbers that the Bluff Marquette MN/IA segment tonnage only increases by 11.7 million tons, with the next Marquette MN/IA - Marquette segment increases by a more reasonable 14.6 tons. Likewise, De Queen Ashdown and Ashdown – Shreveport have similar increases of 1,179.6 and 1,173.3 cars per day respectively¹⁴⁴, which converts to 32.3 and 32.1 million tons per year at 75 tons per car. Yet, De Queen to Ashdown shows only 24.9 million ton increase, a clear and significant underreporting especially when compared to adjacent Ashdown to Shreveport which shows a 36.0 million ton

¹⁴³ CP-KCS Amended Operating Plan, Appendix T, p. 2.

¹⁴⁴ CP-KCS Amended Operating Plan, Appendix T, p. 10.

increase. Both of these clear misrepresentations in tonnage stem from the fluctuations in average train weights between the adjacent segments. When examined against the post-transaction train count changes between the same segments, it indicates erroneous modeling by the Applicants.

5.3 It is impossible to validate post-transaction yard counts and train counts, but they remain suspect

As discussed above, due to the use of inputs from 2020 and 2021 to create the operating plan, and Applicants' failure to clearly identify the exact traffic (including empties) that was input to MultiRail for the post-transaction case, I cannot directly validate the post-transaction operating plan. What I can confirm is that the base train counts and yard activities represent values for a mix of October 2020 and early 2021. I know this because Applicants did not even attempt to "calibrate" the 2020/2021 train counts and yard activities used in developing their Amended Operating Plan to 2019 values.¹⁴⁵ As a result, the segment-specific train counts and cars handled by yard bear no relation to CP's and KCS's actual Base Year (2019) experience.

Of course, the changes in post-transaction yard counts, train counts, and tonnages in the Amended Operating Plan should correlate to the diversion projections in Applicants' traffic studies. However, because Applicants have not identified the exact traffic that was input to the post-transaction MultiRail operating plan, there is no way to know if appropriate traffic was used.¹⁴⁶ However, the following statement in the Amended Operating Plan identifies at least one instance in which the post-transaction traffic assumed in Applicants' Amended Operating Plan may not be accurate, i.e., "Forecast intermodal movements from the Port of Lazaro Cardenas to

¹⁴⁵ A review of the CP-KCS methodologies shows that while CP-KCS tried to adjust the tonnages to match at least in aggregate the base year GTMs, no similar adjustments were made to train counts or yard activity numbers.

¹⁴⁶ While Applicants provide various traffic file inputs, including two MultiRail traffic tables (Work paper 24.1.1.3.3.2.6-MREE.TRAFFIC_COMPRESSED_017.xlsx and Work paper 24.1.1.3.3.2.9-MREE.TRAFFIC_COMPRESSED_019.xlsx), I could find no statement in filings or any of the work papers as to what these traffic files represented.

Bensenville IMS were projected at 9,521 railcar feet per day.”¹⁴⁷ I have made multiple, unsuccessful attempts to determine how CP-KCS arrived at such a high value. To the best of my knowledge, the following represents the maximal view of Lazaro Cardenas intermodal traffic projections prepared by CP-KCS:

Exhibit 5-8: New intermodal traffic projected to originate at Lazaro Cardenas, plus new perishables traffic from Southern Mexico

Description	Containers per year ¹⁴⁸	Containers per day	Daily feet of railcars @ { } ft/container ¹⁴⁹	Notes
New international intermodal traffic to Chicago	{ }	{ }	{ }	As listed in work paper
New perishables traffic to Chicago & Toronto	{ }	{ }	{ }	Assigned both Michoacán and Veracruz origin to Lazaro; { }% of traffic assumed going to Chicago
Chicago totals	{ }	{ }	{ }	
New international traffic to Kansas City & Minneapolis	{ }	{ }	{ }	As listed in work paper - this traffic should not touch Bensenville/Chicago
New perishables traffic to Kansas City & Twin Cities	{ }	{ }	{ }	Assigned both Michoacán and Veracruz origin to Lazaro; { }% of traffic assumed going to Kansas City & Twin Cities should not touch Bensenville/Chicago
K.C. & Twin Cities totals	{ }	{ }	{ }	
Subtotals	{ }	{ }	{ }	
New international traffic to Dallas	{ }	{ }	{ }	As listed in work paper hard to find a reason to associate this traffic with Bensenville/Chicago
Grand totals	{ }	{ }	{ }	

It is my understanding that there was no meaningful intermodal traffic from Lazaro Cardenas to any locations in the United States during the actual Base Year (2019),¹⁵⁰ and that the

¹⁴⁷ CP-KCS Amended Operating Plan, p. 48, ¶109.

¹⁴⁸ Work paper FD 36500 Work Paper HC Growth Initiative Calculations.xlsx.

¹⁴⁹ See work paper “HC - Oliver Wyman - Intermodal to RailCar Conversion Factor Source Compilation.pdf” for prior February 28, 2022 Van Dyke Verified statement to see calculations giving length { } ft/container

¹⁵⁰ See statement by CP-KCS as to why base year traffic through Lazaro Cardenas would not be relevant to the Board’s review of its Application: CP-KCS Amended Operating Plan, pp. 34-35, ¶83.

diversion studies did not add any new intermodal traffic from Lazaro Cardenas to locations in the northern United States. CP-KCS make it clear that the northbound direction from Lazaro Cardenas is loads only in their approach, since they detail generating empties in the southbound direction to balance this O-D pair.¹⁵¹ Using CP-KCS's 9,521 railcar feet per day number, assuming the same number of containers per day as used in the previous table, and an average railcar length of 165 feet as assumed above, provides the following estimates:

Exhibit 5-9: Estimated feet of railcar per container for northbound intermodal traffic from Lazaro Cardenas¹⁵²

Description	Containers per day ¹⁵³	CP growth cars per day ¹⁵⁴	Containers per car ¹⁵⁵	Avg. feet of railcar per container (with avg. car length @ 165 ft) ¹⁵⁶
New traffic to Chicago	{ }	{ }	{ }	{ }
New traffic to K.C. & Twin Cities	{ }	{ }	{ }	{ }
Subtotals	{ }	{ }	{ }	{ }
New traffic to Dallas	{ }	{ }	{ }	{ }
Grand totals	{ }	{ }	{ }	{ }

A range of around { } feet of railcar per container is almost { } the length one would expect for a reasonably well utilized doublestack railcar. From both this conclusion and the maximal view of Lazaro Cardenas intermodal traffic projections, it appears to me that Applicants' assertion, that they will move 9,521 feet per day of railcar from Lazaro Cardenas to Chicago, is not supported by the facts, and the actual value is at most { } of that value. It does raise questions as to overall accuracy of the traffic used in MultiRail, and thus

¹⁵¹ CP-KCS Amended Operating Plan, p. 48, ¶109.

¹⁵² See work papers for this statement "HC Lazaro growth Trains Analysis.xlsx" for how each value in the exhibit was derived.

¹⁵³ Work paper FD 36500 Work Paper HC Growth Initiative Calculations.xlsx.

¹⁵⁴ Work paper 24.1.1.3.3.5.4-Growth Plan Intermodal Loaded and Empty Rail Car Balance.xlsx.

¹⁵⁵ Containers per day divided by CP growth cars per day.

¹⁵⁶ 165 ft divided by containers per car.

brings into question the accuracy of any train counts, yard activity counts, and tonnages based on this traffic.

6. Updated Springfield Line Responsive Application Operating Plan

As a result of the submission of the Amended Operating Plan by Applicants on May 13, 2022, CN is submitting an Alternative Operating Plan for its proposed acquisition of the Springfield Line, for which I am a sponsor.¹⁵⁷ For consistency with the primary control Application, CN's Springfield Alternative Operating Plan uses the data provided by CP-KCS in their Amended Operating Plan as a starting point for many of the base statistics. *The fact that CN is producing this Alternative Operating Plan using the updated CP-KCS data should not be construed as an acknowledgement of the validity of the Base Year data or post-transaction tonnage changes proposed by Applicants. CN continues to believe that CP's and KCS's actual 2019 traffic and density data provide the most accurate measure of the effects of the proposed control transaction (and of CN's Responsive Application).*

The purpose of this Alternative Operating Plan is to provide the Board with an alternative assessment of the proposed Springfield Line divestiture using metrics that are consistent with CP-KCS base data from their May filing. In many cases, I present both our original assessment of CN's proposed operating plan and the alternative assessment based on the CP-KCS provided metrics on a side-by-side basis, so that the STB and the OEA can understand the implications of both approaches.

The Alternative Operating Plan contains the following significant changes:

¹⁵⁷ CN Springfield Line Responsive Application, February 28, 2022; CN Springfield Line Amended Responsive Application, June 9, 2022; STB Finance Docket No. 36500, Canadian Pacific Railway Ltd. – Control – Kansas City Southern, et al, Decision No. 17, April 27, 2022; CP-KCS Amended Operating Plan

- Alternative line segment tonnages for line segments associated with the Springfield line (tonnage projections for lines owned by CN did not change), with minor changes in CN-related tonnage increases from refinements to analysis and removal of organic growth factors
- Alternative train counts for line segments associated with the Springfield line (train count projections for lines owned by CN did not change), with minor changes in the train counts on a limited number of line segments based on a refinement of the analysis process
- Removal of any organic growth-related changes in tonnage or train counts from core operating plan metrics
- Updating of the KCS-owned lines in terms of train counts, tonnages, and yard volumes for purposes of environmental assessment, including using organic growth consistent with CP-KCS provided projections, and using a format similar to that used by Applicants in Appendix T of their amended operating plan
- Updating of select yard statistics for KCS-owned facilities in terms of cars handled, intermodal volumes, and multilevel volumes
- Updating of various other tables to reflect changes found in the CP-KCS Amended Operating Plan and associated text supporting these tables
- Other changes to the text to explain the differences between the CN and CP-KCS approach to assessing the operating plans and highlighting how to use the various alternative views of the operating plan for the Springfield line
- Updating of Appendix A to reflect my current understanding and analysis of the line density data prepared by CP-KCS for the Springfield line, and ensuring it is consistent with the CP-KCS amended operating plan and related metrics.

Appendix A. Applicants’ “Calibration” Process Part of a Complex, Fractured, and Fundamentally Flawed Approach

While the primary focus of this Verified Statement is to show that the CP-KCS Amended Operating Plan continues to present a deeply flawed and unreliable view of both base year and post-transaction operations, it is important to remember that Applicants used a complex, fractured, and fundamentally flawed approach to develop their Operating Plan and the various operating metrics. The many flaws in Applicants’ methodology are discussed in detail in my original Verified Statement included in CN’s Comments on the Application,¹⁵⁸ and summarized in Section 3 and 3.1 above.

