

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

Defendant.

Docket No. NOR 42142

(Volume 3 of 4)

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SHORT FORMS FOR FREQUENTLY CITED CASES

The following short form case citations are used herein:

<i>AEPCO 2001</i>	<i>Arizona Electric Power Cooperative, Inc. v. Burlington Northern & Santa Fe Railroad Co. & Union Pacific Railroad Co.</i> , STB Docket No. 42058 (served Dec. 31, 2001)
<i>AEPCO 2002</i>	<i>Arizona Electric Power Cooperative, Inc. v. Burlington Northern & Santa Fe Railroad Co. & Union Pacific Railroad Co.</i> , 6 S.T.B. 322 (2002)
<i>AEPCO 2005</i>	<i>Arizona Electric Power Cooperative, Inc. v. Burlington Northern & Santa Fe Railroad Co. & Union Pacific Railroad Co.</i> , STB Docket No. 42058 (served Mar. 15, 2005)
<i>AEPCO 2011</i>	<i>Arizona Electric Power Cooperative, Inc. v. Burlington Northern & Santa Fe Railroad Co. & Union Pacific Railroad Co.</i> , STB Docket No. 42113 (served Nov. 16, 2011)
<i>AEP Texas I</i>	<i>AEP Texas North Co. v. BNSF Railway, Co.</i> , STB Docket No. 41191, (Sub-No. 1) (served Nov. 8, 2006)
<i>AEP Texas II</i>	<i>AEP Texas North Co. v. BNSF Railway Co.</i> , STB Docket No. 41191, (Sub-No. 1) (served Sept. 10, 2007)
<i>Ark. Power</i>	<i>Arkansas Power & Light Co. v. Burlington Northern Railroad</i> , 3 I.C.C. 2d 757 (1987)
<i>Bituminous Coal</i>	<i>Bituminous Coal – Hiawatha, Utah, To Moapa, Nevada</i> , 6 I.C.C.2d 1 (1989)
<i>BNSF 2006</i>	<i>BNSF Railway, Co. v. Surface Transp. Bd.</i> , 453 F.3d 473 (D.C. Cir. 2006)
<i>Coal Rate Guidelines</i>	<i>Coal Rate Guidelines, Nationwide</i> , 1 I.C.C.2d 520 (1985)
<i>Coal Rate Guidelines NPRM</i>	<i>Coal Rate Guidelines, Nationwide</i> , ICC Docket Ex Parte No. 347 (Sub-No. 1) (served Feb. 24, 1983)

<i>CP&L</i>	<i>Carolina Power & Light Co. v. Norfolk Southern Railway Co.</i> , 7 S.T.B. 235 (2003)
<i>Conrail Acquisition Order</i>	<i>CSX Corp.—Control—Conrail, Inc.</i> , 3 S.T.B. 196, 265 (1998)
<i>CF Indus.</i>	<i>CF Indus., Inc. v. Koch Pipeline Co.</i> , 4 S.T.B. 637 (2000)
<i>Duke/CSXT</i>	<i>Duke Energy Corp. v. CSX Transportation, Inc.</i> , 7 S.T.B. 402 (2004)
<i>Duke/NS</i>	<i>Duke Energy Corp. v. Norfolk Southern Railway Co.</i> , 7 S.T.B. 89 (2003)
<i>Duke/NS Reconsideration</i>	<i>Duke Energy Corp. v. Norfolk Southern Railway Co.</i> , 7 S.T.B. 862 (2004)
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<i>M&G</i>	<i>M&G Polymers USA, LLC v. CSX Transportation, Inc.</i> , STB Docket No. 42123 (served Sept. 27, 2012)
<i>Major Issues</i>	<i>Major Issues in Rail Rate Cases</i> , STB Ex Parte No. 657 (Sub-No. 1) (served Oct. 30, 2006), <i>aff'd sub nom. BNSF v. STB</i> , 526 F.3d 770 (D.C. Cir. 2008)
<i>McCarty Farms</i>	<i>McCarty Farms, Inc. v. Burlington Northern, Inc.</i> , 2 S.T.B. 460 (1997)
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<i>PPL Montana 2003</i>	<i>PPL Montana v. BNSF Railway Co.</i> , 6 S.T.B. 752 (2003)
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<i>Rate Regulation Reforms NPRM</i>	<i>Rate Regulation Reforms</i> , STB Ex Parte No. 715 (served July 25, 2012)
<i>Rate Regulation Reforms</i>	<i>Rate Regulation Reforms</i> , STB Ex Parte No. 715 (served July 18, 2013)
<i>SAC Procedures</i>	<i>General Procedures for Presenting Evidence in Stand-Alone Cost Rate Cases</i> , 5 S.T.B. 441 (2001)
<i>Simplified Standards</i>	<i>Simplified Standards for Rail Rate Cases</i> , STB Docket Ex Parte No. 646 (Sub-No. 1) (served July 5, 2007)
<i>Standards I</i>	<i>Standards For Railroad Revenue Adequacy</i> , 364 I.C.C. 803 (1981)
<i>Standards II</i>	<i>Standards For Railroad Revenue Adequacy</i> , 3 I.C.C.2d 261 (1986)
<i>SunBelt</i>	<i>SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Co.</i> , STB Docket No. 42130 (served June 20, 2014)
<i>SSW (1985)</i>	<i>St. Louis Southwestern Railway Company – Trackage Rights Over Missouri Pacific Railroad Company – Kansas City To St. Louis</i> , 1 I.C.C.2d 776 (1985)
<i>SSW (1987)</i>	<i>St. Louis Southwestern Ry. Co. Compensation – Trackage Rights</i> , 4 I.C.C.2d 668 (1987)
<i>TMPA I</i>	<i>Texas Municipal Power Agency v. Burlington Northern & Santa Fe Railway Co.</i> , 6 S.T.B. 573 (2003)
<i>TMPA II</i>	<i>Texas Municipal Power Agency v. Burlington Northern & Santa Fe Railway Co.</i> , 7 S.T.B. 803 (2004)

TPI Market Dominance

Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., STB Docket No. 42121 (served May 31, 2013)

West Texas

West Texas Util. Co. v. Burlington Northern Railroad Co., 1 S.T.B. 638 (1996).

WFA I

Western Fuels Ass'n & Basin Elec. Power Cooperative v. BNSF Railway Co., STB Docket No. 42088 (served Sept. 10, 2007)

WFA II

Western Fuels Ass'n, Inc. v. BNSF Railway, STB Docket No. 42088 (served Feb. 17, 2009)

WP&L

Wisconsin Power & Light v. Union Pac. R.R. Co., 5 S.T.B. 955 (2001)

Xcel

Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington Northern & Santa Fe Railway Co., 7 S.T.B. 589 (2004)

ACRONYMS

AAR	Association of American Railroads
AC	Alternating Current
AEI	Automatic Equipment Identification
AEO	Annual Energy Outlook
AFE	Authorizations for Expenditure
AMLO	Assistant Manager Locomotive Operations
AMTO	Assistant Manager Train Operations
APA	Administrative Procedure Act
AREMA	American Railway Engineering and Maintenance-of-Way Association
ARRA	American Recovery and Reinvestment Act
ATC	Average Total Cost
AVP	Assistant Vice President
BEA	Bureau of Economic Analysis
BNSF	Burlington Northern Santa Fe Railway Company
BRC	Belt Railway of Chicago
B&V	Black & Veatch
CAGR	Compound Annual Growth Rate
CERR	Consumers Energy Railroad
CFS	Commodity Flow Survey
CMA	Chemical Manufacturers Association
CMP	Aluminized Corrugated Metal Pipe
CN	Canadian National Railway Company
CNW	Chicago & North Western Railway Company

CP	Canadian Pacific Railway
CREATE	Chicago Region Environmental and Transportation Efficiency Program
CSX	CSX Corporation
CSXIT	CSX Intermodal Terminals
CSXT	CSX Transportation, Inc.
CTC	Centralized Traffic Control
CTCO	Chicago Transportation Coordination Office
CWA	Clean Water Act
CWR	Continuous Welded Rail
CY	Cubic Yards
DCF	Discounted Cash Flow
DOT	Department of Transportation
DTL	Direct-to-Locomotive
ECY	Embankment Cubic Yard
EIA	Energy Information Administration
EPA	Environmental Protection Agency
ERM	Environmental Resources Management
ETMS	Electronic Train Management System
EVA	Energy Ventures Analysis, Inc.
FAS	Financial Accounting Standards
FASB	Federal Accounting Standards Board
FCC	Federal Communications Commission
FED	Failed Equipment Detector
FHWA	Federal Highway Administration

FRA	Federal Railroad Administration
FSC	Fuel Surcharges
G&A	General & Administrative
GAO	Government Accountability Office
GDP	Gross Domestic Product
GE	General Electric
GIS	Geographic Information System
GPS	Global Positioning System
HSL	Hours of Service Law (49 U.S.C. Ch. 211)
HVAC	Heating, Ventilation, and Air Conditioning
ICC	Interstate Commerce Commission
IHB	Indiana Harbor Belt Railway
INRD	Indiana Rail Road Company
ISA	Intercarrier Service Agreement
ISS	Interline Settlement System
IT	Information Technology
KCBX	KCBX Terminals, Inc.
KCS	Kansas City Southern Railway
LCY	Loose Cubic Yard
LUM	Locomotive Unit Mile
MDOT	Michigan Department of Transportation
MERC	Midwest Energy Resources Company
MGT	Million Gross Ton
MLO	Manager Locomotive Operations

MMBtu	million British Thermal Units
MMM	Maximum Markup Methodology
MOW	Maintenance-of-Way
MP	Mile Post
MPSC	Michigan Public Service Commission
MSA	Managed Services Agreement
MSP	Modified Straight-Mileage Prorate
MSRR	Michigan Shore Railroad
MTO	Manager Train Operations
NPRM	Notice of Proposed Rule Making
NROI	Net Railway Operating Income
NS	Norfolk Southern Railway Company
NYMEX	New York Mercantile Exchange
NYSW	New York, Susquehanna & Western Railway
OSHA	Occupational Safety and Health Administration
P&L	Paducah & Louisville Railway
PRB	Powder River Basin
PTC	Positive Train Control
P&W	Providence and Worcester Railroad
R/VC	Revenue to Variable Cost
RCAF	Rail Coal Adjustment Factor
RCP	Reinforced Concrete Pipe
RCRA	Resource Conservation and Recovery Act
RIP	Repair In Place

ROW	Right-of-Way
RPMS	Real Property Management System
RSAM	Revenue Shortfall Allocation Method
RSC	Rail Security Coordinator
RSIA	Rail Safety Improvement Act of 2008
RTC	Rail Traffic Controller
SAC	Stand-Alone Cost
SARR	Stand-Alone Railroad
SCTG	Standard Classification of Transportation Goods
SFAS	Statement of Financial Accounting Standards
SFC	Specific Fuel Consumption
SOX	Sarbanes-Oxley Act
SP	Southern Pacific Railroad
STB	Surface Transportation Board
STCC	Standard Transportation Commodity Code
T&E	Train & Engine
TIH	Toxic-by-Inhalation Hazard
UP	Union Pacific Railroad Company
URCS	Uniform Rail Costing System
USDOT	U.S. Department of Transportation
WTI	West Texas Intermediate

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III. STAND-ALONE COST

E. Non-Road Property Investment

Non-road property investment costs, including costs for locomotives, railcars, and intermodal equipment, are addressed in Section III-D along with the discussion of the operating costs for those items.

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III. STAND-ALONE COST

F. Road Property Investment

In this Section III-F, CSXT explains the significant differences between the parties' road property investment evidence.¹ Some of the most important disagreements include the following:

For real estate, Consumers used broad assumptions to value the CERR's property rather than an assessment of individual parcels. While CSXT's real estate expert identified and valued 763 unique land segments along the 150-mile right of way, Consumers identified only 54 unique land segments. And Consumers made serious errors when valuing Cook County properties, including using short sales and foreclosures as comparables and making arbitrary assumptions about how to value property improvements. CSXT, in contrast, presents a well-supported real estate appraisal that is in line with Board precedent. Consumers also failed to include real estate acquisition costs, despite the Board's recognition in *DuPont* and *SunBelt* that those costs should be incorporated into the SAC analysis.

¹ CSXT Engineering Experts attempt to comply with the Board's July 11, 2015 decision issuing general procedures regarding evidence standards, including that "changes to numbers submitted in the opening evidence must be clearly explained and supported, and include any formula used to calculate those changes." CSXT notes that the spreadsheets contained in Consumers' engineering evidence—particularly for roadbed preparation, track construction, and signals and communications—are unnecessarily complex and more difficult to follow than in previous SAC cases. In attempt to simplify the review process, CSXT's reply engineering evidence includes "Reply Summary" tabs at the beginning of its main reply spreadsheets that allow parties to "trigger" individual changes CSXT makes in reply to Consumers opening cost calculations from a single point. Turning these triggers off will revert all spreadsheet calculations back to Consumers' original values.

Consumers' roadbed preparation evidence is substantially understated, largely because it fails to use R.S. Means costs for items like common earthwork excavation, borrow, and clearing and grubbing. Consumers' proposal to instead use a proxy of costs it developed from Michigan Department of Transportation projects is seriously flawed, and should be rejected for the same reasons the Board rejected similar calls to replace Means costs in *DuPont* and *SunBelt*. Indeed, Consumers' cost proxy contains serious errors, which when corrected result in unit prices at or above Means prices. All Consumers' analysis shows, therefore, is how reasonable Means costs are. CSXT's roadbed preparation evidence corrects these and other issues, including Consumers' failure to include land for waste excavation, its failure to account for the effect of swell and shrinkage on material volumes, and its underestimates of culvert costs and quantities.

The major problems in Consumers' track evidence include its failure to account for all the CERR's crossing diamonds and its use of outdated and unrealistic transportation costs for ballast, ties, and rail. Its bridges evidence contains three major errors that CSXT corrects in this Reply. First, Consumers omitted two bridges because of a mistaken belief that these bridges were constructed with public funds. Second, many of Consumers' bridge designs require supporting piers or abutments that unacceptably block water flow (in the case of over-water bridges) or vehicle and pedestrian traffic (in the case of over-highway bridges). And third, Consumers made errors in its bridge designs and unit costs.

On signals, CSXT generally accepts Consumers' evidence, with three exceptions. First, Consumers applied configurations at several interlockings that do not sufficiently account for the required equipment for a functioning CTC interlocking. Second, Consumers omitted certain essential signals components. Third, Consumers omitted shipping costs for many of its signals components. CSXT corrects these errors to provide a complete and functional CTC system for the CERR.

Consumers also omits several facilities that would be required, including a headquarters support building in Chicago (which replaces the MOW and Crew Change buildings Consumers proposed in Barr Yard), a turntable at Barr Yard, and a yard air compressor building at Barr Yard. For many buildings it also fails to include important site elements such as foundations, locker rooms, fire protection, and emergency backup power. CSXT also corrects errors Consumers made in the development of components and costs for a number of facilities.

Finally, CSXT makes some corrections to Consumers' estimate of grade crossing costs and accepts Consumers' mobilization factor, engineering additive, contingency factor, and construction schedule.

In total CSXT's Reply Evidence demonstrates that Consumers underestimated the road property investment costs of the CERR by more than \$340 million, as summarized in Table III-F-1.

Table III-F-1 ²				
CERR Road Property Investment				
CSXT Reply CERR Road Property Investment Costs (\$Millions)				
	Item	Open	Reply	Difference
1.	Land	\$120.2	\$131.7	\$11.5
2.	Roadbed Preparation	\$30.3	\$82.2	\$51.9
3.	Track	\$186.8	\$252.0	\$65.2
4.	Tunnels	\$0.0	\$0.0	\$0.0
5.	Bridges	\$71.9	\$167.4	\$95.5
6.	Signals and Communications	\$33.8	\$46.5	\$12.7
7.	Buildings and Facilities	\$11.9	\$26.5	\$14.6
8.	Public Improvements	\$3.4	\$11.1	\$7.7
9.	Subtotal	\$458.2	\$717.3	\$259.1
10.	Mobilization	\$9.1	\$36.1	\$26.9
11.	Engineering	\$33.8	\$58.6	\$24.8
12.	Contingencies	\$38.1	\$68.0	\$29.9
13.	Total Road Property Investment Costs	\$539.2	\$879.9	\$340.7

1. Land³

Consumers estimates that the CERR could acquire all of the necessary land for its rail system for \$120.2 million at 2015 real estate price levels. Consumers indexes this total back to the 2012 assumed acquisition date, and thus its 2012 real estate cost for the CERR reflected in the DCF is \$87.7 million.⁴ In contrast, CSXT has determined that the total cost of acquiring the land necessary for the CERR

² Source: CSXT Reply WP “III-F TOTAL – 2015_Reply.xlsx.”

³ This Land Valuation Section is sponsored by Charles (Sandy) Rex, MAI. Mr. Rex has reviewed the Consumers land valuation evidence and prepared an alternative retroactive appraisal valuation report for the CERR. Mr. Rex’s credentials and expertise are described in more detail in Section V *infra*.

⁴ See Consumers Op. WP “Exhibit III-H-1.xls,” Tab “Investment,” Column N.

would be \$132.6 million, and \$131.7 excluding the partially owned IHB line. The difference stems from three serious flaws in Consumers' appraisal analysis.

First, Consumers' appraisal uses an across-the-board methodology rather than procedures that focus on deriving accurate values for unique land parcels. Across-the-board methodologies like those used by Consumers are traditionally only used to derive a rough estimate of the value of a land segment. By relying upon such a broad and inexact analysis, Consumers' appraisal understates the total cost of the land that the CERR would need to acquire. The across-the-board methodology also led Consumers to fail to properly discern changes in land use classification along the CERR. Consumers' appraiser consistently failed to identify unique land parcels along the CERR, resulting in overly broad and inaccurate land use classifications. Specifically, Consumers assumed that the 169 mile SARR would be divided into only 54 unique land segments, whereas CSXT's Witness Rex identified 766 land segments along the same ROW.

Second, Consumers relied upon a small set of comparable sales that in many instances were far removed from the CERR right of way. In fact, a large number of the sales Consumers uses are in counties through which the CERR does not even operate. Furthermore, Consumers' land value conclusions are disconnected from its selected comparable sales.

Third, Consumers made wildly inaccurate assumptions about the value of residential land in Cook County, Illinois. For example, it used foreclosures and short sales as comparables without doing anything to account for the unique

characteristics of those transactions, and it based Cook County valuations on completely arbitrary assumptions of how to value property improvements.

CSXT has also included a cost for real estate acquisition, which the CERR would incur in order to acquire nearly 2,000 acres of land necessary for its ROW, Barr Yard, and other facilities. The Board has recognized that such costs should be incorporated in the SAC analysis.⁵ CSXT's experts have developed a reasonable estimate of the additional costs associated with the acquisition of land for the CERR, and this Reply evidence adjusts CERR road property investment costs accordingly.

Under Consumers' proposed construction schedule, which CSXT accepts, the CERR will acquire all of its real estate between October 2012 and April 2013.⁶ Consumers' appraiser valued the CERR real estate in 2015. While it would have been better practice to value property as of the acquisition date in 2012 rather than valuing it in 2015 and indexing it back to 2012, CSXT accepts Consumers' methodology.

a. Consumers' Across-the-Board Appraisal Failed to Properly Discern Changes in Land Use Classification Along the CERR.

Both Consumers' and CSXT's witnesses conducted on the ground physical inspections of the CERR's proposed right of way. Such inspections are the Board's

⁵ See *DuPont*, STB Docket 42125, at 141; *SunBelt*, STB Docket 42130, at 104.

⁶ See Consumers Op. WP "Construction Schedule – Consumers (with DCF Schedule).xlsx," Tab "Overall Construction Schedule."

preferred method for classifying Highest and Best Use.⁷ Direct actual inspections are particularly important for accurate classification of land in metropolitan areas where land use changes rapidly and value is typically highest. Additionally, on-the-ground inspections permit the identification of more discrete valuation units, which is particularly important in urban areas such as Chicago, where land parcels tend to be small.

While the Consumers appraiser did conduct an on-the-ground physical inspection, the valuation methodology that he applied resulted in an inaccurate valuation. The Consumers appraiser adopted an “across-the-board” valuation methodology. This methodology is used by the appraisal industry to obtain:

[A] broad, preliminary, or rough estimate of the value of the across-the-fence properties. In this technique, general, usually impressionistic, unit values are used and applied to broad categories of land uses, such as rural designations, versus suburban, and urban designation. Typically, the across-the-fence land uses are aggregated into correspondingly broad categories, instead of detailed changes in land use.

CSXT Reply Ex. III-F-1 at 21. Indeed, the resulting appraisal submitted by Consumers reflects this precise description: it is a broad, impressionistic appraisal that aggregates land into broad categories, failing to appreciate the detailed changes in land use along the CERR ROW. The Consumers appraisal report identifies only 54 land use segments over the entire CERR. More importantly, the Consumers appraisal report suggests that values change only 23 times for the

⁷ See, e.g., *FMC*, 4 S.T.B. at 797 (approving of UP’s physical inspection approach to valuation).

segment valuations, and that the entire corridor would have only 16 unique unit values.⁸

In comparison, Mr. Rex's application of the ATF valuation approach identified 766 valuation segments along the mainline (including the BRC alternative and the Dolton interchange) and subsequently land sales were selected based upon land use and proximity to the subject corridor. *Id.*⁹

**i. Consumers' Across-the-Board Appraisal
Produced Inaccurate Valuation Units along
the CERR ROW.**

CSXT's detailed physical inspections identified more discrete valuation units along the CERR right-of-way than those identified by the Consumers appraiser. Figure 112 in the Rex Report identifies the segment by segment valuation that he relied upon.¹⁰ Column 8 ("Smith Segment") contrasts the unique valuations identified by Witness Rex with the broad segments identified by the Consumers appraiser. In many instances, the number of segments identified by Witness Rex dwarf the segments identified by Witness Smith. For example, in Allegan County, MI, where Smith identifies one single land use as "Segment 22," witness Rex identified 36 unique segments. Witness Smith valued Segment 22 as

⁸ See CSXT Reply III-F-1 at 33.

⁹ The Board has previously accepted this same methodology, as implemented by Mr. Rex, in *Central Oregon & Pacific R.R., Inc. – Abandonment and Discontinuance of Service – in Coos, Douglas, and Lane Counties, OR.*, STB Docket No. AB 515 (Sub-No. 2) (served Oct. 31, 2008) and in *CSX Transp., Inc. – Abandonment Exemption in LaPorte, Porter, and Stark Counties, IN*, STB Docket No. 55 (Sub-No. 643) (served Apr. 30, 2004).

¹⁰ CSXT Reply Ex. III-F-1 at 143-50.

“Agricultural/Open Space.”¹¹ In fact, within the 36 segments identified by Mr. Rex, uses range from Acreage and Wetlands to Agricultural, Rural Residential, Single-Family Residential and even Industrial.¹²

Similarly, the Consumers appraiser classified the entire town of Holland, Michigan into one segment (segment 12).¹³ In contrast, witness Rex identified 17 different discrete land uses in Holland, including central business district commercial, single-family residential, and industrial land uses.¹⁴ The multiple changes in land use through Holland, MI are visible in the CSXT Report Addendum (CSXT Reply Ex. III-F-2) at maps 8-9 (segments 60 through 76) and are identified in Figure 112 at page 143 of CSXT Exhibit III-F-1. In and around Holland, Witness Smith identified all land uses as “Agricultural/Open Space” (Segments 8, 10 and 14). However, upon review of the maps provided by Witness Rex, it is evident that there are many discrete land uses on the outskirts of the town of Holland, which are reflective of the growth of the town.¹⁵

Failure to identify these discrete valuation units contributed to Consumers’ unreliable appraisal. The CSXT appraisal report identifies other areas in which Consumers’ across-the-board value based appraisal resulted in significantly fewer unique valuation units than CSXT’s more detailed approach. This comparison

¹¹ Consumers Op. WP “CERR Land Valuation Report.pdf” at 57.

¹² CSXT Reply Ex. III-F-1 at 144 (Fig. 112, segments 152 through 187).

¹³ See Consumers Op. WP “CERR Land Valuation Report.pdf” at 43.

¹⁴ CSXT Reply Ex. III-F-1 at 143 (Fig. 112, segments 60 through 76).

¹⁵ See CSXT Reply Ex. III-F-2 (Maps 5 through 10, including segments 35 through 79).

demonstrates that Witness Rex's analysis consistently identified a higher number of valuation units in segments along the ROW, which led to a more thorough and accurate appraisal.

ii. CSXT's More Detailed Appraisal Identified Errors in Consumers' Land Classifications.

CSXT's detailed physical inspection of the SARR ROW identified many instances in which Consumers misidentified land uses along the ROW as a result of its across-the-board analysis. In many instances, these misidentifications resulted in inaccurate and depressed valuations. For example, in Allegan County, MI, Consumers identifies "Segment 22"—a 6.8 mile segment—as "Agricultural/Open Space."¹⁶ Accordingly, witness Smith valued that entire 6.8 mile segment at \$0.15 per square foot for a total value of \$538,560. In comparison, Witness Rex identified 36 unique segments of varied usage, producing a total value of \$677,859. Witness Rex's valuation reflects the fact that throughout this 6.8 mile segment there are many varied usages, including residential land uses, which would fetch a much higher valuation than the Consumers broad valuation identified. For example, the maps of segments 183 and 184 clearly identify significant construction, including rural residential housing and industrial land use.¹⁷ The Smith appraisal completely ignores these land uses and classifies this entire stretch as "Agricultural/Open Space."

¹⁶ Consumers Op. WP "CERR Land Valuation Report.pdf" at 57.

¹⁷ See CSXT Reply Ex. III-F-2 at Map 27.

In another instance, Consumers classifies a 9.97 mile segment of land as “Agricultural/Open Space” in Porter and La Porte Counties, IN.¹⁸ In contrast, CSXT identified 40 land use classifications along this segment. In addition to the agricultural and acreage uses that may be reflected in Consumers’ “Agricultural/Open Space” classification, CSXT identified numerous commercial, industrial and residential uses, which are simply not reflected in the “Agricultural/Open Space” classification.¹⁹ In particular, a review of CSXT Maps 83 and 84 illustrates the extensive residential, commercial and industrial uses in this area, all of which Consumers lumped into its “Agricultural/Open Space” classification.²⁰ In this instance, Consumers’ imprecise valuation methodology resulted in a valuation significantly higher than the CSXT valuation for this 10-mile segment. Consumers valued segment 52 at \$1.25/square foot, resulting in a total value of \$6,580,200. In comparison, Witness Rex determined that the value of this portion of the mainline would be \$4,574,582.

The classification errors generated from Consumers’ across-the-board valuation depress the overall valuation that Consumers applies to the CERR. In contrast, the CSXT appraisal more accurately reflects the multiple, discrete and varied land uses and valuation segments that are present along the CERR ROW.

¹⁸ Consumers Op. WP “CERR Land Valuation Report.pdf” at 57 (segment 52).

¹⁹ CSXT Reply Ex. III-F-1 at 148 (Figure 112, segments 536 through 575).

²⁰ CSXT Reply Ex III-F-2 at Maps 83 and 84.

b. Consumers' Use of Comparable Sales Bears No Relation to Its Value Conclusions.

Consumers' comparable sales data is woefully inadequate to support its land valuation. The only comparable sales data offered by Consumers is found at pages 59 through 64 of the Smith report. The spreadsheet lists 209 sales. Of those 209 sales, 69 are in DuPage or Lake County, Illinois—counties well removed from the ROW that do not touch the SARR.²¹ Consumers' workpapers do not provide sufficient data with which to identify the individual sales that are purportedly relied upon as the basis of the Consumers' appraisal valuation. The only reference to particular sales used in the analysis is by inference from the maps provided in the report (at pages 42 through 55). However, it is only through inference based on the sales identified on the individual maps that it is possible to approximate the sales used in the valuation. *Id.* In Michigan and Indiana, no individual sales are discussed. *Id.*

Most problematically, it is not possible to verify any of the sales in the Smith report because no recording information was provided in any of the Smith workpapers. Sales are mapped by points—many of which are in the middle of a road or intersection. *Id.* It is not possible to identify the precise location of the sale properties based upon the data provided by Smith.

Despite attempts to evaluate the sales identified in the maps, the sales were not reconcilable with the unit value conclusions. *Id.* at 37. The Smith report provides no rationale or calculations to explain the conclusions in the appraisal. As

²¹ See CSXT Reply Ex. III-F-1 at 36.

explained by witness Rex, “there is a complete disconnect between the unit value assignments presented in the Smith report and the sales shown on the maps and in the ‘Comparable Sale Digest.’ In general, the values appear to be rough estimates with no quantitative adjustments or qualitative analysis.” *Id.* For example, Consumers’ value conclusion for Segment 50 (page 46 of the Smith Report) in Indiana identifies a price of \$0.75 per square foot. However, that valuation bears no relation to the sales on the maps for this segment. Based upon the map on page 46 of the Smith Report, eight sales are apparently used to estimate the across-the-fence unit value for this section. As illustrated by Witness Rex, the average sale sales price per square foot for the different land uses is indicated in Table III-F-2.

Table III-F-2
Average SP/SF for Segment 50 in Smith Report

No. of sales	RMI Land Use	Average SP/SF
1	Agricultural	\$0.08
4	Commercial	\$1.77
2	Industrial	\$1.34
	Rural	
1	residential	\$1.48
Average		\$1.17

Not only do none of these sales reflect the “agricultural/open space on east side/some recreational on west side” segmentation that the Smith report identifies, the sales in no way support the \$0.75 per square foot conclusion of value in the report. *Id.* at 118-19.

In another example, the Smith report values Segment 40 in Berrien County at \$5.00 per square foot. According to the Pricing Notes column in the valuation

spreadsheet, the value is derived as follows: “Residential + Institutional blend \$7.00 & \$3.00 = \$5.00.”²² There is no basis for this “blended rate.”²³ Instead, 10 sales were identified on the maps at page 45 of the Smith Report as being in the vicinity of this segment. Yet none of the sales correspond to the value determination in the Smith report, nor is any explanation or analysis offered to relate the sales to the conclusion of value.²⁴

Throughout the CSXT appraisal, witness Rex identifies repeated instances in which the value conclusions relied upon by witness Smith bear no relation whatsoever to the sales that are mapped in the vicinity of the segments to which the value conclusions are applied. The lack of analysis or discussion of any of the sales data renders the Smith report’s comparable sale analysis unreliable.

c. Consumers’ Valuation of Residential Land Uses in Cook County, Illinois is Invalid.

Consumers approaches its valuation in Cook County, IL, slightly differently from the valuations in other counties. Witness Smith relies upon a “blended” across-the-board methodology that utilizes averages of unidentified commercial and industrial comparable sales for the non-residential uses and averages of residential sales, contained in a flawed—and utterly invalid—methodology for the residential uses. The “blend” utilized by Smith is arbitrary and is not tied to the actual distribution of land uses along the subject property. The residential analysis suffers

²² See Consumers Op. WP “Land Valuation Worksheet.xlsx,” Row 30, Column R.

²³ CSXT Reply Ex. III-F-1 at 98.

²⁴ *Id.* at 98-99.

from two major flaws. First, witness Smith uses 2-4 unit improved sales of which more than 50% of the sales were court ordered, foreclosure, or short sales. Second, witness Smith multiplies the improved sale price by 25% in order to arrive at a land value.²⁵

First, court ordered sales, foreclosure sales, and short sales are not representative of valid *market* transactions. *Id.* Market value is typically defined as:

The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress.²⁶

Foreclosure sales, short sales, and court ordered sales do not meet this definition and therefore cannot be indicators of market value. While it is not always appropriate to completely discount these sorts of distressed sales, the Guide Notes to the Standards of Professional Appraisal Practice, Guide Note 11 notes that “Appraisers must investigate the circumstances of each transaction, including whether atypical motivations were involved When it is necessary to use a distressed sale as a comp, the appraiser must carefully analyze the current local market to determine if an adjustment for conditions of sale is needed.”²⁷ In this

²⁵ See CSXT Reply Ex. III-F-1 at 136.

²⁶ APPRAISAL INSTITUTE, THE DICTIONARY OF REAL ESTATE APPRAISAL 141 (6th ed. 2015).

²⁷ CSXT Reply Ex. III-F-1 at 137.

instance, witness Smith did not present any evidence to indicate that these distressed sales were investigated in any way. The effect of including distressed sales as *fifty percent* of the residential sales used in the appraisal resulted in an indicated value significantly lower than the value that results when those sales are removed. *Id.* at 138.

Second, Consumers' assumption that 25% of the sales price for improved sales was attributable to the value of the land is unreliable. In general, the allocation method used by witness Smith is not favored in the industry. *The Appraisal of Real Estate* provides that "in situations where there is limited sales data, the allocation method does *not* produce credible value indications, but it can be used to establish *approximate* land value when the number of vacant sales is inadequate."²⁸ Contrary to witness Smith's assumption that there were too few vacant land sales upon which to rely, Witness Rex identified a substantial number of residential land sales in the area.²⁹

Furthermore, if the allocation method is to be used, the land allocation percentage must be market derived from valid sources, preferably similar sales of improved property and sales of vacant sites in the immediate vicinity. *Id.* However, the Smith report does not engage in any such analysis. Instead, the Smith report simply concludes "we assumed a 25% land allocation which is typical

²⁸ APPRAISAL INSTITUTE THE APPRAISAL OF REAL ESTATE 369 (14th ed. 2013) (emphasis added).

²⁹ CSXT Reply Ex. III-F-1 at 136.

of both the market and the property type.”³⁰ No data or analysis is provided to support this statement.³¹

Together, the use of distressed sales and the unsupported land allocation from improved sales render the residential valuation in Cook County unreliable. Overall, witness Smith assumed an aggregated market value for the Cook County portion of the ROW to be \$62,074,084. In comparison, witness Rex determined that the market value of this portion of the ROW would be \$67,141,702.³²

d. Appraisal of Land for Yards and Communications Facilities

In addition to valuing the CERR ROW, CSXT accounts for the land required for Barr Yard and for microwave sites. CSXT accepted the acreage required for both Barr Yard and the microwave sites. CSXT valued the land required for these facilities using the same value per acre applied to the adjacent CERR right-of-way.³³ 63.32 acres of land would be required for Barr Yard. Mr. Rex valued the land required for Barr Yard at \$6.6 million, which is lower than the estimate of value in the Smith report. *Id.* Mr. Rex’s valuation for microwave sites totaled \$223,040. *Id.*³⁴

³⁰ Consumers Op. WP “CERR Land Valuation Report.pdf” at 49.

³¹ See CSXT Reply Ex. III-F-1 at 136.

³² See *id.* at 139.

³³ See *id.* at 140.

³⁴ CSXT notes that its communications expert determined three additional microwave towers are required. Accordingly, CSXT adds acreage and costs for three additional microwave sites based on the average cost per site determined by Mr. Rex of \$223,040 total/ 6 sites = \$77,680.per site.

e. Real Estate Acquisition Costs

Separate and apart from the cost of acquiring the land necessary for the CERR ROW and other facilities, the CERR would also incur additional costs for acquiring that land. Consumers failed to include any of those necessary costs, and instead assumed that the CERR could acquire land at its appraised value with zero transaction costs. Such an omission understated the CERR land acquisition costs because, in the real world, a railroad purchasing real estate—just like an individual buying a home—must pay not only the purchase price of the land, but also the associated transaction costs of acquiring that land, including title work, surveys, appraisals, negotiations, and closing costs.³⁵ Indeed, the costs that accompany any land acquisition are particularly significant for right-of-way acquisitions, because such acquisitions typically involve purchasing land that is not presently on the market and require labor-intensive efforts to identify and negotiate with landowners. These costs are separate and apart from the Across-the-Fence valuation of the land to be acquired by the CERR, and CSXT's appraiser considered these costs separate and apart from the valuation.³⁶

³⁵ When condemnation proceedings become necessary, railroads also must pay the associated litigation costs. These costs are ignored for purposes of this analysis, as it is assumed that the CERR would be able to purchase the land without the need for eminent domain.

³⁶ See CSXT Reply Exhibit III-F-1 at 20 (“This report does not consider all the acquisition costs that would be encountered today in the assemblage of the corridor. The only costs included are those considered by the STB for rate case purposes; these included costs are . . . considered separately from the valuation.”). Consumers’ appraisal similarly “reflects a baseline fee simple land value for the entire Consumers Stand Alone Railroad.” Consumers Op. Ex. III-F-2 at 13.

The Board has recognized that SARRs would incur real estate acquisition costs.³⁷ CSXT's experts have developed a reasonable estimate of the additional costs associated with the acquisition of land for the CERR, and these costs should be included in the CERR's road property investment costs.

CSXT witness Rex has developed a conservative estimate as to what the CERR would have to pay for real estate acquisition costs on a per parcel basis. First, Mr. Rex calculated the number of parcels to be acquired by the CERR along the mainline. Those parcels were calculated by counting the number of parcels originally acquired by the CSX predecessor railroads to construct the ROW using the valuation maps. *See* Ex. III-F-1 at 153. Mr. Rex determined that there were originally 1,394 parcels acquired to complete the mainline. Because a complete set of valuation maps is not available for the partially owned lines, including the Dolton interchange, the BRC and the IHB interchange, Mr. Rex estimated the number of parcels for these corridors based on the parcels per mile for the mainline in Cook County. *Id.* Mr. Rex estimated that there would be 489 parcels to acquire for these corridors. *Id.* Second, Mr. Rex calculated costs for tasks that would be required for the CERR to acquire each parcel. These costs and tasks are set forth in Tables III-F-3 and III-F-4.

³⁷ *See DuPont*, STB Docket No. 42125, at 141 ("The Board . . . considers these to be transaction-specific costs which the [SARR] should reasonably expect to incur while purchasing each parcel of needed real estate."); *SunBelt*, STB Docket No. 42130, at 104.

TABLE III-F-3
Michigan & Indiana Acquisition Cost

Cost Category	Low	High
Title Work	\$1,000	\$1,000
Survey	\$2,500	\$3,000
Appraisal	\$2,946	\$3,015
Negotiations	\$2,500	\$3,500
Closing costs	\$1,500	\$1,500
Total	\$10,446	\$12,015
Average	\$11,230	

Table III-F-4
Cook County Acquisition Cost

Cost Category	Low	High
Title Work	\$1,000	\$1,000
Survey	\$2,500	\$3,000
Appraisal	\$2,900	\$5,600
Negotiations	\$4,000	\$5,000
Closing costs	\$1,500	\$1,500
Total	\$13,900	\$16,100
Average	\$15,000	

This estimate is founded on conservative assumptions regarding the costs the CERR would incur to acquire the necessary land based upon Mr. Rex's extensive knowledge of and research concerning right-of-way acquisition costs. Mr. Rex confirmed these costs with Mr. Mark D. Mathewson of Mathewson Right of Way Company in Chicago, who acquires property for railroads, the City of Chicago, Illinois Tollway Authority and others.³⁸ These costs are in line with those accepted by the Board in *DuPont* and *SunBelt*.³⁹

³⁸ See CSXT Reply Ex. III-F-1 at 151-52.

³⁹ *DuPont*, STB Docket No. 42125, at 139; *SunBelt*, STB Docket No. 42130, at 104.

An acquisition cost of \$20.8 million represents roughly 16% of the total land value assessed for the CERR. Based upon Mr. Rex's experience, acquisition costs in the 16% range are reasonable and appropriate.⁴⁰ Accordingly, CSXT has included a cost to the CERR of \$20.8 million in expenses for real estate acquisition separate and apart from the cost of the land itself.

* * *

In sum, CSXT's inspection and resulting appraisal reflects a more accurate valuation of the SARR. CSXT's detailed appraisal valuation is based upon sales that occurred in the counties through which the CERR will operate. CSXT's appraisal also uses the more detailed across the fence valuation methodology that has been accepted by the Board in past cases. As a result, CSXT's appraisal produces a more accurate valuation and should be accepted. Table III-F-5 provides a summary of the components of CSXT's land valuation.

⁴⁰Witness Rex's opinion is limited to the reasonableness of the limited costs that the Board has allowed in SAC proceedings.

Table III-F-5

CSXT Reply CERR Land Valuation			
Description	Open	Reply	Difference
Main Line	\$103,555,119	\$118,019,904	\$14,464,784
BRC Alternative	\$6,138,333	\$3,027,025	\$(3,111,307)
Dolton Interchange	\$3,885,378	\$3,222,536	\$(662,842)
IHB Interchange	\$-	\$1,024,844	\$1,024,844
Buffington Connection	\$-	\$455,217	\$455,217
Total of corridors	\$113,578,830	\$125,749,525	\$12,170,696
Microwave sites	\$237,402	\$223,040	\$(14,362)
Barr Yard	\$7,033,459	\$6,619,726	\$(413,733)
Total of all areas	\$120,849,691	\$132,592,291	\$11,742,601
Rounded to	\$120,850,000	\$132,590,000	\$11,740,000

2. Roadbed Preparation⁴¹

Consumers made several fundamental errors and omissions in calculating roadbed preparation costs that result in an understatement of those costs for the

⁴¹ The roadbed preparation section of the CSXT Reply is sponsored by CSXT witnesses Michael Baranowski, Nathaniel Zebrowski, Paul Bobby, and Patrick Bryant. Mr. Baranowski is a Senior Managing Director at FTI Consulting and has over thirty years of experience in transportation analysis. Mr. Baranowski has testified in numerous Board proceedings and stand-alone cost cases and sponsored evidence in virtually every SAC case since 1997, including sponsoring earthwork and other road property investment evidence in numerous cases. Mr. Zebrowski has worked extensively preparing road property evidence in numerous SAC cases. Mr. Bobby is a Project Manager with STV, a firm offering engineering, architectural, planning, design, environmental, and construction management services. He has worked on a number of railroad construction projects and has participated in design of rail roadway and track alignment, cost estimation, and the development of construction staging plans. Mr. Bryant is a Civil Engineer with STV and has more than 20 years of experience in rail, roadway, highway, and bridge design and construction. He has worked as a Rail Engineer on several rail projects for UP, KCS, NS, and CSXT. These experts' qualifications are further detailed in Section V.

CERR. In this section CSXT identifies and explains the problems with Consumers' opening roadbed preparation cost evidence and explains the bases for its proposed corrections. A summary comparison of CSXT's roadbed preparation costs with those submitted in Consumers Opening Evidence is presented in Table III-F-6.

Table III-F-6
CERR Roadbed Preparation Costs⁴²

	Category	Open	Reply	Difference
1	Clearing & Grubbing	\$2,354	\$2,149	-\$206
2	Earthwork			
	a) Common	\$12,642	\$26,240	\$13,598
	b) Loose Rock	\$66	\$69	\$3
	c) Solid Rock	\$295	\$303	\$8
	d) Borrow	\$7,415	\$28,030	\$20,615
	e) Land for Waste Excavation	\$0	\$7,705	\$7,705
	f) Total	\$20,418	\$62,346	\$41,928
3	Drainage			
	a) Lateral Drainage	\$202	\$203	\$1
4	Culverts	\$1,146	\$2,725	\$1,579
5	Retaining Walls	\$4,442	\$11,247	\$6,805
6	Rip Rap	\$251	\$283	\$32
7	Relocation of Utilities	\$40	\$1,484	\$1,444
8	Topsoil Placement / Seeding	\$27	\$27	\$0
9	Surfacing for Detour Roads	\$199	\$199	\$0
10	Environmental Compliance	\$48	\$48	\$0
11	Fine Grading	\$1,146	\$1,476	\$330
12	Total	\$30,274	\$82,187	\$51,913

**a. Consumers' Proposed Use of Contractor Bid Data
From the Michigan Department of Transportation
For Certain Earthwork Costs.**

Much of the difference in the parties' earthwork costs is driven by Consumers' desire to take yet another run at well-established Board precedent that

⁴² See CSXT Reply WP "CERR Grading_Reply.xlsm," Tab "Reply Summary."

R.S. Means construction cost data are the most reliable and appropriate evidence to use for earthwork costs like common earthwork excavation, borrow, and clearing and grubbing. Because Means costs are “a set of nationwide standardized unit costs” that are widely relied upon for real-world engineering projects, they have become standard in SAC cases. The use of Means costs also simplifies the SAC analysis by providing a uniform set of standard unit costs.

In *DuPont* and *SunBelt* the Board turned away arguments that Means costs should be replaced with so-called “Trestle Hollow” costs. Now that Trestle Hollow costs have been soundly rejected, Consumers proposes another Means alternative. Consumers instead estimates earthwork unit costs from certain data reported by contractors to the Michigan Department of Transportation (“MDOT”).⁴³ But Consumers’ proposed use of the MDOT data is as flawed as the Trestle Hollow argument that preceded it. R.S. Means is the proven source for earthwork unit prices, and Consumers’ critiques of it should be rejected for the same reasons similar critiques were rejected in *DuPont* and *SunBelt*. Indeed, Consumer’s alternative analysis contains serious flaws, which when corrected result in derived MDOT unit prices at or above Means prices. When its obvious flaws are corrected, Consumers’ analysis thus only proves the reasonableness and reliability of Means.

i. R.S. Means is the Proven Source for SARR Earthwork Unit Prices.

The Board has long applied R.S. Means national cost data as the appropriate, authoritative source for earthwork costs. Indeed, in nearly every SAC case, the

⁴³ See Consumers Op. III-F-10.

Board has applied R.S. Means as the best source of earthwork construction costs and other road property investment unit costs. In *FMC*, for example, the Board applied R.S. Means to calculate the appropriate unit costs for earthwork.⁴⁴ In *Duke/CSXT*, the Board again relied on R.S. Means costs.⁴⁵ And in *Otter Tail* and a host of other cases, the Board repeatedly has accepted R.S. Means unit costs.⁴⁶ Most recently, the Board rejected attempts by complainants to understate

⁴⁴ *FMC*, 4 S.T.B. at 800.

⁴⁵ *Duke/CSXT*, 7 S.T.B. at 171; *see also CP&L*, 7 S.T.B. at 310.

⁴⁶ *Otter Tail*, STB Docket No. 42071, at D-11; *see also West Texas*, 1 S.T.B. at 704 (accepting Complainant's "unit costs for earthwork as reasonable, because they are based upon actual quotations obtained from the construction industry and recognized compilation services" where the Complainant used R.S. Means); *PPL v. Montana*, 6 S.T.B. 286, 305, n.26 (applying Complainant's unit cost for excavation, based on R.S. Means); *TMPA I*, 6 S.T.B. at 705 (using Complainant's culvert costs estimate based on R.S. Means); *Duke/CSXT*, 7 S.T.B. at 479 (complainant's unit cost for blasting, based on R.S. Means, is used); *Xcel*, 7 S.T.B. at 616 (R.S. Means is "a set of nationwide standardized unit costs that is often relied upon in SAC cases to estimate construction costs."); *id.* at 677 ("Xcel's common excavation costs are supported by *Means* . . . Xcel's cost figures for common excavation are used here . . . Xcel's equipment specifications are used here because they are supported by *Means*"); *Arizona Pub. Serv. Co. v. Atchison, Topeka & Santa Fe Ry. Co.*, STB Docket No. 41185, at 27 (served July 27, 1997) (accepting Complainant's R.S. Means-based index); *WFA I*, STB Docket No. 42088, at 86 (applying Complainant's R.S. Means-based excavation costs); *Id.* at 86-87 (accepting Complainant's "Means costs for 'drilling and blasting ... and 'bulk drilling and blasting"); *AEP Texas II*, STB Docket No. 41191, at 79 ("For segments that would require both clearing and grubbing, AEP Texas uses the R.S. Means Manual (Means) cost"); *AEPCO 2011*, STB Docket No. 42113, at 83-84 ("AEPCO submits separate unit costs for clearing and grubbing, using Means to determine its unit costs . . . Therefore, we accept AEPCO's unit costs for clearing as the best evidence of record. We use the agreed-upon grubbing unit costs.").

earthwork unit costs using atypical, non-representative grading projects and instead adopted R.S. Means costs.⁴⁷

In support of its proposed diversion from past precedent, Consumers erroneously references the Board's 2007 decision in *WFA I* and its 2011 decision in *AEPCO*. Neither of those cases support Consumers' position. In *WFA I*, defendant BNSF produced actual construction unit costs for common excavation and embankment from its then-recently-completed Shawnee-to-Walker Third Main line construction project on the Orin line. At approximately 126 miles,⁴⁸ the BNSF's Orin line comprised the majority of the actual route replicated and traversed by the relatively short 218 mile SARR proffered by complainants in *WFA I*.⁴⁹ Defendant BNSF thus accepted the use of its own actual costs of the very lines replicated by the SARR for common excavation costs in that proceeding.⁵⁰ Similarly, in *AEPCO 2011*, the complainant based its common excavation unit costs on the average costs of five actual BNSF capacity expansion projects covering nearly 77 miles on the Orin and Hereford Subdivisions, based upon actual construction cost documents and materials produced by BNSF in discovery. Unlike the evidence and circumstances in *WFA I* and *AEPCO 2011*, (1) the MDOT projects are highway

⁴⁷ See *DuPont*, STB Docket No. 42125, at 149; *SunBelt*, STB Docket No. 42130, at 105.

⁴⁸ The BNSF Orin Line extends generally from MP 0 near Donkey Creek, WY to MP 126.2 at Orin Junction, WY. See CSXT Reply WP "BNSF Orin Line.pdf."

⁴⁹ See *WFA I*, STB Docket No. 42088, at 25-26, 81-82. The Shawnee-to-Walker construction project comprised 14 miles of the 126 mile Orin line. See CSXT Reply WP "UP and BNSF AEPCO Public Reply Excerpt — Project Miles.pdf."

⁵⁰ See *WFA I*, STB Docket No. 42088, at 86.

projects that were *not* constructed by CSXT and are *not* part of the CSXT or CERR system; (2) the MDOT Contractor Costs vary in size and scope in comparison to the CERR; and (3) CSXT does not accept the use of the MDOT costs.

In both *WFA I* and *AEPCO 2011*, due primarily to the projects' proximity to the route being replicated by the SARR and the fact that the proffered costs were from larger projects conducted by the defendant itself on a Class I railroad system, the Board accepted the use of defendant railroads' own actual experience and costs for common excavation for estimating SARR common excavation costs.⁵¹ But given the significantly different circumstances of those cases, neither *WFA I* nor *AEPCO 2011* provides any basis for substituting the costs from a handful of highway construction projects for the established Means precedent.

ii. Consumers' Claim That Means Costs Do Not Reflect Economies of Density Is Wrong.

Consumers argues that Means Handbook costs are not ideal because they are based on an average of costs for projects of all sizes from around the country and assume a unionized workforce. According to Consumers, there is no way to scale the Means Handbook unit costs to be commensurate with a project the size of the CERR or to accurately estimate the impact of using non-union labor. Consumers is mistaken. The Means Handbook specifically discusses how factors affecting costs are handled and explains that the size and scope of work will have a significant

⁵¹ See *WFA I*, STB Docket No. 42088, at 86 (explaining that the parties agreed on the cost for common excavation); Joint Reply Evidence and Argument of Defendants BNSF Railway Co. and Union Pacific Railroad Co., *Arizona Elec. Power Coop., Inc. v. BNSF Ry. Co. & Union Pac. R.R. Co.*, STB Docket No. 42113, at III-F-22 (May 7, 2010).

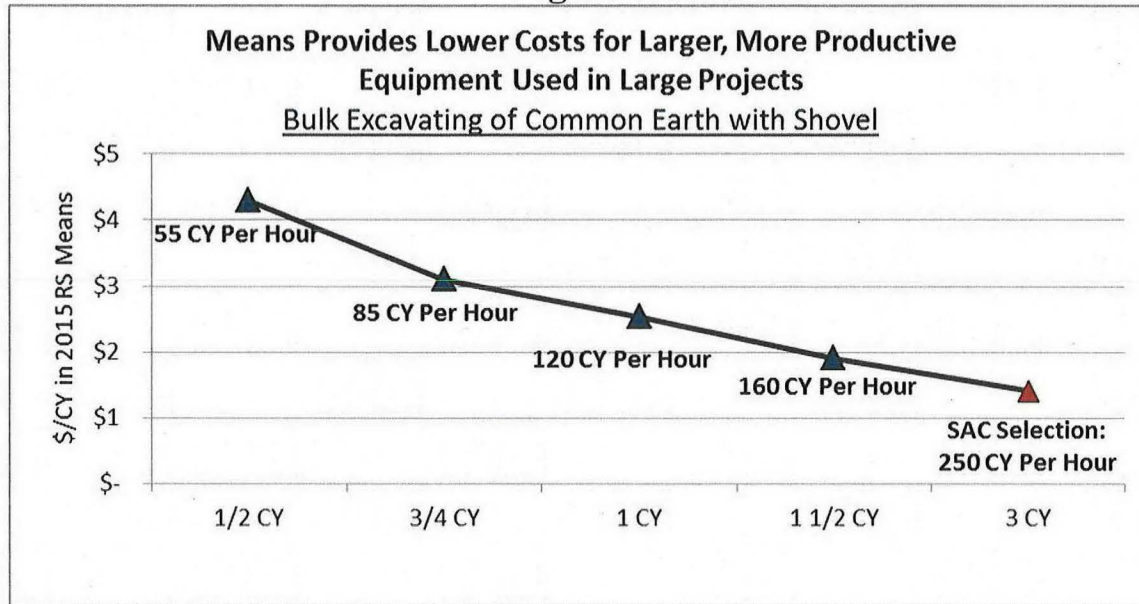
impact on cost.⁵² Means goes on to caution that smaller sized projects will likely incur costs higher than those reported in its estimating guide.⁵³

Consumers also is flatly wrong about the ability to tailor the Means costs to a specific project. In fact, the Means unit costs typically selected for use in SAC proceedings reflect some of the highest equipment production rates found in the publication. For example, Consumers' earthwork unit cost spreadsheet uses a 3 cubic yard shovel as a component of both loose rock and solid rock excavation costs.⁵⁴ The 3 cubic yard shovel—with a production rate of 250 cubic yards per hour and 2,000 cubic yards per day—is the largest of the shovels reported by Means for excavating bulk bank measure. (Indeed, these shovels are likely too large to work within the confines of the narrow CERR right-of-way.) The Means unit costs thus reflect the economies of a production rate of 2,000 cubic yards per day. Figure III-F-1 below depicts the hourly productive capacity of the shovels reported by Means for bulk excavation and confirms that the shovel selected by Consumers captures the full benefit of available economies of scale.

⁵² See CSXT Reply WP "RS Means Info.pdf" at 4.

⁵³ *Id.*

⁵⁴ See Consumers Op. WPs "CERR Grading_Opening.xlsx," Tab "Unit Costs, Row 30 and "2015 RS Means Pages.pdf" at 9.

Figure III-F-1⁵⁵

Another way Means accounts for economies of scale is by reporting excavation unit costs under a variety of categories, including trench excavation, utility trench excavation, structural excavation and bulk bank measure. All of the excavation unit costs that the Board has previously accepted are derived from Means costs for the bulk materials category, where equipment production rates are the highest.

Last, the unit costs from Means previously adopted by the Board are tailored specifically to the assumptions underlying the earthwork quantities reported in the Engineering Reports themselves and with the assumptions used in the formulas used to adjust the Engineering Report quantities to modern day specifications. Both assume that excavated materials will be used as embankment and that the haul distance from the point of excavation to the point of placement as embankment

⁵⁵ Source: CSXT Reply WP "Means Economies Graph.xlsx."

can be up to 5,000 feet.⁵⁶ As such, the Means unit price for common excavation used by the Board in prior proceedings involves loading common earth into a scraper and transporting the excavated materials for placement in embankment or as waste a distance of 3,000 feet—the approximate midpoint of the Engineer Report permissible haul length.⁵⁷

iii. CSXT's Own AFE Costs On Projects Involving Earthwork Are Higher Than Means.

Consumers complains that the AFE construction cost data produced by CSXT in discovery is not helpful. But Consumers misuses the CSXT AFE data to bolster its own position. In discovery CSXT produced a list of 8,064 AFE projects. Consumers selected from that list only twelve projects containing earthwork cost information.⁵⁸ Consumers complains that of these twelve projects, only one included unit prices for common excavation. It then concludes, based on its analysis of that single CSXT AFE for work done at Casky Yard in Kentucky, that CSXT incurred a cost per cubic yard for common excavation of {{ }}, which Consumers notes is {{ }} the comparable costs from Means of \$5.61.⁵⁹ But Consumers is only telling part of the story. The Casky Yard AFE also includes a large lump sum amount for “Misc Grading” that works out to an average cost of {{ }} per cubic

⁵⁶ Hauls in excess of 5,000 feet are itemized as “Team Overhaul” or “Train Overhaul” depending on the length of haul.

⁵⁷ The other haul distance options provided by Means are 1,500 feet and 5,000 feet. The 3,000 foot option used previously by the Board is the closest to the midpoint.

⁵⁸ See Consumers Op. III-F-25.

⁵⁹ See *id.*

yard when spread over all of the cubic yards of excavation reported in the AFE.⁶⁰

Adding that average amount to the common excavation cost observed by Consumers produces an average cost of {{ }} the \$5.61 Means cost per cubic yard. It is also worth noting that the Casky Yard AFE also includes other earthwork costs for erosion control, dewatering and soil stabilization.

iv. Consumers Has Misrepresented the MDOT Data in a Manner That Artificially Understates the Actual Costs.

Consumers claims that, by using MDOT unit costs, it was able to identify specific costs incurred by contractors throughout Michigan that are directly applicable and more relevant to the CERR territory than those from Means. CSXT has reviewed the MDOT contractor data provided by Consumers and agrees that the costs represent the actual bids of contractors for work done on highway projects in Michigan. But Consumers' assertion that the MDOT highway costs are more applicable to the CERR than comparable Means costs is wrong. Moreover, Consumers' analysis of allegedly comparable MDOT unit prices contains significant flaws that grossly understate excavation and borrow unit costs. When Consumers' analytical shortcomings are corrected, the MDOT costs are at or above comparable costs from Means. Consumers has thus only proven the reasonableness of Means unit prices.

⁶⁰ See CSXT Reply WP "A42192 A41492 AA4-29-14 Casky KY – Proposed Inspection yard AFE.xls," Tab "AFE DETAIL," Cells AH3:AH5.

(a) Flaws in Consumers' Analysis of MDOT Data

According to Consumers, because there were so few invoices containing common earthwork unit costs provided by CSXT in discovery, it evaluated over 1,000 projects listed in the MDOT construction cost database to determine earth excavation unit costs in Michigan for projects that were similar to the CERR construction. Because all of the MDOT projects reviewed by Consumers are highway projects, it is not clear how Consumers determined which projects were similar to the CERR construction. Nonetheless, Consumers explains that it was able to identify 54 construction projects in Michigan that contained common earth excavation unit costs and divided those projects into three arbitrary tiers. Tier I projects were those that occurred within 30 miles of the CERR. Tier II projects occurred between 30 and 100 miles from the CERR. Tier III projects were those projects that occurred further than 100 miles from the CERR. According to Consumers, most of the projects (33 of the 54 projects reviewed) fell in the Tier III category, which it completely ignored.⁶¹ From the 11 Tier I and 10 Tier II projects remaining, Consumers calculated the weighted average earth excavation unit cost based on the total cubic yards for the 21 projects, which resulted in a unit cost per cubic yard of \$2.41.⁶²

The 21 projects analyzed by Consumers include a variety of contractor project bid items. Some of the bid items relate to earthwork, but the vast majority of the

⁶¹ See Consumers Op. at III-F-26.

⁶² See Consumers Op. WP "MDOT Excavation Unit Costs.xlsx," Tab "Tier Calculations," Cell Z 17.

bid dollars for the MDOT highway projects are associated with pavement—not surprising for highway projects. For its analysis, Consumers zeros in on only one bid item: Excavation, Earth. Consumers asserts that it reviewed the MDOT construction specifications to confirm that the MDOT unit prices include all necessary aspects of common excavation for the CERR and concludes that not only do the bids include all of the required costs, but that the MDOT specifications for excavation meet or exceed the CSXT Specifications for excavation projects.

Consumers' conclusion that the MDOT unit cost for common excavation encompasses the necessary functions required by the CERR for common excavation is dead wrong. As Consumers well knows, the Board has found repeatedly that the common earthwork unit costs applicable to the adjusted Engineering Report quantities represent three necessary components of railroad roadbed construction:

- 1) excavation of in site materials;
- 2) haulage of excavated materials for placement in embankment or to waste; and
- 3) placement and compaction of the excavated materials as railroad embankment.

The MDOT handbook provided by Consumers clearly lists “Excavation, Earth” and “Embankment, CIP” as *separate* pay items.⁶³ But Consumers *only* used

⁶³ See Consumers Op. WP “MDOT 2012 Standard Specifications for Construction.pdf” at 151. Further, page 154 states: “The Engineer will determine if payment for Excavation, Earth and Embankment, CIP will be based on plan quantities. If use of plan quantities is not feasible, the Engineer will measure Excavation, Earth and Embankment, CIP in accordance with the following: (a) the Engineer will measure Excavation, Earth using the staked-section method... (b) The Engineer will measure Embankment, CIP based on the grade and cross section

the “Excavation, Earth” costs for excavation of in situ materials, and thus does not account for any costs for haulage of materials along the right of way or placement as embankment. For 19 out of the 21 projects analyzed by Consumers, the MDOT contractor data includes a separate bid line item for placement of embankment at a weighted average unit cost of \$3.27 per cubic yard.⁶⁴ If the MDOT contractor bids data were used as the source for CERR common excavation unit prices, the cost for building embankment would need to be added to the cost of excavation to be comparable with the adjusted common excavation quantities derived from the Engineering Reports.

In addition to embankment bid items that were ignored by Consumers, the MDOT data include a separate line item for mobilization. Mobilization averages 7.6 percent for the 21 projects analyzed by Consumers. If the MDOT contractor bids data is used as the source for CERR common excavation unit prices, the excavation costs and the cost for building embankment would need to be increased by the amount by which the average project mobilization percentage exceeds the 2.7 mobilization percentage assumed by Consumers, or 4.9 percent.⁶⁵

In addition to ignoring key elements of the MDOT bid data, Consumers has blindly assumed that the cost of excavation experienced in building highways in

shown on the plans.” This language clearly indicates that excavation unit costs do not include hauling and installing excavated materials as embankment.

⁶⁴ The bid documents do not include a separate bid line item for haulage of excavated materials. *See* CSXT Reply WP “MDOT Excavation Unit Costs_Reply Analysis.xlsx,” Tab “Reply Analysis.”

⁶⁵ *See id.*

rural Michigan is representative of the cost of common excavation in the more urban areas that the CERR traverses in Illinois and Indiana. In its opening Consumers calculated a total of approximately 5.0 million cubic yards of CERR common excavation. Of that total, 2.8 million cubic yards are in Michigan and 2.2 million cubic yards are in Illinois and Indiana (just over 44 percent).⁶⁶

Consumers has not explained how or why earthwork excavation costs in easily accessible and uncongested rural areas are relevant to the more confined, narrower rights-of-way in urban areas with less open space. Indeed, Consumers' own MDOT data demonstrated that the excavation costs pulled by Consumers that fall within its arbitrary 30 mile distance from the CERR route are well below the excavation cost bids submitted by Michigan contractors in the more urban Wayne County (which encompasses Detroit and its surrounding suburban areas). The MDOT data that Consumers rejected as too distant from the CERR line includes seven highway construction projects in Wayne County for which the excavation cost averaged \$6.78 per cubic yard—almost three times the \$2.41 per cubic yard cost Consumers extracts from the rural area bids.⁶⁷

Finally, Consumers considered only the winning bids from the bid data from the projects it considered to meet its relative distance criteria. It does not explain

⁶⁶ See Consumers Op WP "CERR Grading_Opening.xlsx," Tab "Road Grading," Cells AL20 and AL25.

⁶⁷ See CSXT Reply WP "MDOT Excavation Unit Costs_Reply Analysis.xlsx," Tab "Reply Analysis." In its Opening, Consumers mixes apples and oranges by applying the Means Location Factors to the MDOT bid cost data for excavation in Illinois and Indiana, yielding the equivalent excavation cost per cubic yard of \$2.67 and \$2.65, respectively for Illinois and Indiana. Both those amounts fall considerably below the MDOT bid data for urban areas.

why only the winning bid amounts would be relevant. As discussed previously, the MDOT projects are highway construction projects. The majority of the bid dollars for the bids analyzed by Consumers are for pavement. The next largest bid items are structures and foundational bases for structures and other appurtenances. Excavation represents an average of only 3.4% of the bid dollars analyzed by Consumers.⁶⁸ As such, the bid price for excavation did not drive the determination of the successful bidder. Contractors use a variety of strategies in their efforts to garner the winning bid and have significant latitude in how to present unit prices for individual line items. After all, it is typically the *total* bid amount that drives the buyer's ultimate decision, not the bid for individual line items. For the 21 projects analyzed by Consumers, excavation bid prices ranged from a low of \$0.01 per cubic yard to a high of \$9.47 per cubic yard and average \$3.01 per cubic yard (or approximately 25% more than the unit prices from the winning bids).⁶⁹ Under these circumstances, there is no reason why the average excavation bid price is any less relevant than the average of the winning bid price selected by Consumers.

In short, even if the Board were to reconsider the use of Means costs (and it should not), Consumers' alternative analysis is hopelessly flawed. And once the flaws are corrected, Consumer's MDOT-derived analysis actually produces results higher than Means unit costs.

⁶⁸ See CSXT Reply WP "MDOT Excavation Unit Costs_Reply Analysis.xlsx," Tab "Reply Analysis."

⁶⁹ See CSXT Reply WP "MDOT Excavation Unit Costs_Reply Analysis.xlsx," Tab "Supplemental Data."

b. Clearing and Grubbing.

The process of removing brush and trees is known as “clearing,” and is the initial step in roadbed preparation. Clearing quantities from the ICC Engineering Reports can be divided into two general types based on the type of plant cover and degree of difficulty of clearing. The first type is clearing areas having primarily smaller brush and few trees. This entails using a rake to cut the brush and stockpiling the cut material. The stockpiled brush is then loaded into trucks and hauled to a waste site. The second type is clearing areas with more or larger trees, a more arduous undertaking that involves cutting and chipping the trees. Both types of clearing leave the roots and stumps of trees that are cleared.

Grubbing is the process of removing tree roots and stumps left by clearing. Grubbing is required for areas with trees, but generally is not required for areas primarily covered with brush and smaller vegetation.⁷⁰

Consumers’ clearing and grubbing evidence suffers from two related flaws. First, Consumers continues to rely on its MDOT estimates rather than on Means estimates. For the reasons described above, the Board should continue to rely on Means costs as the best and most accurate estimation of unit costs. Second, Consumers’ MDOT unit costs do not distinguish between costs for land that only requires clearing and land that requires both clearing and grubbing. Instead, Consumers produces the same sort of “blended” clearing and grubbing costs that the

⁷⁰ See CSXT Reply WP “Clearing and Grubbing Diagram.pdf” (showing what is cleared, and what is grubbed).

Board rejected in *DuPont* and *SunBelt*. The Board should reject this oversimplified approach again here.

i. Clearing and Grubbing Quantities and Costs.

CSXT accepts Consumers' proposed method of determining clearing quantities and grubbing quantities and the resulting clearing and grubbing quantities.⁷¹ However, CSXT rejects Consumers' proffered clearing and grubbing unit costs. In past cases, clearing and grubbing costs have been split into two separate categories—(1) acreage containing trees that requires both the clearing of trees and the grubbing of stumps; and (2) acreage without trees that requires only light clearing to remove and dispose of brush and no grubbing.⁷² Here, Consumers applied a combined clearing and grubbing unit cost of \$3,204 per acre based upon the MDOT Contractor Data.⁷³ As CSXT explained in detail in Section III-F-2-a, the MDOT data are not comparable and indeed less desirable than CSXT's own experience or the nationwide averages set forth in Means.