This appendix provides the computational details of how Applicants developed both their base operating plan segment-by-segment tonnages and their post-transaction tonnages. Section A.1 examines the pre-transaction methodology and A.2 the post-transaction methodology. Finally, Section A.3 provides an example of how a very minor increase in diversion traffic on the Springfield Line was converted into values that are 2.5 to 6 times larger than the diversion numbers would support (the reverse is true on the Sabula-Airline Junction line, where the tonnages are understated using this same process).

A.1 Generation of density data for the base period

Based on an analysis of Applicants’ work papers related to the estimation of line densities, I developed Exhibit A-1, which attempts to distill the disjointed, illogical process followed by Applicants in generating their proposed density data for the base period.¹⁵⁹ Exhibit A-1 takes five sample line segments and walks through the complex process that Applicants used to derive

¹⁵⁸ Van Dyke First Verified Statement, Section 4.4.

¹⁵⁹ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx; Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx; Work paper 24.1.1.3.19-Trains Per Day and Gross Ton Miles-Workin...y with Haz Breakdown (PREVIOUS SUBMISSION).xlsx; see also Van Dyke First Verified Statement, Sections 4.1 and 4.3.

gross tons per mile for each segment. Exhibit A-1 then compares Applicants' proposed density data calculations with those in the original Exhibit 14 Part A Density Data, adjusted to account for the inclusion of locomotives. As Exhibit A-1 shows, there are significant and varying fluctuations between the actual 2019 data that Applicants first presented in Exhibit 14 Part A and the Applicants' proposed density data that they now assert is a proper substitute for actual full-year 2019 densities.

Exhibit A-1: Applicants' computation of "2019 Base Tonnage" by line segment for Applicants' proposed density data¹⁶⁰

Step	Description	Sample Values				
		Godfrey - East St. Louis	Roodhouse - Murrayville, IL	Ottumwa, IA - Laredo, MO	Kendleton - Victoria, TX	Victoria - Placedo, TX
1	Obtain "base" daily non-unit (i.e., carload and intermodal) train count from MultiRail for trains traversing line segment touching at least 25% of the locations along line segment (not distance based) train plan created to match to non-representative October 2020 traffic based on adaptation of Q1 2021 operating plan ¹⁶¹	{ }	{ }	{ }	{ }	{ }
2	Obtain "base" daily unit train count based on the observed unit trains operated over each line segment using two different 3-4 month time periods from early 2021 for CP and KCS. Adjustments for unit trains traversing only part of line segment are unknown. Unit train samples known to under-represent oil trains on Iowa line for full year, and grain on Springfield line. ¹⁶²	{ }	{ }	{ }	{ }	{ }
3	Compute total base trains per day by summing unit and non-unit train counts	3.71	0.78	3.17	8.70	7.94

¹⁶⁰ Based on an analysis of work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx ("Summary Sheet" tab)

¹⁶¹ See Van Dyke First Verified Statement, Sections 4.2 and 5.3. Applicants did not include the trains per day methodology document with the work papers associated with the May 13, 2022 Amended Operating Plan, and thus provide no update on the 25% rule with respect to the Amended Operating Plan. Because the MultiRail related train counts did not change between the original October 29, 2021 filing and the May 13, 2022 filing, it is logical to assume the 25% rule continues to apply.

¹⁶² CP-KCS Amended Operating Plan, p. 34, ¶82 & p.37, footnote 19.

Step	Description	Sample Values				
		Godfrey - East St. Louis	Roodhouse - Murrayville, IL	Ottumwa, IA - Laredo, MO	Kendleton - Victoria, TX	Victoria - Placedo, TX
4	Obtain the historic average train weight by line segment for across 2020 for CPRS subdivisions and across early 2021 for KCS subdivisions – CP-KCS provided spreadsheets with these values, but no known explanation of their sourcing ¹⁶³	{ }	{ { }	{ }	{ { }	{ }
5	Obtain segment distance (miles)	32.9	10.3	61.2	77.4	12.8
6	Compute “uncalibrated” “base period” daily gross ton miles using formula: [Total trains per day] x [Segment Distance] x [2020/2021 Historic Train Weight]	{ { }	{ { }	{ }	{ { }	{ { }
7	Determine the total GTMs from step 6 for each railroad (CP, KCS, KCSM) by summing across all line segments, and compare to “official” 2019 GTM value for each railroad and determine a “calibration factor” that will cause the individual values to sum to the overall “official” value ¹⁶⁴	{ { }	{ }	{ { }	{ { }	{ { }
8	Adjust the GTM values from step 6 by the calibration factor in step 7 to compute a “final” daily “calibrated” GTM base value for “base period”	616,330	28,174	1,738,217	5,785,320	576,745
9	Compute “base period” annual gross tons per mile for the line by multiplying step 8 value by 365 and dividing by the line segment length (Applicants’ proposed density data)	6,837,704	998,390	10,366,817	27,282,196	16,446,243
10	As a point of comparison, these are the adjusted 2019 gross tonnage values as published in Exhibit 14 Part A Density Data of Amended Application ¹⁶⁵	5,173,120	2,861,340	11,548,900	24,081,560	23,888,020
11	As a point of a comparison, this is the percentage difference between the computed gross tons in step 9 and the Exhibit 14 gross tons in step 10.	-24.34%	186.60%	11.40%	11.73%	45.25%

Initially, the base trains per day numbers in Steps 1-3 of Exhibit A-1, upon which the tonnages are based, were constructed by Applicants in a manner that is highly unlikely to

¹⁶³ See Work paper 24.1.1.3.5.4-Updated Weights.xlsx, Work paper 24.1.1.3.5.3-Train Weight Original KCS.xlsx, Work paper 24.1.1.3.5.2-Train Weight Original CP.xlsx.

¹⁶⁴ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx tab “GTM Targets and Calibration”

¹⁶⁵ See amended Exhibit 14 Part A at p. 313 of Amended Operating Plan, note: tonnages adjusted to take into account locomotives by multiplying the original values by 94.4% for CP and 92.6% for KCS.

represent the actual number of trains operated on each line segment in 2019. These are the same numbers that Applicants used for their Base Year trains per day data submitted to the OEA for every line segment, and they do not reflect actual train counts from the 2019 Base Year. For the manifest and intermodal trains, the train count is taken from MultiRail, where the inputs to the process were traffic from October 2020 and train schedules from Q1 of 2021.¹⁶⁶ On the unit train side, a sample of unit trains was used from early 2021, which we know was non-representative. See the main body of this Verified Statement for examples of issues with the unit train sampling employed by CP-KCS. Furthermore, the historic tonnages used do not take train type into account and are not tied to the base period traffic or actual train design in any way.

For the manifest trains, it is my understanding that Applicants adjusted their Q1 2021 operating plan to match the observed traffic volumes from October 2020, which as discussed in the main body of this Verified Statement was not representative of full-year 2019 traffic. In theory, the use of the Q1 2021 blocking and train plan was to avoid taking credit for “efficiency gains” that will have taken place between 2019 and the approval of the merger. However, how this in any way corresponds to the Base Year 2019 actual train operations is completely unclear. Furthermore, some unknown number of trains were excluded from these counts due to CP-KCS’s “25 percent rule” (discussed further below).

At a minimum, because Applicants constructed trains per day numbers using unit train snapshots from 2021, and manifest/intermodal traffic from October 2020, it is clear that the Base Year trains per day numbers for every line segment submitted to the STB’s OEA do not in any way reflect actual 2019 train operations. As pointed out in this verified statement, the same is

¹⁶⁶ See Van Dyke First Verified Statement, Section 5.3.

true for the segment-specific Base Year tonnage numbers submitted to the STB's OEA, despite Applicants' attempt to "calibrate" the tonnage values to match 2019 aggregate gross ton miles.

These non-representative train counts were then multiplied by "historic average train weights" from 2020 for CPRS subdivisions and early 2021 for KCS subdivisions to obtain total tons on each line segment.¹⁶⁷ To the best of my knowledge, Applicants have not provided any information on how these train weights were actually generated, or why there is any reason to believe they are accurate. See the main body of this Verified Statement for additional examples of questionable train weights.

Ultimately, Exhibit A-1 does not provide any confidence that Applicants have created base period density data that fairly represent full-year 2019 values. It also raises the obvious question: *Why go through all the steps described above to create what Applicants claim is an Operating Plan that "proved to be a quite reasonable reflection of the actual GTMs" ¹⁶⁸ when actual 2019 values were readily available for the Applicants to use?*

As the developer of MultiRail, I am keenly aware of its capabilities. MultiRail is capable of generating line density values directly. If the user enters an appropriate body of traffic, including gross tons, MultiRail will generate an estimate of tonnage by line segment based on that data. In doing so, the blocking and train service plan is taken fully into account, -- there is no need to do complicated external mathematics to convert train counts and historic average weight into tonnage numbers (as described in Exhibit A-1). If Applicants had simply used their full-year 2019 traffic and included the unit trains and traffic in MultiRail, none of these complex

¹⁶⁷ Weights are obtained from work papers 24.1.1.3.5.4-Updated Weights.xlsx, 24.1.1.3.5.3-Train Weight Original KCS.xlsx, and 24.1.1.3.5.2-Train Weight Original CP.xlsx, while the discussion of them being in FD 36500 – Work Paper – HC – Gross Ton Miles, Train Miles, Train Weights and MGT - Methodology.pdf implies they are a derived value.

¹⁶⁸ CP-KCS Amended Operating Plan, p. 39.

calculations would have been necessary. And, as Exhibit A-1 graphically demonstrates, the complex set of calculations made by CP-KCS produced segment tonnage values in line 9 of the above table that vary by a wide margin from the actual, historic Base Year 2019 values (line 10) on a segment-by-segment basis. Even after the historic tonnage values for 2019 are “corrected” by taking the weight of locomotives into account,¹⁶⁹ the differences between modeled and actual values are substantial.