In *DuPont* and *SunBelt*, the Board rejected use of clearing and grubbing costs derived from the Trestle Hollow Project by complainants in those proceedings.⁷⁴ Here, Consumers simply substitutes the MDOT costs for the rejected Trestle Hollow costs and makes the same arguments rejected in those cases about how a one-size-fits-all "combined" unit cost is supposedly conservative and may "overstate[] the

⁷¹ See CSXT Reply WP "CERR Grading_Reply.xlsm," Tab "Other Items."

⁷² See, e.g., *AEPCO 2011*, STB Docket No. 42113, at 83.

⁷³ See Consumers Op. WP "MDOT Clearing & Grubbing Unit Costs.xlsx," Tab "Unit Cost Comparison," Cell H9.

⁷⁴ *DuPont*, STB Docket No. 42125, at 150; *SunBelt*, STB Docket No. 42130, at 108.

total costs as not all acres have trees or require grubbing.”⁷⁵ Consumers again cites to the CSXT Casky Yard AFE as support for its belief that the Means costs are overstated, citing to an clearing and grubbing cost estimate of { } per acre at 1Q15 levels for 300 acres.⁷⁶ Again, however, a detailed review of the AFE invoice data produced by CSXT shows that CSXT was billed by the contractor a cost of { } per acre for clearing and grubbing.⁷⁷ Thus, the actual cost per acre for clearing and grubbing for the Casky Yard project is comparable to the cost derived from Means.

Consumers’ opening workpapers show that it did develop separate “alternative” costs for clearing and grubbing using the R.S. Means Handbook.⁷⁸ The R.S. Means Handbook provides a “set of nationwide standardized unit costs, adjusted for localities, used to estimate the cost of construction” that has long been accepted by the Board in SAC cases.⁷⁹ Although Consumers decided not to use its R.S. Means-based costs to develop its final CERR clearing and grubbing costs,

⁷⁵ Consumers Op. III-F-14.

⁷⁶ See *id.* at III-F-17.

⁷⁷ See Consumers Op. WP “CSXT Invoice Unit Cost Summary.xlsx,” Tab “CSXT AFE Project Data,” Cells V20 and AJ20.

⁷⁸ See Consumers Op. WP “CERR Grading_Opening.xlsx,” Tab “Unit Costs,” Rows 122 through 132. Specifically Consumers calculates separate unit costs applicable to acreage with trees that require both clearing of trees and grubbing of stumps and acreage without trees that require only the clearing of brush.

⁷⁹ See, e.g., *CP&L*, 7 S.T.B. at 310; *Duke/NS*, 7 S.T.B. at 171, n.99; *DuPont*, STB Docket NO. 42125, at 147, n.411.

Consumers' workpapers nonetheless show most of the relevant R.S. Means unit costs required for clearing and grubbing activities.⁸⁰

In contrast to MDOT project data, the ICC Engineering Reports used to develop clearing and grubbing quantities clearly delineate areas along valuation sections that were only cleared and areas that were both cleared and grubbed.⁸¹ Without information identifying the ratio of clearing only versus clearing and grubbing from the MDOT data,⁸² it is impossible to determine if the undifferentiated unit cost from the MDOT data is appropriate to estimate costs of clearing operations and clearing and grubbing operations along the entirety of the CERR. Consistent with *DuPont*, *SunBelt*, and other precedents, the Board should reject the undifferentiated clearing and grubbing costs proffered by Consumers and adopt the separate R.S. Means-based costs for each activity presented by CSXT below.

ii. Cost for Acres Requiring Both Clearing and Grubbing.

For land with trees that would require both clearing and grubbing, CSXT rejects Consumers' proposed use of MDOT as the source for CERR clearing and grubbing unit costs and adopts the alternative R.S. Means-based approaches set forth in Consumers' workpapers. This method develops separate clearing costs of \$6,247.02 per acre, based on the R.S. Means cost for cutting and chipping trees up

⁸⁰ *Id.*

⁸¹ See Consumers Op. WP "CERR Grading_Opening.xlsx," Tab "Eng Rpt Input," Columns AS and AV.

⁸² Consumers did not provide any such information in its evidence.

to twelve inches in diameter and grubbing costs of \$3,853.09 per acre, based on the R.S. Means cost for grubbing and removing stumps.⁸³

CSXT's approach is consistent with Board precedent.⁸⁴ CSXT's Reply Evidence applies these unit costs to the CERR acres requiring both clearing and grubbing.⁸⁵ This method is consistent with that accepted by the Board in *DuPont* and *SunBelt*.⁸⁶

iii. Costs for Acres Requiring Only Clearing.

The alternative R.S. Means-based clearing and grubbing unit costs developed but not used by Consumers include a unit cost of \$296.39 per acre for areas that require only clearing and not grubbing. CSXT applies Consumers' R.S. Means-based cost for clearing and applies it to the CERR acreages requiring only clearing.

c. Earthwork.

CSXT accepts Consumers' general method of determining earthwork quantities from the ICC Engineering Reports ("Engineering Reports"). However, Consumers made a number of errors in identifying and using the relevant quantities from the Engineering Reports. CSXT rejects Consumers' unit costs for earthwork excavation, borrow, and land for waste sites. Finally, CSXT accepts

⁸³ See Consumers Op. WP "CERR Grading_Opening.xlsx," Tab "Unit Costs," Rows 16 through 18.

⁸⁴ See, e.g., *AEPCO 2011*, STB Docket No. 42113, at 83 (providing separate R.S. Means unit costs for clearing and for grubbing); *CP&L*, 7 S.T.B. at 310 (same).

⁸⁵ See CSXT Reply WP "CERR Grading_Reply.xlsm," Tab "Total Cost Summary," Cells P24:P25.

⁸⁶ See *DuPont*, STB Docket No. 42125, at 149-50; *SunBelt*, STB Docket No. 42130, at 108.

Consumers' added costs for finished grading that are not otherwise captured anywhere in CERR earthwork costs.⁸⁷

i. Earthwork Quantities from ICC Engineering Reports.

CSXT accepts Consumers' assignment of valuation sections to the CERR route and accepts Consumers' method of calculating earthwork quantities by valuation section, with one significant exception. When recording ICC Engineering Report quantities for the valuation segment CWI-3-IL (which covers CERR's Partially Owned BRC segment between 75th Street and Rock Island Junction), Consumers erroneously included an embankment quantity as common excavation instead of borrow.⁸⁸ That embankment quantity, specifically described as "Embankment, hauled from Dune Park, Ind.,"⁸⁹ is properly classified as borrow, not common excavation. CSXT has corrected this error.⁹⁰

⁸⁷ CSXT also corrects Consumers' failure to include earthwork costs for certain CERR segments on the IHB in which CSXT has an ownership interest, but Consumers erroneously treated as trackage rights segments. In its reply, CSXT has dropped the traffic from Consumers' CERR traffic group that uses this segment because the CERR does not meet CSXT's current service standard. Should the Board disagree, Consumers' IHB costs would have to be corrected.

⁸⁸ See Consumers Op. WP. "CERR Grading_Opening.xlsx," Tab "Eng Report Grading Inputs," Cell S7.

⁸⁹ See Consumers Op. WP. "ICC Engineering Reports_CERR_opening.pdf" at 43.

⁹⁰ See CSXT Reply WP. "CERR Grading_Reply.xlsm," Tab "Eng Report Grading Inputs," Cell S7.

ii. Other CERR Earthwork Quantities and Costs.

(a) CERR Yards.

CSXT accepts Consumers' yard earthwork quantities except for adding quantities required for a locomotive turntable and bad order set out track at Barr Yard as described in Section III-B.

(b) Segments with Partial CSXT Ownership.

As explained in Section III-B-1-c, Consumers erroneously assumed that the CERR could operate over certain line segments of the IHB partially owned by CSXT without accounting for CSXT's ownership interest. In stepping into the shoes of CSXT, the CERR also would take on CSXT's ownership interest, and be responsible for its proportionate share of road property investment costs for those lines. CSXT Engineering Experts have developed earthwork quantities and costs for the IHB line segments identified in Section III-B-1-c.⁹¹ However, these costs are not included in CSXT's total reply construction cost amount because Consumers traffic using this segment fails to meet CSXT's service standard and should be dropped. Should the Board disagree and include this traffic, the construction costs developed for the IHB line segment should be included.

⁹¹ CSXT has similarly developed but not included other road property investment quantities and costs where appropriate to reflect the costs the CERR would incur for its proportionate share of the IHB partially owned line segment. *See, e.g.*, CSXT Reply WPs "CERR Route Miles_Reply.xlsx," "Bridge Costs_Reply.xlsx," and "CERR C-S Costs_Reply.xlsx."

(c) Total Earthwork Quantities.

The following table compares earthwork quantities proposed by Consumers and the corrected quantities developed by CSXT in this Reply. Details are set forth in CSXT's workpapers.

**Table III-F-7
Roadbed Preparation Costs⁹²**

Item		Open CY	Reply CY	Difference
1	Common Excavation	5,042,044	4,536,059	-505,985
2	Loose Rock Excavation	5,246	5,274	29
3	Solid Rock Excavation	18,072	18,169	97
4	Borrow	716,135	1,254,240	538,106

(d) Earthwork Unit Costs.

CSXT Engineering Experts have evaluated earthwork unit costs proffered by Consumers and made appropriate corrections and adjustments. Revisions to Consumers' unit costs are described in the following sections.

(i) Common Excavation.

As discussed generally above, Consumers based its unit costs for common excavation on MDOT Contractor Data. Consumers also included the common excavation unit cost from R.S. Means in its workpapers, but does not use that in its evidence. In addition to the reasons discussed above explaining why Consumers analyses of the MDOT data are flawed and understate earthwork costs for the CERR, CSXT observes that the MDOT bid data projects average approximately 50,000 cubic yards of excavation per mile, while the earthwork quantities for the

⁹² See CSXT Reply WP "CERR Grading_Reply.xlsm," Tab "Reply Summary."

CERR average approximately 30,000 cubic yards per mile.⁹³ The higher concentration of earthwork volumes on MDOT projects allows for increased production from earthmoving equipment and likely results in lower haul distances, resulting in lower MDOT costs per unit. Consumers has not made any efficiency-related adjustment to the MDOT cost to address this disparity.

For the reasons discussed above, CSXT rejects Consumers' replacement of Means costs with its MDOT-derived costs. Instead, CSXT Engineering Experts have used the R.S. Means common excavation unit cost that Consumers included in its workpapers (but did not use) with one modification.⁹⁴ Consumer's evidence develops common excavation unit costs with compaction split evenly between sheepsfoot rollers and steel wheel rollers for compaction. Although the equipment selected is not problematic, the ratio is impractical. When embankments are initially constructed, the terrain is uneven. Steel wheel rollers are almost impossible to maneuver on uneven surfaces because the smoothness of the steel drum causes them to slide downhill. Therefore, sheepsfoot rollers are used to compact embankments until they reach subgrade elevation, which is the majority of the compaction. Steel wheel rollers are used only for the top one to two feet. As a result, the correct ratio between steel drum rollers and sheepsfoot rollers is,

⁹³ See CSXT Reply WP "MDOT Excavation Unit Costs_Reply Analysis.xlsx," Tab "Reply Analysis."

⁹⁴ See CSXT Reply WP "CERR Grading_Opening.xls," Tab "Unit Costs," Cell AT79.

respectively, 20% and 80%. CSXT develops common excavation costs based on this ratio.⁹⁵

Unlike the partial and unrepresentative unit cost Consumers derived from 21 highway projects, R.S. Means costs are developed from real-world costs of a large variety of actual construction projects conducted throughout the country, which provide a far better basis for calculating the costs of constructing the CERR. To develop its annual average costs, R.S. Means contacts manufacturers, dealers, distributors, and contractors all across the U.S. and Canada for input.

R.S. Means's labor costs are based upon the average of wage rates from 30 U.S. cities. Its wage rates are determined from both union labor agreements and open-shop rates. R.S. Means bases its equipment costs on national rental rates, and those costs include operating costs such as servicing, fuel, and lubricants. R.S. Means obtains equipment rental rates from contractors, suppliers, dealers, manufacturers, and distributors throughout North America.⁹⁶ And R.S. Means has long been accepted by the Board as an authoritative source for railroad construction unit costs.⁹⁷ The Means costs for common excavation are set forth in the following table.

⁹⁵ See CSXT Reply WP "CERR Grading_Reply.xls," Tab "Unit Costs," Cells X40:X41 and AT79.

⁹⁶ See CSXT Reply WP "RS Means Info.pdf."

⁹⁷ See, e.g., *CP&L*, 7 S.T.B. at 310; *DuPont*, STB Docket No. 42125, at 147; *SunBelt*, STB Docket No. 42130, at 106.

Figure III-F-8

CSXT Reply Common Excavation Unit Cost Using Means		
Line	Description	Value
1.	Excavation, Bulk, Scrapers, Common Earth, 3000' haul	\$5.30
2.	Compaction, Sheepsfoot or wobbly wheel roller, 6" lifts, 4 passes	\$1.67
3.	Compaction, Riding, vibrating roller, 6" lifts, 4 passes	\$0.77
4.	Weighted Compaction for 70% Excavation Used as Fill - 1/	\$1.04
5.	CSXT Reply Common Excavation Unit Cost Using Means	\$5.78
1/- Equals (L2 x .8 + L3 x .2) x 70%		
2/- Equals (L1 + L4) x 91.2% Loc. Factor Developed by Consumers		

If the Board rejects CSXT's correction to Consumers' opening of substituting the Means derived costs for common excavation, the Board should correct the flaws in Consumers' analyses of the MDOT data. While there are several alternatives for correcting Consumers' analyses of the MDOT data, the table below illustrates one approach that accepts Consumers' use of the average of the winning bid unit prices, but corrects Consumers costs to reflect:

1. Addition of cost for embankment
2. Substitution of bid prices from Wayne County for CERR lines in Illinois and Indiana
3. Adjustment of bid prices to reflect the higher mobilization percentages included in MDOT contractor bids.

As Table III-F-9 shows, when these needed corrections are made, the MDOT common excavation cost per cubic yard exceeds the Means cost.

Table III-F-9⁹⁸

	Line Item	Average Winning Bid	Weighting	Corrected Cost
1.	MDOT Excavation, Earth (Consumers Opening)	\$2.41	56%	\$1.35
2.	MDOT Excavation, Earth (Wayne County)	\$6.78	44%	\$2.98
3.	MDOT Embankment, CIP	\$3.27	70%	\$2.29
4.	Subtotal			\$6.62
5.	MDOT Incremental Mobilization (Above 2.7%)	4.9%		\$0.32
6.	Corrected MDOT Common Ex. Unit Cost			\$6.94
7.	Means Common Ex. Unit Cost Developed in Consumers Opening			\$5.61
8.	Corrected MDOT and Means Common Ex. Unit Cost Difference			(\$1.33)

As Table III-F-9 shows, properly evaluated for the CERR, the MDOT costs are higher than Means.

(ii) Loose Rock Excavation.

CSXT generally accepts Consumers' use of R.S. Means data as the source for loose rock excavation unit costs, but makes two adjustments to how these costs are developed. First, for the same reasons discussed for common excavation, CSXT revises the ratio of sheepfoot to steel wheel rollers to 80% and 20%, respectively. Second, as explained below, Consumers failed to match the necessary hauling costs with the volume of materials requiring hauling, because Consumers failed to

⁹⁸ See CSXT Reply WP "MDOT Excavation Unit Costs_Reply Analysis," Tab "Reply Analysis."

account for swell of excavated materials.⁹⁹ CSXT Engineering Experts include these costs within the CERR's loose rock excavation costs.¹⁰⁰

(iii) Solid Rock Excavation.

CSXT generally accepts Consumers' use of R.S. Means data as the source for solid rock excavation unit costs but, similar to loose rock, adjusts the ratio of sheepsfoot and steel wheel rollers to 80% and 20% respectively and accounts for the swell of hauled materials. CSXT Engineering Experts include these costs within the CERR solid rock excavation costs.¹⁰¹

(iv) Embankment/Borrow.

CSXT rejects Consumers' unit cost for borrow derived from the MDOT Contractor data in favor of the Means costs for borrow that are based on the correct length of haul and have been accepted previously by the Board.

As a threshold matter, over 90 percent of CERR borrow quantities occur in Illinois and Indiana, while Consumers bases its CERR borrow unit cost on four projects in Michigan. Together, Consumers' four MDOT projects account for a scant 6,370 cubic yards of borrow compared to over a million cubic yards of borrow on the CERR. As such, Consumers' MDOT sample is not representative and therefore not a reliable source for CERR borrow costs.

⁹⁹ See *infra* III-F-2-(d)-(iv).

¹⁰⁰ See CSXT Reply WP "CERR Grading_Reply.xlsm," Tab "Unit Costs," Rows 13 through 15.

¹⁰¹ See *id.*

Table III-F-10¹⁰²

CERR State	Percent of Total Cubic Yards of Borrow in CSXT Reply – 1/	Cubic Yards of Borrow in CSXT Reply
Illinois	80%	984,409
Indiana	11%	140,051
Michigan	8%	100,391
CSXT Reply Total		1,224,851
Total Cubic Yards of Borrow in Four MDOT Projects Consumers Uses To Develop Borrow Unit Costs		6,370
1/ - Use reply borrow quantities due to correcting Consumers opening classification of ICC Engineering Report quantities		

R.S. Means nationwide average costs are not only more appropriate, but are likely understated and highly conservative in this case due to the complexities of obtaining borrow in the Chicago area. In particular, some segments of the CERR are on valuation segments where the ICC Engineering Reports note that borrow is hauled in from long distances away, which would add significant costs compared to the 1-mile haul assumption in the Means costs.¹⁰³

¹⁰² Source: CSXT Reply WP “MDOT Borrow Unit Costs_Reply Analysis,” Tab “Reply Analysis.”

¹⁰³ For example, BOCT-138.1-IL notes embankment quantities with an average haul of 30.6 miles, and CWI-3-IL notes embankment quantities hauled from Dune Park, Indiana, which is over 100 miles away. See Consumers Op. WP “ICC Engineering Reports_CERR_opening.pdf” at 22 and 43.

(e) Other Earthwork Quantities & Unit Costs.

CSXT rejects Consumers' proposed quantities and unit cost for land for waste excavation, for the reasons explained below.¹⁰⁴ As further described below, CSXT also corrects Consumers' failure to include fine grading quantities and costs.¹⁰⁵

(i) Land for Waste Excavation.

Consumers assumed that 30% of the materials excavated during construction of the CERR roadbed would not be used as embankment and instead would be "wasted" along the CERR right-of-way.¹⁰⁶ This assumption is consistent with prior Board precedent and is accepted by CSXT.¹⁰⁷ But CSXT does not accept Consumers' illogical assumption that the CERR would not need any additional land to dispose of those waste materials that it admits would not be re-used for fill or embankment.¹⁰⁸ Consumers' new proposal is inconsistent with recent Board precedent.¹⁰⁹

Consumers claims that its contractors would dispose of waste materials, pointing to MDOT contractor specifications stating that the excavated materials are the property of the contractor and that it is thus the contractor's responsibility to dispose of them.¹¹⁰ But this assertion is irreconcilable with the narrow right of way

¹⁰⁴ See *infra* III-F-2-d-ii-(d)-i.

¹⁰⁵ See *infra* III-F-2-d-ii-(d)-(ii) through (vi).

¹⁰⁶ *Id.* III-F-2-b-iii-(3).

¹⁰⁷ See *AEP Texas II*, STB Docket No. 41191 (Sub-No. 1), at 86.

¹⁰⁸ See Consumers Op. at III-F-18.

¹⁰⁹ See *DuPont*, STB Docket No. 42125, at 170; *SunBelt*, STB Docket No. 42130, at 119

¹¹⁰ See Consumers Op. at III-F-35.

that Consumers posits for its SARR. Consumers specified a 75' urban right-of-way ("ROW") and 100' rural right-of-way along the CERR route. As such, Consumers would have relatively little space to construct its roadbed. And without additional land upon which to dispose of excavation waste, there would be only two plausible alternatives to dispose of the resulting waste material: 1) embankments could be widened and additional ROW acquired to accommodate excess material or 2) the SARR could construct retaining walls to accommodate excess material as fill within the ROW. But Consumers did not include costs for additional wall construction or for acquiring additional ROW to accommodate wider embankment.¹¹¹ As a result, waste sites adjacent to the CERR route would be inevitable. Additionally, the R.S. Means costs used by Consumers for rock excavation and loose rock excavation, as well as the R.S. Means costs proposed by CSXT in reply for common excavation, do not include costs for land for waste excavation, and thus these must be added.

CSXT Engineering Experts accept the calculations Consumers provided in its opening evidence determining the number of acres of land required for waste excavation. The average cost per acre of land along the CERR right-of-way is applied to calculate the total cost of land for waste excavation.

(ii) Fine Grading.

CSXT accepts Consumers' fine grading unit cost, but rejects its quantities. Consumers did not account for fine grading for the Barr Yard tracks and areas

¹¹¹ Because such urban areas are far larger than the hauling distances posited by Consumers, it would not be possible to transport waste material from urban areas to rural areas without significantly increasing hauling distances and associated costs.

where second and third tracks are located. CSXT has added fine grading quantities for the yard and quantities based on the lengths of second and third tracks times 15' wide for each additional track.¹¹²

**(iii) Adjustment to Material Haulage
Quantities to Match R.S. Means
Reported Costs.**

Consumers also erred by not considering how the volume of earth changes during excavation and compaction. According to Ringwald's Means Heavy Construction Handbook – R.S. Means:

There are three soil states involved in the process of excavating, hauling and backfilling earth: bank [BCY], loose [LCY], and compacted [CCY or embanked ECY]. Bank earth is undisturbed soil, and is of medium density relative to the other states. Loose earth is that which lies in the hauling vehicle or in an unconsolidated lift on the embankment. It is the least dense of the states. After consolidation, the lift is in the compacted, most dense state. (An exception is solid rock which—after moving—can never be compacted as tightly as it exists in the bank [natural] state).¹¹³

R.S. Means recognizes the need to distinguish among these soil states by reporting its unit prices for hauling excavated materials in Loose Cubic Yards (“LCY”) which is defined generally as soil in an uncompacted state, either in a heap on the ground or in the bed of a hauling vehicle.¹¹⁴ For compaction operations, R.S. Means reports the unit prices in Embanked (compacted) Cubic Yards (ECY). R.S. Means explains in its “Site Preparation” section the need to convert unit costs (*i.e.*,

¹¹² See CSXT Reply WP “CERR Grading_Reply.xlsm,” Tab “Total Cost Summary,” Cell M32

¹¹³ See CSXT Reply WP “Swell and Shrinkage - Ringwald, Means heavy Construction Handbook.pdf.”

¹¹⁴ See *id.*

\$/Bank Cubic Yard ("BCY"), \$/LCY, or \$/ECY) to match reported quantities to account for differences in material volumes due to swell and shrinkage.¹¹⁵

In *SunBelt*, the Board concluded that ICC Engineering Report quantities "address earthwork in its post-construction state," *i.e.*, its final or compacted/embanked state (ECY).¹¹⁶ As explained above, the ECY state is the most compacted or most dense soil state. According to both Ringwald's Means Handbook and R.S. Means, hauler unit costs, which are reported as the least dense LCY, should be converted to the volume corresponding to the units in which the earthwork quantities are reported. To make this necessary adjustment (from ECY used by the Engineering Reports to LCY in which those materials are hauled), CSXT's Engineering Experts used standard soil volume conversion factors used to convert compacted/embanked volumes (ECY) to hauled volumes (LCY) as derived from Ringwald's "Means Heavy Construction Handbook."¹¹⁷

¹¹⁵ See CSXT Reply WP "RSMeans Site Prep Worksheet - swell and shrinkage factor.pdf."

¹¹⁶ See *SunBelt*, STB Docket No. 42130, at 116.

¹¹⁷ See CSXT Reply WP "Swell and Shrinkage — Ringwald, Means heavy Construction Handbook.pdf."

Table III-F-11

Common	
ECY to LCY	1.39
Loose Rock	
ECY to LCY	1.27
Solid Rock	
ECY to LCY	1.15

CSXT's Engineering Experts used the R.S. Means Site Preparation section as a guide to matching units to reported quantities. Specifically, R.S. Means shows that its excavation unit costs are in BCY and that the cost per unit for a 22 CY hauler are reported as LCY. The density difference for two types of materials is 27% for loose rock quantities (using a 1.27 swell factor). In its example, R.S. Means increases the amount of material to be hauled to account for the differences in unit prices. Swell and shrinkage factors are also explained within the R.S. Means text Building Sitework—Site Preparation section, which illustrates how to construct a cost per Cubic Yard of material from equipment and labor per pay item.¹¹⁸ CSXT Engineering Experts prepared an illustrative calculation that is included in CSXT Reply workpaper "CSXT Shrink and Swell.pdf."

By neglecting to account properly for the R.S. Means difference in pricing units, Consumers understated the cost of haulage of materials excavated in the construction for the CERR.¹¹⁹ CSXT has corrected this error by modifying

¹¹⁸ See CSXT Reply WP "RSMeans Site Prep Worksheet — swell and shrinkage factor.pdf."

¹¹⁹ As noted above, the effects of swell are accounted for in CSXT's calculation of unit costs for the affected activities (including loose rock excavation, adverse loose rock, and solid rock excavation). See *supra* III-F-2-c-ii.

Consumers' proffered excavation haulage unit costs to account for the necessary conversion from ECY to LCY.¹²⁰

(f) Subgrade Preparation (Moisture Conditioning).

CSXT Engineering Experts note that Consumers' proposed MDOT excavation costs include necessary watering and drying functions to properly compact the subgrade. While CSXT rejects these MDOT unit costs and replaces them with Means unit costs (which do not include necessary watering and drying functions), CSXT does not add these costs because it deems them to be minimal based on the soil conditions specific to the issue route.

(g) Total Earthwork Cost.

The corrections and adjustments described above increase the costs associated with total earthwork (including additional land purchases) for the CERR to a corrected total of \$62.3 million, an increase of more than \$41.9 million over the costs posited by Consumers.¹²¹

d. Drainage.

i. Lateral Drainage.

CSXT accepts Consumers' use of the ICC Engineering Reports to quantify lateral drainage needed for the CERR route and its proposed unit costs.

¹²⁰ See CSXT Reply WP "CERR Grading_Reply.xlsm," Tab "Unit Costs," Cells AV55 and AX55.

¹²¹ See CSXT Reply WP "CERR Grading_Reply.xlsmxlsm," Tab "Reply Summary."

ii. Yard Drainage

Yard drainage costs at Barr Yard are discussed in site development costs in section III-F-7-m-iii.

e. Culverts

CSXT rejects Consumers' proffered culvert unit costs and quantities. Specifically, CSXT rejects Consumers' calculation of excavation and bedding unit costs, and its excavation, bedding, and backfill quantities. Further, CSXT rejects one bridge Consumers proposes to convert to a culvert and removes this from the culvert list.

i. Culvert Unit Costs

CSXT rejects Consumers' culvert unit cost estimates because they either omitted or incorrectly applied costs associated with the installation of culverts. Consumers also made several computation errors in its workpapers.

CSXT rejects how Consumers developed bedding costs from Means. Consumers selected a Means unit cost per square yard to provide a certain depth of bedding. CSXT instead applies a Means cost per cubic yard to the actual quantities of bedding being placed.¹²²

CSXT rejects how Consumers developed Means costs to excavate trenches based on a generic 3 CY shovel and 18 cubic yard truck. Trenching excavation is more difficult and time consuming than standard excavation with a shovel and requires additional safety precautions such as trenching boxes or benching the sides

¹²²See CSXT Reply WP "CULVERT COST WORKSHEETS_Reply.xlsx," Tab "Installation," Cell AM36.

of the trench to prevent collapse. CSXT instead applies trenching unit costs from R.S. Means particular to the widths of the trenches being excavated.¹²³

ii. Culvert Installation Plans.

Consumers incorrectly calculated the culvert installation quantities by underestimating the amount of bedding material that would be required for construction.¹²⁴ Consumers did so by neglecting to include any bedding material between the flow line (bottom) and spring line (mid-height) of the corrugated metal pipe ("CMP"). Filling culvert trenches to the spring line of the CMP is a standard industry practice, because it ensures proper load transfer to the bedding material and the underlying soils. If earthen backfill material was used in this region, it would need to be compacted. However, with only a one-foot gap between the pipe and trench wall, only very small compaction equipment could be used. This equipment is far less powerful than a roller or sheepsfoot which would be used for the roadbed and cannot achieve the needed compaction. Crushed stone, due to its heavier weight relative to earthen backfill, naturally fills any voids and would achieve the compaction needed for proper load transfer. CSXT has calculated the correct quantity of bedding required.¹²⁵

¹²³ See CSXT Reply WP "CULVERT COST WORKSHEETS_Reply.xlsx," Tab "Installation," Cells P65:V80.

¹²⁴ Consumers Op. III-F-39 ("The bottom of the excavation is covered with an average depth of 12" of crushed stone bedding material to act as a foundation and cushion for the culvert, providing a means for transferring the load into the ground below the culvert as well as a level surface.").

¹²⁵ See CSXT Reply WP "CULVERT COST WORKSHEETS_Reply.xlsx," Tab "Installation," Cells E2:E20.

Consumers stated that culverts would be “backfilled,” without including a trench backfill cost for the culverts. CSXT has calculated a backfill quantity and assumed a unit cost in order to provide a total cost of trench backfill. First, the backfill quantity was equated to the bedding quantity. This is because the pipe will be in the exact center of the trench and the bedding goes from the bottom of the trench to the spring line (middle) of the pipe, while the backfill goes from the spring line to the top of the trench. Next, CSXT used Means to develop a unit cost for trench backfill. Finally, the trench backfill quantities and unit costs were used to calculate the total cost of trench backfill.¹²⁶

iii. Culvert Quantities

CSXT's Engineering Experts reject Consumers' proposed CMP culvert quantities because Consumers has proposed to replace all culverts with CMP culverts, no matter their existing material or shape. Consumers' conversion of these culverts to CMP is flawed in a critical way. A crucial component of hydraulic design is that a replacement CMP culvert must be capable of conveying at least as much flow as the existing culvert. If not, the CERR would be exposed to a risk of flooding from water backing up on the upstream end of the culvert. This could result in a complete washout of the roadbed.¹²⁷

Consumers assumed that a CMP culvert of the same diameter as a reinforced concrete pipe (“RCP”), ductile iron, or any other material with a lower friction

¹²⁶ See CSXT Reply WP “CULVERT COST WORKSHEETS_Reply.xlsx,” Tab “Installation,” Cells F2:F20 and columns BC through BM.

¹²⁷ See *DuPont*, STB Docket No. 42125, at 153.

coefficient would carry the same flow. This is incorrect because a CMP's corrugations cause turbulence in the flow, resulting in a reduction of flow capacity. An RCP culvert of the same size and shape conveys approximately two times the flow of a CMP culvert. Therefore, in order to replace a single RCP culvert, two CMP culverts of the same size and shape would be required.

This is demonstrated by Manning's flow equation, which is used throughout the design industry to calculate flow in a pipe. This equation has been in use since the 1890s and is based on the cross-sectional area, wetted perimeter, slope, and friction coefficient of the pipe in question. The rougher the material, the higher the friction coefficient; the higher the friction coefficient, the lower the flow capacity of the pipe. CMP culverts are known to have a higher friction coefficient relative to most other culvert materials in use today, including RCP culverts. Thus a CMP culvert of the same size as a culvert of another material with a lower friction coefficient would possess a lower hydraulic capacity.

CSXT's Engineering Experts have established a procedure for estimating existing culvert flow capacity and ensuring that the proposed CMP culverts convey at least the same flow. Estimating the flow capacity of the existing culverts required two foundational assumptions: the culvert is flowing full; and water must move through the culvert at the minimum velocity needed to keep the pipe clean. The minimum velocity needed to keep the pipe clean is 3 feet per second and is a

function of pipe size, shape and material.¹²⁸ Manning's equation was used to back solve for the minimum slope of each culvert that would maintain a minimum flow velocity of 3 feet/second.

After the minimum culvert slope was determined, friction coefficient values were assigned to each culvert material. CMP's friction coefficient values range from 0.024 to 0.028. CSXT assumed a conservative friction coefficient of 0.024 for CMPs in its calculations. Friction coefficient values range from 0.010 to 0.013 for concrete, steel, cast iron, ductile iron, and smooth plastic pipe. CSXT has used an average friction coefficient of 0.012 for all non-CMP culverts.¹²⁹

CSXT's Engineering Experts used these assumptions, Manning's flow equation, and the existing pipes' physical properties (size, shape, and the coefficient of friction) to determine the existing culverts' flow capacities. For each culvert, CSXT then determined the equivalent number of CMPs needed to achieve the same flow. Because the top of a culvert pipe is typically placed at the calculated flood level, the proposed replacement pipes were assumed to be the same height as the existing pipe to ensure pipes are flowing full. As an example, Consumers replaced the existing 4'x4' box culvert at MP 103.70 with a 60" CMP. This CMP would have less hydraulic capacity than the box culvert, would be too tall based on the depth of pipe, and would conflict with the roadbed. Therefore, CSXT has called for a

¹²⁸ See CSXT Reply WP "Iowa Stormwater Management.pdf" at 4, 4.b Minimum flow = 3 fps.

¹²⁹ See CSXT Reply WP "Iowa Stormwater Management.pdf" a 37, C.1 Pipe Friction Loss.

replacement of two 48" CMP for this culvert, which it determined to be the most efficient layout that would provide the same hydraulic capacity.

Consumers has not included quantities for culverts from the CSXT inventory list that did not have a given length, size, number of barrels, or delivery area. To correct the length and size omission, CSXT has assumed that any culvert without a length or size will be assigned the average length or size of all culverts of the same type. For example, the culvert at MP 29.80 did not have a given length, so CSXT assigned it the average length of 74.84 feet. There were also two culverts that were not assigned a value for number of barrels. In these instances CSXT assumed that the culverts were single-barrel. Finally, for any culvert that was not assigned a delivery area, the average delivery cost to all areas was calculated and assigned.

CSXT has revised Consumers' culvert spreadsheet to incorporate the additional culvert quantities and revise the unit costs as described above.¹³⁰

iv. Total Culvert Costs.

Based on the foregoing, CSXT has determined the corrected cost of CERR culverts to be \$2.7 million, rather than the \$1.5 million calculated by Consumers.

f. Other.

i. Side-slopes.

CSXT accepts Consumers' average side-slope ratio of 1.5:1.

¹³⁰ See CSXT Reply WP "CULVERT COST WORKSHEETS_Reply.xlsx," Tab "CULVERT COST SUMMARY."

ii. Ditches.

CSXT accepts Consumers' specifications of side ditches having trapezoidal sections with cuts two feet wide and two feet deep for all locations.

iii. Retaining Walls.

CSXT accepts Consumers' proposed retaining unit costs. CSXT also accepts Consumers' stated intention to use a conversion of 1.54 of Masonry quantities from the ICC Engineering Reports to Gabion baskets.¹³¹ But Consumers' total quantity calculations are in error, because it failed to make that conversion.¹³² CSXT corrects this error in reply.¹³³

CSXT also included retaining walls at locations that are clearly visible along the BRC but not included by Consumers. Specifically, from inspection of aerial and street view photos, CSXT identified a 638 foot yard retaining wall that was not taken into account in the ICC Engineering Reports.¹³⁴ The wall can be found along the BRC tracks from mile post 15.41 at 76th Street to mile post 15.78 at 79th Street. In lieu of ICC Engineering Report information, masonry quantities for the wall were estimated by assuming a cross-section¹³⁵ based on average dimensions obtained from a report on the Bloomingdale Road track elevation project published

¹³¹ See Consumers Op. at III-F-41

¹³² Consumers calculated a total of 13,237 CY of Masonry Wall, then multiplied it by 1.54 for a total of 20,376 CY of Gabion Baskets. However, Consumers' cost calculations used the 13,237 CY for their total costs, not the correct value at 20,376 CY.

¹³³ See CSXT Reply WP "CERR Grading_Reply.xlsm," Tab "Total Cost Summary," Cell L19.

¹³⁴ See CSXT Reply WP "Gravity_Wall_Length_Measurement.pdf."

¹³⁵ See CSXT Reply WP "Gravity Wall_Cross-Section.pdf."

in August of 1914.¹³⁶ The report states that over four miles of gravity walls were constructed as part of the Bloomingdale Road project and provides ranges of wall dimensions throughout the project. The retaining wall along the BRC tracks is also a gravity wall built around the same time period in the same geographic region as the Bloomingdale Road project. Therefore the wall dimensions from the Bloomingdale Road project were assumed to be representative of the retaining wall along the BRC tracks. Based on this assumption, CSXT has estimated that the omitted wall is made up of approximately 2,500 cubic yards of masonry, which it converts to gabions consistent with Consumers' opening approach.¹³⁷

CSXT Engineering Experts also added retaining walls necessary for the flyover of Clark Road.¹³⁸ Based on the elevation required to clear Clark Road and the maximum allowable grade of the railroad tracks, CSXT Engineering Experts calculated the dimensions of the approach structure and from this derived the required quantities of embankment and retaining walls.¹³⁹ To estimate the total cost of the approach structures, unit costs from Means for masonry retaining walls

¹³⁶ See CSXT Reply WP "Bloomingdale Road Track Elevation Project.pdf."

¹³⁷ See CSXT Reply WP "CERR_Grading_Reply.xlsm," Tab "Gravity Wall."

¹³⁸ See III-B-1-c. CSXT Engineering Experts note a flyover is the only feasible and efficient option to accommodate an interchange track at this location. Due to several nearby at-grade crossings on other railroads, it would be infeasible to build an overpass to carry Clark Road over the CERR without having to go over all of the nearby railroad lines as well, which would be a costly and inefficient approach. See CSXT Reply WP "Clark Crossing Constraints.pdf."

¹³⁹ See CSXT Reply WP "Clark Road Flyover Design.pdf"

were applied to the retaining wall quantities and borrow unit costs discussed above were applied to the embankment quantities.¹⁴⁰

iv. Rip-rap.

CSXT accepts Consumers' unit costs for rip-rap. However, for rip rap supporting culverts, Consumers has incorrectly calculated the rip-rap quantities based on the above-described problem of replacing existing culverts with the exact same amount of CMP culverts, without accounting for the lesser hydraulic capacity of the CMP's. CSXT has corrected Consumers' quantities to reflect the number and size of culverts installed and adjusted total rip-rap cost accordingly.¹⁴¹

v. Relocating and Protecting Utilities.

CSXT accepts Consumers' costs for relocating and protecting utilities, but adds costs required to relocate existing utilities where CERR requires an overpass that does not currently exist on CSXT (and is thus not subject to barrier of entry restrictions). Specifically, there are two large overhead electric lines that must be elevated above the new Cottage Grove Avenue Overpass to preserve the existing clearance with vehicular and pedestrian traffic below.¹⁴² CSXT develops costs to elevate these two power lines based on a study performed by the American Transmission Company reporting the typical cost per mile for constructing new high transmission overhead electric lines; CSXT applied that cost to the 0.8 miles

¹⁴⁰ See CSXT Reply WPs "Means Retaining Wall Cost.pdf" and "CERR Grading_Reply.xlsm," Tab "Clark Flyover." The costs for the span and abutments over Clark Road is addressed in III-F-5-c-v.

¹⁴¹ See CSXT Reply WP "CULVERT COST WORKSHEETS_Reply.xlsx," Tab "CULVERT COST SUMMARY," Column CJ.

¹⁴² See CSXT Reply WP "Cottage Grove Highpower Utility Relocate.pdf."

that must be elevated.¹⁴³ To be conservative, CSXT's cost estimate does not include additional costs associated with removing and reconfiguring existing lines.

vi. Seeding/Topsoil Placement.

CSXT accepts Consumers' embankment protection quantities and accepts its development of seeding costs from R.S. Means to calculate total seeding cost.

vii. Water for Compaction.

Water for compaction for dry soils along the CERR route and drying of wet soils along the route is addressed above in Section III-F-2-d-ii-(h) (Subgrade Preparation).

viii. Surfacing for Detour Roads.

CSXT accepts Consumers' costs for surfacing detour roads.

ix. Environmental Compliance.

CSXT accepts Consumers' costs for environmental compliance.

3. Track Construction.¹⁴⁴

Track construction includes the materials, labor, and equipment required to lay track once the subgrade has been completed. This includes acquiring, transporting, and placing all track-related components including subballast, ballast, ties, rail, other track materials and other specialized items. Consumers' own track

¹⁴³ See CSXT Reply WPs "Electricity Transmission Primer Energy.pdf" at page 24 and "CERR Grading_Reply.xlsm," Tab "Cottage Utility Reloc."

¹⁴⁴ Section III-F-3 of CSXT Reply Evidence is sponsored by CSXT witnesses Michael Baranowski and Nathaniel Zebrowski of FTI Consulting, Paul Bobby, and Patrick Bryant. All of these experts' qualifications are further detailed in Section IV. These experts are sometimes collectively referred to herein as "CSXT Track Engineering Experts."

construction evidence included a number of conceptual and implementation flaws that understated the CERR track construction costs. CSXT's Track Engineering Experts have corrected Consumers' errors in this Reply Evidence. In addition, CSXT has adjusted the CERR track construction quantities to account for the necessary additional track mileage set forth above in Section III-B. Table III-F-12 below compares Consumers' Opening CERR track construction costs with the corrected costs provided by CSXT in this Reply.

Table III-F-12
CERR Track Construction Cost Comparison¹⁴⁵

	Category	Open	Reply	Difference
1	Ballast & Subballast	\$20,983,566	\$68,057,228	\$47,073,662
2	Rail, OTM, & Other	\$69,956,638	\$86,429,744	\$16,473,106
3	Ties	\$51,741,019	\$52,258,417	\$517,398
4	Track Labor	\$44,132,329	\$45,221,430	\$1,089,101

a. Geotextile Fabric.

CSXT accepts Consumers' geotextile specifications and unit costs. CSXT Track Engineering Experts increased the number of crossing diamonds and turnouts, and adjust geotextile quantities accordingly.

b. Ballast.

CSXT generally accepts Consumers' method of estimating ballast quantities and has adjusted CERR ballast quantities consistent with changes in the number of track miles required by the CSXT Reply Operating Plan. CSXT accepts Consumers' development of ballast material costs, but rejects Consumers' development of the transportation cost of ballast, which uses an erroneous off-line transportation cost

¹⁴⁵ Source: CSXT Reply WP "III - F TOTAL – 2015_Reply.xlsx."

per ton-mile and neglects costs for transporting ballast from the railhead to its point of placement in the track.

i. Ballast Quantities.

CSXT Track Engineering Experts accept Consumers' method of calculating ballast quantities and use that same methodology when adding ballast quantities for the track miles required by CSXT's revised CERR operating plan.¹⁴⁶ CSXT Track Engineering Experts note that Consumers' application of its ballast quantity calculation methodology is flawed for the CERR segments between Porter, IN and West Olive, MI. Unlike all other similar calculations in Consumers' spreadsheet, Consumers' engineering experts mistakenly apply the conversion from ballast cubic feet to tons twice for these segments, which produces a significant and improper quantity understatement¹⁴⁷ CSXT Track Engineering Experts have corrected the error using the proper conversion to cubic foot of ballast. This correction increased ballast quantities for the CERR by over 900,000 tons.¹⁴⁸

ii. Ballast Pricing.

Consumers sources ballast from a quarry in Ironton, MO for the Ogden Jct., IL to Curtis, IN segment of the CERR, and from a quarry in Findlay, OH for the Porter, IN to West Olive, MI segment. Consumers adds a transportation cost to

¹⁴⁶ See CSXT Reply WP "2015 Ballast & subballast Worksheet_Reply.xlsx."

¹⁴⁷ See Consumers Op. WP "2015 Ballast & subballast Worksheet.xlsx," Tab "Grand Rapids – PORTER TO WAVELY," Cells F4:F15, Tab "Fremont – WAVERLY TO WEST OLIVE," Cells F4:F15, and Tab "TOTAL COST SUMMARY," Cells G7:H8.

¹⁴⁸ See CSXT Reply WP "2015 Ballast & subballast Worksheet_Reply.xlsx," Tabs "Grand Rapids – PORTER TO WAVELY" and "Fremont – WAVERLY TO WEST OLIVE."

move the ballast from the quarries in Ironton, MO and Findlay, OH to CERR railheads in Dolton, IL and Porter, IN, respectively. CSXT Engineering Experts accept Consumers' quarry selections and ballast material prices, but reject Consumers' transportation cost additives as incorrect and understated. First, Consumers only accounts for the off-line cost of moving ballast from quarries to CERR railheads, but does not account for the on-line cost to distribute ballast from CERR railheads to the points of installation along the CERR roadbed. For the off-line portion, Consumers applies outdated and unrealistic transportation costs of 3.5 cents per ton-mile and 2.1 cents per ton-mile.¹⁴⁹

(a) Material Transportation From Supplier to Railhead.

CSXT accepts the transportation distances Consumers develops between its selected ballast suppliers and CERR railheads. But Consumers understated ballast transportation costs by using an estimated transportation unit cost per ton mile that reflects a railroad's own rate for on-line rail transportation costs for the transportation of ballast materials moving off-line from the source to the CERR railheads. For off-line transportation provided by Union Pacific, Consumers applies a transportation rate per ton mile that reflects a reimbursement of UP's actual cost extracted from an AFE related to movement of construction materials in Chicago as part of the CREATE project.¹⁵⁰ Neither of the off-line transportation costs used by

¹⁴⁹ Consumers supplies no supporting workpapers or references to support its shipping cost of \$0.035. The Board recently rejected similar evidence and arguments. *See DuPont*, STB Docket No. 42125, at 191.

¹⁵⁰ *See Consumers Op. WP "UP Rail Transportation Costs.pdf."*

Consumers represents the cost that the CERR would incur to move materials by rail to the CERR railheads.

Consumers does not produce any evidence in support of its “assumed”¹⁵¹ \$0.035 per ton mile transportation rate. It merely characterizes the rate as one that that Board has repeatedly approved.¹⁵² On the contrary, the Board recently rejected the same transportation cost per ton-mile in *DuPont*.¹⁵³

Consumers attempts to justify its assumption of a \$0.035 per ton-mile charge—which it characterizes as an “interline courtesy rate”—to calculate off-line rail transportation costs for ballast from Findley, OH via CSXT and NS by asserting that the cost “is not only conservative but probably significantly overstated” as compared to a UP shipping rate of {{ }} found in an AFE from Chicago project.¹⁵⁴ But even if there were such a thing as an “interline courtesy rate,” the CERR would not be entitled to such a courtesy rate for the movement of materials necessary to *construct* the railroad. By definition, a railroad cannot participate in any interline courtesies until it actually becomes a railroad. Moreover, Consumers has provided no evidence that the predecessor CSXT railroads benefitted from such a courtesy.

Further, the fact that \$0.035 per ton-mile is more than { } per ton mile does not justify its use. Consumers has provided no support for its \$0.035 per ton-

¹⁵¹ See Consumers Op. III-F-50 “A cost per ton-mile of \$0.035 was *assumed*.” (emphasis added)

¹⁵² Consumers Op. III-F-50.

¹⁵³ See *DuPont*, STB Docket No. 42125, at 193.

¹⁵⁴ See Consumers Op. at III-F-50.

mile assumption. Nor is the transportation rate of { } cherry-picked by Consumers representative of the cost of third-party off-line rail transportation. {{

}}

Consumers provided no evidence of current third-party costs for transporting ballast on CSXT or on foreign railroads. As discussed previously, because the CERR rail lines would not yet be built, construction materials assumed to move by rail must be transported from the source to the construction railheads using non-CERR rail service over either the residual CSXT or another carrier.¹⁵⁶ To determine the actual cost that the CERR would incur shipping its ballast on the lines of the residual CSXT and over the lines of other carriers, the CSXT Track Engineering Experts obtained a rate for transporting ballast materials from

¹⁵⁵ {{

}}

¹⁵⁶ See *Otter Tail*, STB Docket No. 42071, at D-26 (“It would not be proper to assume that a SARR could transport materials over the very lines that the SARR would need to build.”).

aggregates supplier Vulcan materials.¹⁵⁷ Based on the price per ton and length of haul provided for shipping a carload of ballast, CSXT Track Engineering Experts determined that the per-car cost for transporting ballast in a 100-ton open-top hopper car, indexed to 2015 levels is {{ }} per ton-mile. In *DuPont* the Board accepted a similar price based on the same quote provided by the same aggregates supplier of \$0.072 per ton mile at 2009 levels.¹⁵⁸ Likewise, in *SunBelt*, the Board accepted a price per ton of \$0.074 per ton mile at 2010 levels again based on the same quote provided by the same aggregates supplier, and stated that “[t]his price reflects current market conditions that would be applicable to the construction of the SBRR.”¹⁵⁹

The level of ballast transportation unit costs accepted by the Board in recent SAC cases and the ballast transportation unit costs developed by CSXT Engineering Experts here is consistent with the actual pricing of ballast movements nationwide based on “current market conditions.” Based on the STB’s 2013 Public Carload Waybill Sample, the average revenue for crushed stone products including ballast¹⁶⁰ that move in railroad cars is \$0.068 per ton mile.¹⁶¹ The below table shows that the ballast transportation unit costs Consumers proposed prices are out of line with the

¹⁵⁷ See CSXT Reply WP “Vulcan Ballast Transportation Quote.pdf.”

¹⁵⁸ See *DuPont*, STB Docket No. 42125, at 193.

¹⁵⁹ See *SunBelt*, STB Docket No. 42130, at 131.

¹⁶⁰ The 2013 Public CWS reports commodities at a 5-digit STCC. Accordingly, the highest available commodity level is STCC 14219, which contains crushed stone products including STCC 1421930 for ballast.

¹⁶¹ See CSXT Reply WP “2013 CWS Ballast Pricing.xlsx.”

ballast transportation market, and it is unreasonable to expect the CERR would obtain them. In contrast, the rates developed by CSXT in reply are well within the bounds of reported revenue per ton mile rates experienced in the ballast pricing market.

Table III-F-13

Ballast Revenue Per Ton Mile Comparison	
Consumers Proposed UP Internal CREATE Cost	\$0.021
Consumers Assumed Litigation Cost	\$0.035
Lowest 25% Ballast Rates in 2013 CWS*	\$0.052
Average Ballast Rates in 2013 CWS*	\$0.068
STB Accepted Ballast Rates in DuPont (2009 Level)	\$0.072
STB Accepted Ballast Rates in SunBelt (2010 Level)	\$0.074
Highest 25% Ballast Rates in 2013 CWS*	\$0.111
* Based on railroad car movements for STCC 14219	

To be conservative, and to best conform with the Board's support of using transportation rates based on "current market conditions," CSXT Engineering Experts reduce the CERR's ballast transportation cost per ton mile from the {{ }} per ton mile amount based on an actual quote from a ballast supplier to the average revenue per ton-mile amount of \$0.068 per ton mile for crushed stone products contained in the 2013 Public Carload Waybill Sample.

(b) Ballast Material Distribution Along the CERR Right-of-Way.

In addition to the off-line material transportation from source quarries to the construction railheads provided by third parties, ballast must be moved on-line along the CERR routes and right-of-way from its construction railheads to the locations where the ballast would be placed. Consumers assumes that the track construction contractor would cover this at no additional cost because the quote on

which it relies states material transportation is included from delivery points.¹⁶²

However, the quote does not refer to where these delivery points are or how far apart they are spaced. And there certainly is no acknowledgement in the quote that ballast must be transported as much as 122 miles along the roadbed before placement in the track.¹⁶³ Moreover, Consumers has not added any costs for staging areas at its railheads, nor does it account for costs to unload the ballast from rail cars into contractor equipment.¹⁶⁴ It follows that ballast would remain in rail cars to be distributed over skeleton track and not unloaded at railhead and transported via front loader or other construction equipment. This would require a work train to transport ballast hopper cars to the track head, dump ballast over the skeleton track, and return the empty hoppers to railhead.

This is consistent with Consumers' method of estimating transportation cost for subballast, in which it calculates the average distance to various segments along the CERR from the stone pits.¹⁶⁵ CSXT agrees that trucks could dump subballast directly onto the roadbed along the CERR without the contractor transporting material from railhead. CSXT engineers developed on-line transportation distance for ballast using a similar method. This is consistent with transportation costs developed in *DuPont* and *Sunbelt*. CSXT calculated an average on-line shipping distance of 61 miles for Porter to West Olive and 11.5 miles for UP/Ogden Jct. to

¹⁶² See Consumers Op. at III-F-62.

¹⁶³ See Consumers Op. WP "Ohio Track Cost Estimate.pdf."

¹⁶⁴ See Consumers Op. at III-F-50-51.

¹⁶⁵ See Consumers Op. at III-F-52; Consumers Op. WP "2015 Ballast & subballast Worksheet.xlsx," Tab "SUBBALLAST COST," Cells B20:G38.

Curtis.¹⁶⁶ CSXT accepts Consumers' proposed \$0.035 per ton mile rate as a reasonable proxy for the transportation cost to move ballast on-line and applies this to the average on-line ballast haul distances on the CERR.¹⁶⁷

iii. Subballast.

(a) Subballast Quantities.

CSXT Engineering Experts generally accept Consumers' method of estimating subballast quantities and adjust subballast quantities for the CERR consistent with changes in the number of track miles discussed in Section III-B. However, CSXT Engineering Experts identified a problem with Consumers' calculation of subballast quantities on the CERR segment between Porter, IN and Waverly, MI. Similar to the calculation error in Consumers' ballast quantity calculations for that segment, Consumers twice applied the conversion factor and as a result understated subballast quantities on the segment by over 350,000 tons.¹⁶⁸ CSXT Engineering Experts corrected the error using the proper conversion to cubic foot of subballast.

¹⁶⁶ The CERR segment between Porter, IN to West Olive, MI is 122 route miles, which results in an average on-line ballast distance of 61 miles from the Porter, IN railhead (122 miles/2). The CERR segment between Ogden, Jct, IL and Curtis, IN is 46 route miles, including the BRC segment, which results in an average on-line ballast distance of 11.5 miles from the Dolton, IL railhead (46 miles/4), based on the assumption this railhead is in the middle of this CERR segment.

¹⁶⁷ CSXT is again being conservative by not adding any additional costs to account for the time required for the ballast car to be on the CERR while distribution ballast as part of the construction process.

¹⁶⁸ See Consumers Op. WP "2015 Ballast & subballast Worksheet.xlsx," Tab "Grand Rapids – PORTER TO WAVELEY," Cells E4:E15 and Tab "TOTAL COST SUMMARY," Cells C7:D7.

(b) Subballast Material Costs.

CSXT accepts Consumers' material unit costs for subballast, which include transportation costs.

(c) Subballast Material Placement Costs.

CSXT accepts Consumers' costs for placing subballast.

i. Ties.

Consumers derives its unit prices for crossties from AFE documents produced by CSXT in discovery for a track construction project in Utica, IL and adds costs for off-line transportation based on the assumptions these ties are sourced from Galesburg, IL and shipped to CERR railheads at either Ogden Junction, IL or Porter, IN.¹⁶⁹ The CSXT Engineering Experts accept Consumers' proposed tie specifications, material cost per tie and tie spacing. CSXT Engineering Experts reject Consumers' off-line transportation cost for ties as unsupported and not representative of the cost of third-party rail transportation. CSXT Engineering Experts also correct a series of calculation errors made by Consumers.

Consumers assumes that ties would be shipped from Galesburg, IL to Ogden Junction, IL via UP and shipped from Ogden Junction, IL to Porter, IN via NS. Consumers assumes an off-line transportation cost of {{ }} per ton-mile¹⁷⁰ for

¹⁶⁹ See Consumers Op. at III-F-54.

¹⁷⁰ As discussed previously under ballast, Consumers derived its \$0.021 per ton-mile transportation rate from a CSXT AFE for work done by UP on a collaborative regional Public Private Partnership (PPP) program called CREATE.

shipping via UP and \$0.035 per ton-mile for shipping via NS.¹⁷¹ As discussed previously, Consumers' proposed transportation cost of {{ }} per ton-mile for shipments via the UP are unsupported and not representative of the cost of a third party rail provider to move construction materials by rail from the supplier to the CERR construction railhead. And as also discussed previously, Consumers proposed transportation cost of \$0.035 per ton-mile for shipments via NS is an outdated cost associated with on-line rail transportation, as the Board confirmed in *DuPont*.¹⁷² In place of Consumers' unsupported tie transportation costs, CSXT develops a cost to ship ties of {{ }} per ton-mile from a quote obtained from the tie vendor McCord Tie and Timber.¹⁷³ The Board has accepted this method in recent cases.¹⁷⁴

CSXT also corrects two computational errors made by Consumers. First, Consumers applies transportation costs as if each tie weighed 1 ton. CSXT corrects this calculation based on the assumption that pre-plated ties weigh 285 pounds each, and other ties weigh 240 pounds each.¹⁷⁵ Second, for ties laid between Porter, IN and West Olive, MI, Consumers omits shipping costs from Galesburg, IL to Ogden, IN, but includes shipping costs from Ogden, IN to Porter, IN. This

¹⁷¹ Consumers does not provide any documentation or other support for its assumed non-UP transportation price of \$0.035 per ton-mile.

¹⁷² *DuPont*, STB Docket No. 42125, at 192-3.

¹⁷³ See CSXT Reply WP "Mccord Tie Transportation Quote.pdf."

¹⁷⁴ See *DuPont*, STB Docket No. 42125, at 194-95 and *Sunbelt*, STB Docket No. 42130, at 132.

¹⁷⁵ See CSXT Reply WP "2015 OTM Worksheet_Reply.xlsx," Tab "TIE COST," Cells F23 and F36.

incomplete route is contrary to Consumers' stated transportation distance.¹⁷⁶ CSXT Engineering Experts correct this error and add shipping costs from Galesburg, IL to Ogden, IN.¹⁷⁷

c. Rail.

Consumers uses regular 136# Continuous Welded Rail ("CWR") for its high density CERR mainline from Ogden Junction to Curtis and otherwise uses regular 115# CWR. CSXT rejects Consumers' use of regular 136# rail on high density curves on the CERR mainline. Consumers develops rail material prices using CSXT information provided in discovery and develops transportation costs using an assumed \$0.035 cost per ton mile. Consumers assumes that the rail is sourced from a manufacturer in Steelton, PA, welded in Russel, KY, and delivered to CERR railheads. CSXT accepts Consumers' development of rail material prices, but because of the difficulties in gaining maintenance related track access in Chicago, CSXT adds costs for premium rail on high density curves. CSXT accepts Consumers' source of rail, but rejects Consumers' development of associated transportation costs.

i. Rail Quantities.

CSXT rejects Consumers' use of regular 136 pound rail on curves greater than 1.5 degrees on CERR lines with densities greater than 45 million gross tons annually. CSXT similarly rejects the use of regular 136-pound CWR on mainline

¹⁷⁶ See Consumers Op. at III-F-55.

¹⁷⁷ See CSXT Reply WP "2015 OTM Worksheet_Reply.xlsx," Tab "TIE COST," Cells F24 and F37.

portions of the CERR with sharp curves and/or curves carrying heavy tonnage.

CSXT Engineering Standards specify the use of premium, or head hardened, rail on the following curves:

- For curves 1.5° and greater that carry at least 45 MGT use premium rail
- For curves 2° and greater that carry at least 20 MGT use premium rail
- For curves 7° and greater that carry at least 15 MGT use premium rail¹⁷⁸

Based on Consumers' proposed operating plan, the CERR line segments with milepost prefixes DC and BI will support greater than 45 MGT of traffic.¹⁷⁹ CSXT Engineering Experts determined there is a total of 22.17 miles of rail on curves meet the criteria for premium rail and applied the cost of premium rail to these quantities.¹⁸⁰

ii. Rail Material Pricing.

Consumers developed its material price per ton of {{ }} per ton for regular 136# CWR and {{ }} per ton for regular 115# CWR from information provided by CSXT identifying 2012, 2013, and 2014 rail prices for projects near the proposed CERR route.¹⁸¹ CSXT Engineering Experts accept these prices for rail material and accept Consumers' assumption that the rail prices reported in the AFEs do not include any off-line transportation costs. The same discovery

¹⁷⁸ See CSXT Reply WP "CSX New Rail Selection Policy MWI 505-03.pdf."

¹⁷⁹ See CSXT Reply WP "CSXT Reply CERR Segment Densities.xlsx."

¹⁸⁰ See CSXT Reply WP "Rail Worksheet - 2015_Reply.xls," Tab "136 & 115 Rail Cost Summary," Cells I4:J9.

¹⁸¹ See Consumers Op. WP "Rail Prices.xls," Tab "Summary."

materials relied upon by Consumers include a price of premium 136# rail of

{{ }} per ton, which CSXT Engineering Experts adopt.¹⁸²

iii. Off-Line Rail Transportation Costs.

Consumers develops its railroad transportation miles assuming that the CERR rail will be sourced from a rail manufacturing plant in Steelton, PA, shipped to a welding factory in Russel, KY, and then shipped to CERR railheads. CSXT accepts this assumption, but rejects Consumers' assumed 1,000 mile length of haul and instead calculates the actual railroad transportation distance for the specified route. Additionally, CSXT rejects Consumers' proposed unit cost for transporting rail.¹⁸³

Consumers' proposed off-line rail transportation cost per mile is the same unsupported and inapplicable \$0.035 per ton-mile discussed previously for ballast and tie transportation.¹⁸⁴ Consumers has not provided any additional support for its assumed transportation cost here. In addition, Consumers includes a cost for renting a rail work train to handle the 1,400 foot long CWR ribbons (made from welding 40-foot long sticks at plant) to its overall off-line transportation cost, but errs in its application of this cost. Consumers provides a cost of \$3,000 per day to

¹⁸² See Consumers Op. WP "Rail Prices.xls," Tab "Summary."

¹⁸³ See CSXT Reply WP "Rail Worksheet - 2015.xls_Reply," Tab "RAIL REPLY COSTS."

¹⁸⁴ See Consumers Op. III-F-57.

rent a rail train, but rather than calculating the number of rail train days required to construct the CERR, it inexplicably only includes a total cost of \$3,000.¹⁸⁵

CSXT Engineering Experts correct Consumers' unsupported and unreliable transportation cost assumptions and correct the work train error. First, CSXT develops a transportation cost for the unwelded rail sticks shipped from Steelton, PA to Russell, KY based on the distance of 695 miles using the average revenue per ton mile of \$0.079 for Railway Track Material movements contained in the 2013 Public Carload Waybill Sample.¹⁸⁶ Second, CSXT Engineering Experts develop a transportation cost for the CWS rail shipped from Russell, KY to CERR railheads based the distance of 422 miles and using unit costs derived from a quote provided by the rail manufacturer Consumers selected in Steelton, PA, Arcelor Mittal Long Carbon North America (Mittal). Mittal quoted a price of {{ }} per car for a fully loaded 30-car rail train carrying 80,000 linear feet (40,000 track feet) of 136-pound rail a total of 721 miles.¹⁸⁷ Third, CSXT corrects Consumers' development and implementation of the cost for the rental train while rail is being unloaded. The quote CSXT obtained from Mittal specifies there is a {{ }} per day rail train rental fee for every day after a 3 day unloaded period, which is the same parameters included in the quote that Consumers incorrectly applied. CSXT Engineering Experts estimate that each rail train will be on the CERR for a total of 17 days, based on the assumption that 0.5 track miles may be unloaded each day

¹⁸⁵ See Consumers Op. WP. "LB Foster Train Cost - Page 2.pdf."

¹⁸⁶ See CSXT Reply WP "2013 CWS Rail Pricing.xlsx."

¹⁸⁷ See CSXT Reply WP "ALCNA_Rail_Quote.pdf."

from a train carrying 40,000 track feet and including one day per week when the crew is not working. After adjusting this quote to the first quarter of 2015 price levels, the additional transportation cost for rail would be {{ }} per track foot for 115-pound rail and {{ }} per track foot for 136-pound rail.¹⁸⁸

iv. Field Welds.

The CSXT Track Engineering Experts accept Consumers' field weld unit material price but add omitted labor costs, and applied the revised unit cost to the corrected quantities of field welds.¹⁸⁹

v. Insulated Joints.

Consistent with the approach used by Consumers, the CSXT Reply discussion of insulated joints is included in the Signals and Communications sections of this Reply Evidence.¹⁹⁰

d. Switches.

CSXT generally accepts the number of turnouts Consumers includes for the CERR, but corrects Consumers' turnout inventory to substitute power controlled switches for a number of hand-throw switches in the vicinity of Barr Yard. CSXT Engineering Experts also add necessary switches and crossovers to accommodate existing UP operations in the vicinity of the Dalton Interchange and add a turnout to access the locomotive turntable determined by the CSXT Operating Experts to be

¹⁸⁸ See CSXT Reply WP "Rail Worksheet - 2015.xls," Tab "Rail Cost Per Lf," Cell C35.

¹⁸⁹ See Consumers Op. WP "Orgo-Thermit Inc Quote.pdf" and CSXT Reply WPs "Weld Labor Quote.pdf" and "2015 OTM Worksheet_Reply.xls," Tab "TOTAL COST SUMMARY," Row 129.

¹⁹⁰ See CSXT Reply WP "CERR STICK DIAGRAMS_Reply.pdf."

required for the CERR to operate efficiently in Barr Yard.¹⁹¹ CSXT Engineering Experts also correct Consumers' assumption of #15 turnouts on the BRC and reflect the #20 turnouts in place today¹⁹².

Consumers' stick diagrams identify five #10 hand-throw turnouts in CERR's Barr Yard that connect the yard tracks to the CERR second main track, consistent with Consumers' plan for CTC-controlled main track through Barr Yard. Hand-throw switches on these main line connections would be unsafe and would invite the potential for derailments because the train operating crews and the CTC dispatch center would not know the alignment of each switch. CSXT Engineering Experts converted the following five switches from hand-throw to electric:

- East end of Yard 3 Track
- West end of Yard 3 Track
- East end of Runner 2 Track
- West end of Runner 1 Track
- West end of Yard 2 Track¹⁹³

CSXT rejects Consumers' assumption that turnouts and crossovers on the portions of the BRC being replicated by the CERR would be #15's in place of the #20 turnouts and crossovers that exist today. Although the CERR is assumed to replace only CSXT's 25% ownership stake in the BRC, the other owners would not allow the decrease in speed and the impacts to their operations caused by the speed decrease that would be necessary to negotiate safely the smaller turnouts and crossovers. In effect, the CERR has to replicate the infrastructure that the BRC has in place

¹⁹¹ See CSXT Reply WP "CERR STICK DIAGRAMS_Reply.pdf."

¹⁹² See CSXT Reply WP "BRC Turnout Counts.pdf."

¹⁹³ See CSXT Reply WP "CERR STICK DIAGRAMS_Reply.pdf."

today. CSXT has replaced Consumers' assumption of #15 turnouts and crossovers on the BRC with #20 turnouts and crossovers.

CSXT has also added the one turnout and two crossovers (for a total of 5 Turnouts) needed on the UP to cross from Consumers Mainline west of the UP to Consumers Interchange track to the south that meets the UP at Thornton Junction. Consumers did not account for these turnouts.

e. Other.

i. Rail Lubricators.

CSXT rejects Consumers' costs for rail lubricators. Consumers' quote failed to include costs of several lubricator components, including grease, track mat, and cost for lubricator installation. Without these components, the lubricators would not effectively limit wear on the CERR, which would cause increased maintenance costs.

CSXT requested a quote from the same manufacturer for the exact same lubricator that Consumers specified.¹⁹⁴ The corrected unit cost is {{ }} per lubricator.¹⁹⁵

ii. Plates Spikes and Anchors.