Applicants claim, among other things, that the discrepancy between the historic KCS traffic values they presented in the Exhibit 14 Part A density data and Applicants’ proposed density data calculations was attributable to a methodological difference: “The Operating Plan Base and Year 3 Densities assign GTMs based on the number of miles that a gross ton is moved across the segment, whereas for KCS’s and KCSM’s 2019 figures any tons touching the segment were treated as if they traversed the entire segment, resulting in considerably higher GTMs per mile in the KCS and KCSM 2019 Exhibit 14 [Part A] density figures for many segments.”¹⁷⁰ *But there is no indication in the Application or workpapers that Applicants actually adjusted KCS’s ordinary course density data to reflect only the actual miles of a segment traversed by each train.* Rather, as demonstrated in Exhibit A-1, if a train traversed at least 25 percent of the stations on a line segment, Applicants counted that train as traversing the entire line segment. Conversely, *if a train traversed less than 25 percent of the stations on a line segment, Applicants removed that train entirely from the line segment’s tonnage and train count statistics.* (See my first Verified Statement included in CN’s Comments on the Application provides further details

¹⁶⁹ STB Finance Docket No. 36500, Applicants’ Response to Decision No. 16, op. cit., which states at p. 7, ¶12: “The Operating Plan Base and Year 3 Densities exclude locomotive tons, whereas the CP, KCS, and KCSM 2019 figures (i.e., the 2019 Exhibit 14 Part A Densities) include that tonnage.”

¹⁷⁰ STB Finance Docket No. 36500, Applicants’ Response to Decision No. 16, op. cit., p. 7, ¶13.

on this issue and the resulting distortion of Operating Plan metrics.)¹⁷¹ Never do Applicants in their filing identify any instance where a train that traversed only part of a line segment was counted on a pro-rata basis.

The fractured and complex process detailed in Exhibit A-1, which used a mishmash of data sources, calibrations, and questionable assumptions, provides no credible support for the notion that Applicants' proposed density data values fairly represent full-year 2019 tonnage values by line segment.

A.2 Generation of density data for the post-transaction period

In filing their amended operating plan, Applicants updated many of their tonnage estimates in the Master Segment Table (Appendix T), and provided a new work paper detailing the development of their tonnage values.¹⁷² Superficial examination of the new work paper makes it appear to be a replacement of the prior work paper that was used for the preparation of the original October 2021 Operating Plan.¹⁷³ However, a study of the new work paper reveals that for the post-transaction values, Applicants took what was already a very complex and potentially error-prone process and made it even more complex by pulling in values from the old work paper and then manipulating those values to introduce additional distortions to the post-transaction tonnage estimates.

Based on an analysis of the Applicants' work papers discussed above, I developed Exhibits A-2 through A-6, which attempt to distill the even more disjointed process followed by Applicants in generating the Applicants' proposed density data for the post-transaction period.¹⁷⁴

¹⁷¹ Van Dyke First Verified Statement, Section 4.3.3.

¹⁷² Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

¹⁷³ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx and Work paper 24.1.1.3.19-Trains Per Day and Gross Ton Miles-Workin...y with Haz Breakdown (PREVIOUS SUBMISSION).xlsx.

¹⁷⁴ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx and Work paper 24.1.1.3.19-Trains Per Day and Gross Ton Miles-Workin...y with Haz Breakdown (PREVIOUS SUBMISSION).xlsx.

Since the process involves utilizing post-transaction “synergy” densities from the previous version of the Applicants’ proposed density data submission, Exhibits A-2 through A-6 illustrate how those numbers were calculated previously. Exhibit A-2 shows the process like Exhibit A-1 for constructing “base period” annual gross tons per mile, an input used to ultimately get incremental “synergy” annual gross tons per mile from the previous filing, which is an input into the calculations for this most recent filing.

Exhibit A-2: Applicants’ Computation of “2019 Base Tonnage” by line segment for the previous version of the Applicants’ proposed density data¹⁷⁵

Step	Description	KCS Godfrey, IL – East. St. Louis	KCS Roodhouse- Murrayville, IL	CP Ottumwa, IA- Laredo, MO	KCS Kendleton- Victoria, TX	KCS Victoria- Placedo, TX
1	Compute total base trains per day (from previous submittal)	3.66	0.56	3.17	8.47	7.71
2	Obtain historic average train weight	{ }	{ }	{ }	{ }	{ }
3	Obtain segment distance (miles)	32.9	10.3	61.2	77.4	12.8
4	Compute “uncalibrated” “base period” daily gross ton miles using formula: [Total trains per day] x [Segment Distance] x [Historic train weight]	{ }	{ }	{ }	{ }	{ }
5	Determine the total GTMs from step 4 for each railroad (CP, KCS, KCSM) by summing across all line segments, and compare to “official” 2019 GTM value for each railroad and determine a “calibration factor” that will cause the individual values to sum to the overall “official” value	{ }	{ }	{ }	{ }	{ }
6	Adjust the GTM values from step 4 by the calibration factor in step 5 to compute a “final” daily “calibrated” GTM base value for “base period”	699,872	710	1,739,105	3,895,153	618,978
7	Compute “base period” annual gross tons per mile for the line segment by multiplying step 6	7,764,535	25,166	10,372,112	18,368,617	17,650,558

¹⁷⁵ Work paper 24.1.1.3.19-Trains Per Day and Gross Ton Miles-Workin...y with Haz Breakdown (PREVIOUS SUBMISSION).xlsx.

Step	Description	KCS	KCS	CP	KCS	KCS
		Godfrey, IL – East St. Louis	Roodhouse-Murrayville, IL	Ottumwa, IA- Laredo, MO	Kendleton-Victoria, TX	Victoria-Placedo, TX
	value by 365 and dividing by the line segment length					

Exhibit A-3 shows the process for generating the base to synergy growth rate from the previous filing, another input used to ultimately get incremental synergy annual gross tons per mile from the previous filing, which is an input to the calculations for this most recent filing.

Exhibit A-3: Applicants' computation of "Base to Synergy" growth rate by line segment for the previous version of the Applicants' proposed density data¹⁷⁶

Step	Description	KCS	KCS	CP	KCS	KCS
		Godfrey, IL – East St. Louis	Roodhouse-Murrayville, IL	Ottumwa, IA- Laredo, MO	Kendleton-Victoria, TX	Victoria-Placedo, TX
1	Add MultiRail and Bulk base carloads for a combined total base carload number.	{ }	{ }	{ }	{ }	{ }
2	Add Bulk synergy growth carloads, MultiRail growth carloads, and Bulk base carloads for total synergy growth carloads.	{ }	{ }	{ }	{ }	{ }
4	Calculate growth rate from base to synergy by finding the carload rate of change between step 1 and step 2	{ }	{ }	{ }	{ }	{ }
5	Obtain "Synergy Ratio," an unexplained constant dependent on railroad	{ }	{ }	{ }	{ }	{ }
6	Calculate the final growth rate from base to synergy by multiplying the carload rate of change by the synergy ratio	{ }	{ }	{ }	{ }	{ }

As seen in steps 5 and 6 of Exhibit A-3, Applicants apply a "Synergy Ratio" to the growth rates for KCS and KCSM of 0.8 and 0.65 respectively. With no identifiable source, the purpose

¹⁷⁶ Work paper 24.1.1.3.19-Trains Per Day and Gross Ton Miles-Workin...y with Haz Breakdown (PREVIOUS SUBMISSION).xlsx.

and origin of these numbers are unclear. These potentially arbitrary multipliers serve to deflate the total synergy growth.

Of note, in calculating both the base carload number in step 1 and the synergy carload number in step 2, no effort is made to track the mix of cars between bulk, intermodal, automotive, and manifest traffic, meaning that the average car weight (train weight) effectively stays the same regardless of traffic mix in subsequent calculations.

Exhibit A-4 compares these calculated growth rates from the previous version of the spreadsheet, both with and without the “Synergy Ratio,” to the up-to-date numbers in the most recent Applicants’ proposed density data submission.

Exhibit A-4: Applicants’ “Base to Synergy” growth rates by line segment for the previous and most recent version of the Applicants’ proposed density data¹⁷⁷

Rate		KCS Godfrey, IL – East St. Louis	KCS Roodhouse- Murrayville, IL	CP Ottumwa, IA- Laredo, MO	KCS Kendleton- Victoria, TX	KCS Victoria- Placedo, TX
1	New Version spreadsheet (May 13, 2022)	{ }	{ }	{ }	{ }	{ }
2	Previous Version spreadsheet (Oct. 29, 2021)	{ }	{ }	{ }	{ }	{ }
3	Previous Version spreadsheet with “Synergy Ratio” (Oct. 29, 2021)	{ }	{ }	{ }	{ }	{ }

As shown in Exhibit A-4, the growth rates between the two versions of the spreadsheets can differ, especially after the application of the “Synergy Ratio.” If the growth rates used to calculate incremental synergy annual gross tons per mile from the previous filing are out-of-date or erroneous, then plugging that value into the new calculations will yield additional errors.

¹⁷⁷ Work paper 24.1.1.3.19-Trains Per Day and Gross Ton Miles-Workin...y with Haz Breakdown (PREVIOUS SUBMISSION).xlsx.

Exhibit A-5 breaks down the calculation process for the previous filing's total synergy gross tons per mile, using the base GTM value in step 6 of Exhibit A-2 and the final base to synergy growth rate in Exhibit A-3.

Exhibit A-5: Applicants' computation of synergy annual gross tons per mile by line segment for the previous version of the Applicants' proposed density data¹⁷⁸

Step	Description	KCS Godfrey, IL – East St. Louis	KCS Roodhouse- Murrayville, IL	CP Ottumwa, IA- Laredo, MO	KCS Kendleton- Victoria, TX	KCS Victoria- Placedo, TX
1	Calculate base to synergy growth rate as per above instructions	{{ }}	{{ }}	{{ }}	{{ }}	{{ }}
2	Calculate calibrated base GTMs as per above instructions	699,871	710	1,739,105	3,895,153	618,978
3	Calculate uncalibrated Synergy GTMs from calibrated base GTMs by applying the Base to synergy growth rate	{{ }}	{{ }}	{{ }}	{{ }}	{{ }}
4	Obtain base + synergy calibration factor by finding the ratio between the predicted Synergy GTMs from the "System Model" for each railroad and comparing that to the sum of the uncalibrated synergy GTMS for each railroad from line 3	{{ }}	{{ }}	{{ }}	{{ }}	{{ }}
5	Adjust GTM values from step 3 by applying calibration factor in step 4 to the step 3 value	{{ }}	{{ }}	{{ }}	{{ }}	{{ }}
6	Effective, post-calibration growth rate	{{ }}	{{ }}	{{ }}	{{ }}	{{ }}
7	Obtain segment distance (miles)	32.9	10.3	61.2	77.4	12.8
8	Compute synergy annual gross tons per mile for the line by multiplying step 5 value by 365 and dividing by the segment distance	{{ }}	{{ }}	{{ }}	{{ }}	{{ }}

¹⁷⁸ Work paper 24.1.1.3.19-Trains Per Day and Gross Ton Miles-Workin...y with Haz Breakdown (PREVIOUS SUBMISSION).xlsx.