CSXT accepts Consumers' basic specifications, unit costs, and method for estimating quantities for other track materials including plates, spikes, and anchors.

¹⁹⁴ See CSXT Reply WP "CSXT_Rail_Lubricator_LB_Foster.pdf."

¹⁹⁵ See CSXT Reply WP "2015 OTM Worksheet_Reply.xlsx," Tab "TOTAL COST SUMMARY," Cell E120.

(a) Derails.

The CSXT Track Engineering Experts accept Consumers' costs for derails, but includes costs to account for split point derails required at crossings with PTC equipped railroads. PTC regulations require a non-PTC railroad intersecting a PTC railroad to include split point derails. Even as a non-PTC railroad, the CERR will be required to include split point derails at each crossing with a PTC equipped railroad.¹⁹⁶

(b) Wheel Stops.

CSXT Track Engineering Experts accept Consumers' unit costs for wheel stops.

iii. Crossing Diamonds.

Consumers asserts that its experts and operating witnesses identified only one rail crossing along the CERR's route where at the time of construction CSXT and its predecessors would have been the junior railroad. Consumers offers no explanation of how it determined that the CERR would only be responsible for a single diamond crossing at milepost DC 28.0. Based on their review of the ICC Engineering Reports for the CERR route, CSXT Engineering Experts reject Consumers' CERR diamond crossing inventory. CSXT Engineering Experts also reject Consumers' diamond crossing material, transportation, and installation costs.

Consumers stated in its narrative that it only identified one diamond crossing on the CERR route.¹⁹⁷ However, ICC Engineering Report BOCT-137.1-IL

¹⁹⁶ See CSXT Reply WP "PTC Split Point Derails.pptx."

¹⁹⁷ See Consumers Op. at III-F-59.

covering what is largely the CERR route in Illinois from the Illinois/Indiana border to Western Avenue Junction shows a total of 66 diamonds owned by the CSXT's predecessor railroads.¹⁹⁸ Based on a review of CSXT track charts and aerials, CSXT Engineering Experts determined that presently only 17 diamonds remain along the CERR route corresponding to the segment BOCT-137.1-IL.¹⁹⁹ CSXT has accounted for 100% of the cost for these 17 crossing diamonds.

Similarly, the ICC Engineering Report BOCT-136.1-IL covering what is largely the CERR route in Indiana from Pine Junction to the Illinois/Indiana border lists diamond crossings at 2 locations. One is at Pine Junction, which is a diamond that the CERR will not replicate. The other is at Hammond, IN, where the CERR crosses the IHB and NS at the IL/IN Stateline. The diamond crossing in Hammond has a 50%-50% ownership split between the B&OCT and the C&E RR.²⁰⁰ CSXT has added 50% of the cost of diamond crossings at Stateline to the CERR diamond crossing costs.

Finally, Consumers did not account for 25% of the two BRC diamond crossings needed to cross the NS at MP 19.50. The ICC Engineering Report for the BRC C&WI, 3-ILL lists 40 diamond crossings starting at Mile 15 in Account 10²⁰¹. There are presently only the diamond crossings mentioned above. CSXT has added 25% of these 2 diamond crossings to the totals.

¹⁹⁸ See CSXT Reply WP. "Diamonds on ICC Engineering Reports.pdf."

¹⁹⁹ See CSXT Reply WP "2015 OTM Worksheet_Reply.xlsx," Tab "Diamond Cost."

²⁰⁰ Also known as the Chicago & Erie RR, an NS predecessor.

²⁰¹ See CSXT Reply WP. "Diamonds on ICC Engineering Reports.pdf."

Consumers also has not included any labor cost to install the diamonds. Consumers submitted a cost from Vossloh for the material costs and transport for the two diamonds needed at the Brighton crossing, but no costs for labor.²⁰² CSXT has used the Ohio Track unit cost for #15 turnout installation to account for the labor installation costs of the Diamonds.²⁰³

(a) Materials Transportation.

Like Consumers, CSXT addressed the transportation costs for each item in the sections discussing the total cost for that item, so any transportation costs have been addressed above.

(b) Track Construction Labor.

CSXT Track Engineering Experts accept Consumers' costs for track construction labor with the exception of the required addition to transport ballast from the railhead to the point of placement in track.

4. Tunnels.

There are no tunnels on the CERR.

5. Bridges.

Consumers' bridges evidence contains three major errors that CSXT corrects in this Reply. First, Consumers omitted two bridges from the CERR's road property investment, because of a mistaken belief that these bridges were constructed with public funds. Second, many of Consumers' bridge designs require supporting piers

²⁰² See Consumers Op. WP "Diamond Crossing Quote.pdf"

²⁰³ See CSXT Reply WP "2015 OTM Worksheet_Reply.xlsx," Tab "Diamond Costs" and Consumers Op. WP "Ohio Track Cost Estimate.pdf."

or abutments that unacceptably block water flow (in the case of over-water bridges) or vehicle and pedestrian traffic (in the case of over-highway bridges). Third, Consumers made errors in its bridge designs and unit costs that CSXT corrects below.²⁰⁴

The below table sets forth the parties' differences in bridge costs.

Table III-F-14

	Open	Reply	Difference
Bridges	\$63,718,138	\$153,299,834	\$89,581,695
Overpasses	\$8,134,557	\$14,064,390	\$5,929,833
Total	\$71,852,695	\$167,364,224	\$95,511,529

a. The CERR Must Pay For the Construction of the Calumet Sag Channel Bridge and Chicago Sanitary Channel Bridge.

Consumers' inventory of bridges that the CERR must construct incorrectly omits two bridges: 1) Bridge DC 15.21 on the Barr Subdivision over the Calumet Sag Channel (the "Calumet Sag Channel Bridge"); and 2) Bridge DC 28.10 on the Blue Island Subdivision over the Chicago Sanitary Canal (the "Chicago Sanitary Canal Bridge"). Consumers claims that it need not account for the costs of these bridges because "the City of Chicago constructed both of these bridges."²⁰⁵ Consumers cites a March 15, 1910 Railway Age article that supposedly justifies this conclusion.²⁰⁶ But the article simply does not say what Consumers claims it does. Indeed, it does not mention the Calumet Sag Channel Bridge *at all*—making it

²⁰⁴ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Column P.

²⁰⁵ See Consumers Op. at III-F-63.

²⁰⁶ See Consumers Op. WP "Bascule Bridge Over CSSC Railyway Gazette indicating that the Sanitary district paid.pdf" (hereinafter, the "Railway Age Gazette Article").

impossible to draw any conclusion that that bridge was somehow built for the railroad at public expense. And it makes clear that the city-built movable bridge over the Chicago Sanitary Canal was a replacement of an earlier railroad-built bridge. While it is thus fair for Consumers to assume that the movable portion of the bridge would be publicly funded, the CERR must include the cost of the non-moveable railroad-built bridge.

i. Calumet Sag Channel Bridge

The March 15, 1910 Railway Age Gazette article does not mention the bridge over the Calumet Sag Channel. Consumers' Opening Evidence contains no other support for its omission of the costs of that bridge. Because Consumers has not supported its assertion that the CERR should not incur the cost of the Calumet Sag Channel Bridge, those costs should be included in the CERR's road property investment costs along with the costs of all the other bridges over which the CERR would operate.

CSXT Reply Workpaper "Bridge Costs_Reply.xlsx" includes the cost for constructing the Calumet Sag Channel Bridge.²⁰⁷ The Calumet Sag Channel is a navigable waterway, and therefore the CERR's bridge must replicate the existing horizontal clearance provided by the 249 foot long truss on the existing bridge. This requires the bridge to be replicated with a truss. CSXT's approaches for generating

²⁰⁷ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Row 42, Columns AJ-AP.

the truss design, quantities, and costs for this bridge are discussed in more detail below.²⁰⁸

ii. Chicago Sanitary Canal Bridge

Unlike the Calumet Sag Channel Bridge, the Chicago Sanitary Canal Bridge is at least mentioned in the Railway Age article cited by Consumers. But that article makes clear that the city-built moveable bridge over the Chicago Sanitary Canal replaced a prior railroad-built stationary bridge. This article explained that a fixed span bridge was built and placed in service in 1901, and indeed it includes a photograph of the old fixed span.²⁰⁹ The Sanitary District stepped in to fund the replacement of this bridge “[w]hen plans were made in 1908 to open the canal to navigation.”²¹⁰ The fact that the Sanitary District of Chicago paid to replace a fixed span railroad-built bridge with a moveable structure to better accommodate water traffic is no reason to conclude that the CERR could operate over this bridge for free. On the contrary, the CERR should be charged with the cost of building a non-moveable bridge just as the railroad was. (It is fair to assume that the CERR would not have to bear the greater costs of a moveable bridge span, because that was constructed with public funds.)

²⁰⁸ See *infra* III-F-5-c-vi

²⁰⁹ The Gazette Article at fig. 2, p. 2 provides a photograph of the bridge that was replaced by Bridge DC 28.10 on the Blue Island Subdivision over the Chicago Sanitary Canal.

²¹⁰ *Id.* at 566; see also *id.* at 567 (explaining how traffic was diverted from the old bridge to the new movable spans during construction).

The original bridge in this location that was replaced by the new movable span appears from the Railway Age Gazette article to be a trestle style bridge utilizing reasonably short span lengths. On Reply, CSXT includes the cost for constructing a Type 2 bridge at DC 28.10 over the Chicago Sanitary Canal.²¹¹ The proposed bridge cost is based on CERR's Type 2 bridge because the alignment crosses the waterway at a skew.²¹² (In other words, the bridge crosses the channel at an angle, which requires that it be longer than if the bridge were perpendicular to the channel.)

b. The CERR's Bridges Must Be Designed to Allow Sufficient Space for Below-Bridge Water Flow, Automotive Traffic, and Pedestrian Traffic.

A number of Consumers' proposed CERR bridges suffer from the same fundamental problem: they cut costs by assuming below-bridge support structures that are unacceptable in the real world. For bridges over water, several Consumers-proposed bridge designs would substantially reduce available space for below-bridge water flow in ways that could threaten the structural integrity of the bridge. And for bridges over roads, several Consumers-proposed bridge designs would require abutments that block sidewalks or piers that would be dropped in the middle of traffic lanes. Each of these issues is explained below.

²¹¹ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Row 61, Columns AG-AI.

²¹² See Railway Age Gazette Article at p. 2 stating that "[t]he bridge crosses the canal on a skew, the interconnection angle being about 68 deg."

i. Over-Water Bridge Designs With Abutment Spill Slopes or Additional Piers that Block Flow Area

Several of Consumers' bridge designs for bridges over waterways would decrease the space for water flow under the bridge, either because Consumers' designs require abutment spill slopes that block water flow at the edges of the bridge or because they require additional piers in the waterway. Under Board precedent Consumers has the burden to prove that its bridge replacements provide adequate flow areas for the streams that exist under the current structures.²¹³ It has failed to meet that burden, and these bridge designs must be corrected.

Decreasing the space for water to flow under a bridge can cause major damage. Restricting the flow under a bridge can cause a rise in the flow elevation behind the bridge and create greater likelihood of collection of debris, ice, and drift at the bridge opening. This increases scour around piers, increases chances of upstream flooding, blocks the migration of animals using the waterway for transit, and may ultimately result in the complete loss of the bridge.²¹⁴

In five locations this problem arises because Consumers has proposed that one of its standard bridge designs would replace an existing arch or box culvert, but

²¹³ See *WFA I*, Docket No. 42088 at 108-09.

²¹⁴ See *Hydraulic Design of Safe Bridges*, U.S. Department of Transportation Federal Highway Administration, Publication No. FHWA-HIF-12-018 at §§ 3.22 (Fig. 3.12), 8.3.2, (April 2012) (stating "The accumulation of debris on bridge piers . . . can create significant forces on the structure"; "[i]ce and debris can . . . impact local scour").

has not provided a design that allows for the same water flow.²¹⁵ CSXT has no objection to Consumers' decision to replace several short arches or box culverts with bridges. But in several cases Consumers proposes to replace arches or culverts with the bridges with the exact same length as the spans of the existing arches or box culverts. Under Consumers' bridge design, abutments slope down from the ends of the bridge span toward the middle of the bridge. A Consumers bridge with the identical span length as the arches and box culverts it proposes to replace thus would block a significant amount of water flow allowed by the current arches and box culverts.²¹⁶ And Consumers has provided no evidence that the hydraulics of these specific waterways crossed by its bridges could allow a reduction in water flow without adverse effects.

To correct this problem, CSXT corrected the five bridge lengths to provide appropriate distances between the abutment spill slopes. These clear distances between the abutment spill slopes match the spans of the existing arches and box culverts and maintain the current flow areas.²¹⁷

A similar issue is caused by five Consumers bridges that include more piers in the waterway than existing bridges.²¹⁸ The number of piers in the waterway under a bridge can have a dramatic impact on the water flow. The more piers there

²¹⁵ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Rows 8, 13, 20, 32 and 34.

²¹⁶ See CSXT Reply WP "Arch & Box Culvert Replacement.pdf."

²¹⁷ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Rows 8, 13, 31 and 32, Columns AC-AF.

²¹⁸ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Rows 5, 12, 16, 38 and 41.

are in the waterway, the less area there is for water to pass underneath the bridge. In order to permit the same water flow as the real world existing bridges, the CERR bridges cannot have more piers than the real world bridges that they replicate without proof that they will maintain a sufficient flow area.²¹⁹

For example, the existing real world bridge at milepost CG 67.90 on the Grand Rapids Subdivision is made up of two spans, which means it has just one pier in the waterway.²²⁰ Consumers proposes to replicate this bridge with a structure that has three spans, which means it has two piers in the waterway.²²¹ Given the increased amount of material in the water, less water can travel under Consumers' proposed bridge than the existing real world bridge. The same is true of four other bridge locations on the CERR.

To ensure adequate flow areas under these bridges, CSXT's engineers have corrected the bridge layouts in these locations. CSXT has revised the CERR layouts to maintain the current flow by revising the amount of piers to match the existing real world bridges being replicated. In all but one location where CSXT is correcting Consumers' error, the revised bridge layouts necessitated the use of a span length exceeding any of the CERR prototype bridge lengths. In these four locations, CSXT's engineers applied the cost of building the bridges using through

²¹⁹ See *WFA I*, STB Docket No. 42088, at 81-82.

²²⁰ See CSXT Reply WP "Bridge List.xls," Tab "Span Info," Cell H186.

²²¹ See Consumers Op. WP "Bridge Costs.xlsx," Tab "Route Bridges," Cell T16.

plate girder spans and the requisite piers and abutments associated with that superstructure type.²²²

**ii. Over-Roadway Bridge Designs With
Abutment Spill Slopes Or Additional Piers
that Block Vehicle or Pedestrian Traffic.**

Several of Consumers' bridges over roadways suffer from the same fundamental problem as the above-described bridges over waterways: they do not provide the same clearance for traffic below the bridge as currently exists in the real world. Just as with waterways, this problem arises both from abutment spill slopes that encroach on existing roadways and sidewalks and from additional piers that Consumers' bridge designs literally would place in the middle of highways.

Several of the CERR's proposed bridges over roadways use standard precast abutment caps that would block existing sidewalks and roads. The abutment caps have a spill slope in front of the abutment.²²³ The spill slope is a wedge of soil in front of the abutment, which slopes from the end of the bridge up by the abutment down to the elevation of the roadway that the bridge is crossing.²²⁴ While that design can work in rural settings, most bridges in urban settings (including the bridges that Consumers wants to replace) are founded on wall abutments that provide a vertical face at the end of the bridge, so there is no wedge of earth in front

²²² See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Rows 5, 12, 16, 36 and 41, Columns AT-BM.

²²³ See CSXT Reply WP "RSTD3517.dgn."

²²⁴ See CSXT Reply WP "Bridge with Spill Slopes.pdf."

of the abutment.²²⁵ Because a wall abutment consists of a wall rather than a spill slope, it allows for open clearance under the entire length of the bridge and provides more space for roads and sidewalks under bridges.

As a result, Consumers' proposal to replace existing bridges founded on wall abutments with bridges using standard abutment caps would allow the spill slopes in front of the standard abutments to cut into the horizontal clearance below the bridge and block the sidewalks and roadway lanes.²²⁶ To correct this issue, CSXT has adjusted span layouts throughout the bridge inventory and developed a design and costs for wall abutments.²²⁷

A second, similar problem is that in multiple instances Consumers proposes bridge designs that would drop multiple piers into a roadway. The root cause of this issue is Consumers' failure to propose a bridge span longer than its 50-foot "Type III" bridge.²²⁸ Consumers instead proposes to traverse longer spans by combining more than one of its proposed bridge spans. But this approach requires piers to be dropped at the end of each of the spans and thus would drop piers in the midst of traffic lanes.

For example, Bridge BRC 13.61 on the Kenton Line over S. Damen Avenue exists in the real world as a three-span bridge with a total length of 72 feet. Consumers proposes to replicate Bridge BRC 13.61 with a structure made up of four

²²⁵ See CSXT Reply WP "Bridge with Wall Abutment.pdf."

²²⁶ See CSXT Reply WP "Spill Slope Conflict.pdf."

²²⁷ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Wall Abutment."

²²⁸ See Consumers Op. at III-F-65.

Type 1 spans.²²⁹ But this proposed CERR bridge layout would require piers to be placed within the existing roadway, as shown by CSXT Reply Workpaper “Unacceptable Bridge Layout.pdf.”²³⁰ The CERR cannot assume that it would build a bridge that would interfere with the roadway lanes below.²³¹

The same problem occurs on 67 other bridge locations.²³² (For ease of reference, CSXT’s engineers have located each bridge site in Google Earth and have provided the coordinates for each affected bridge.²³³) In each of these places Consumers’ proposed bridges must be adjusted to provide the same number and width of traffic lanes and sidewalks that the real world bridge accommodates.

In 54 cases, CSXT was able to correct the flawed bridge layouts by utilizing Type 3 spans, which have a maximum length of 50 feet, in place of Type 1 or Type 2 spans, which have a maximum span length of just 24 feet.²³⁴

In 14 cases, however, even a 50-foot Type 3 span is insufficient to provide the requisite roadway clearance below the bridge.²³⁵ To address this problem, CSXT’s

²²⁹ See Consumers Op. WP “Bridge Costs.xlsx,” Tab “Route Bridges,” Cells S72 and T72.

²³⁰ CSXT Reply WP “Unacceptable Bridge Layout.pdf” is an outline sketch of Consumers’ proposed bridge pier layout superimposed over a Google Earth image of the actual bridge in question.

²³¹ See *generally Pub. Serv. Co. of CO d/b/a Xcel Energy v. BNSF Ry. Co.*, 7 S.T.B. 589, 674 (2004) (stating that “the [stand-alone railroad] could locate one of its yards at the same location as the yard of another (nondefendant) railroad without accounting for the other carrier’s presence”).

²³² See CSXT Reply WP “Bridge Costs_Reply.xlsx,” Tab “Route Bridges,” Column P.

²³³ See CSXT Reply WP “Bridge Costs_Reply.xlsx,” Tab “Route Bridges,” Column O.

²³⁴ See CSXT Reply WP “Bridge Costs_Reply.xlsx,” Tab “Route Bridges,” Column P, Rows 9, 14, 28, 30, 31, 43-48, 50-52, 54-56, 63-72, 85-100, 102-104 and 107-114.

engineers developed a through plate girder design that can be scaled and applied to span lengths up to 100 feet in length, or longer. Additionally, CSXT's engineers developed designs for the corresponding abutments and piers required to support the loads imposed on them by these longer through plate girder spans. The approaches for the design and costs of the through plate girder and corresponding substructure units are discussed in greater detail below.²³⁶

c. Other Design and Cost Corrections.

CSXT makes several other changes to Consumers' proposed bridge designs and costs. These adjustments are addressed below by bridge type or major element.

i. Type 1 Bridges.

Consumers provided no sketches, plans or details depicting what its Type 1 bridge actually looks like. CSXT's engineers had to piece together what a Type 1 bridge looks like from the vague description in Consumers' opening and details of the AFE furnished by CSXT in Discovery. Consumers claimed that "The newly built CREATE WA-4 bridges are perfect examples of this type of bridge," but that is not accurate.²³⁷ The photo of the CREATE bridge referenced by Consumers in its workpaper "Bridge over Chicago Street.pdf" clearly depicts a bridge that is founded on wall abutments. As discussed above at length, Consumers' Type 1 bridge is based on CSXT's standard abutment that has a spill slope in front of the abutment, not a wall abutment.

²³⁵ CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Column P, Rows 24, 25, 27, 40, 49, 53, 57-60, 62, 84, 101 and 105.

²³⁶ See *infra* III-F-5-c-vi.

²³⁷ See Consumers Op. III-F-65.

CSXT accepts the superstructure and pier design of the Type 1 Prototypical bridge put forth by Consumers in their opening. CSXT accepts the abutment design of the Type 1 Prototypical bridge, to the extent that this design was correctly applied to the CERR inventory. In the locations where Consumers assigned a Type 1 bridge to a location that required a wall abutment, adjustments were made in CSXT's Reply Workpaper "Bridge Costs_Reply.xlsx" to exchange the cost of the standard abutment with the cost of the required wall abutment.

CSXT accepts the unit costs put forth by Consumers in its opening for standard abutments, piers and superstructure on Type 1 bridges.

ii. Type 2 Bridges.

Similar to the Type 1 bridge, CSXT accepts the superstructure and pier design of the Type 2 Prototypical bridge put forth by Consumers in its opening. CSXT accepts the abutment design of the Type 2 Prototypical bridge, to the extent that this design was correctly applied to the CERR inventory. In the locations where Consumers assigned a Type 2 bridge to a location that required a wall abutment, adjustments were made in CSXT Reply Workpaper "Bridge Costs_Reply.xlsx" to exchange the cost of the standard abutment with the cost of the required wall abutment.

CSXT accepts the unit costs put forth by Consumers in its opening for standard abutments, piers, and superstructure on Type 2 bridges.

iii. Type 3 Bridges.

CSXT accepts the superstructure design put forth by Consumers in its opening. Similar to the Type 1 and Type 2 bridges, CSXT accepts the abutment

design of the Type 3 Prototypical bridge, to the extent that it was correctly applied to the CERR inventory. In the locations where Consumers assigned a Type 3 bridge to a location that required a wall abutment, adjustments were made in CSXT Reply Workpaper “Bridge Costs_Reply.xlsx” to exchange the cost of the standard abutment with the cost of the required wall abutment.

CSXT rejects the pier design for the Type 3 structure put forth by Consumers in its opening. Consumers provided no sketches, plans, or details depicting what its Type 3 bridge actually looks like. The only indication of what the Type 3 pier might look like came from the workpaper statement “The 24 pile points for 2 abutments and 2 piles [piers] indicates 6 piles per frame.”²³⁸

In the absence of actual plans, details, or sketches of the Type 3 bridge, CSXT’s engineers evaluated the Type 3 design based on the information that could be garnered from the AFE referenced in their workpaper. This analysis is set forth in CSXT Reply Workpaper “Type 3 Bent Design.pdf” and concluded that six piles per frame would be insufficient to accommodate the pile loads on the interior bents of the Type 3 bridge.

After determining that six piles per interior bent frame were insufficient to resist the requisite loading, CSXT’s engineers evaluated a number of configurations to correct this design flaw. The most cost-effective solution to addressing Consumers’ failed pier design was to increase the number of piles per bent from six to eight, oriented into two rows of piles with four piles per row.

²³⁸ See Consumers Op. WP “Bridge Costs.xlsx,” Tab “Bridge Type 3,” Line 29.

As for costs, CSXT accepts Consumers' unit costs for standard abutments and superstructure on Type 3 bridges. However, the cost for Type 3 piers had to be corrected because of the above-identified adjustment to pile quantities. CSXT's engineers made this correction by using Consumers' own cost data to calculate the cost per pile for material and installation.²³⁹ CSXT's engineers then applied this total cost per pile to the corrected quantity of eight piles per pier.²⁴⁰

In addition, because the corrected Type 3 bridge pier design required two rows of piles instead of one, the precast pier caps will necessarily be wider by at least 50%. Since these pier caps are wider, they are also heavier. These factors will translate into higher costs for transportation and erection at the bridge site. CSXT's engineers applied conservative factors of 50% to the material cost²⁴¹ and 25% to both the shipping cost and erection cost²⁴² to account for the larger size of the Type 3 bridge pier caps that would be required to make the Type 3 bridge design feasible from an engineering standpoint. The total result of these corrections is shown in CSXT Reply Workpaper "Bridge Costs_Reply.xlsx," Tab "Bridge Type 3," in Cell E36.

²³⁹ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Bridge Type 3," Rows 5 and 15, Columns K-O.

²⁴⁰ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Bridge Type 3," Cells E6 and E16.

²⁴¹ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Bridge Type 3," Cell E24.

²⁴² See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Bridge Type 3," Cells E27 and E29.

iv. Wall Abutments.

As discussed above, several CERR bridges require wall abutments.²⁴³ This wall abutment must be used in locations where CSXT's standard abutment used by Consumers in their various prototypical bridges is incompatible with the specific feature that the CERR bridge is crossing.

The quantities for reinforced concrete, excavation, backfill, damp proofing, and underdrain are calculated from a wall abutment layout that was developed for the Type 2 bridge. This was deemed a conservative approach, because the abutment quantities would be greater for the Type 1 bridge due to the shallower superstructure depth.

The volume of concrete and weight of reinforcing steel contained in the typical wall abutment is nearly five times greater than the standard precast abutment cap, which increases the dead load that the foundation piles must resist by over 300,000 pounds over the standard abutments.²⁴⁴ As such, CSXT's engineers have increased the number of piles required for each bridge type when it is founded on a wall abutment.

To calculate the unit price of reinforced concrete for wall abutments, CSXT's engineers used the same CSXT AFE that Consumers used for many of its bridge unit costs: AFE A35844.²⁴⁵ However, Consumers' bridge cost evidence contained no

²⁴³ See CSXT Reply WP "Wall Abutment Design.pdf."

²⁴⁴ See Consumers Op. WP "CSXT Abutment Detail.pdf"; CSXT Reply WP "CSXT Reply Bridge Cost.xlsx," Tab "Wall Abutment," Cell E26.

²⁴⁵ See Consumers Op. WP "Bridge Costs.xlsx," Tab "Bridge Type 3"; CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Wall Abutment," Columns J-L.

information specifically applicable to excavation, structural backfill, damp proofing, or abutment underdrains that would be required to build a wall abutment. CSXT's engineers used RS Means to itemize these various unit costs.²⁴⁶ CSXT's engineers used this cost data, with appropriate historical factors and location factors, to calculate the unit cost to be applied to the wall abutments required on the CERR.²⁴⁷

v. Through Plate Girders.

As discussed above, CSXT's engineers had to design a bridge superstructure that could be used for spans exceeding 50 feet, which is the longest possible span length accommodated by Consumers' prototypical bridges. The most economical type of span for lengths ranging from 50 feet to 100 feet is a through plate girder span (TPG).

CSXT's engineers elected to design a 75-foot long TPG to be used in these locations in the CERR inventory where Consumers' prototypical bridges were inadequate.²⁴⁸ The length of 75-feet was identified due to the range of lengths that TPGs would have to accommodate on the CERR inventory, which varied from 53 feet up to 100 feet.²⁴⁹ Based on the total amount of steel required for this 75-foot TPG design, a unit weight of steel was calculated for TPGs on a basis of pounds of steel per foot of TPG. This unit could then be applied to any length of TPG span in

²⁴⁶ See CSXT Reply WP "Wall Abutment Unit Costs.pdf."

²⁴⁷ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Wall Abutment," and Tab Bridge Costs by Type Summary," Rows 42-47.

²⁴⁸ See CSXT Reply WP "TPG Design.pdf."

²⁴⁹ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Columns AT-AU.

the inventory to determine the total weight of steel that would be required for the TPG span length at issue.

The unit costs for TPG spans cannot be estimated using Consumers' costs for the Type 2 and Type 3 prototype bridges, because TPGs are more costly to fabricate than rolled shape girders. TPGs are generally comprised of steel plates that are fabricated and "built-up" into the necessary girder cross sections, instead of hot-rolled into the proper shape at the steel mill. For a TPG, all of the flanges have to be cut from individual plates and welded to the webs to create the I-shaped cross section that is ultimately required of the through plate girder. Steel mills cannot "roll" an I-shaped beam large enough to be adequate for a span of 100 feet in length. This makes TPGs more complicated and costly to fabricate, transport and erect, and thus more costly than the short standard prototypes posited by Consumers.

CSXT's engineers were unable to identify publically available bid prices in the states of Michigan, Illinois and Indiana that were directly applicable to a railroad through plate girder span. But CSXT's engineers identified an applicable unit cost in a publicly available Texas DOT report.²⁵⁰ CSXT's engineers used this cost data, with appropriate historical factors and location factors, to calculate the unit cost of steel TPGs to be applied to the TPGs on the CERR.²⁵¹

²⁵⁰ See CSXT Reply WP "TPG Unit Cost (Page 10 of 34).pdf."

²⁵¹ See CSXT Reply WP "Bridge Costs_Reply.xlsx" Tab "TPG Span," Line 7, and Tab "Bridge Costs by Type Summary," Rows 33-40. To complete the Clark Flyover structure discussed in III-F-2-f-iii, CSXT engineers add costs for a TPG span and wall abutments over Clark Road. See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Route Bridges," Row 33.

vi. Truss.

There is one bridge location on the CERR where neither the prototypical bridges nor a through plate girder span, can fairly replicate the bridge that exists in the real world today. The existing real world bridge at DC 15.21 on the Barr Subdivision over the Calumet Sag Channel contains a center truss span of approximately 249 feet in length, as measured in Google Earth.²⁵² This span length can only be replicated with a truss.

CSXT's engineers generated a structural model to determine adequate proportions and the size of the main members and secondary members that would be required in the design of a truss of this length.²⁵³ Using this structural model, CSXT's engineers were able to accurately determine the amount of steel that it would take to build such a structure. The design was not taken to the detailed level of designing connections, gusset plates, diaphragm, etc., because those sort of details would not substantially change the total amount of steel required to build such a truss.

The unit costs associated with a through truss cannot be extrapolated from the costs for any other type of steel superstructure. From a material standpoint, trusses contain dozens, if not hundreds, of unique members. Most of these members have unique connection details and unique connection angles and gusset plates. Therefore, fabrication costs for trusses exceed fabrication costs for deck plate girders or through plate girders. Similarly, erecting a through truss is far more

²⁵² See CSXT Reply WP "Calumet Sag Channel Bridge Measurement.pdf"

²⁵³ See CSXT Reply WP "Truss Design.pdf."

costly than erecting a deck plate girder span due to the number of members involved, the number of connections that have to be assembled, and the size and length of the completed truss structure. The work takes far more time and is more labor intensive because of the need to connect so many individual pieces of steel that make up the truss.

For these reasons, CSXT's engineers had to identify a reasonable unit cost for fabricating and erecting the through truss at DC 15.21 on the Barr Subdivision over the Calumet Sag Channel. The reference that CSXT's engineers utilized for this cost data is a value engineering study that was performed in 2006 for the construction of a CSXT bridge over the Mobile River in Alabama.²⁵⁴ This particular value engineering study was presented at an AREMA Conference and has been used as evidence in several previous rate cases.

This value engineering resource is applicable here because it specifically itemizes unit costs for a railroad through truss, differentiating the steel for that purpose from different classifications of structural steel. This means that the unit price of the through truss is not artificially inflated by including the more costly "Towers Miscellaneous" steel or "Lift Span Miscellaneous" steel into the total amount of steel on the project.

This value engineering resource is also credible, because it was generated with the purpose of saving money on the project. The bids from the contractors

²⁵⁴ See CSXT Reply WP "Steel Truss Unit Price.pdf."

were closely scrutinized, and new data was considered to ensure that the various unit prices in the value engineering report were as low as they could conceivably go.

CSXT's engineers used this cost data, with appropriate historical factors and location factors, to estimate the cost of the truss span on the CERR at DC 15.21 on the Barr Subdivision over the Calumet Sag Channel.²⁵⁵

d. Highway Overpasses.

CSXT Engineering Experts accept Consumers' unit costs and inventories of highway overpasses, as well as its assumption that the CERR would pay a 10% cost share, with two modifications that are required due to new and relocated overpass locations.²⁵⁶ First, CSXT adds a highway overpass carrying Cottage Grove Avenue over the CERR's interchange and double main tracks.²⁵⁷ Second, CSXT relocated the existing highway overpass of Sibley Boulevard slightly eastward to go over the relocated CERR track to the east of UP and CSXT's jointly owned Yard Center.²⁵⁸ CSXT Engineering Experts apply Consumers' opening method to develop costs for these two bridges, but include 100% of investment costs for CERR because these bridges are greenfield construction necessitated by the railroad, and thus not eligible for public funding or subject to barrier of entry constraints.

²⁵⁵ See CSXT Reply WP "Bridge Costs_Reply.xlsx," Tab "Truss," Rows 2 and 5, and Tab "Bridge Costs by Type Summary," Rows 50-55.

²⁵⁶ See Consumers Op. at III-F-68-69.

²⁵⁷ See CSXT Reply III-B-1-c.

²⁵⁸ See CSXT Rely III-B-1-c.

6. Signals and Communications.²⁵⁹

The below table sets forth the parties' differences in Signals and Communications costs.

Table III-F-15

Item	Open	Reply	Difference
Signals and Wayside CTC	\$13,107,439	\$19,828,610	\$6,721,171
Communications	\$5,924,208	\$11,192,508	\$5,268,300
Crossings	\$12,068,461	\$12,270,300	\$201,839
AEIs and FEDs	\$1,028,581	\$1,130,764	\$102,182
Central CTC	\$841,950	\$841,950	\$0
Locomotive PTC	\$847,776	\$1,271,664	\$423,888
Total	\$33,818,415	\$46,535,796	\$12,717,380

a. Signal System Overview.

CSXT generally accepts Consumers' signals evidence, with three main exceptions.²⁶⁰ First, Consumers applied typical configurations at several interlockings that do not sufficiently account for the required equipment for a functioning CTC interlocking. Second, Consumers omitted certain essential signals

²⁵⁹ CSXT's Evidence regarding the costs to the CERR for signals is sponsored by CSXT witnesses Richard Meyer and Mike Baranowski and Nathaniel Zebrowski of FTI Consulting (collectively referred to herein as "CSXT's Signals Engineering Experts"). Mr. Meyer has significant real-world experience in Traffic/Train Control Systems. Their qualifications are further details in Section V *infra*.

²⁶⁰ Consumers proposes that the CERR would operate without constructing Positive Train Control ("PTC"), even though the lines it is replicating carry both Amtrak traffic and toxic-by-inhalation traffic. While CSXT has some concerns about the appropriateness of this assumption, for purposes of this case CSXT is not challenging Consumers' proposal to not account for the costs of constructing PTC in its SAC analysis. CSXT's decision to not dispute Consumers' assumption here is not a concession that Consumers' approach is acceptable, and does not waive CSXT's right to challenge a similar assumption in a future case.

components that CSXT adds here. Third, Consumers omitted shipping costs for many of its signals components. CSXT corrects these errors to provide a complete and functional CTC system for the CERR.²⁶¹

i. Insufficient Component Inventories at Certain Locations.

Consumers provided general cost estimates for typical interlocking layouts including costs for a general set of components, but did not take into account the complexities of specific interlockings. CSXT's Signals Engineering Experts reject this approach at eight locations where the typical layouts proposed by Consumers are insufficient to provide a functioning system. CSXT's Signals Engineering Experts instead designed specific interlocking layouts suitable for these locations. CSXT Signals Engineering Experts obtained quotes for additional types of signals where these were required for specific layouts. CSXT Signals Engineering Experts also identified three railroad crossing locations where Consumers did not provide crossing protection, and added costs to provide the necessary protection for traffic on the CERR lines. Also, CSXT Signals Engineering Experts corrected the typical design Consumers applied to two locations to correspond with its signaling needs. Details of CSXT's corrections are set forth in its reply workpaper "CERR Signals Configuration Modifications.pdf."

ii. Omitted or Misapplied Components.

Consumers' Evidence omits the following components that are necessary to provide for complete and functional installations at applicable locations.

²⁶¹ See CSXT Reply WP "C-S Costs_Reply.xlsx."

Grounding Kits: Consumers omitted grounding kits for signal equipment shelters. Grounding kits are necessary to ground the signal shelter and protect railroad personnel from electrical shock and to protect electronic equipment from damage due to lightning strikes or power surges. This is a critical, nonoptional component, both for safety reasons and because the electronic equipment required for the CERR's signals would be susceptible to damage by foreign current, causing failure of the signal or crossing signal system. CSXT's Signals Engineering Experts developed the cost of grounding kits and developed labor costs for installation from GRAINGER.²⁶²

Track Connections: Consumers did not include track connections or wires to connect to the rails at the end closest to the signal house and the end farthest from the signal house for all track circuits. Track connections are necessary to make the physical connection between the rail and underground (track) cable as part of a track circuit (such as signals, crossing signals and electric locks). Track connections typically consist of 36" of ¼" bond strand with a sleeve on one end and a connector on the other end to plug into the rail. CSXT Signals Engineering Experts included track connections for all track circuits. CSXT Signals Engineering Experts developed the cost of track connections from Consumers' opening evidence²⁶³ and the cost for installation from Kimes Steel & Rail, Inc.²⁶⁴

²⁶² See CSXT Reply WPs "CSXT Unit Cost Workpapers.pdf" and "CERR C-S Costs_Reply.xlsx."

²⁶³ See Consumers Op. WP "CERR Workpapers 1.pdf."

²⁶⁴ See CSXT Reply WPs "CSXT Unit Cost Workpapers" and "CERR C-S Costs_Reply.xlsx."

Fencing for Interlocking Huts: Consumers did not place fencing around any of the CERR's interlocking huts. Fencing is necessary to secure the valuable equipment inside from vandalism and theft and as a safety precaution for workers using walkways around the huts for access on steep slopes. CSXT developed costs to provide fencing for interlocking huts based on a quote from industrial Fence Inc.²⁶⁵

Signal Bridges/Cantilevers: Throughout the alignment Consumers mounts all signals on a signal foundation estimated with an estimated, undocumented cost of \$250 each.²⁶⁶ While this foundation is adequate for mast mounted signals, it will not work in all locations. Specifically, a bridge or cantilever signal to span all tracks is necessary in locations with limited ROW area and more than two tracks, because clearance envelopes between tracks cannot accommodate mast mounted signals. CSXT Engineering Experts determined cantilevers are suitable for spanning three tracks on the CERR, and signal bridges are required for spanning more than three tracks. This is consistent with signal bridges in place in the surrounding area.²⁶⁷ The CERR requires two signal bridges and three cantilevers, as well as an additional signal bridge and five cantilevers on the partially owned BRC

²⁶⁵ See CSXT Reply WPs "CSXT Unit Cost WPs" and "CERR C-S Costs_Reply.xlsx."

²⁶⁶ See Consumers Op. WP "CERR C-S Costs_Opening.xlsx."

²⁶⁷ See CSXT Reply WP "BRC - Signal Bridge MP 14.55.pdf."

segment.²⁶⁸ The cost addition associated with these signal bridges and cantilevers is accounted for in CSXT's Reply Evidence.²⁶⁹

iii. Omitted Shipping Costs.

A vast majority of the signal component prices used for the CERR represent unit material prices only and do not include shipping costs. Shipping costs greatly affect the overall price and must be included as part of the construction costs.

CSXT adds shipping costs to signals components where the unit price documentation provided by Consumers does not indicate shipping costs were included. Costs for shipping were assumed to be 2% of the material prices of the components. This 2% additive is based on analyzing a quote provided by {{

}}.²⁷⁰ The corresponding price increase is reflected in CSXT's reply evidence.²⁷¹

b. Communication System.

Consumers posits a communication system based on microwave radio, fiber optic, and Land Mobile Radio technology. CSXT's Engineering Experts accept this general system design, but adjust the layout of microwave towers to correspond to the route configuration of the CERR. Additionally, CSXT's experts developed

²⁶⁸ See CSXT Reply WP "CERR Signals Configuration Modifications.pdf."

²⁶⁹ See CSXT Reply WP "CERR C-S Costs_Reply.xlsx."

²⁷⁰ {{

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²⁷¹ See CSXT Reply WP "CERR C-S Costs_Reply.xlsx."

documented costs for various components of the communication system that are required for a reliable and fully functioning communications system.

Consumers developed its count of microwave towers based on a blanket assumption of no greater than 20-mile spacing across the CERR network. While 20-mile spacing is reasonable as a general matter, Consumers' use of an undifferentiated simple average fails to account for significant complexities and necessary requirements for a workable rail communications system. Specifically, microwave communications technology utilizes line of sight to transport communications between locations. Microwave communications do not bend around obstacles, and they cannot go through them. A line of sight must be established between each microwave tower site, without obstacles such as buildings, trees, or terrain. Using a simplistic average spacing assumption thus does not account for necessary microwave towers through differential geographic terrain or for extending radio coverage to the intersection of fiber facilities and to the central dispatching facility at West Olive. CSXT Engineering Experts have addressed these shortcomings by analyzing the actual CERR route using GIS software to determine where towers need to be placed. The CSXT Engineering Experts used a 20-mile spacing convention unless a different spacing was required by the specific conditions of the CERR route (e.g. route directional change, elevated terrain, other topographic features and city centers). This exercise produced a total of 9 towers for

the CERR and an average spacing of 16.5 miles as described further below.²⁷² See CSXT Reply WP “MW Towers_CSXT Reply.pdf.”

Consumers also made several costing errors in its microwave evidence. For example, Consumers designed its microwave towers to be multi-directional as required to meet the requirements of the CERR route configuration, but its cost estimate used only microwave towers with the necessary equipment to face one direction.²⁷³ Further, Consumers only used one antenna, whereas two are required to separately receive and transmit data under Consumers’ proposed design.

CSXT corrected these errors by adding a set of microwave equipment and two corresponding antennas to account for the directional point-to-point line of site microwave communications paths required. CSXT then determined the number of each type of tower that is required to cover CERR’s route configuration microwave network between Porter and West Olive given the limits of real-world topography. This design results in the following number of microwave tower sites: two one-way towers (end of line) and seven two-way towers (intermediate). This correction increases the CERR tower count by three towers and adds the corresponding equipment required to support the directional point-to-point line of site microwave communications paths.

Consumers either omitted or did not provide documentation for many of the costs of components that comprise a microwave tower, antenna, or link equipment,

²⁷² Due to this modification, CSXT adds land values for three microwave tower sites discussed in III-F-1.

²⁷³ See Consumers Op. III-F-76 and Consumers Op. WP “CERR LMR Cost Development,” Tab “Communications Equip.”

an LMR base station, multiplexor, or repeater, a communication shed, and other radio components.²⁷⁴ Many items and associated unit costs where Consumers did not provide documentation are the same as those referenced in CSXT's public reply evidence in the TPI rate case, in which CSXT corrected the unit costs to align with documentation provided in TPI's opening evidence in that case.²⁷⁵ Each of these corrections applied below are for instances where TPI accepted CSXT's correction in rebuttal in that case. Rather than rejecting Consumers' communications costs entirely because it failed to provide documentation, CSXT Engineering Experts worked to correct this flawed evidence by aligning it with comparable evidence in the public domain, which the same Engineering Experts for both parties in this case reviewed and accepted in the TPI rate case. Where Consumers' designs omitted necessary components, CSXT added these using prices from corresponding documentation referenced in CSXT's public reply evidence in the TPI rate case where possible, and otherwise obtained price quotes from outside vendors. Based on review of this documentation identified in public evidence in the TPI rate case, CSXT determined the following corrections were required:

Microwave Radio: Consumers used a cost of \$27,850 for a microwave base station, whereas the correction of this same unit cost to align with underlying documentation made in CSXT's public reply evidence in the TPI rate case, which

²⁷⁴ See Consumers Op. WP "CERR LMR Cost Development (received 1-15-2016).xls," Tabs "Per Tower Equipment," "Shed," and "Communications Equip.," Column E for a list of documentation sources not provided in Consumers opening evidence.

²⁷⁵ See CSXT Public Reply Evidence, *CSXT v. TPI*, STB Docket No. 42121, at III-F-177 to III-F-180.

TPI accepted in rebuttal, identifies a cost of \$38,433.²⁷⁶ CSXT corrected these prices to be consistent with the documentation identified in public evidence in the TPI rate case.

Microwave Antenna: Consumers used a cost of \$1,473 for a polarized parabola and feed horn, whereas the correction of this same unit cost to align with underlying documentation made in CSXT's public reply evidence in the TPI rate case, which TPI accepted in rebuttal, identifies a cost of \$1,987.20. CSXT corrected this price to be consistent with the documentation identified in the TPI rate case.²⁷⁷ Consistent with corrections made CSXT's public reply evidence in the TPI rate case, which TPI accepted in rebuttal, CERR also neglected to include the antenna Mount Assembly for \$134.40 per antenna as listed with the antenna materials. CSXT corrected this price to be consistent with the identified in public evidence in the TPI rate case.²⁷⁸

Land Mobile Radio (LMR): Consumers used a cost of \$3,858 for a base station, whereas the correction of this same unit cost to align with underlying documentation made in CSXT's public reply evidence in the TPI rate case, which TPI accepted in rebuttal, identifies a cost of \$4,469. CSXT corrected this price to be

²⁷⁶ See CSXT Public Reply, *CSXT v. TPI*, STB Docket No. 42121, at III-F-178 and CSXT Reply WP "CERR LMR Cost Development_Reply.xlsx," Tab "Communications Equip.," at Rows 14 and 21.

²⁷⁷ See CSXT Public Reply, *CSXT v. TPI*, STB Docket No. 42121, at III-F-178 and CSXT Reply WP "CERR LMR Cost Development_Reply.xlsx," Tab "Communications Equip.," Rows 32 and 37.

²⁷⁸ See CSXT Public Reply, *CSXT v. TPI*, STB Docket No. 42121, at III-F-178 and CSXT Reply WP "CERR LMR Cost Development_Reply.xlsx," Tab "Communications Equip.," Rows 33 and 38.

consistent with the documentation identified in public evidence in the TPI rate case.²⁷⁹ CSXT also includes costs using various vendor quotes for necessary equipment omitted by Consumers including an X530, CAI equipment, an antenna relay, Omni antenna, coax connectors, cabinet, and a battery charger²⁸⁰.

Communications Shed: Consumers' development of the cost of a communication shed omits necessary components, including shed footings/foundation, an alarm system to protect against fire and intrusion, a telephone, a Programmable Logic Controller (PLC) to allow remote monitoring of equipment, and a halo ground to properly ground the shed and internal equipment from lightning strikes. CSXT added these costs based on quotes from various vendors including Tescos, Lawton, and Graybar.²⁸¹

Microwave Tower: Consumers used a cost of \$59,372 for a 200 foot tower, whereas the correction of this same unit cost to align with underlying documentation made in CSXT's public reply evidence in the TPI rate case, which TPI accepted in rebuttal, identifies a cost of \$74,216. CSXT corrected this price to be consistent with the documentation identified in public evidence in the TPI rate

²⁷⁹ See CSXT Public Reply, *CSXT v. TPI*, STB Docket No. 42121, at III-F-178 and CSXT Reply WP "CERR LMR Cost Development_Reply.xlsx," Tab "Communications Equip.," Row 43.

²⁸⁰ See CSXT Public Reply, *CSXT v. TPI*, STB Docket No. 42121, at III-F-178 and CSXT Reply WP "CERR LMR Cost Development_Reply.xlsx," Tab "Communications Equip.," Rows 44 to 52.

²⁸¹ See CSXT Reply WPs "CERR LMR Cost Development_Reply.xlsx," Tab "Shed," Rows 24 to 35.

case.²⁸² Additionally, Consumers failed to include costs for several necessary items at a microwave tower site. First, Consumers used the price of \$150 for the site engineering design cost which appears to be an hourly rate. CSXT experts estimate 40 hours of a Staff engineer at \$150 and 20 hours of a Senior engineer at \$175. CSXT corrected the costs for this item.²⁸³ Second, Consumers omitted the cost for a foundation which is required for a 3-leg self-supporting tower structure. CSXT added the costs for an 8x8 footing with concrete piers to support the tower.²⁸⁴ CSXT developed costs for this based on historical quotes.²⁸⁵ Third, Consumers did not provide fencing to secure its microwave sheds. It is standard practice to provide fencing due to the high-value equipment at the site and the dispersed nature of tower locations that are subject to varying threats. CSXT developed costs for this based on historical quotes.²⁸⁶ Fourth, consistent with corrections made in CSXT's public reply evidence in the TPI rate case, which TPI accepted in rebuttal, CSXT corrected the cost of 7/8 Standard Coax (foam) or Standard Waveguide based on documentation identified in public evidence in the TPI rate case.²⁸⁷

²⁸² See CSXT Public Reply, *CSXT v. TPI*, STB Docket No. 42121, at III-F-179; CSXT Reply WP "CERR LMR Cost Development_Reply.xlsx," Tab "Per Tower Equipment," Row 44.

²⁸³ See CSXT Reply WP "CERR LMR Cost Development_Reply.xlsx," Tab "Per Tower Equipment," Row 13.

²⁸⁴ See CSXT Reply WP "CERR LMR Cost Development_Reply.xlsx," Tab "Per Tower Equipment," Row 31.

²⁸⁵ See CSXT Reply WP "CSX Communications Tower and Shed Cost Estimate.pdf."

²⁸⁶ See "CERR LMR Cost Development_Reply.xlsx," Tab "Per Tower Equipment," Row 32.

²⁸⁷ See CSXT Public Reply, *CSXT v. TPI*, STB Docket No. 42121, at III-F-180.

Fiber Optic Node: Consumers' development of the cost of a fiber optic node omits necessary components, including power supply, optical OC-3 tributary, SFP module, an alarm system to protect against fire and intrusion, a telephone, and a Programmable Logic Controller (PLC) to allow remote monitoring of equipment. CSXT added these costs based on quotes from various vendors.²⁸⁸

7. Buildings and Facilities.²⁸⁹

Consumers' Opening Evidence included investment for facilities including a locomotive repair shop, fueling, and site development facilities at Barr Yard, as well as costs for crew and maintenance of way facilities and the CERR's headquarters in West Olive, MI.²⁹⁰ CSXT's Engineering Experts have reviewed Consumers' opening narrative and supporting work papers and, in conjunction with CSXT's Operations Experts, have identified a number of facilities and site elements that the CERR would require but that Consumers did not include in its evidence. In addition, CSXT's Engineering Experts have identified errors and omissions in Consumers' development of the necessary components for a number of facilities and in the buildup of the associated costs.

Below, CSXT's Engineering Experts identify and explain the shortcomings in

²⁸⁸ See CSXT Reply WP "Fiber node costs_Reply.xlsx," Tab "Fibre Node Unit Cost," Rows 17 to 29.

²⁸⁹ This section III-F-7 is sponsored by Michael Baranowski, Nathaniel Zeborwski, and Mark Peterson. The qualifications and experience of Messrs. Baranowski and Zebrowski are detailed elsewhere in this Section III-F, and in Section IV, *infra*. Mr. Peterson is STV's Vice President and an experienced architect. He has experience with multiple freight rail projects. His qualifications and experience is further described in Section IV, *infra*.

²⁹⁰ See Consumers Op. III-F-77.

Consumers' buildings and facilities, explain the basis for their proposed corrections, and provide corrected costs. A summary of the differences between Consumers' proposed CERR facilities investment and CSXT's corrected investment costs is set forth in Table III-F-16 below.

Table III-F-16
Comparison of Consumers' Opening and CSXT Reply Consumers Facilities
Investment
(\$ thousands)

Section	Open	Reply	Difference
1. Headquarters Building	\$2,051,902	\$2,724,806	\$672,904
2. Locomotive Shop & Office	\$2,475,048	\$6,308,759	\$3,833,711
3. Roadway Buildings (Crew, MOW)	\$1,246,273	\$8,723,935	\$7,477,662
4. Yard Site Costs	\$6,092,900	\$8,719,636	\$2,626,736
Total Buildings and Facilities	\$11,866,122	\$26,477,136	\$14,611,014

In the remainder of this section CSXT's Engineering Experts address each specific type of facility the CERR would require.

a. Headquarters Building.

Consumers located the headquarters for the CERR at its West Olive yard in Michigan.²⁹¹ CSXT accepts CERR's headquarters building location. Consumers' costs for the headquarters building is based on a quote from Modular Space Corporation, which includes the building, delivery, and installation. CSXT accepts that CERR's Headquarters unit costs as a starting point, with additions noted below to address deficiencies.²⁹²

²⁹¹ See Consumers Op. III-F-77.

²⁹² See CSXT Reply WP "Headquarters Building (Consumers' Document – Markups).pdf" for visual reference.

First, Consumers did not account for foundations for the Headquarters Building.²⁹³ CSXT's Engineering Experts have included costs for continuous perimeter foundation, footings, and associated stem walls to a depth of 42 inches in accordance with Chicago Municipal Code mandating footing depth requirements set below the frost line for the Chicago area.²⁹⁴

Consumers also did not include emergency backup power for the Headquarters Building, which is critical to maintaining CERR operations in utility power outages. CSXT's Engineering Experts have included costs for an emergency generator and the associated concrete equipment pad.²⁹⁵

Consumers did not include a cost for exterior stairs and accessible ramp.²⁹⁶ However, Consumers' headquarters proposal includes a cost for the modular building's skirts, which are typically used to close-off access to the underside of a raised structure.²⁹⁷ As such, the interior finish floor level will be elevated from the grade level. CSXT's Engineering Experts have included costs for these items.²⁹⁸

²⁹³ See CSXT Reply WP "Headquarters Markup.pdf."

²⁹⁴ See CSXT Reply WP "Chicago Area Frost Line Depth.pdf"; CSXT Reply WP "Municipal Code of Chicago Building Footings.txt."; CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "headquarters," Rows 14 to 17.

²⁹⁵ See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "headquarters" Rows 18 to 19.

²⁹⁶ See CSXT Reply WP "Headquarters Markup.pdf."

²⁹⁷ See CSXT Reply WP "Headquarters Markup.pdf."

²⁹⁸ See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "headquarters," Rows 20 to 22.

Consumers did not include costs for pavement markings.²⁹⁹ Although parking stalls are illustrated on the site plan for the Headquarters Building, their cost was omitted from Consumers' developed costs. CSXT's Engineering Experts have included costs for these items.³⁰⁰

Consumers also did not include costs at CERR's Headquarters Building for Locker Rooms.³⁰¹ CSXT's Engineering Experts has included costs for Men's and Women's Locker Rooms, with lockers, benches, and showers.³⁰² See CSXT's Engineering Experts' layout exhibit for reference.³⁰³

Consumers did not include costs at CERR's Headquarters Building for critical communications equipment. CSXT's Engineering Experts have included costs for dispatcher control consoles, display screens, server racks, and a dedicated AC for the server room; as well as an Electrical Room, which is needed for the equipment associated with emergency backup power, critical communications, and the Server Room.³⁰⁴

Additionally, Consumers has chosen to omit a fire protection system from the Headquarters Building. While this is a cost-saving decision, it is highly discouraged

²⁹⁹ See CSXT Reply WP "Headquarters Markup.pdf."

³⁰⁰ See CSXT Reply WP "2015 Building Sites_Reply.xlsx," Tab "Headquarters," Row 18.

³⁰¹ See CSXT Reply WP "Headquarters Markup.pdf."

³⁰² See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "Headquarters," Rows 20 to 22.

³⁰³ See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "Headquarters," Rows 23 to 27.

³⁰⁴ See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "Headquarters," Rows 29 to 32.

due to the high financial and operational loss that would occur from fire damage to the elements noted above in the Critical Communications Equipment section.

CSXT's Engineering Experts have included costs for an FM2000 dry-type fire-protection system and a corresponding Fire Protection Riser Room.³⁰⁵

Finally, CSXT's Engineering Experts have included costs for the increase in overall square footage that results from the above-mentioned area additions. The increase in cost was based on the cost of the building, as noted in the proposal produced by ModSpace for Consumers.³⁰⁶

b. Headquarters Support Building.

CSXT's reply operating plan specifies a total of 23 headquarters support staff and 11 MOW staff requiring offices in Chicago. An additional 32 MOW staff will be based here who do not require offices but will need to access facilities such as restrooms and lockers. CSXT Engineering Experts determined that it is most efficient to accommodate these functions into a single building, including consolidating the existing MOW building and Crew Change buildings Consumers located at Barr Yard. Accordingly, CSXT develops the cost of a two-story headquarter support building designed to hold 34 permanent staff as well as provide facilities for an additional 32 that will be based here. CSXT's reply workpapers set for the design and costs of this facility.³⁰⁷

³⁰⁵ See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "Headquarters," Row 28.

³⁰⁶ See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "Headquarters," Rows 37.

³⁰⁷ See CSXT Reply WP "HQ Support Layout.pdf" and See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "HQ Support," Row 28.

c. Fueling Facilities.

CSXT accepts Consumers' fuel facilities locations at the Campbell Generating station and at a direct-to-locomotive (DTL) facility at Barr Yard, but revises three items. *See* Consumers Op. III-F-78.

First, CSXT includes nine oil/water separators consistent with Consumers narrative instead of the four used in its workpapers. Consumers narrative states that "[f]or the locomotive shop and each of the eight fueling pads there is an oil/water separator system that is part of the containment cost," but its workpaper only includes 4 total oil/water separator systems.³⁰⁸ CSXT has updated the costs to include nine oil/water separator systems.³⁰⁹

Second, CSXT rejects Consumers' asphalt specification as inadequate to accommodate the heavier load of DTL fuel trucks. CSXT substitutes a heavier industrial asphalt section necessary to accommodate the heavier loads for and adjusts Consumers' calculated quantities.³¹⁰

Third, CSXT's Engineering Experts have included cost for additional lighting at fueling pad locations for operational safety. CSXT's Engineering Experts use Consumers' basic spacing of 300' on center for lighting in the CERR's Barr Yard as

³⁰⁸ *See* Consumers Op. III-F-85 and Consumers Op. WP"2015 Buildings.xls." Tab "Locomotive Shop Equipment."

³⁰⁹ *See* CSXT Reply WP "2015 Building Sites_Reply.xlsx," Tab "YARD," Row 32.

³¹⁰ *See* CSXT Reply WP "2015 Building Sites_Reply.xlsx," Tab "YARD," Row 33.

a starting point, and then include additional light fixtures at the eight fueling pad locations to create a spacing of 100' on center at these locations.³¹¹

d. Locomotive Shop & Office.

CSXT accepts Consumers' proposal to include a locomotive shop at Barr Yard to perform running repairs on locomotives in the CERR fleet, but rejects its development of costs for this facility.³¹² Consumers' statement that it "worked to replicate every element" of CSXT's existing Barr yard locomotive shop is not accurate.³¹³ Consumer's locomotive shop indeed includes the same number of ancillary items such as toilets and lockers, and even includes the same number of tracks and square footage as the Barr locomotive shop. But the similarities end there. Consumers' locomotive shop is based on costs from a contractor bidding on a locomotive shop design with almost no relevance to the design of the actual Barr Locomotive shop. Whereas the Barr locomotive shop blueprint provided by CSXT in discovery includes thirty-three pages of design details, including meticulous detailing on concrete work throughout the shop,³¹⁴ the design that Consumers provided to the contractor Kessel Construction is a two-page document that includes nothing more than the basic floor plan and one-size-fits-all cross section of the

³¹¹ See CSXT Reply WP "2015 Building Sites_Reply.xlsx," Tab "YARD," Rows 30 to 33; CSXT Reply WP "DTL Fueling Layout.pdf."

³¹² See Consumers Op. III-F-79.

³¹³ See Consumers Op. III-F-80.

³¹⁴ See Consumers Op. WP "Loco Shop Blueprint - Barr Yard (CSX-CNSMR-C-16616 to 16648).pdf."

shop.³¹⁵ Although Consumers does not state this, it may be that it also provided a list of general specifications to the contractor listed in one of its workpapers.³¹⁶ Given the ubiquitous and non-complex design provided to the contractor, it is not surprising that the quote it provided is far below cost levels observed by CSXT's Engineering Experts for real-world locomotive shops. Using what few details Consumers provided the contractor and the information contained in the quote itself, CSXT's Engineering Experts have identified numerous and critical flaws.

First, the quote Kessel provided states that "Additional Concrete Work" will include "Pits as detailed on the drawings," but, as discussed above, the drawings Consumers provided Kessel include no details or drawings of pits, except indicating where they are on a floor plan.³¹⁷ The foundation for a major locomotive shop typically constitutes the single largest expense for construction of that shop, since inspection pits add tremendous complexity to foundations. Consumers' failure to clearly account for these costs alone makes their costs unacceptable.³¹⁸

Second, Consumers' specifications regarding pits contained in the Kessel quote include design inadequacies and omit key elements. Consumers requests pits 100 to 120 feet on all three tracks with lights, power, air, and drains, with one track including a 6.5 foot deep section for a drop table and platform at locomotive floor

³¹⁵ Compare Consumers Op. WP "Chicago IL Locomotive Shop KCI Drawing Set.pdf" and Consumers Op. WP "Loco Shop Blueprint - Barr Yard (CSX-CNSMR-C-16616 to 16648).pdf."

³¹⁶ See Consumers Op. WP "Locomotive Shop secs.docx."

³¹⁷ See Consumers Op. WPs "Chicago IL Locomotive Shop KCI Drawing Set.pdf" and "Chicago IL Locomotive Shop KCS Proposal.pdf" at 12.

³¹⁸ See CSXT Reply WP "Loco Shop Markup.pdf" at 2.

height.³¹⁹ These specifications are inadequate. A 6.5 foot pit is not deep enough to house drop table equipment, which Consumers omitted. CSXT Engineering Experts include a drop table quote and associated drawing showing a required pit depth of eleven feet.³²⁰ Moreover, Consumers does not include exhaust ventilation, which is necessary for worker safety, nor grinder pumps to assure reliable removal of spilled liquids. Consumers also only includes platforms at floor level on one track and omits fall protection, which makes this one platform unsafe and locomotives on other tracks inaccessible.³²¹ And Consumers omits fluid service storage and distribution equipment. Repair spots require access to a variety of fluids including engine oil, compressor oil, journal oil, grease, water, coolant, and compressed air. To minimize the amount of hostling of locomotives within the repair facility, access to necessary locomotive fluids is required at each of the service and inspection spots.

Third, Consumers' layout has insufficient clearances and structural support to accommodate the equipment it specifies. In particular, where Consumers includes equipment such as an overhead crane, jib cranes, and a wheel pit, it fails to account for the added structure necessary to accommodate and support that equipment. For example, with the addition of a bridge crane, hose reels cannot be hung from the ceiling as they are in the existing Barr Yard Locomotive Shop and must be floor mounted. The floor mounted hose reels and added structural columns for the bridge crane also encroach into necessary clear space around the rail.

³¹⁹ See Consumers Op. WP "Locomotive shop specs.pdf."

³²⁰ See CSXT Reply WP "Drop Table Design.pdf."

³²¹ See CSXT Reply WP "SJRPC Photos.pdf."

Forklifts serving this facility need 4 feet minimum clearance at pinch-points, and 8.5 feet clearance for right angle turns, which is not available using Consumers design.³²²

Fourth, Consumers locomotive shop uses an insufficient crane type and omits costs for drop table equipment. While the Barr Yard Locomotive facility has H-Frame Hoist in its shipping and receiving area, Consumers only provides a 1-Ton Jib Crane here.³²³ This substitution is insufficient for handling the type of parts that Consumers posits will be sent off-site for repairs. For reference, each locomotive truck assembly weighs approximately 60,000 pounds, and a traction motor alone is 6,000 pounds. Additionally, Consumers does not add the cost of drop table equipment, even though the quote it relies on specifically states the contractor will not provide this.³²⁴

Fifth, Consumers locomotive shop contains a myriad of other omissions and inadequacies. For example, Consumers design shows standard track entering the Locomotive Shop instead of embedded rail. This causes operational issues for forklifts and moving equipment, and trip hazards for personnel. Further, Consumers omits the pedestal rail at the open inspection pit in the middle track. This type of track construction is required to support the weight of the locomotive in pits of the proposed geometry. Additionally, the ramps Consumers provided from shop level to the open inspection pits are sloped at approximately 1:7, which is too

³²² See CSXT Reply WP “Loco Shop Markup.pdf.”

³²³ See CSXT Reply WP “Loco Shop Markup.pdf.”

³²⁴ See Consumers Op. WP “Chicago IL Locomotive Shop KCI Proposal.pdf.”

steep for safe operations such as movement of tool boxes or materials on forklifts. Also, stairs from the shop into the “gage pits” are missing, and overhead locomotive doors are insufficiently sized. Finally, Consumers did not include emergency backup power for the Locomotive Shop, which is critical to the maintenance of CERR operations in utility power outages.³²⁵

Due to the combination of Consumers’ errors, lack of design detail, and missing cost specifications, item by item changes could not be made to Consumers’ proposed locomotive shop. Instead, CSXT’s Engineering Experts developed costs from the ground up for a facility that corrects each of the above-described problems.³²⁶ Costs for this facility are based on a quote for a comparable facility at the San Joaquin Regional Rail Commission Locomotive Maintenance Facility, located in Stockton, CA.³²⁷ This locomotive shop is similar in function, but larger in size. Accordingly, quantities were scaled appropriately down to Barr Yard’s specific needs, and then further modified using location factors to calculate the costs for Chicago, IL.³²⁸

e. Car Repair Shop.

CSXT accepts Consumers’ assumption that the CERR’s freight cars would be acquired under full service lease arrangements and that no separate investment would be required for freight car repair facilities.

³²⁵ See CSXT Reply WP “Loco Shop Markup.pdf.”

³²⁶ See CSXT Reply WP “CERR Loco Shop Layout.pdf.”

³²⁷ See CSXT Reply WPs “SJRCCLoco Shop Costs.pdf” and “SJRCCLoco Shop Layout.pdf.”

³²⁸ See CSXT Reply WP “2015 Buildings_Reply.xlsx,” Tab “Locomotive Shop.”

f. Crew Change Facilities and Yard Office.

Consumers included costs for a total of four crew change facility/yard office locations on the CERR. CSXT removes the crew change facility at Barr because it is including a headquarters support building that would include functionality for crew changes. CSXT accepts the majority of Consumers' sizing and cost assumptions for crew change facilities, but makes the following corrections.

First, similar to headquarters buildings, CSXT's Engineering Experts have included costs for continuous perimeter foundation, footings, and associated stem walls to a depth of 42 inches in accordance with Chicago Municipal Code regulation footing depth requirements, which are set below the frost line for the Chicago area.³²⁹

Consumers did not include a cost for exterior stairs and accessible ramp.³³⁰ However, Consumers' crew building proposal includes a cost for the modular building's skirts, which are typically used to close-off access to the underside of a raised structure.³³¹ As such, the interior finish floor level will be elevated from the grade level. CSXT's Engineering Experts have included costs for these items.³³²

Third, CSXT's Engineering Experts accept Consumers' paving unit costs for the parking areas, but note that this proposed parking plan results in dead-end

³²⁹ See CSXT Reply WPs "Chicago Area Frost Line Depth.pdf," "Municipal Code of Chicago Building Footings.txt," and "2015 Buildings_Reply.xlsx." Tab "Crew Change," Rows 12 to 15.

³³⁰ See CSXT Reply WP "Crew Change Markup.pdf."

³³¹ See CSXT Reply WP "Crew Change Markup.pdf."