A calibration rate is applied to the GTMs after the application of the growth rate, resulting in a growth rate higher than initially stated, illustrated by the comparison between steps 1 and 6 in the above exhibit.

As illustrated in Exhibit A-6, the annual gross tons per mile calculated in Exhibit A-2 from the previous version of the density spreadsheet, and the previous version total synergy annual gross tons per mile calculated in Exhibit A-5 are used to determine the final incremental synergy annual gross tons per mile in the previous version of the Applicants' proposed density data. This value is plugged into the most up-to-date version of the Applicants' proposed density data to solve for synergy density and, ultimately, total growth density.

Exhibit A-6: Applicants' computation of Y3 annual gross tons per mile by line segment for the most recent version of the Applicants' proposed density data¹⁷⁹

Step	Description	KCS Godfrey, IL – East St. Louis	KCS Roodhouse- Murrayville, IL	CP Ottumwa, IA- Laredo, MO	KCS Kendleton- Victoria, TX	KCS Victoria- Placedo, TX
1	Obtain base million gross ton per mile from previous version	{ }	{ }	{ }	{ }	{ }
2	Obtain synergy million gross tons from previous version	{ }	{ }	{ }	{ }	{ }
3	Calculate Y3 incremental synergy growth from previous version by subtracting step 1 from step 2	{ }	{ }	{ }	{ }	{ }
4	Obtain base uncalibrated GTMs new version	{ }	{ }	{ }	{ }	{ }
5	Determine the total GTMs from step 4 for each railroad (CP, KCS, KCSM) by summing across all line segments, and compare to "official" 2019 GTM value for each railroad and determine a "calibration factor" that will cause the individual values to sum to the overall "official" value	{ }	{ }	{ }	{ }	{ }

¹⁷⁹ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

Step	Description	KCS Godfrey, IL – East St. Louis	KCS Roodhouse- Murrayville, IL	CP Ottumwa, IA- Laredo, MO	KCS Kendleton- Victoria, TX	KCS Victoria- Placedo, TX
6	Adjust the GTM values from step 4 by the calibration factor in step 5 to compute a “final” new version daily “calibrated” GTM base value for “base period”	616,330	28,174	1,738,217	5,785,320	576,745
7	Compute new version “base period” annual million gross tons per mile for the line by multiplying step 6 value by 365 and dividing by the line segment length, and dividing that value by 1 million (used for new Applicants’ proposed density data)	6.838	1.0	10.37	27.282	16.446
8	Sum steps 3 and steps 7 to find base + synergy MGTs (used for new Y3 Applicants’ proposed density data)	{ }	{ }	{ }	{ }	{ }
9	Effective, post-calibration growth rate	{ }	{ }	{ }	{ }	{ }
10	Calculate synergy GTMs by multiplying step 8 by multiplying by 1 million and segment length and dividing by 365	{ }	{ }	{ }	{ }	{ }
11	Total Synergy Growth Carloads: Add Bulk synergy growth carloads, MREE growth carloads, and Bulk base carloads for total synergy growth carloads new version	{ }	{ }	{ }	{ }	{ }
12	Total Growth Carloads (incl Organic): Add Bulk synergy growth carloads, MREE growth carloads, Bulk organic growth carloads, growth organic carloads, and Bulk base carloads for total synergy growth carloads new version	{ }	{ }	{ }	{ }	{ }
13	Calculate the % difference between steps 11 and 12 to find the synergy to all growth conversion rate	{ }	{ }	{ }	{ }	{ }

Step	Description	KCS Godfrey, IL – East St. Louis	KCS Roodhouse- Murrayville, IL	CP Ottumwa, IA- Laredo, MO	KCS Kendleton- Victoria, TX	KCS Victoria- Placedo, TX
14	Total Growth GTMs (incl Organic): Calculate all growth precalibrated GTMs by applying the synergy to growth rate to synergy GTMs	{ }	{ }	{ }	{ }	{ }
15	Obtain all (organic, synergy, and base) GTM calibration rate by summing 14 by railroad and comparing to the expected equivalent number in the "system model" and find adjustment value to make the values in this spreadsheet match the system model	{ }	{ }	{ }	{ }	{ }
16	Total Calibrated Growth GTMs: Apply calibration rate in step 15 to GTMs in step 14 to calculate all calibrated GTMs	827,516	33,093	6,497,963	8,934,852	1,077,614
17	Calculate annual gross tons per mile for Y3 by multiplying step 16 value by 365 and dividing by the line segment length	9,180,647	1,172,708	38,754,193	42,134,637	30,728,837

As illustrated by step 8, instead of calculating synergy GTMs from the base GTMs with a carload-based growth rate, as they did in the previous version of these calculations, the Applicants added on an absolute value for incremental growth. This absolute value incremental growth was derived from a previous, now outdated, version of the work papers.

Organic growth volume and total growth volume are also calculated as a function of this questionable synergy GTM value imported from an outdated filing, as shown in steps 11 through 14.

Of note, for both the Total Synergy Growth Carloads in step 11 and Total Growth Carloads in step 12, average car weight stays the same regardless of any changes to traffic mix on the line.

The effect of this approach is to create distortions in the post-transaction tonnage numbers that can cause tonnages to be understated (as in the case of the Sabula to Airline Junction, Missouri line), or overstated (as in the case of the Springfield line where the process introduces significant levels of “phantom” merger related growth, as detailed in the next section). Section A.3 below presents a compressed look at the Springfield line for selected segments, where a volume increase of only 5-6 cars per day produced tonnage increases of as much as a 1.18 million tons/year. (See also the Godfrey-East St. Louis column in the above exhibits.)

To summarize, Applicants’ calculations of post-transaction density in connection with the Amended Operating Plan are overly complex, utilize arbitrary adjustments such as the “Synergy Ratio,” while falling back on outdated calculations from their previous filing. I can only speculate as to why Applicants did not simply replace their density spreadsheet with a new one – perhaps to prevent the “synergy” growth numbers from changing too much between filings?

A.3 Distorted post-transaction tonnages on selected Springfield Line subdivisions

Exhibit A-7 below presents a compressed view of the process to estimate the tonnage increases resulting from increases in post-transaction “synergy growth” traffic on selected segments of the Springfield Line. By “synergy growth,” CP-KCS means growth as a direct result of the merger, excluding organic growth. What you will see in the below examples is that a 5-6 car per day volume increase due to synergy growth was transformed into tonnage increases in the range of 0.5 million to 1.2 million per year. A 6 car increase, at 75 tons/car, would normally result in an annual tonnage increase of less than 0.2 million tons per year. However, due to a myriad of factors, including likely underreporting of the number of cars on each line segment in the CP-KCS work papers, possible errors in train counts, inconsistencies in the train weights applied, and a variety of “calibration factors” and other adjustments, this fairly modest volume

increase became significantly overstated. It clearly demonstrates how using such a complex process can fall apart when there are inconsistencies in data which is being independently sourced from multiple places and time periods.

Exhibit A-7 organizes the estimation process into four phases as follows:

- A) Compute the “previous submission,” “base period,” “calibrated” tonnage for each line segment using the October 29, 2021 logic/values
- B) Compute the “previous submission” applicable “growth rate” for estimating the increase in tonnage on the line segment relative to the base period tonnage using the October 29, 2021 logic/values
- C) Compute the “previous submission,” “post-transaction,” “calibrated,” “synergy” tonnage for each line segment (with no organic growth) using the October 29, 2021 logic/values
- D) Compute the “new submission,” “calibrated,” “synergy” tonnage for each line segment (with no organic growth) by applying the incremental tonnage increase found in the “previous submission” process to the “new submission” base tonnage (creating the May 13, 2022 values)

Exhibit A-7: Applicants’ computation of post-transaction “synergy” tonnage values for select Springfield Line segments¹⁸⁰

Step	Description	Roodhouse-Godfrey, IL	Godfrey - East St. Louis	Kansas City - Slater	Slater - Mexico	Mexico - Roodhouse
1A	Compute total base trains per day	1.52	3.66	2.45	1.56	1.84
2A	Obtain historic average train weight	{ }	{ }	{ }	{ }	{ }
3A	Obtain segment distance (miles)	40	32.9	97.2	67.9	88.4
4A	Compute “uncalibrated” “base period” daily gross ton miles using formula: [Total trains per day] x [Segment Distance] x [Historic train weight]	{ }	{ }	{ }	{ }	{ }
5A	Determine the total GTMs from step 4A for each railroad (CP, KCS, KCSM) by summing across all line segments, and compare to “official” 2019 GTM value for each railroad and determine a “calibration factor” that will cause the individual values to sum to the overall “official” value	{ }	{ }	{ }	{ }	{ }

¹⁸⁰ See work papers for this statement “HC- Springfield Synergy Growth Calculations.xlsx”

Step	Description	Roodhouse- Godfrey, IL	Godfrey - East St. Louis	Kansas City - Slater	Slater - Mexico	Mexico - Roodhouse
6A	Adjust the GTM values from step 4A by the calibration factor in step 5A to compute a "final" daily "calibrated" GTM base value for "base period"	121,601	699,872	1,553,324	690,914	821,078
7A	Compute "base period" annual gross tons per mile for the line segment by multiplying step 6A value by 365 and dividing by the line segment length (October 2021)	1,109,611	7,764,535	5,832,957	3,714,046	3,390,198
1B	Add MultiRail and Bulk base carloads for a combined total base carload number.	{ }}	{ { }}	{ }}	{ { }}	{ { }}
2B	Add Bulk synergy growth carloads, MultiRail growth carloads, and Bulk base carloads for total synergy growth carloads.	{ }}	{ { }}	{ }}	{ { }}	{ }}
3B	Calculate growth rate from base to synergy by finding the carload rate of change between step 1B and step 2B	{ }}	{ }}	{ }}	{ { }}	{ }}
4B	Obtain "Synergy Ratio," an unexplained constant dependent on railroad	{ { }}	{ }}	{ { }}	{ }}	{ { }}
5B	Calculate the final growth rate from base to synergy by multiplying the carload rate of change by the synergy ratio (October 2021)	{ }}	{ }}	{ }}	{ { }}	{ }}
6B	New Version Synergy Growth Rate (for comparison) (May 2022)	{ }}	{ }}	{ { }}	{ }}	{ { }}
1C	Calculate uncalibrated Synergy GTMs from calibrated base GTMs by applying the Base to synergy growth rate in Step 5B to the base GTMs from Step 6A	{ }}	{ }}	{ { }}	{ }}	{ { }}
2C	Obtain base + synergy calibration factor by finding the ratio between the predicted Synergy GTMs from the "System Model" for each railroad and comparing that to the sum of the uncalibrated synergy GTMS for each railroad from line 3	{ }}	{ }}	{ { }}	{ }}	{ { }}
3C	Adjust GTM values from step 1C by applying calibration factor in step 2C to the step 1C value	141,034	806,205	1,765,349	795,608	947,481
4C	Effective, post-calibration growth rate	{ { }}	{ { }}	{ }}	{ { }}	{ }}

Step	Description	Roodhouse- Godfrey, IL	Godfrey - East St. Louis	Kansas City - Slater	Slater - Mexico	Mexico - Roodhouse
5C	Compute synergy annual gross tons per mile for the line by multiplying step 3C value by 365 and dividing by the segment distance (October 2021)	1,286,937	8,944,219	6,629,140	4,276,835	3,912,109
1D	Obtain base million gross ton per mile by dividing Step 7A by 1,000,000 ("Previous Submission" - revised in new submission)	1.110	7.765	5.833	3.714	3.390
2D	Obtain synergy million gross tons per mile by dividing Step 5C by 1,000,000 ("Previous Submission" - revised in new submission)	1.287	8.944	6.629	4.277	3.912
3D	Calculate year 3 incremental synergy growth from previous version by subtracting step 1D from step 2D (exact value used in new submission, based on growth from October 2021 submission)	0.177	1.180	0.796	0.563	0.522
4D	Number of Synergy growth cars per year (line 2B minus line 1B multiplied by 365)	{ }	{ }	{ }	{ }	{ }
5D	Effective gross weight per car of new synergy growth cars (line 3D times 1,000,000 divided by 4D)	{ }	{ }	{ }	{ }	{ }
6D	Effective gross weight of base period cars (line 1D times 1,000,000 divided by 1B times 365)	{ }	{ }	{ }	{ }	{ }

Appendix B. Underreporting of Unit Trains¹⁸¹

B.1 Description

Applicants claim on page 37 of their Amended Operating Plan, “For trains that operate on demand rather than in accord with set schedules, the Operating Plan Team analyzed data on actual CP and KCS on demand trains operated during early 2021,” and in a footnote below elaborate that “In both cases, the period analyzed was the most recent three-month period at the time of the study (February-May for KCS, March-June for CP).”¹⁸² For KCS segments, this is a 93-day period of traffic through which they derived their bulk trains per day, and for CP segments, a 90-day period of traffic served the same function.

However, upon investigation, I find that these time periods understate actual train counts in some cases. In addition, for the bulk trains examined, train weights are also undervalued in the spreadsheet used to compute line segment densities.¹⁸³ This combination of understated train counts and undervalued train weights leads to significantly lower and misleading tonnage for these bulk trains. Below I highlight three separate cases where I find this to be true.

B.2 {{ }} trains traveling from/to {{ }}, IL

Based on the 93-day period Applicants examine for train traffic on KCS lines, there are {{ }} unit {{ }} trains that travel either from or to {{ }}, IL.¹⁸⁴ This amount suggests {{ }} unit {{ }} trains per day travel to or from {{ }}, IL (or about {{ }} trains per month). Using the average base train weight post-calibration for the

¹⁸¹ See work papers for this statement “HC – Comparing Bulk Trains – 2019 Waybill vs. Applicant Filing.xlsx” for how each value in Appendix B was derived.

¹⁸² CP-KCS Amended Operating Plan, p. 37.

¹⁸³ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

¹⁸⁴ Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx.

{{ }}, IL – {{ }}, IL segment of {{ }} tons¹⁸⁵ provides an annual gross tonnage of {{ }} million tons.

Looking at raw waybill data, there are {{ }} carloads of unit {{ }} that travel to or from {{ }}, IL in the full year 2019.¹⁸⁶ I calculated that the average weight of a unit {{ }} car on the {{ }}, IL – {{ }}, IL segment is {{ }} tons based on the mix of loaded and empties,¹⁸⁷ meaning that actual 2019 gross tonnage for {{ }} trains traveling to or from {{ }}, IL is {{ }} million tons. Assuming that {{ }} trains in the {{ }} subdivision have on average {{ }} cars per train,¹⁸⁸ this would also mean that {{ }} {{ }} trains per days (or {{ }} {{ }} trains per month) travel to or from {{ }}, IL.

Applicants' assumptions regarding both train traffic and train weight clearly undervalue tonnage and train counts, understating annual tonnage by {{ }} million tons ({{ }}% understatement) and trains per month by {{ }} trains ({{ }}% understatement).

Exhibit B-1: Comparing actual 2019 waybill data to Applicants' computation of "2019 Base Tonnage" by line segment for Applicants' proposed density data for {{ }} trains traveling to/from {{ }}, IL

	Actual 2019 Waybill data	CP's Amended Operating Plan	Absolute Difference	Percent understatement
Carloads for full 2019 year	{{ }} ¹⁸⁹	n/a		
Carloads per train	{{ }} ¹⁹⁰	n/a		
Train count for examined 3-month period	n/a	{{ }} ¹⁹¹		

¹⁸⁵ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

¹⁸⁶ Data from FD 36500 – Work Paper – HC – 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

¹⁸⁷ Data from FD 36500 – Work Paper – HC – 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

¹⁸⁸ Work paper 24.1.1.3.2.3-KCS KCSM Bulk Trains Per Day by Subdivision.xlsx.

¹⁸⁹ Data from FD 36500 – Work Paper – HC – 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

¹⁹⁰ Work paper 24.1.1.3.2.3-KCS KCSM Bulk Trains per Day by Subdivision.xlsx.

¹⁹¹ Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx.

Trains per day	{ }	{ }		
Trains per month	{ }	{ }	{ } trains	{ }%
Average weight per carload	{ } ¹⁹²	n/a		
Average weight per train	{ }	{ } ¹⁹³	{ } tons	{ }%
Base MGT	{ }	{ }	{ } tons	{ }%

B.3 { } trains traveling from/to { } in { }, TX

Based on the 93-day period CP-KCS examines for train traffic on KCS lines, there are { } { } trains that travel either from or to the { } in { }, TX.¹⁹⁴ This amount suggests { } { } trains per day travel to or from { } (or about { } trains per month). Using the average base train weight post-calibration for the Greenville, TX Shreveport, LA segment of { } tons¹⁹⁵ provides an annual gross tonnage of { } million tons.

Looking at raw waybill data, there are { } carloads of { } that travel to or from { } in the full year 2019.¹⁹⁶ For these trains, I calculated that the average weight of a { } car on the Greenville, TX Shreveport, LA segment is { } tons based on the mix of loads and empties,¹⁹⁷ meaning that actual 2019 gross tonnage for { } trains traveling to or from { } is { } million tons. Assuming that { } trains in the Greenville subdivision have on average { } cars per train,¹⁹⁸ this would mean that { } { }

¹⁹² Using the actual split of loaded and empty cars from 2019 waybill data, with the assumptions that average empty cars weigh 35 tons and average loaded cars 140 tons.

¹⁹³ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

¹⁹⁴ Post-calibrated base average train weight (Column BD) from Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx.

¹⁹⁵ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

¹⁹⁶ Data from FD 36500 – Work Paper – HC – 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

¹⁹⁷ Data from FD 36500 – Work Paper – HC – 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

¹⁹⁸ Work paper 24.1.1.3.2.3-KCS KCSM Bulk Trains Per Day by Subdivision.xlsx.

trains per days (or {{ }} {{ }} trains per month) travel to or from the {{ }}.

Applicants by their assumptions of both train traffic and train weight clearly undervalue tonnage and train counts, understating annual tonnage by {{ }} million tons ({{ }}% understatement) and trains per month by {{ }} trains ({{ }}% understatement).

Exhibit B-2: Comparing actual 2019 waybill data to Applicants' computation of "2019 Base Tonnage" by line segment for Applicants' proposed density data for {{ }} trains traveling to/from {{ }}, TX

	Actual 2019 Waybill data	CP's Amended Operating Plan	Absolute Difference	Percent understatement
Carloads for full 2019 year	{{ }} ¹⁹⁹	n/a		
Carloads per train	{{ }} ²⁰⁰	n/a		
Train count for examined 3-month period	n/a	{{ }} ²⁰¹		
Trains per day	{{ }}	{{ }}		
Trains per month	{{ }}	{{ }}	{{ }} trains	{{ }}%
Average weight per carload	{{ }} ²⁰²	n/a		
Average weight per train	{{ }}	{{ }} ²⁰³	{{ }} tons	{{ }}%
Base MGT	{{ }}	{{ }}	{{ }} tons	{{ }}%

B.4 Unit petroleum trains traveling through Sabula, IA to Airline Jct, MO

Based on the 90-day period Applicants examine for train traffic on CP lines, there are {{ }} unit petroleum trains that travel through Sabula, IA and then through Airline Jct, MO.²⁰⁴ This amount suggests {{ }} unit petroleum trains per day travel on this line (or about {{ }} trains per month). Taking the average base train weight post-calibration for all nine

¹⁹⁹ Data from FD 36500 – Work Paper – HC – 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

²⁰⁰ Work paper 24.1.1.3.2.3-KCS KCSM Bulk Trains per Day by Subdivision.xlsx.

²⁰¹ Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx.

²⁰² Using the actual split of loaded and empty cars from 2019 waybill data, with the assumptions that average empty cars weigh 21 tons and average loaded cars 143 tons.

²⁰³ Post-calibrated base average train weight (Column BD) from Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx.

²⁰⁴ Work paper 24.1.1.3.12-TPD Bulk Base CP.xlsx.

segments between Sabula, IA and Airline Jct, MO and their weighted average using segment miles provides an average train weight on this line of {{ }} tons,²⁰⁵ translating to an annual gross tonnage of {{ }} million tons.

Flowing trains on MultiRail using raw waybill data indicates that {{ }} carloads of unit train petroleum traveled between Sabula, IA and Airline Jct, MO in full-year 2019.²⁰⁶ For this traffic, I calculated that the average weight of a unit train petroleum car on all these segments is {{ }} tons,²⁰⁷ meaning that actual 2019 gross tonnage for unit petroleum trains traveling through Sabula to Airline Jct is {{ }} million tons. Assuming that unit petroleum trains in the seven subdivisions have on average {{ }} cars per train,²⁰⁸ this would also mean that {{ }} unit petroleum trains per days (or {{ }} unit petroleum trains per month) travel between Sabula, IA and Airline Jct, MO.