³³² See CSXT Reply WP "2015 Buildings_Reply.xlsx," Tab "Crew Change," Rows 17 to 18.

aisles. CSXT's Engineering Experts have added paving area and associated costs necessary for backing out of the parking stalls at the dead-ends.³³³

Fourth, CSXT's Engineering Experts rejects the placement of all of the lockers and showers in one room, which makes it infeasible for use by men and women simultaneously. Consumers' claims that it has provided "separate men's and women's restrooms" is wrong, for aside from the locker room there is only a single occupancy accessible restroom. CSXT has included costs for additional space and fixtures to create separate men's and women's restrooms.³³⁴

Finally, CSXT's Engineering Experts has included costs for the increase in overall square footage that results from the above-mentioned area additions. The increase in cost was based on the cost of the building, as noted in the proposal produced by ModSpace for Consumers.³³⁵

g. Maintenance of Way Buildings (Roadway Buildings).

Consumers has included a total of 2 maintenance-of-way ("MOW") buildings in the CERR. CSXT removes the MOW building, but not the MOW garage, at Barr Yard and includes comparable functionality within a larger building at Barr Yard described below. CSXT accepts most of Consumers' sizing and cost for MOW

³³³ See CSXT Reply WP "Crew Change Markup.pdf" and "2015 Building Sites_Reply.xlsx," Tab "Crew Change," Rows 20-21.

³³⁴ See CSXT Reply WPs "Crew Change Restroom Layout.pdf" and "2015 Buildings_Reply.xlsx," Tab "Crew Change," Rows 19 to 23.

³³⁵ See CSXT Reply WPs "Crew Change Restroom Layout.pdf" and "2015 Buildings_Reply.xlsx," Tab "Crew Change," Row 26.

buildings, but makes the same adjustments to MOW buildings as for the crew buildings discussed above, since these apply equivalently to both.

h. Turntable.

Consumers failed to account for the cost of a turntable at Barr Yard. Consumers' traffic selection process means that the CERR will not know which direction the next train will take, thus it will need to turn locomotives more than other normal locomotive inspection facilities.³³⁶ A railway turntable is typically used for turning railroad rolling stock, usually locomotives, so they can be turned to the appropriate direction. In the real world Barr Yard relies on a turntable for this function and Consumers has not identified another adequate means within its configuration of Barr Yard to turn locomotives.³³⁷ CSXT has included costs for a turntable at CERR's Barr Yard, akin to the facilities provided at the existing Barr Yard.³³⁸

i. Air Compressor Building & Yard Air Systems

Consumers posits that yard activity is light enough that facilities are not required to house yard air compressor systems and distribute the compressed air to departure and other tracks throughout the yard.

CSXT Operating and Engineering Experts reject this claim. Before departing a train, the railroad must perform a terminal airbrake test. Air compressor systems on locomotives are sized to maintain operability of the brake system during linehaul

³³⁶ See CSXT Reply at III-C-1-c-ii-(b).

³³⁷ See CSXT Reply WP "Turntable at Barr.pdf."

³³⁸ See CSXT Reply WPs "Turntable Cost.pdf" and "2015 Buidlings_Reply.xlsx," Tab "Air and Turntables."

movements, but do not have the capacity to efficiently charge a depleted system. Once depleted, the brakes will remain engaged until compressed air is replenished to the system.

CSXT thus has included costs for a yard air compressor building and associated distribution systems at CERR's Barr Yard, akin to the facilities provided at the existing Barr Yard.³³⁹

CSXT also develops costs for air providing at the two sidings nearest the J.H. Campbell generating station where Consumers coal trains must hold. CSXT Reply Operating Experts determine this is necessary to secure air brakes, because these coal trains often hold for long enough times to warrant shutting down locomotive engines.

j. Wastewater Treatment

CSXT's Engineering Experts accepts Consumers' costs for waste water treatment.

k. Yard Site Costs

Consumers included costs for lighting, paving, drainage and fencing at CERR yards under the category of other facilities and site costs.

i. Yard Lighting

Consumers developed yard lighting plans for CERR's Barr Yard. Consumers' work papers specify lighting types, watts, mounting height, spacing, conduit, wire, and trenching. Consumers bases its lighting unit costs on RS Means data.

³³⁹ See CXT Reply WP "2015 Buidlings_Reply.xlsx," Tab "Air and Turntables."

CSXT accepts Consumers' general approach of calculating lighting requirements for the CERR yards from existing CSXT facilities, with a few exceptions.

First, Consumers' lighting costs rely on insufficient 2 inch conduit. 4 inch conduits housing five electrical wires are required to supply the necessary voltage to the lights spaced through Barr yard. Second, Consumers also fails to account for electrical enclosures. Underground electrical conduits are needed to bring electricity from its source to service points. Electrical enclosures are used to limit bends in excess of 360 degrees per conduit run and are required at junctions between vertical and horizontal conduit runs. CSXT's Engineering Experts have added costs for correcting the type of conduit and wires and adding electrical enclosures at Barr Yard.³⁴⁰

ii. Yard Paving

CSXT accepts Consumers' quantities and unit costs for yard paving, except for increasing the quantity of paving to provide additional parking for additional headquarter support and MOW personnel at the expanded Barr Yard facilities.³⁴¹

iii. Yard Drainage

Consumers has proposed using stormwater drainage wells or "drywells" as a means of stormwater management for the Barr Yard.³⁴² As defined by the EPA, a drywell is a drainage system that "uses subsurface infiltration to manage surface

³⁴⁰ See CSXT Reply WP 2015 Building Sites_Reply.xlsx," Tab "Yard."

³⁴¹ See CSXT Reply WP "2015 Building Sites_Reply.xlsx," Tab "HQ Support."

³⁴²See Consumers Op. WP "Yard Drainage Cost.pdf."

water runoff.”³⁴³ Employing infiltration as a means of stormwater management is only effective in sandy soil site conditions, because sandy soils drain rapidly. However, clay soils have poor permeability, which slows the discharge process. Installing a drywell in clay soil site conditions would result in major flooding concerns in the Barr Yard and would not be allowed by CSXT.

Using the National Resource Conservation Service (NRCS) website, CSXT obtained a soil map encompassing the Barr Yard.³⁴⁴ From the map it is clear that the vast majority of soils in the vicinity of the Barr Yard are designated as clay or contain a significant amount of clay. In order to provide proper drainage to the Barr Yard, CSXT proposes a catch basin and storm sewer network.

CSXT proposes the use of high-density polyethylene (HDPE) pipe for the drainage network. For the purposes of the cost estimate, CSXT has assumed that a run of 18 inch HDPE pipe every 400 feet with catch basins every 50 feet would be adequate along the Main 1, Yard 1 and Yard 2 tracks. Inlets every 400 feet with 25 feet of pipe per inlet were assumed along the Main 2 and Yard 3 tracks, while an inlet for every 40,000 square feet and 20 feet of pipe per inlet was assumed for the inner yard area between the two. CSXT’s analysis resulted in a total 172 inlets and 3,280 feet of 18 inch HDPE pipe. CSXT also estimated quantities of excavation,

³⁴³ See CSXT Reply WP “Stormwater Drainage Wells.pdf” (<http://www.epa.gov/uic/stormwater-drainage-wells>).

³⁴⁴ See CSXT Reply WP “Barr Yard NRCS Soil Report.pdf”

bedding, and backfill for the installation of the drainage network.³⁴⁵ CSXT includes these costs in reply.³⁴⁶

iv. Fencing

Consumers asserts that it does not include fencing at Barr Yard except around the locomotive shop because there is none in the real world, but that is not accurate.³⁴⁷ In fact, there is a substantial quantity of fencing at Barr Yard, particularly in areas where non-railroad properties abut the yard³⁴⁸ CSXT's Engineering Experts include costs for fencing at Barr Yard where it exists in the real world.³⁴⁹

8. Public Improvements.³⁵⁰

a. Fences.

CSXT agrees with Consumers that the vast majority of the CSXT right-of-way being replicated in this case is not fenced. However, fencing costs still must be included where fencing is necessary at key signal facilities to provide security for integral signal-system components and equipment that is vital to railroad operations and safety. These costs are reflected in the corresponding sections.³⁵¹

³⁴⁵ See CSXT Reply WP "BARR YARD Drainage Sketch.pdf"

³⁴⁶ See CSXT Reply WP "2015 Building Sites_Reply.xlsx," Tab "Barr Drainage."

³⁴⁷ See Consumers' Op. III-F-86.

³⁴⁸ See CSXT Reply WP "Barr Fence Quantities.pdf."

³⁴⁹ See CSXT Reply WP "Building Sites_Reply.xlsx," Tab "YARD."

³⁵⁰ This section is sponsored by Patrick Bryant and Joseph Olson of STV Engineering.

³⁵¹ See, e.g., *supra* III-F-7-s-iv.

b. Signs

CSXT accepts Consumers' inventory and costs for signs.

c. Highway Crossings and Road Crossing Devices

Grade Separations

Because all of the CERR's referenced grade-separated crossings are highway overpasses, these costs are addressed elsewhere.

At-grade Crossings

CSXT accepts Consumers' crossing inventory. CSXT accepts Consumers' crossing cost per foot development as a start, but adds other required costs stated on the quote document Consumers relied upon. Consumers has proposed a unit cost of \$260 per track foot for grade crossings using a construction cost estimate from CR Construction in New Castle, PA.³⁵² This estimate included costs for the asphalt adjacent to the rails and the rubber rail seal. There were other costs such as drainage, traffic control, and pavement striping, included within the estimate that were omitted from the \$260 per track foot included in Consumers workpaper.³⁵³ These items would be required for each grade crossing along the CERR and have been included in CSXT's updated grade crossing cost estimate workpaper.

9. Mobilization

CSXT accepts Consumers' mobilization cost factor of 2.7 percent applied to all CERR road property investment accounts except land. CSXT includes in its land costs an average \$11,050 per parcel cost to account for the acquisition costs the

³⁵²See Consumers Op. WP "CR Construction Quote For Crossing.pdf"

³⁵³See CSXT Reply WP "2015 Crossing List_Reply.xlsx"

CERR would necessarily incur while acquiring the land needed for the ROW.³⁵⁴ *See supra* III-F-1-e.

10. Engineering

CSXT accepts Consumers' engineering additive.

11. Contingencies

CSXT accepts Consumers' contingency factor.

12. Construction Schedule

CSXT accepts the 30-month construction schedule proposed by Consumers.

³⁵⁴ *See* CSXT Reply WPs "Acquisition cost summary.xlsx," Tab "Parcel Count," Cell AA21 and "III - F TOTAL - 2015_Reply.xlsx," Tab "CERR TOTAL," Cell F88.

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III. STAND-ALONE COST

G. DISCOUNTED CASH FLOW ANALYSIS

Consumers' discounted cash flow ("DCF") model contains a number of invalid inputs and assumptions ranging from a flawed calculation of the CERR costs of debt and equity to Consumer's use of the wrong debt amortization schedule and land index. Each of these issues is discussed below.

1. Cost of Capital

Consumers followed the Board's approved and preferred approach in developing capital costs for the CERR by employing for the years 2012-2014 the values determined by the Board in its annual cost of capital proceedings.

Consumers explains that it used the railroad industry cost of capital to calculate the capital recovery charges for all road property investment. Consumers Op. III-G-3.

But its DCF contains what appears to be a transposition error that inexplicably substitutes the Board-determined value for the 2013 railroad industry debt as a percent of capital of 17.69% for the Board-determined value for the 2013 railroad cost of debt of 3.68%. CSXT accepts Consumers' intended use of the Board-determined railroad industry cost of capital as the starting point for the CERR and corrects Consumers' DCF by using the Board-determined railroad industry cost of long term debt of 3.68%.

a. Equity Flotation Costs

CSXT also corrects Consumers' CERR cost of capital calculations to account for the costs of acquiring equity, which were completely omitted by Consumers.

Consumers claims that it "followed the Board's approach in developing capital

costs” and “[t]his includes the exclusion of common equity flotation costs.”¹ But as Consumers knows full well, the Board in *SunBelt* expressly rejected the argument that such costs are included in the industry-wide cost of capital (they are not) and that including them would create a barrier to entry (it would not).² As the Board explained, “the flotation cost is a fee that is specific to the hypothetical scenario of having to raise [the dollar amount for a particular SARR] in equity capital.

Whether that capital is raised through one large IPO, or in smaller amounts over a longer time period, *it would be unreasonable to assume that the SARR would raise this capital in either case without paying some form of equity flotation fee.*”³

Although the Board proceeded in that case to reject the specific percentage equity flotation fee proposed by Norfolk Southern on the grounds that the example offered by that railroad—the IPO for Facebook—did not constitute adequate evidence, it unequivocally endorsed the principle that equity flotation costs are properly cognizable in SAC cases.

Unable to ignore the Board’s acceptance of the propriety of including equity flotation costs in SAC calculations, Consumers asserts that “[g]iven the complexity of the issue and the fact that no reasonable surrogates are currently available for the issuance of railroad company stock,” it excluded any such costs in its calculations. Consumers Op. III-G-5. CSXT emphatically rejects the claim that calculating equity flotation costs is too complex. Its expert, Mr. Glenn Tobias,

¹ Consumers Op. III-G-5 (citing *SunBelt* and *AEPCO 2011*).

² *SunBelt*, STB Docket No. 42130, at 184.

³ *Id.* (emphasis added).

Senior Managing Director of FTI Capital Advisors, LLC,⁴ identified 535 IPOs of \$100 million or more that came to market over the past decade.⁵ Analyzing those offerings, Mr. Tobias determined that they ranged in size from \$100 million to more than \$2 billion and related to companies in a wide variety of industries. Tables III-G-1 and III-G-2 below summarize these transactions by industry and by the average amount of equity raised by each.

Table III-G-1
Summary of Transactions by Industry

Sector	Number of Transactions	Average Equity Raised	Average Underwriting Fee
All	535	\$448	6.3%
Consumer Discretionary	81	\$501	6.4%
Consumer Staples	21	\$336	6.4%
Energy	126	\$388	6.0%
Financials	8	\$2,021	3.4%
Healthcare	82	\$304	6.6%
Industrials	57	\$390	6.3%
Information Technology	116	\$542	6.5%
Materials	29	\$315	6.1%
Telecommunication Services	7	\$475	6.0%
Utilities	8	\$545	5.4%

⁴ Mr. Tobias has more than 25 years of professional experience in a diverse set of industries, including 15 years in investment banking, and is well-qualified to express his expert views on the magnitude of equity flotation costs in transactions of varying sizes and in a variety of industries. His credentials are summarized in Part V of this filing.

⁵ These transactions were compiled from Standard & Poor's Capital IQ database. Details on the date of issuance, identify of issuer, the primary sector of the economy and primary industry of the issuer, gross proceeds, gross spread and the percentage gross spread—i.e., the equity flotation cost—for each of those transactions appear in CSXT Reply Exhibit III-G-1.

Table III-G-2
Summary of Transactions by Amount of Equity Raised

Equity Range	No. of Issuers	Avg Gross Proceeds	Avg % Underwrite Spread
\$100M to \$199.99M	256	138.41	6.8%
\$200M to \$299.99M	93	242.71	6.5%
\$300M to \$399.99M	56	341.23	6.1%
\$400M to \$499.99M	35	434.39	5.9%
\$500M to \$999.99M	62	707.88	5.5%
\$1.00B to \$1.99B	21	1,317.04	4.1%
\$2.00B+	12	6,307.67	2.7%
Total	535	447.77	6.3%

Based on these data and his own experience with the costs associated with IPOs in a variety of industries and of varying amounts, Mr. Tobias concluded that a conservative, but supported and reasonable estimate of the equity flotation costs that the CERR would incur would be 6.0%, or \$25.5 million at the unrealistically low estimate of approximately \$425 million of needed capital generated by Consumers' Opening Evidence; or more realistically, approximately \$41.2 million when applied to the \$687 million of needed equity supported by CSXT's Reply Evidence.

As the Board knows, there have been no IPOs or private placements⁶ by railroads for many years, and there is no reason to believe that there are likely to be

⁶ Consumers mentioned private placements as a "factor" among a number of others that can affect the gross spread incurred in an equity offering (Consumers Op. III-G-5 n. 4), but it offered absolutely no evidence of what the level of equity flotation costs would be if capital for the CERR were to be raised through a private placement – a plain and simple failure of proof. Accordingly, there is absolutely no basis upon which to conclude that a private placement of CERR securities—even if that were shown to be a plausible mechanism for financing the railroad—could be accomplished without significant fees for investment bankers, bankers, accountants, lawyers and other professionals who handle such transactions. In fact, such costs might well be *higher* for a private placement than for an IPO. Moreover,

any in the foreseeable future. In such circumstances, it is entirely reasonable and appropriate to base an estimate of equity flotation costs for the hypothetical CERR on an analysis of a large sample of financing transactions of varying sizes by companies in a variety of businesses. In fact, if the Board is unwilling to accept an equity flotation cost for the CERR based upon the evidence supported by Mr. Tobias, it would in reality be rejecting any such costs for the CERR or any other SARR. Stated differently, if the Board were to find that the only “reasonable surrogate” for the issuance of railroad company stock is an issuance by a railroad of comparable size to the CERR, it would be embracing a standard that no defendant could ever meet.

The Board should include in the stand-alone costs for the CERR equity flotation costs of 6.0%, or \$41.2 million.⁷

b. Debt Amortization

In addition to its failure to account for equity flotation costs, Consumers proposed changing the Board’s longstanding practice of amortizing SARR debt over 20 years. As justification for its proposed change, Consumers asserts that a SARR’s debt capital would mirror the type of debt instruments issued by U.S. Class I

not even Consumers goes so far as to suggest that, whether an IPO or a private placement, the CERR would incur *no* equity flotation costs whatsoever in financing itself. In short, as the Board acknowledged in *SunBelt* (at 184), “it would be unreasonable to assume that the SARR would raise this capital in either case without paying some form of equity flotation fee”—and certainly not 0% as assumed by Consumers.

⁷ See CSXT Reply WP “Exhibit III-H-1_Reply.xlsm,” Tab “Investment SAC,” Cell G10.

railroads included in the Board's annual cost of capital determination⁸ and that, if the Board's precedent assumes that the SARR's cost of debt should mirror the railroad industry cost of debt, the SARR debt should also mirror the composition of that debt and how the interest is paid to the debt holders. Consumers suggests that approximately 94% of the railroad industry debt consists of corporate bonds, notes, and debentures that incorporate coupon payments of interest, rather than periodic payments with principal and interest components and proposes a similar coupon payment schedule for the CERR.⁹ Consumers asserts that absent such a switch, a mismatch occurs.¹⁰

But Consumers makes this argument for changing a long-standing feature of the DCF model without acknowledging that the Board, in its recent decisions in *DuPont* and *SunBelt*, rejected the very same argument in those proceedings.¹¹ The Board explained that because a SARR is evaluated through a regulatory lens, whereas the railroad industry itself is evaluated by the financial markets, it is not appropriate to structure the debt of a SARR in a manner that mirrors the way the railroad industry handles debt as the shipper argued in that case.¹² But Consumers

⁸ See Consumers Op. III-G-5.

⁹ *Id.* III-G-6.

¹⁰ *Id.*

¹¹ See *DuPont*, STB Docket No. 42125, at 281-82, *SunBelt*, STB Docket No. 42130, at 191.

¹² See *DuPont*, STB Docket No. 42125, at 281.

offered the same twice-rejected rationale as the basis for its proposed change in this proceeding.¹³

In those decisions, the Board made it clear that its SAC test looks specifically to determine whether a SARR can pay the cost of constructing, maintaining and operating its system and that the structure of the Board's DCF model assumes that a SARR's debt payments include both an interest and a principal component. It concluded that if, as shippers propose, the SARR pays only interest and no principal throughout the SAC analysis period, it will not have completely paid for its assets.¹⁴ The point made by the Board in *DuPont* and *SunBelt* is that the DCF model is an annuity that assumes that the cost of the initial SARR investment will be paid down over the economic life of the railroad's assets, at the end of which those assets are assumed to be replaced and the amortization cycle restarted. As such, the DCF functions in essentially the same manner as the "home mortgage" approach about which Consumers complains.¹⁵ Consumers' assumption that the SARR interest payment will remain fixed is at odds with the mechanics of the DCF.

Further, Consumers' focus on existing railroad debt instruments ignores the fact that the CERR will lock in its cost of debt at the debt rates in effect during the assumed construction period.¹⁶ Indeed, Consumers acknowledged that railroads

¹³ See Consumers Op. III-G-8.

¹⁴ *DuPont*, STB Docket No. 42125, at 281; *SunBelt*, STB Docket No. 42130, at 191.

¹⁵ See Consumers Op. III-G-6.

¹⁶ *Id.* III-G-4. The CERR's cost of debt for years 2012 through 2014, the CERR's construction period, is assumed to equal the railroad industry average cost of debt for each specific year in the construction period. For years 2015 through 2024, the

today do not lock in debt rates and instead issue new debt with new interest payments as existing debt matures.¹⁷ Consumers' tacit acknowledgement that in order for the CERR to mirror the railroad industry it would be required to issue new debt as shorter term instruments mature confirms that its proposal conflicts with the longstanding assumption that a SARR would lock in its debt rate at the rates in place during the construction period.¹⁸ Moreover, the Board reaffirmed its position on locking in the debt rate in *McCarty Farms*. There, in the face of rising debt rates, the complainant advocated locking in the cost of debt for the SARR at the weighted average cost of debt during the three year construction period (8.25%) while the defendant railroad argued that the cost of debt should be based on the current cost of debt over the 20 year SAC analysis period (ranging from 6.9% to 14%).¹⁹ In accepting the complainant's position, the Board explained:

We accept McCarty's use of a weighted average cost of debt based on debt costs for 1976 through 1978. The FRR would have been constructed with funds obtained between 1976 and 1978, and would have issued instruments reflecting investor expectations during that time period. Subsequent fluctuations in the cost of debt, reflecting post-construction market conditions, are irrelevant, because the FRR would not need to raise appreciable amounts of debt capital in the years immediately

CERR's cost of debt (corrected) equals 3.60% and reflects the weighted average of the construction years' debt costs used through the remaining years of the DCF model.

¹⁷ *Id.* at III-G-8.

¹⁸ See, e.g., *Coal Trading Corp. v. Baltimore & Ohio R.R.*, 6 I.C.C. 2d, 361, 378-79 (1990) ("*Coal Trading v. Baltimore*").

¹⁹ See *McCarty Farms*, 2 S.T.B. at 522.

following construction (when debt rates were at peak levels).²⁰

Here, interest rates have been declining for a number of years. However, as the Board's railroad industry cost of capital determinations show, those rates were higher in both 2013 and 2014, by 12% and 9%, respectively, than they were in 2012. This trend suggests that the low average debt rate during the CERR construction period would no longer be available to the CERR if it were to refinance its debt as Consumers assumes.

Further, there is a significant difference between locking in a specific debt rate and re-issuing debt, particularly as it relates to the actual average debt rate. When the Association of American Railroads ("AAR") calculates the railroad industry cost of debt for the Board's annual cost of capital determinations in Ex Parte No. 664, it calculates the average yield of the bonds, notes, and debentures that were traded during the year. These bonds, notes, and debentures include both instruments with relatively short intervals to maturity and correspondingly lower yields, and those with longer intervals to maturity and correspondingly higher yields. Table III-G-3 below segregates the 2013²¹ traded debt instruments that the AAR used in its calculations between those with yields below the 2013 calculated average yield of 3.62% and those with yields above the average.

²⁰ *Id.* at 522-23.

²¹ 2013 is the first full year of the CERR construction period.

Table III-G-3
Breakdown of AAR 2013 Cost of Debt
Between Those With Yields Below and Above the Average Yield
(\$ millions)²²

2013 Instruments	Count	Market Value	Weight	Avg. Yield	Avg. Maturity Date	Avg. Years to Maturity
Below Avg.	29	\$11,728.3	46.24%	2.32%	2019	10.0
Above Avg.	47	\$13,635.4	53.76%	4.74%	2044	30.6
Average	76	\$25,363.7	100.00%	3.62%	2032	19.2

Table III-H-1 shows that 29 of the 76 debt instruments used by the AAR to determine the 2013 railroad industry average cost of debt had yields below the average, with an average yield of 2.32%,²³ and that these instruments will mature and be paid in full in an average of 10.0 years. If the CERR had become tied contractually to a single note with a 20-year term with a maturity date of 2034, then its debt rate would be more in line with the higher average rates for longer term issues. By contrast, the longstanding assumption in the DCF model that debt will be amortized over a 20-year period—rather than that the principal will be paid in full at maturity—incorporates the concept that the cost of debt will reflect a mix that includes some instruments with shorter terms until maturity. In other words, Consumers’ decision to use the railroad industry’s average cost of debt and the accompanying mix of short and long term maturities is consistent with the longstanding assumption in the DCF model that debt will be amortized throughout the

²² See CSXT Reply WP “AAR 2013 Cost of Capital Debt Details Worksheet.xlsx.”

²³ 3.62% is the 2013 average debt rate for bonds, notes and debentures, which comprise 99.39% before accounting for debt flotation costs of the AAR’s 3.68% average cost of debt determination.

20 year period, *not* with an assumption that CERR could be financed with a note under which no principal would be paid for 20 years.

As discussed above, the current debt amortization schedule in the DCF was first adopted by the Interstate Commerce Commission in its 1990 decision in *Coal Trading*. That amortization assumption is consistent both with the AAR's calculation of the average debt yield and with the maturity schedules of the underlying instruments. CSXT has corrected Consumers' approach by applying Board precedent for both the amortization of debt on the initial CERR investment and for the debt amortization on the replacement cost of CERR assets as they reach the ends of their useful lives.

2. Inflation Indices

Consumers used actual AAR cost indices and Global Insight's October 2015 RCAF forecasts to calculate annual inflation forecasts.²⁴ CSXT does not dispute Consumers' road property asset and operating expense DCF inflation indices derived from these sources and, consistent with Board precedent, updates those indices in circumstances where new actual index and forecast values have become available. CSXT Reply inflation index forecasts for the CERR are based on Global Insight's January 2016 forecasts.²⁵

Consumers assumes land values will rise an average of 5.0% annually from the first quarter of 2015 through the end of the 10-year CERR DCF period. CSXT accepts Consumers' land inflation index.

²⁴ Consumers Op. III-G-5.

²⁵ See CSXT Reply WP "rcaf20161Q.pdf."

To index land values from the January 1, 2015 CERR start up date to the assumed time of the acquisition of land beginning in the latter part of 2012 and going through the first part of 2013, Consumers assumes that real estate values decline an average of more than 21 percent from Mr. Stuart's \$120.2 million valuation to the \$94.4 million assumed to be recovered via the DCF. Consumers' dramatic reduction in real estate values was based on an analysis of limited national and state specific index information. Put another way, Consumers' real estate deflation index over the CERR construction period assumes a meteoric rise in real estate values of more than 27% percent from approximately January 1, 2013 to January 1, 2015. CSXT Real Estate Expert Sandy Rex, who is based in Chicago and is very familiar with the real estate market there and in adjoining areas, rejects Consumers' assumption of such an unsupported and dramatic increase in real estate values along the CERR route. Instead, as explained in section III-F-1, using comparable sales information from the relative time frames, Mr. Rex has valued the CERR right of way both as of January 1, 2015 and January 1, 2013—the approximate midpoint of Consumers' assumed seven month land acquisition period. Mr. Rex's valuation analysis shows that real estate values along the CERR route changed by approximately 6.3% between January 1, 2013 and January 1, 2015. CSXT has used Mr. Rex's January 1, 2013 appraisal value for the CERR real estate of \$124.2 million as the amount to be recovered in the DCF.

3. Tax Liability

CSXT accepts Consumers' use of a 35% Federal income tax rate and its calculation of the weighted average CERR state income tax rate.

4. Capital Cost Recovery

Consumers calculated the capital recovery cost of CERR's property using a ten-year DCF period in accordance with the Board's decision in *Major Issues*, STB Ex Parte No. 657 (Sub-No. 1).²⁶ CSXT accepts Consumers' capital recovery calculations except as set forth in other Sections of CSXT's III-G and III-H Reply Evidence.²⁷

²⁶ Consumers Op. III-G-11.

²⁷ Consumers mentions under the Capital Cost Recovery section of III-G an adjustment to the DCF terminal value calculation. Consumers discusses the details of that adjustment in III-H. CSXT similarly addresses Consumers improper terminal value calculation in III-H.

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III. STAND-ALONE COST

H. Results of SAC Analysis

In this Section, CSXT discusses the results of its SAC DCF analysis and the application of the Board's Maximum Markup Methodology ("MMM") and cross-subsidy tests to the evidence in this case.

1. Results of SAC DCF Analysis

CSXT generally follows the organizational structure of Consumers' evidence. Thus, while some problems with Consumers' DCF inputs and assumptions logically could have been discussed in Section III-G, because Consumers discussed these other issues in Section III-H CSXT does as well. CSXT's corrected DCF analyses are set forth in CSXT Reply Exhibit III-H-1.

a. Cost of Capital

The cost of capital (Table A of CSXT Reply Exhibit III-H-1) for the CERR reflects the Board's annual cost of capital determinations for 2012 through 2014. The CERR's cost of debt for years 2012 to 2014 (the CERR's construction period) is assumed to equal the railroad industry average cost of debt for each specific year in the construction period. As discussed in Section III-G-1, Consumers' Opening DCF uses the wrong railroad industry debt rate for 2013. After correcting Consumers' error, the CERR's cost of debt for the years 2015 through 2024 equals 3.60% and reflects the weighted average of the construction years' debt costs. The CERR's cost of common equity for the years 2012 through 2014 is assumed to equal the railroad industry cost of common equity for each specific year. For years 2015 through 2024, the CERR's cost of equity equals 12.81% and reflects the simple average of the 2012

through 2014 amounts. CSXT accepts Consumers' calculation of the DCF capital structure and its use of the Board's cost of capital determinations as corrected. As discussed in Section III-G-1-a, CSXT includes a separate component to cover equity flotation costs.

b. Road Property Investment Values

CSXT's calculations for road property investment values are detailed in Table C of CXST Reply Exhibit III-H-1. CSXT replaced Consumers' road property investment figures with those specified in Section III-F. CSXT accepts Consumers' proposed CERR construction schedule.

For land investments, Consumers' land valuation witness valued the CERR's real estate as of the beginning of SARR operations in 2015 rather than during the assumed acquisition period in late 2012 and early 2013. As discussed in Section III-F-1, CSXT rejects Consumers' appraised values for the CERR properties as largely unsupported. CSXT land appraiser Sandy Rex, using comparable sales data for the relevant time frames, developed appraised real estate values as of both January 1, 2015 and January 1, 2013, thereby eliminating the need for an index to estimate the cost of land acquired at the assumed time of CERR construction. As explained in Section III-G-2, CSXT accepts Consumers' land inflation index for 2015 through 2024.

c. Interest During Construction

CSXT used the same methodology as Consumers to calculate interest during construction on construction funds outstanding during the assumed CERR construction period.

d. Amortization Schedule of Assets Purchased with Debt Capital

In its Opening, Consumers proposed to change the Board's longstanding practice of amortizing SARR debt over 20 years. As discussed in Section III-G-1-b, CSXT rejects Consumers' proposed change to the DCF debt amortization schedule, which was also recently rejected by the Board in both *DuPont* and *SunBelt*.¹ CSXT replaced Consumers' assumed substitution of a coupon interest payment for the DCF debt amortization schedule with the Board's standard 20-year debt amortization schedule.

e. Present Value of Replacement Cost

CSXT corrects Consumers' calculation of the replacement cost of CERR assets to reestablish the 20-year debt amortization schedule for future asset replacement in place of Consumers' assumed coupon interest payments. Although as discussed in Section III-G-1-b railroad debt rates have been on the rise, CSXT assumes the cost of debt for future asset replacement will mirror the cost of debt during the CERR construction period, consistent with Board precedent.

f. Tax Depreciation Schedules

Consumers' tax depreciation schedules assume incorrectly that the CERR would take full advantage of the bonus depreciation benefit for all qualifying road property assets. Consumers assumed that \$170 million of the CERR's road property investment would be written off in the first year of CERR operation as

¹ See *DuPont*, STB Docket No. 42125, at 281-82, *SunBelt*, STB Docket No. 42130, at 191.

bonus depreciation.² Consumers' assumption that the CERR could avail itself of the bonus depreciation benefits for virtually all of the CERR's road property investment would inappropriately place the CERR at a distinct advantage relative to the incumbent CSXT. Unlike the CERR, which benefits from the stand-alone assumptions of unconstrained resources and no barriers to entry that allow for all of the CERR construction to occur during the limited bonus depreciation tax window, CSXT built its system and periodically replaces components of its system over many years. As such, its ability to take advantage of the limited window of opportunity for bonus depreciation is constrained. To allow the CERR to maximize its benefit from a temporary tax shelter because of a simplifying stand-alone cost assumption would result in creation of a reverse barrier to entry that would bestow cost savings to a new hypothetical entrant that were not available to the incumbent.

In its recent decisions in *DuPont* and *SunBelt*, the Board rejected similar arguments made by defendant Norfolk Southern ("NS") on the grounds that because the SARR must bear any disadvantages of its construction timing, it should not be denied the tax advantages available during that same time period. But the Board did not identify what those disadvantages might be, and the Board's own theories of unconstrained resources and barriers to entry virtually eliminate any construction related obstacles a new entrant would actually encounter. The Board's positions in *DuPont* and *SunBelt* are inconsistent with sound SAC theory and with prior SAC precedent.

² Consumers Op. WP "Exhibit III-H-1.xlsm," Tab "Tax Depreciation", cells C70-71.

In *DuPont* the Board reasoned that *Coal Trading* and *McCarty Farms* supported allowing the SARR to realize bonus depreciation advantages far above what an incumbent could realize.³ But those decisions only addressed the assumption that the SARR could be constructed in a three-year window that would be impossible without unconstrained resources. *See id.* As the Board recognizes, this assumption allows the SARR to obtain substantial “efficiencies unavailable to the incumbent” in the real world. *See id.* But the assumption of unconstrained resources does not mean that the SARR is also entitled to claim any and all additional financial benefits that might be available to it solely as a byproduct of the artificially short construction period assumption. Such a ruling would artificially compound the advantages the SARR has over the incumbent by assuming cost savings that would not be available to even a least-cost most-efficient carrier. This in turn would distort the SAC analysis by driving certain SARR investment costs below levels that are feasible or attainable in the real world. The Board should allow the SARR to assume it would obtain the same tax benefits obtained by the incumbent carrier, but should not allow the unrelated assumption of unconstrained resources to confer tax benefits on the SARR that were not available to the incumbent.