Applicants' assumptions regarding both train traffic and train weight clearly undervalue tonnage and train counts, understating annual tonnage by {{ }} million tons ({{ }}% understatement) and trains per month by {{ }} trains ({{ }}% understatement).

²⁰⁵ Work paper 24.1.1.9-Trains Per Day and Gross Ton Miles.xlsx.

²⁰⁶ Data from FD 36500 – Work Paper – HC – 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

²⁰⁷ Data from FD 36500 – Work Paper – HC – 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

²⁰⁸ Section 3.5 in _FD 36500 Work Paper HC Trains Per Day – Methodology, p. 7.

Exhibit B-3: Comparing actual 2019 waybill data to Applicants' computation of "2019 Base Tonnage" by line segment for Applicants' proposed density data for petroleum trains traveling through Sabula, IA to Airline Jct, MO

	Actual 2019 Waybill data	CP's Amended Operating Plan	Absolute Difference	Percent understatement
Carloads for full 2019 year	{ } ²⁰⁹	n/a		
Carloads per train	{ } ²¹⁰	n/a		
Train count for examined 3-month period	n/a	{ } ²¹¹		
Trains per day	{ }	{ }		
Trains per month	{ }	{ }	{ } trains	{ }%
Average weight per carload	{ } ²¹²	n/a		
Average weight per train	{ }	{ } ²¹³	{ } tons	{ }%
Base MGT	{ }	{ }	{ } tons	{ }%

²⁰⁹ Data from FD 36500 Work Paper HC 2019_CONSOLIDATED_CPKCS_DATA_MASTER.txt aggregated by total carloads per origin, destination, railroad, traffic category.

²¹⁰ Section 3.5 in _FD 36500 Work Paper HC Trains Per Day Methodology, p. 7.

²¹¹ Work paper 24.1.1.3.11-TPD Bulk Base CP.xlsx.

²¹² Assuming a 50/50 split of empties and loaded with empties weighing 40 tons and loaded weighing 140 tons.

²¹³ Post-calibrated base average train weight (Column BD) from Work paper 24.1.1.3.12-TPD Bulk Base KCS.xlsx.

Appendix C. Previously Cited Concerns Remain Valid

I also have been asked to review and comment on whether the Applicants' Amended Operating Plan submitted on May 13, 2022²¹⁴ substantially changed any of the comments I previously made in my first Verified Statement submitted as part of CN's comments on February 28, 2022.²¹⁵ In addition to the lack of an identifiable base year for the operating plan and to the misleading tonnage and train counts outputs that result from Applicants' use of disparate data and convoluted modeling logic, which I detailed above, I find that the Amended Operating Plan submitted by CP-KCS is also fundamentally flawed and unreliable for the reasons I explained in my first Verified Statement. Exhibit C-1 below highlights some of the additional issues I had originally identified and explains the key impacts (if any) of the May 13 submission on my original conclusions.

Exhibit C-1: Additional findings from my February 28, 2022 Verified Statement and impacts of the May 13 Submission by CP-KCS

Issue	Original Feb 28 findings ²¹⁶	Impact of the May 13 submission
Disconnect between the Operating Plan in MultiRail and the "System Model" that drives costing and other metrics	- Applicants ignored the outputs of their MultiRail operations modeling and instead used the outputs of a simplistic spreadsheet model (which they call "System Model" or "Cost Metrics Model") to calculate the merged railroads' operating metrics and expenses - Because of this, Applicants failed to generate a reliable set of operating statistics based on a unified and rigorous operations planning process, resulting in a fatally flawed operating plan and operating expense evidence	- Operating metrics and expenses are still based on the same simplistic spreadsheet model; the impacts of this flawed approach which were highlighted in my first VS are still valid - CP-KCS made a correction to the Freight Car Miles base data used in the "Cost Metrics Model," resulting in an increase of { } percent (from { } to { }) in the initial Freight Car Miles. The reason provided for this change is that CP had failed to include the Soo Line in the figures for their original submission.²¹⁷ The fact that this error occurred and was not detected by CP-

²¹⁴ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – Amended Operating Plan (Exhibit 13), Verified Statement of Raymond A. Elphick and John F. Orr. May 13, 2022.

²¹⁵ Van Dyke First Verified Statement.

²¹⁶ Van Dyke First Verified Statement.

²¹⁷ See FD 36500 – Work Paper – HC – Cost Metrics Growth Model _ Base Year 2019.xlsx (October 2021 submission) vs. 24.1.1.5-Cost Metrics Growth Model.xlsx (May 2022 amended submission). In tab "Model", CP-KCS provide an explanation for the significant change in Freight Car Miles.

Issue	Original Feb 28 findings ²¹⁶	Impact of the May 13 submission
Use of fragmented, error-prone approach to developing pre- and post-transaction operating plans that does not yield reliable results	Applicants used a complex approach using different time periods for traffic, modeled unit trains outside of MultiRail, largely ignored MultiRail and traffic when estimating tonnages, did not use a bottom-up approach, but instead forced the operating plan to conform to external estimates of operating metrics, and applied a convoluted calibration process in a failed attempt to make the results look like they were related to the base year	KCS highlights the risks and flaws associated with the disconnect between data sources and the use of an unreliable planning process, as I highlighted in my first VS - Nothing fundamental changed in the May 13 submission, including use of disjointed data sources, modeling of unit trains outside of MultiRail, and the use of “calibration” factors to try to force the answers to conform with external CP-KCS estimates of key metrics - Some details changed, such as hand fixes to some train counts and line density values, changes in the formatting of yard handling reports, elimination of organic growth from the operating plan metrics, clarification that unit trains were taken from early 2021, not October 2020, etc. - Some things were made more complex, such as the introduction of a new spreadsheet to estimate segment level tonnages that also relies on the original spreadsheet for part of the calculations
Flawed traffic due to use of one-month traffic sample from other than the base year, and 2021 to obtain unit trains; confusion over role of organic growth	- Use of a fractured approach to developing traffic that resulting in the need to use a complex and error prone analysis process (further explored in this VS) - Applicants implied that they included organic growth in their MultiRail planning process but failed to include organic growth in their costing process - Organic growth appears to be significantly overestimated relative to the historic record, and ignored differences between merging railroads	- Traffic issues remain and are not corrected in any way in Amended Operating Plan filing; sourcing of data has been somewhat clarified - CP-KCS has clarified that it is excluding organic growth from the Operating Plan’s base numbers, and has somewhat corrected prior errors in the application of organic growth factors - Continue to use very high, systemwide growth factors, despite identified carrier specific growth rates - Cost Metrics Model outputs and resulting financial projections are largely unchanged and still do not include organic growth
Lack of modeling of yard switching activities in the Cost Metrics Model	There is no mention of any activity measures related to yard switching activity, including intermediate switching, block swaps, or intermodal lifts in the Applicants’ system model, and nothing indicates that such measures were considered in developing post-merger operating expenses	No change
Yard activity measures do not	Main comparison reports for yards are not between the base period and the	Most issues remain lack of comparisons between base and post-transaction volumes,

Issue	Original Feb 28 findings ²¹⁶	Impact of the May 13 submission
comply with filing requirements and are deceptive	post-transaction case. Instead CP-KCS presents comparisons of base to “optimized plan” and then “optimized plan” to post-transaction. Direct comparisons between base and post-transaction cases are not provided • Not all yards experiencing a 20% change in handlings are detailed • Car counts are deceptively low for intermodal facilities, due to treating all intermodal cars identically, independent of the number of platforms • Bulk traffic and block swap volumes are not detailed in main filing	except in Appendix T, and the Appendix T numbers are different from the cars handled numbers in the main operating plan yard volumes • Bulk traffic appears to be included in Appendix T yard volumes, but not in main operating plan yard volumes, and no explanation of the differences appears to be provided • Issues remain with respect to omitting block swaps, counting of intermodal cars, handling of bulk volumes, etc.
Exclusion of local trains	• Due to a “25% rule,” local trains that touched fewer than 25% of the nodes on a subdivision were excluded from the train counts, independent of the distance traversed	• Because the train counts did not change in the Amended Operating Plan filing, it is my assumption that this rule still applies. CP-KCS failed to include the methodology document that detailed this rule in the updated work papers (along with a number of other methodology documents)
Exact traffic used in MultiRail is unclear	• While a MultiRail traffic table was provided in the work papers, it was described as a sample file, and the contents did not appear to match the statistics for either the pre- or post-transaction cases	• Two new MultiRail traffic tables were provided in the new work papers, but no explanation was provided as to their contents. All references to work paper file names were removed from the methodology document detailing how the traffic was prepared
Variety of specific errors identified in the traffic density and other data published as part of the operating plan	• Examples included incorrect tonnage on the Sabula-Airline Junction line, missing intermodal traffic to/from Lazaro Cardenas, impact of the “25% rule” discussed above on train counts, issues with yard counts as discussed above, and yards with significant “balance” issues between originating and terminating traffic • Also noted other issues with bad line densities, capacity issues on the NS/CSX haulage/trackage rights arrangements, and that October 2020 was not representative of full-year 2019 traffic volumes	• While the details have changed, all of these issues remain • Problems with the Sabula-Airline Junction tonnages are extensively detailed in this VS • CP-KCS acknowledges that the Lazaro Cardenas traffic is missing in their Amended Operating Plan • See prior entries in this table with respect to the “25% rule” and deceptive yard activity counts • I believe the issues with yard balance remain unaddressed • Other cited issues also remain, including density issues on other lines (as detailed in this VS), likely capacity issues with the NS/CSX services, and the non-representative nature of the October 2020 traffic
Applicants attempt to present metrics as	• Table 2 in the original operating plan filing provides a variety of statistics that	• In the Amended Operating Plan filing, the same data elements are presented in Table 3

Issue	Original Feb 28 findings ²¹⁶	Impact of the May 13 submission
arising from the operating plan that actually come from their “System Model” or other sources²¹⁸	are either sourced from the “System Model” or other analyses not tied to the operating plan²¹⁹ Original filing explicitly stated that the “growth plan” included organic growth²²⁰	- The contents of this table remain driven by the “System Model” and are not derived from the operating plan “Running Car Miles” changed due to the omission of the Soo Line in prior statistics, demonstrating how this number was not sourced from MultiRail / the operating plan, but from other external models - Intermediate handlings also changed significantly, possibly due to the Soo Line issue - References to the inclusion of organic growth appear to have been removed – and may have been in error in the original filing

The correction made by CP-KCS to base year Freight Car Miles, from {{ }} to {{ }}, a {{ }} percent change, highlights the degree to which operating statistics and the associated expenses reported by the Applicants are unreliable as a result of their disjointed and flawed modeling approach. Although Applicants do not mention this correction in the main body of their Amended Operating Plan, they state in the associated work paper that the correction is due to the “inclusion of Soo Line omitted in original [sic].”²²¹ The reason why the Soo Line (the primary US railroad subsidiary of CP) was omitted from the calculation in the original Operating Plan is that CP-KCS used “CP internal files similar to R-1” [sic].²²² Even though this specific instance was corrected in the May submission, the fact that such a considerable discrepancy could go unnoticed in the original Application highlights the degree to which reported operating metrics are disconnected from the Operating Plan and its outputs. Also,

²¹⁸ CN’s Comments on Application and Request for Conditions, February 28, 2022, p. 152.

²¹⁹ Application, Vol. 2, p. 287, Exhibit 13 Table 2.

²²⁰ Application, Vol 2., p. 286, ¶85.

²²¹ See FD 36500 – Work Paper – HC – Cost Metrics Growth Model Base Year 2019.xlsx (October 2021 submission) vs. 24.1.1.5-Cost Metrics Growth Model.xlsx (May 2022 amended submission). In tab “Model”, CP-KCS provide an explanation for the significant change in Freight Car Miles.

²²² See FD 36500 – Work Paper – HC – Cost Metrics Growth Model Base Year 2019.xlsx (October 2021 submission). Tab “Model”, cell K19.

tellingly, this change has had nearly zero impact on overall model outputs (operating metrics and operating expenses), when I would expect such a change to have flow through impacts in a properly developed operating plan. This is precisely *because* model outputs are not connected in any meaningful way to railroad operating metrics, as I have stated previously.

In conclusion, and in addition to my findings as presented in this Verified Statement, the Amended Operating Plan submitted on May 13, 2022 by CP-KCS does not address the majority of my comments submitted in my first Verified Statement of February 28, 2022 in a meaningful way.

VERIFICATION

I, Carl Van Dyke, declare under penalty of perjury that the foregoing information is true and correct. Further, I certify that I am qualified and authorized to file this statement.

Executed on this 9th day of June, 2022.



Carl Van Dyke

EXHIBIT 3

Second Verified Statement of David T. Hunt

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB FINANCE DOCKET NO. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY, AND THE
TEXAS MEXICAN RAILWAY COMPANY**

CN'S COMMENTS ON APPLICANTS' AMENDED OPERATING PLAN

Verified Statement of David T. Hunt

June 9, 2022

PUBLIC REDACTED VERSION

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1. Qualifications

My name is David T. Hunt. I am a Vice President with Oliver Wyman, a global general management consulting firm with more than 60 offices in 31 countries. My office address is 1 University Square, Suite 100, Princeton, NJ 08540. I previously submitted a Verified Statement in FD 36500 in connection with CN's comments on the primary application containing my qualifications.¹

2. Assignment and Summary of Findings

I have been asked to review and comment on whether the Applicants' Amended Operating Plan submitted on May 13, 2022² meaningfully resolved the issues discussed in my Verified Statement submitted as part of CN's comments on February 28, 2022³ regarding the traffic diversions and associated revenues that are likely to be achieved by the merged CPKC as a result of the proposed transaction. My prior Verified Statement found that Applicants' projected incremental traffic and revenues of \$1.02 billion were overstated by approximately \$520 million. Specifically, I demonstrated that:

- Traffic and revenue synergies from rail-to-rail diversions projected by Applicants' witnesses Richard W. Brown and Nathan S. Zebrowski were not based on credible methodologies and were overstated by more than \$133 million.
- Additional traffic and revenue sources identified by Applicants' witnesses Jonathan Wahba and Michael J. Naatz of \$386.7 million were unsubstantiated and/or unrelated to the merger.

¹ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – CN's Comments on Application and Request for Conditions, Verified Statement by David Hunt, February 28, 2022.

² STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – Amended Operating Plan (Exhibit 13), Verified by Raymond A. Elphick and John F. Orr, May 13, 2022.

³ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – CN's Comments on Application and Request for Conditions, Verified Statement by David Hunt, February 28, 2022.

Based on my review of the Applicants' Amended Operating Plan submitted on May 13, 2022, it does not appear that Applicants' most recent filing contains any information that meaningfully changes my prior comments, nor does it modify any of the conclusions I arrived at in my previous Verified Statement. Exhibit 2-1 below summarizes my key findings with respect to Applicants' Amended Operating Plan.

Exhibit 2-1: Key findings in David Hunt February 28, 2022 Verified Statement and impacts of Applicants' May 13 Amended Operating Plan submission

Issue	David Hunt February 28 VS findings ⁴	Impact of May 13 Amended Operating Plan
Rail-to-rail traffic diversions by Brown and Zebrowski are not based on credible methodologies and are overstated	• Methodology is simplistic and ignores the impact of route circuitry on the ability of a carrier to divert traffic where a well-established connection exists • Methodology used to allocate traffic leads to implausible results for example, in some cases, the incremental revenue assigned to merged CPKC from an extended haul diversion exceeds the rate currently charged to the subject customer for the entire haul • Methodology arbitrarily adds traffic outside the diversion model • An error in currency conversion inflates estimated incremental revenues	• None. These issues remain valid and are not changed by the Amended Operating Plan.

⁴ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – CN's Comments on Application and Request for Conditions, Verified Statement by David Hunt, February 28, 2022.

Issue	David Hunt February 28 VS findings ⁴	Impact of May 13 Amended Operating Plan
Most of the “additional opportunities” identified by Wahba and Naatz should be excluded from the Application’s traffic study	- Nearly 40 percent of the revenue from “additional opportunities” is attributable to traffic gains that are unrelated to the merger - Several claimed revenue opportunities involve impractical, circuitous, or complicated routes - Applicants fail to explain why expert traffic witnesses Brown & Zebrowski and Mutén did not divert traffic that was subsequently identified as a likely traffic diversion opportunity by Wahba and Naatz	- None. These issues remain valid and are not changed by the Amended Operating Plan. - Applicants’ operation of a single intermodal train on an interline basis from Lázaro Cárdenas to Chicago on March 8, 2022 (as a “proof of concept”⁵) does not change the opinion in my original Verified Statement that this highly circuitous route is not a realistic alternative to Los Angeles/Long Beach. Of the { } in estimated revenue synergies at Lázaro Cárdenas, { } is to/from Dallas, TX and Kansas City, MO, locations served by KCS that don’t involve CP.⁶ The remaining markets Wahba and Naatz identify that could be served via Lázaro Cárdenas are Chicago, IL and Minneapolis, MN, both of which are accessible over more direct routes on CP through the Port of Vancouver.

Based on my examination of Applicants’ Amended Operating Plan submission of May 13, 2022, I conclude that Applicants’ changed plan does not resolve any of the issues discussed in my prior comments regarding the feasibility of the traffic diversions (and associated revenues) set forth in the Application. In particular, I stand by my prior testimony that Applicants’ projected revenue gain of \$1.02 billion from traffic diversions and (supposed) new traffic opportunities is overstated by approximately \$520 million.

Additionally, the clear disconnect between the actual 2019 full year traffic data that Applicants used in conducting their traffic diversion studies and the disjointed methodology employed by Applicants to create “calibrated 2019” traffic densities based on data from limited

⁵ “CP Debuts Interline Service from Lázaro Cárdenas to Chicago,” March 8, 2022, retrieved from: Canadian Pacific - CP debuts interline service from Lázaro Cárdenas to Chicago (cpr.ca).

⁶ Wahba and Naatz work paper, FD 36500 – Work Paper – HC – Growth Initiative Calculations.xlsx

periods in 2020 and 2021 (see Verified Statement of Carl Van Dyke⁷) further undermines the credibility of the calculations used by Applicants to estimate their total traffic diversions.

For example, consider grain shipments originating in Morgan County, IL, which is located west of Springfield, IL. KCS's market share of grain originations in Morgan County {{ }} from {{ }} in 2018 to {{ }} in 2019. [See Exhibit 2-2 below] Applicants' method of combining diversion estimates from actual 2019 data with pre-merger existing traffic from different years fails to account for these natural market share shifts. For movements where the CP-KCS share has increased from the actual base year (2019), traffic diversions would be overstated, since a portion of the diverted traffic would be double counted in the existing traffic. For example, in Exhibit 2-2 if KCS were to divert 100% of the {{ }} 2018 carloads and combine it with the KCS 2019 carloads, the total would exceed the total number of carloads originated at that location. In markets where the CP-KCS share has decreased from the actual base year, traffic diversions would be understated, since a portion of the diverted traffic would have already been diverted from existing CP-KCS traffic.

Exhibit 2-2: Grain shipments originating in Morgan County, IL ⁸

{{

}}

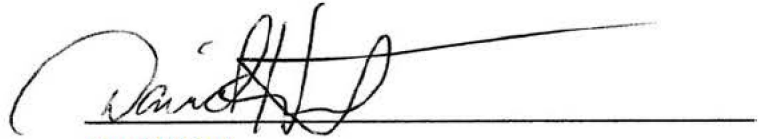
⁷ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al., Verified Statement by Carl Van Dyke, June 9, 2022.

⁸ Surface Transportation Board Carload Waybill Sample, 2018 and 2019. STCC = 0113 and Origin FIPS = 17137.

VERIFICATION

I, David T. Hunt, declare under penalty of perjury that the foregoing information is true and correct. Further, I certify that I am qualified and authorized to file this statement.

Executed on this 9th day of June, 2022.

A handwritten signature in black ink, appearing to read "David T. Hunt", is written over a horizontal line. The signature is stylized with a large initial "D" and "H".

David Hunt

EXHIBIT 4

Second Verified Statement of Hugh Randall

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB FINANCE DOCKET NO. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY, AND THE
TEXAS MEXICAN RAILWAY COMPANY**

CN'S COMMENTS ON APPLICANTS' AMENDED OPERATING PLAN

Verified Statement of Hugh Randall

June 9, 2022

PUBLIC REDACTED VERSION

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1. Qualifications

My name is Hugh Randall. I am a Senior Advisor to and a Partner Emeritus of Oliver Wyman, a global general management consulting firm with more than 60 offices in 31 countries. My office address is 1717 Main Street, Suite 4400, Dallas, TX 75201. I previously sponsored a Verified Statement filed with CN's February 28, 2022 Comments, which provides further details of my qualifications and resume.¹

2. Assignment and Summary of Findings

I have been asked to review and comment on whether the Applicants' Amended Operating Plan submitted on May 13, 2022² substantially changed any of the deficiencies in their original Operating Plan that I had previously identified in my Verified Statement submitted as part of CN's comments on February 28, 2022.³ My prior Verified Statement focused on evaluating two issues: 1) Applicants' estimate of the capacity improvements and other capital expenditures that would be required to handle the additional traffic volumes projected by Applicants safely and efficiently, and 2) Applicants' projected post-merger operating expenses, in each case as presented in the Application⁴ and the work papers of Applicants' witnesses. For purposes of that Verified Statement, I assumed that the merged railroad, CPKC, would achieve the traffic

¹ STB Finance Docket No. 36500, CN's Comments on Application and Request for Conditions, February 22, 2022 (CN-13), Exhibit 3, Verified Statement of Hugh Randall – hereinafter “Randall First Verified Statement.”

² STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – Amended Operating Plan (Exhibit 13), Verified by Raymond A. Elphick and John F. Orr, May 13, 2022.

³ Randall First Verified Statement.

⁴ The Application filed on October 28, 2021 by Canadian Pacific Railway Limited, Canadian Pacific Railway Company, and their US rail carrier affiliates (collectively, “CP”) and Kansas City Southern and its US rail carrier affiliates (collectively, “KCS”) seeking approval of the acquisition of control by CP of KCS. In this Verified Statement, I refer to CP and KCS collectively as “Applicants,” the proposed merged carrier as “CPKC,” and the Application generally as “the Application.”

increases projected in the Application, despite the numerous flaws identified in the CP-KCS traffic study by CN witness David Hunt.

Based on my review of Applicants' Amended Operating Plan submitted on May 13, 2022, I find that it does not meaningfully change the issues I raised in my previous Verified Statement. To the contrary, in some cases, the issues I previously highlighted have become even more problematic based on the information provided by Applicants in their new submission. Exhibit 2-1 below provides a summary of my key findings.

Exhibit 2-1: Key findings in Hugh Randall February 28, 2022 Verified Statement and impacts of Applicants' May 13 Amended Operating Plan submission

Issue	Hugh Randall February 28 VS findings ⁵	Impact of May 13 Amended Operating Plan
Applicants' capital expenditures are significantly understated	CP and KCS plan the same annual capital expenditures (\$1.9 billion) for years 1-3 as their combined average capex for 2014-2019, despite a projected growth in annual GTMs { } by Year 3.⁶	Applicants now make the unreasonable claim that no incremental capital expenditures would be needed to handle a { }, as 98.5% of this additional traffic would be handled using excess capacity in the Year 3 trains needed to move Base Year and the { } in GTMs resulting from transaction-related traffic growth.⁷
Applicants have failed to prove the adequacy of their capital expenditure commitment	Applicants failed to provide a detailed description of capital investments that would be made post-merger and have not demonstrated the adequacy of their planned investments (less than \$500M of their \$5.7B projected Year 3 capital spend has been specified)	No change. Applicants have still failed to identify or prove the adequacy of their planned capital investments
Insufficient capital investment for track capacity (line of road) to accommodate post-merger traffic volumes	Applicants specified that \$276.4M would be spent to upgrade CP and KCS lines between River Jct. and Beaumont. No capital investment has been identified for Applicants' route south of Beaumont	Applicants have now included reference to capacity improvements being made in Laredo,⁹ and added references identifying plans to build five additional long sidings and extend two sidings – but categorized these investments as

⁵ Randall First Verified Statement.

⁶ See Oliver Wyman Capex Worksheet Number 1 – GTMs tab for GTM growth calculation. Also, Application, Appendix G, pp. 143-154, cash flow statement.

⁷ Errata: Infrastructure Capacity Workpaper – Columns M and N.

⁹ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – Amended Operating Plan (Exhibit 13), pp. 94-95.

Issue	Hugh Randall February 28 VS findings ⁵	Impact of May 13 Amended Operating Plan
	Using the same capacity analysis process used by Applicants, I determined that Applicants' proposed capital spending would be insufficient. Significant train delays and service disruptions are likely without additional capital spending⁸	normal 2022 capital expenditures, not transaction-related ¹⁰
No capital investment at any yard, intermodal terminal or auto terminal except Bensenville to accommodate post-merger traffic volumes	- Applicants project that carload switching, intermodal handlings, and auto handlings will { } by Year 3, despite large increase in carloadings to move a projected { } in GTMs¹¹ - Applicants propose no new capital investment at Shreveport, which Applicants state "will play a more prominent role in post-transaction train design"¹² (trains per day to more than double, { } more cars to switch { } more blocks to make)¹³ and 12 more blocks swaps to handle¹⁴	No change. Indeed, Applicants did not even conduct a simulation of the yard to determine if it could handle this increased workload¹⁵
No capital investment identified for critical bridges and at-grade crossings that will be affected by post-merger traffic increases	By Year 3, Applicants' train volumes will double over two key bridges (Neches and Laredo)¹⁶ and more than triple over three at-grade mainline UP/BNSF crossings (Savanna, IL, Clinton, IA and Ottumwa, IA)¹⁷	Applicants now describe capital projects to be undertaken in Laredo, including "working to add a 2nd bridge";¹⁸ however, no capital to fund these projects is reflected in the Application

⁸ A description of my (and CP's) capacity assessment methodology is provided in Appendix D of Randall First Verified Statement. Also, results of Oliver Wyman capacity analyses shown in its February 28, 2022 Capex Worksheets 1 and 2.

¹⁰ 24.6.1.7_Yard Cars Per Day.xlsx, 24.6.2.2_CP-KCS Capacity Projects.xlsx.

¹¹ 24.6.1.7_Yard Cars Per Day.xlsx, 24.6.2.2_CP-KCS Capacity Projects.xlsx.

¹² October 29, 2021 CPKC Merger filing, Orr/Elphick Verified Statement, p. 51.

¹³ Orr/Elphick Verified Statement, pp. 43, 49, and 51; Oliver Wyman Capex Worksheet No. 1, Other Calculations tab.

¹⁴ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – October 29, 2021 CPKC Merger Filing, Operating Plan, Appendices H and I.

¹⁵ Amended filing, p. 75 footnote 72 "This analysis was a manual exercise drawing on the experience and expertise of the Operating Plan Team, and did not lead to the creation of a workpaper."

¹⁶ Trains per Day by Subdivision, Appendix A, Volume 2, pp. 364-368. Also, 2019 Texas Rail Plan, which cites bridge replacement as a long-range project (2023-2039), Texas Department of Transportation, Table 5-3, p. 329-330; also, Federal Register: Authorizing the Kansas City Southern Railway Company To Construct, Connect, Operate, and Maintain Railway Bridge Facilities at the International Boundary Between the United States and Mexico; "KCSM outlines projects for 2022," T21com.mx and Google Translate, January 11, 2022; Grade Crossing Inventory, FRA Office of Safety.

¹⁷ Grade Crossing Inventory, FRA Office of Safety.

¹⁸ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – Amended Operating Plan, p. 94.

Issue	Hugh Randall February 28 VS findings ⁵	Impact of May 13 Amended Operating Plan
Insufficient capital allocated for railcars and locomotives to accommodate post-merger incremental traffic volumes	- Applicants project that they can handle an { } in GTMs (combined merger-related and organic growth) with { } revenue railcars, which is unrealistic¹⁹ - Applicants' plans include less than a { } increase in locomotive fleet size by Year 3. That small increase and their planned rebuild program will be insufficient to move reliably the assumed { } in GTMs²⁰; service will likely deteriorate	- Fleet size for railcars is further decreased; Applicants now assert that CPKC will be able to move { } more GTMs in Year 3 with { } cars. Car utilization is therefore assumed to be even higher than in the original Application²¹ - No changes in Applicants' prior fleet size or utilization assumptions for locomotives²²
Applicants understate operating expenses by at least \$2 billion. Projected operating expenses assume an operating ratio of 30 percent for merger-related traffic	- Applicants projected operating expenses are significantly understated when compared to operating expenses actually incurred by CP US and KCS US during 2015-2019²³ - The methodology used by Applicants to estimate post-merger operating expenses is flawed and opaque²⁴ - Applicants omit some operating expenses and underestimate others²⁵ - Large operating savings claimed for the first year of the merger, attributed largely to implementing PSR on KCS (which KCS had already largely implemented), are unlikely to be realized²⁶ - Applicants' projected Year 1-3 operating expenses are further belied by industry benchmarks²⁷ - The shortfall in Applicants projected operating expenses is substantial	- The Amended Operating Plan does not include any changes to Applicants' operating expense estimates, which continue to be substantially understated and based on flawed and opaque methodologies - Applicants acknowledge that KCS has largely adopted PSR principles, which have made "KCS's base operational design more compatible with the PSR-based design that CP has honed over many years."²⁸ Nevertheless, Applicants have not reduced their assumed { } increase in Year 1 productivity

¹⁹ Randall First Verified Statement, [Section 3.2.3].

²⁰ Randall First Verified Statement, [Section 3.2.4].

²¹ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – Amended Operating Plan, p. 106.

²² STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – Amended Operating Plan, p. 103.

²³ Randall First Verified Statement, [Section 4].

²⁴ Randall First Verified Statement, [Section 4.1].

²⁵ Randall First Verified Statement, [Section 4.2].

²⁶ Randall First Verified Statement, [Section 4.3].

²⁷ Randall First Verified Statement, [Section 4.4].

²⁸ STB Finance Docket 36500, Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern, et al. – Amended Operating Plan p. 42, ¶99.

As Exhibit 2-1 demonstrates, the comments and findings contained in my February 28, 2022 Verified Statement remain valid for the Amended Operating Plan submitted by Applicants on May 13, 2022. The few changes in the Amended Operating Plan that Applicants made actually *worsen* the issues I identified in my previous statement (in particular, by assuming a greater (and even more unrealistic) increase in railcar utilization, assuming that *no additional trains* will be needed to accommodate a {{ }} in GTMs due to projected organic growth, and by adhering to unrealistic productivity assumptions, even though Applicants admit that KCS has largely adopted PSR principles in its operation. Therefore, the conclusion from my February 28, 2022 Verified Statement – that operating and capital expense estimates and post-merger financial exhibits set forth in the Operating Plan are seriously flawed and lack any credibility – remains true.²⁹

²⁹ Randall First Verified Statement, [Section 2].

VERIFICATION

I, Hugh Randall, declare under penalty of perjury under the laws of the United States that the foregoing information is true and correct. Further, I certify that I am qualified and authorized to file this statement.

Executed on this 9th day of June, 2022.

Hugh Randall

Hugh Randall