To hold otherwise would create a reverse barrier to entry. In *West Texas*, the Board defined barriers to entry as any costs that the new entrant must incur that were not also incurred by the incumbent, and explained that the definition is

³ *See DuPont*, STB Docket No. 42125, at 278.

consistent with its regulatory purpose of constraining a railroad from monopoly pricing.⁴ The Board explained that its interpretation of barriers to entry is consistent with its view of the SARR as a replacement carrier that steps into the shoes of the incumbent carrier for the segment of the rail system that the SARR would serve. *Id.* Because the incumbent CSXT did not enjoy the full benefits of the limited-time bonus depreciation provision, a replacement CERR stepping into its shoes should not be assumed to enjoy such additional benefits.

In its Reply, CSXT has assumed that the CERR should be allowed to take advantage of the benefits of bonus depreciation only to the extent that CSXT itself has been able to do so. Specifically, using CSXT tax returns produced to Consumers in discovery for 2012 through 2014 and CSXT tax returns for 2008 through 2010, CSXT calculated that it was able to claim \$5.2 billion in system-wide bonus depreciation benefits over the 2008–2014 time frame.⁵ The CERR is assumed to replace CSXT for 169 of its 2014 total route miles of 15,792, or just over one percent of the full CSXT network. As such, CSXT limited the amount of bonus depreciation available to the CERR to 1.07% of CSXT's total 2008–2014 benefit of \$5.2 billion, or \$55.6 million.

⁴ *West Texas*, 1 S.T.B. at 670.

⁵ CSXT did not produce any bonus depreciation information for 2011 in response to Consumers' request. To calculate the CERR bonus depreciation limit, CSXT assumed 2011 bonus depreciation levels at the maximum of 2008 through 2010 and 2012 through 2014.

g. Average Annual Inflation in Asset Prices

CSXT accepts Consumers' inflation assumptions, but updates the IHS RCAF forecast with its January 2016 release.

h. Discounted Cash Flow

As explained in detail above in Section III-G-4, CSXT accepts generally Consumers' proposal to calculate the DCF terminal value after year ten, but CSXT does not accept the method Consumers employs to calculate that terminal value. In its Opening, Consumers avers that its terminal value calculations are sanctioned by the Board's *AEPCO 2011* and *SunBelt* decisions. They are not. Consumers states that it adjusts the terminal value of the CERR in accordance with the STB's decision in *AEPCO 2011* and that it adjusts the terminal value in the capital carrying charges "that the Board addressed in *AEPCO 2011* and *SunBelt*." Consumers Op. III-G-16. Consumers, not surprisingly, does not explain how it implements these adjustments.

In its decision in *AEPCO*, the Board addressed the treatment of unused depreciation and interest related tax benefits in the terminal value calculation. In that proceeding complainants tried to take advantage of a simplifying assumption in the Board's standard DCF model that was of little consequence when applied over of 20-year DCF term but had significant effects on the terminal value calculations once the DCF period was shortened to 10 years. The Board found that complainants' proposal to credit the DCF terminal value with the benefit of all of the unused tax benefits beyond year 10 would understate taxes into perpetuity by

overstating remaining tax benefits.⁶ *AEPCO* confirmed that future tax benefits should be discounted at the railroad nominal cost of capital when calculating the terminal value.⁷ Here Consumers embraces the Board's *AEPCO* finding that unused depreciation beyond the 10 year DCF period should be discounted in the terminal value calculation but rejects the related finding that the remaining interest benefit beyond year 10 should also be discounted. Instead Consumers cites the Board's *SunBelt* decision in support of its treatment of interest related tax shields beyond year 10.

Consumers asserts that the Board in *SunBelt* found that "the SARR's level of debt is held constant into perpetuity, and that interest tax shields consistent with this level of debt are accounted for in the cash flow calculation." Consumers Op. III-H-6. This is wrong. The quote cited by Consumers is from the Board's explanation of the untenable approach used by complaint *SunBelt* in that proceeding.⁸ The Board ultimately rejected *SunBelt*'s proposed treatment of the interest tax benefit in the DCF terminal value calculation and proposed an alternative.

Specifically the Board accepted *SunBelt*'s argument that some adjustment to the interest tax shield in the terminal value calculation was necessary, and it proposed that the straight line average of the SARR interest payments over the 20-

⁶ See *AEPCO 2011* at 141.

⁷ See *id.*

⁸ The full sentence from the *SunBelt* decision reads: "*Sunbelt adjusts* the terminal value in the capital carrying charges to reflect the cost of capital assumption that the SARR's level of debt is held constant into perpetuity, and that interest tax shields consistent with this level of debt are accounted for in the cash flow calculation." *SunBelt*, STB Docket 42125, at 192 (emphasis added).

year amortization period should form the basis of the interest related tax shield in the terminal value.

In recommending this change, the Board acknowledged the inconsistencies in the current DCF model relative to its assumptions regarding the 20-year amortization of the SARR's initial debt with no corresponding change to the capital structure in the DCF model.⁹ It stated that in accepting the shipper's argument that some change to the treatment of the interest tax shield in the terminal value calculation was necessary, it was resolving one aspect of the complex model's inconsistencies "rather than creating a new one."¹⁰

CSXT has analyzed carefully the modifications to the terminal value calculations proposed by the Board in *SunBelt* and identified two significant problems with the proposed modifications, one that is conceptual and the other mathematical. On the conceptual side, if implemented, the Board's proposed adjustment of using the simple average of the interest tax shield over the 20 year DCF debt amortization period in the terminal value calculation would introduce a new, unwarranted and problematic inconsistency in the DCF by explicitly applying different financial assumptions to a SARR's initial acquisition of assets and its subsequent replacement of assets as they are assumed to wear out. Specifically, before the Board's *SunBelt* changes to the terminal value calculations, the DCF was configured to apply the same financial assumptions to the SARR's initial investment and to the subsequent replacement of assets as they are projected to

⁹ See *DuPont*, STB Docket No. 42125, at 283.

¹⁰*Id.*

wear out—that both the initial debt and the debt acquired for future replacement of assets as they are projected to wear out would be amortized over 20 years. Under the Board's approach in *SunBelt*, however, the initial debt would still be amortized over 20 years, but there would be no amortization of debt for assets in the subsequent replacement cycles. Instead there would be an arbitrary interest-related adjustment for tax purposes based on the average of the interest over the initial 20 year amortization. The Board provided no explanation of how or why the financial assumptions surrounding the acquisition of SARR assets should differ prospectively from those applied to the initial acquisition.

The mathematical problem arises from the Board's assumption of a 20 year amortization period for the initial SARR investment and its new proposal that beginning in year 11 (approximately half way through the debt amortization period) the interest tax shield would convert to the simple average of interest payments over the 20 year amortization period. Under this approach SARR interest payments for years 11 through 20 are overstated by the difference between the average annual interest and the lower average annual interest payments at the back end of the amortization period as the principle balance declines. As Table III-H-1 demonstrates clearly, annual interest payments decline over the term of a standard 20 year debt amortization so that the interest over the last half of the amortization period is significantly less than interest during the first half. It also shows that the Board's suggestion of using the average of the 20 year interest

payments as the interest related tax shield for the latter portion of the 20 year debt amortization overstates the interest tax benefit.

Table III-H-1
Overstatement of Year 11 – 20 Interest Tax Shield Under Board *SunBelt*
Proposal¹¹

Year	Annual Interest Tax Shield		Tax Shield Overstatement
	20-Year Amortization	Board Proposed Simple Average	
1	345,414	xxx	xxx
2	332,934	xxx	xxx
3	320,011	xxx	xxx
4	306,630	xxx	xxx
5	292,774	xxx	xxx
6	278,427	xxx	xxx
7	263,571	xxx	xxx
8	248,189	xxx	xxx
9	232,260	xxx	xxx
10	215,767	xxx	xxx
11	198,690	197,349	(1,340)
12	181,006	197,349	16,343
13	162,695	197,349	34,654
14	143,735	197,349	53,614
15	124,103	197,349	73,246
16	103,775	197,349	93,575
17	82,725	197,349	114,624
18	60,929	197,349	136,420
19	38,361	197,349	158,989
20	14,992	197,349	182,358

To avoid this inappropriate overstatement of the interest related tax shield, the Board should have commenced substitution of the average interest in year 21 of the DCF, after the initial 20-year debt amortization has run its course.

¹¹ Calculations assume \$10.0 million stating balance and 3.5% annual interest rate. See CSXT Reply WP "Interest Amortization.xlsx."

Because of the new issues raised by the Board's proposed *SunBelt* modifications to the DCF terminal value calculation, CSXT in this Reply Evidence reverts to the terminal value calculations used by the Board in *AEPCO 2011* and discounts both the remaining debt interest payments and tax depreciation back to the final quarter of the 10-year DCF to calculate the CERR's terminal value. CSXT also reinstated the calculation of the interest related tax benefit that occurs when CERR assets are assumed to be replaced, which begins in year 13 of the DCF when assets in Account 26—Communications Systems are assumed to be replaced.

i. Computation of Tax Liability—Taxable Income

CSXT accepts Consumers' assumed federal tax rate of 35% and calculated composite state income tax rates for the CERR.

j. Operating Expenses

CSXT corrected the Base Year operating expenses as detailed in Section III-D. For the annual adjustment of operating expenses, Consumers used net ton miles instead of the Board's standard use of tons to take into consideration the shifting nature of the CERR's traffic. Consumers Op. III-H-11. CSXT accepts Consumers' use of net ton miles and indexes CERR operating expenses based on its calculations of annual changes in CERR gross ton miles using its Reply operating plan.

k. Summary of SAC Analysis

CSXT's stand-alone costs and revenues for CERR are presented in Table L of Exhibit III-H-1 on a quarterly and annual basis and summarized in Table III-H-2 below.

Table III-H-2
CSXT Reply CERR SAC Results (\$ millions)

Year	SARR Revenue Requirement	SARR Revenues	Overpayments (Shortfalls)	Present Value
2015	\$165.1	\$109.4	(\$55.7)	(\$52.9)
2016	\$159.1	\$92.5	(\$66.5)	(\$56.8)
2017	\$166.6	\$109.5	(\$57.1)	(\$43.8)
2018	\$171.8	\$105.3	(\$66.5)	(\$45.9)
2019	\$178.9	\$109.6	(\$69.3)	(\$43.0)
2020	\$186.7	\$118.9	(\$67.8)	(\$37.9)
2021	\$193.5	\$120.6	(\$72.9)	(\$36.6)
2022	\$202.1	\$128.9	(\$73.2)	(\$33.1)
2023	\$209.0	\$124.8	(\$84.2)	(\$34.2)
2024	\$218.5	\$138.0	(\$80.5)	(\$29.4)
Cumulative Net Present Value				(\$414)

The results in Table III-H-2 show that the revenues available to the SARR are not sufficient to cover the full SAC costs of the SARR over the ten-year analysis period. In fact, CERR would experience a cumulative revenue shortfall of over \$414 million. Thus, Consumers has failed to demonstrate that the challenged rates are unreasonably high.

2. Maximum Rate Calculations

CSXT's Reply Evidence shows that the Board should have no reason to apply the MMM, because the challenged rates do not exceed a maximum reasonable level and no rate prescription is warranted. However, if the Board were to find that

under its SAC analysis the CERR's revenues exceed its SAC costs, it should correct Consumers' proposed application of MMM to index URCS costs for future years using RCAF-A, in accordance with governing precedent, and reject Consumers' proposal to use a different approach used in different contexts and for different purposes.

a. If It Applied MMM, the Board Would Need to Correct Consumers' Index.

Consumers used the wrong index to adjust the MMM URCS costs for the years 2015 through 2024. Instead of using the RCAF-A, which includes the effects of projected productivity in the railroad industry, as instructed by the Board in its 2009 decision in *AEP Texas v. BNSF Ry. Co.*, STB Docket No. 41191 (Sub-No. 1), at 14 (STB served May 15, 2009), Consumers relied on a strained construction of the Board's decision in *OG&E*¹² to rationalize the use of the Board's standard URCS indexing approach, which does not capture any projected productivity benefits in the MMM analysis.¹³ *OG&E* is inapposite here, because it involved short-term indexing of URCS costs to inflate them only for specific quarters within one year and not across years. The instructive language from the decision reads as follows:

Therefore, to determine the maximum lawful rates it may charge under this decision, UP must calculate variable costs in a given quarter by using the most recent URCS data indexed to that quarter by using the most recent AAR indices and PPI. UP should then combine those data with the actual operating characteristics to estimate a given movement's variable cost. This is the best estimate of variable cost that will be available at

¹² *Oklahoma Gas & Elec. Co. v. Union Pac. R.R.*, STB Docket No. 42111 (STB served July 24, 2009).

¹³ Consumers Op. III-H-12.

the beginning of a quarter. UP should then multiply the stipulated maximum lawful R/VC ratio by the variable costs to calculate the rate to be charged in that quarter. UP is directed to update the maximum lawful rate quarterly in order to reflect the most recent URCS data and indices. (For instance, when the Third Quarter PPI becomes available by November 1, 2009, UP will update the maximum lawful rate to reflect these data.) Thereafter, through the end of 2018, UP shall update the maximum lawful rate quarterly to reflect the most current URCS data and indices available.¹⁴

The Board required UP to update its rate calculations four times per year.¹⁵

In its decisions in *DuPont* (at 285) and *SunBelt* (at 196), the Board broke with its precedent of adjusting URCS costs in the MMM model by the RCAF-A and agreed with the shippers' argument that because the URCS indexing will take into account the cost weightings of the incumbent (as opposed to inclusion of all railroads in the RCAF-A), it better achieves the goal of the exercise to forecast the defendant railroad's variable cost. Missing from the Board's reasoning is its directive in *OG&E* for UP to base its calculations on the most recent URCS when those data become available. The Board has historically released its URCS runs for the industry in the fourth quarter of the following year.¹⁶ Under that schedule, in order to produce quarterly updated rates, the latest URCS results would require indexing for an average of at most two years. URCS unit costs capture both year to year changes in input prices and railroad productivity. As such, the *OG&E* rate calculations capture the effects of productivity, albeit with a two year lag.

¹⁴ *Oklahoma Gas*, STB Docket No. 42111, at 11.

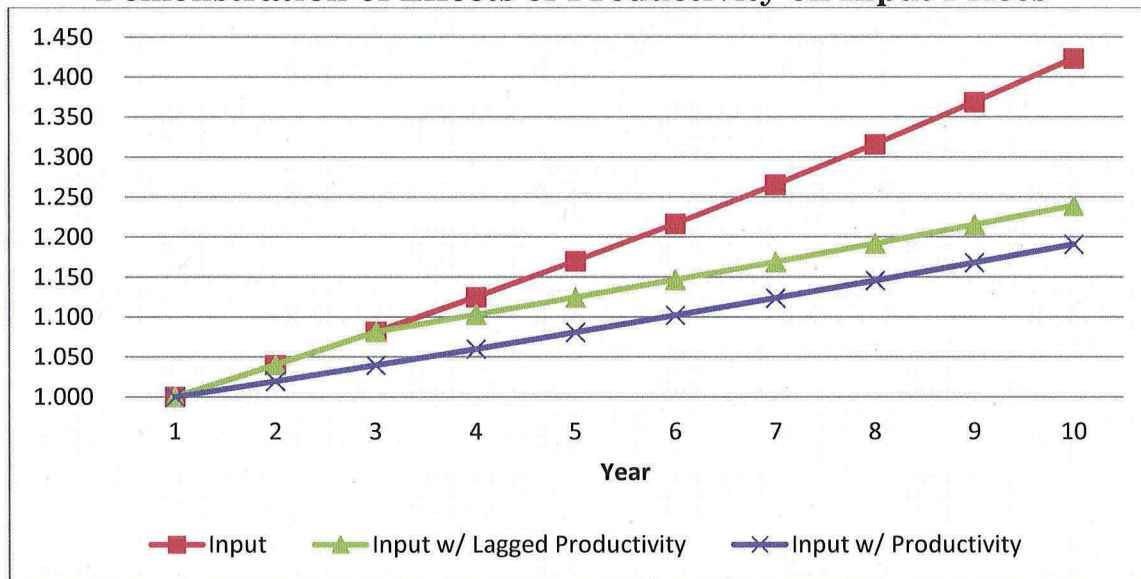
¹⁵ *Id.* at 11, n.16.

¹⁶ The Board's URCS release is sometimes delayed as a result of procedural matters or errors in the carriers' reporting data.

The Board's standard URCS index is an input price index and, unlike RCAF-A or the URCS-based rate calculations under the *OG&E* decision, does not reflect improvement in railroad productivity. Consumers' proposal to forecast URCS costs using only the URCS input price index will, other things being equal, overstate forecasted URCS costs compared with what the actual URCS costs, including productivity, will be. This will distort any MMM based rate prescription by calculating the MMM prescribed R/VC on a forecasted variable cost estimate that does not include the effects of railroad productivity and applying that prescribed R/VC to actual URCS costs years down the road that will include the effects of productivity. This will understate the prescribed rate.

Chart III-H-3 below compares the forecasted performance of (1) an input price index, which for purposes of this discussion is comparable to the URCS index; (2) an input price index adjusted to reflect productivity, similar to the RCAF-A; and (3) an input price index that reflects the productivity on a two year lag, similar to the *OG&E* approach, with input price inflation estimated at four percent annually and productivity at two percent.

Chart III-H-3
Demonstration of Effects of Productivity on Input Prices¹⁷



As Chart III-H-3 shows, productivity can have a considerable effect, particularly in the out years. The Board has stated that the goal of the MMM index is to generate an accurate forecast of defendant's variable costs,¹⁸ which include the effects of productivity. As such, an input index that captures projected productivity is, all other things equal, more likely to achieve the Board's stated goal than an index that bases its weightings on costs for one of the four major railroads included in the RCAF-A. The Board had this right when it used the RCAF-A approach in *AEP Texas*, *Western Fuels*, and *AEPCO 2011*, and CSXT here follows those early precedents and applied a forecast of the RCAF-A as the basis for forecasts of variable costs in the MMM model.

If the Board still believes that an index weighted with the defendant railroad's costs are more appropriate, it should apply the RCAF-A forecasted

¹⁷ See CSXT Reply WP "URCS Index Productivity Demonstration.xlsx."

¹⁸ *SunBelt*, STB Docket No. 42130, at 196.

productivity to its standard URCS index. CSXT in its Reply has included a version of Consumers' Opening URCS index adjusted for forecasted railroad industry productivity as reflected in the RCAF-A in its work papers.¹⁹

3. If The Board Were to Find That The CERR Revenues Exceed SAC Costs Over The 10-Year DCF Period, It Must Administer An Internal Cross-Subsidy Test.

CSXT's Reply Evidence shows that under reasonable and supported assumptions for traffic and revenue forecasts, a properly developed operating plan that serves all CERR customers and construction costs that account for the conditions that will be encountered by the builders of the CERR, stand-alone revenues exceed stand-alone costs over the ten-year DCF period. In the unlikely event that the Board were to determine otherwise, however, it would be required to conduct a cross-subsidy analysis along the CERR network to ensure that each segment covers the costs attributable to serving that traffic and is therefore not receiving an impermissible cross-subsidy from traffic with which it does not share facilities.²⁰ If any analysis of the individual line segments of the CERR demonstrates an improper cross-subsidization, then the issue traffic moving over the segment being cross-subsidized must be dismissed from this case.²¹

¹⁹ See CSXT Reply WP "MMM CSXT URCS Index Reply.xlsx."

²⁰ Witness Michael Baranowski sponsors the cross-subsidy analysis described in this Section of CSXT's Reply Evidence. See Section V *infra*.

²¹ See, e.g., *Otter Tail*, STB Docket No. 42071, at 23-30; *PPL Montana 2002*, 6 S.T.B. at 297-300.

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IV. NO RELIEF IS AVAILABLE TO CONSUMERS UNDER THE REVENUE ADEQUACY CONSTRAINT.

As the Board knows, parties including CSXT have developed an extensive public record on the many problems with imposing a revenue adequacy constraint on the railroad industry. Like Consumers, “[i]n the interest of economy, [CSXT] will not repeat or reproduce [those] arguments in full here, as they are a matter of the public record.”¹ CSXT adopts for purposes of this proceeding the expert testimony presented in Ex Parte 722 by the following experts:

- Professor Joseph P. Kalt of the Harvard School of Government. *See* Opening Comments of AAR, STB Docket Ex Parte No. 722, Verified Statement of Joseph P. Kalt (filed Sept. 5, 2014) (“Kalt EP 722 Opening”); Reply Comments of AAR, STB Docket Ex Parte No. 722, Reply Verified Statement of Joseph P. Kalt (filed Nov. 4, 2014) (“Kalt EP 722 Reply”).
- Professor Kevin M. Murphy of The University of Chicago. *See* Opening Comments of UP, STB Docket Ex Parte No. 722, Verified Statement of Professor Kevin M. Murphy (filed Sept. 5, 2014) (“Murphy EP 722 Opening”); Reply Comments of UP, STB Docket Ex Parte No. 722, Reply Verified Statement of Kevin M. Murphy (filed Nov. 4, 2014) (“Murphy EP 722 Reply”).
- Professor Bradford Cornell of the California Institute of Technology. *See* Opening Comments of NS, STB Docket Ex Parte No. 722, Verified Statement of Professor Bradford Cornell (filed Sept. 5, 2014) (“Cornell EP 722 Opening”).
- Professor David Sappington of the University of Florida. *See* Opening Comments of NS, STB Docket No. 722, Verified Statement of Professor David Sappington (filed Sept. 5, 2014) (“Sappington EP 722 Opening”).
- Dr. Roger Brinner of SandPointe, LLC. *See* Opening Comments of AAR, STB Docket Ex Parte No. 722, Verified Statement of Roger Brinner (filed Sept. 5, 2014) (“Brinner EP 722 Opening”);

¹ Consumers Op. IV-6, n. 4.

CSXT’s reply on this issue is divided into four parts. **Section A** explains why the Board should abandon a revenue adequacy constraint based on CSXT’s system-wide revenue needs.

Section B explains further why the Board cannot grant relief under this system-wide rate constraint where the targeted SAC constraint shows that the challenged rate is reasonable because it provides a reasonable return on the small part of the network used by Consumers.

Section C demonstrates that CSXT is not revenue adequate.

Section D explains why the Board should not trigger Federal control over rail rates unless it observes a consistent pattern of returns substantially in excess of a carrier’s revenue needs because the cost of capital is a floor on earnings, not a ceiling, and because unregulated firms routinely earn more than their cost of capital in competitive markets.

And if the Board ignores the compelling case for abandoning the constraint—and also overlooks 29 consecutive findings of revenue inadequacy—then **Section E** explains why the Board should not impose a system-wide rate freeze, resurrecting terrible rate policies from the Nixon and Ford eras.

² Each cited statement is included in CSXT’s Reply Workpapers for the Board’s convenience.

A. THE BOARD SHOULD ABANDON A REVENUE ADEQUACY RATE CONSTRAINT BASED ON CSXT'S SYSTEM-WIDE REVENUE NEEDS.

In Ex Parte 722, *Railroad Revenue Adequacy*, commenters identified four main reasons for abandoning a revenue adequacy constraint based on the system-wide health of a railroad. No party effectively refuted any of those points.

First, the methodology used to determine the Board's annual revenue adequacy findings contains serious measurement errors because it values railroad infrastructure based on accounting terms (historical book values) rather than real economic terms (current values).³

Second, the revenue adequacy constraint is a discredited form of rate-of-return regulation that will discourage investment and innovation.⁴

Third, the improving financial health of the industry is not attributable to an increase in the exercise of market power, but rather to improved service and productivity gains.⁵

Fourth, the Board already has targeted "revenue adequacy" tests in the form of its SAC and Simplified-SAC rate reasonableness standards.⁶ As the Board recognized in *Xcel Reconsideration*, "[t]he very purpose of the SAC test is to determine what [the defendant] needs to charge to earn 'adequate' revenues on the

³ See Opening Comments of CSXT, STB Docket Ex Parte No. 722, at 1-13 (filed Sept. 5, 2014) ("CSXT EP 722 Opening"); Kalt EP 722 Opening at 28-31, Cornell EP 722 Opening at 13-19; Murphy EP 722 Opening at 8-25.

⁴ See, e.g., Sappington EP 722 Opening at 2-3.

⁵ See, e.g., Murphy EP 722 Opening at 34-45.

⁶ See Kalt EP 722 Opening at 26-27; Cornell EP 722 Opening at 4-10; Sappington EP 722 Opening at 5.

portion of its system that is included in the system of the SARR.”⁷ And this targeted revenue adequacy constraint is the preferred procedure.⁸ SAC thus fulfills Congress’s mandate for the Board to consider revenue adequacy in the rate reasonableness process in a rigorous way that focuses only on the portion of CSXT’s network used to serve the issue traffic.

CSXT will not reiterate all the arguments leveled by it and other participants in the EP 722 proceeding at the revenue adequacy constraint. Rather, CSXT will focus on two key features of the constraint that render it unsound, unwise, and unlawful: (1) the fact that it necessarily would create a cross-subsidy if used to seek rate levels lower than those shown by the SAC constraint and (2) the fact that it is not based on the current value of railroad assets.

1. The System-Wide Needs Of CSXT Provide “No Guidance” On The Rates Consumers Should Be Charged For The Particular Facilities And Services It Uses.

Simply put, CSXT’s system-wide revenue requirements provide no guidance whatsoever on the rate Consumers’ should pay.⁹

⁷ *Xcel Reconsideration*, STB Docket No. 42057 at 6; *BNSF 2006*, 453 F.3d at 480 (“the SAC test is designed to take into account the railroad’s need for revenue adequacy ‘on the portion of its system that is included in the system of the SARR’”) (internal quotations omitted)).

⁸ *Burlington N. R.R. Co. v. Interstate Commerce Comm’n*, 985 F.2d 589, 596 (D.C. Cir. 1993) (“CMP, with its SAC constraint is the “preferred and most accurate procedure available for determining the reasonableness” of rates in markets where the rail carrier enjoys market dominance.”) (quoting *McCarty Farms*, 3 I.C.C. 2d at 820).

⁹ See Kalt EP 722 Opening at 38-39; Cornell EP 722 Opening at 30.

Indeed, the Board has recognized that system-wide revenue adequacy metrics are irrelevant to the reasonableness of a particular rate. Specifically, in the appeal of the *Xcel* decision the Board argued that the fact that it prescribed a rate well below RSAM for a railroad that was revenue inadequate was irrelevant, because RSAM measured system-wide revenue needs and not the revenue needs of the facilities and services used for the shipments at issue. The D.C. Circuit agreed:

As the Board points out, the RSAM figure merely provides a test of “system-wide revenue need” and therefore “provides no guidance on the rates Xcel should be charged for the particular facilities and services Xcel uses.” In contrast, the Board has “consistently affirmed that CMP, with its SAC constraint, is the preferred and most accurate procedure available for determining the reasonableness of rates in markets where the rail carrier enjoys market dominance.”¹⁰

The irrelevance of system-wide revenue adequacy metrics is the inverse of the long held view that the revenue inadequacy of a carrier is irrelevant in a rate case. The agency has recognized that “a finding of revenue inadequacy does not give a railroad license to set rates at unreasonable levels.”¹¹ And the D.C. Circuit has affirmed that “system-wide revenue inadequacy is not a basis upon which a carrier may defend an unreasonable rate over a segment of its system” based on the SAC test.¹²

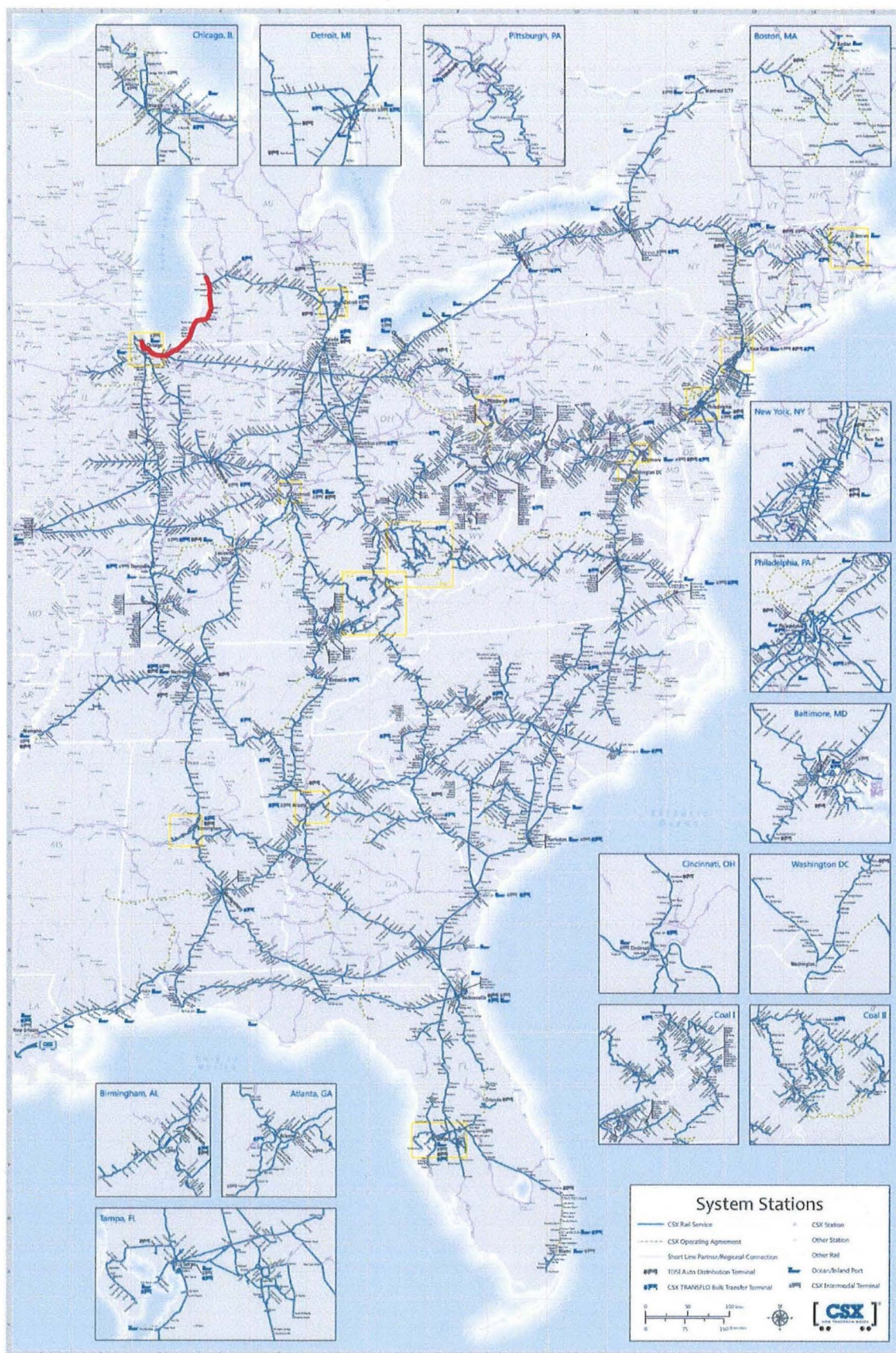
System-wide revenue metrics are particularly irrelevant here, where the tiny fraction of CSXT’s network used by Consumers is dwarfed by the entirety of CSXT’s

¹⁰ *BNSF 2006*, 453 F.3d at 481 (quoting *Burlington N. R.R. Co.*, 985 F.2d at 596 (D.C. Cir. 1993)).

¹¹ *Omaha Power*, 3 I.C.C. 2d at 157 (1986) (citing *Standards I*, 346 I.C.C. at 808-09).

¹² *BNSF 2006*, 453 F.3d at 480.

network. Overall, the CSXT network encompasses about 21,000 route miles of track in 23 states, the District of Columbia and the Canadian provinces of Ontario and Quebec. The transportation network serves some of the largest population centers in the nation, and nearly two-thirds of Americans live within CSXT's service territory. The network has access to over 70 ocean, river and lake port terminals along the Atlantic and Gulf Coasts, the Mississippi River, the Great Lakes and the St. Lawrence Seaway. CSXT moves a broad portfolio of products over this 21,000 mile network in a way that minimizes the effect on the environment, takes traffic off an already congested highway system, and minimizes fuel consumption and transportation costs.



As depicted above, Consumers uses only a very small portion of that network, highlighted in red. There is no meaningful way to draw any inference from the revenue needed to support the entire 21,000 mile network about what rate Consumers should pay when it uses less than one percent of that network, through the most congested gateway in America. The Board and the D.C. Circuit were correct in finding that a test of “system-wide revenue need” provides “no guidance on the rates [a customer] should be charged for the particular facilities and services [that customer] uses.”¹³ Unless the Board explains how CSXT’s system-wide revenue needs can now (contrary to all reason and logic) provide guidance on the rate Consumers should be charged, then it must abandon the revenue adequacy constraint in rate cases.

2. The Board’s Measurement Of Revenue Needs Is Not Based On The Current Value Of Railroad Assets.

The STB “has consistently stated its preference for using the best valuation of a carrier’s assets in performing its regulation function.”¹⁴ And the agency has explained that “carriers cannot attract and retain capital unless they are given the opportunity to be compensated for the real value of property, not just the book value.”¹⁵

CSXT agrees. It has long maintained that any revenue adequacy constraint must be premised on the *current* value of rail assets needed to meet the demand

¹³ *BNSF 2006*, 453 F.3d at 481.

¹⁴ *Western Coal Traffic League—Pet. for Declaratory Order*, STB Docket No. 35506 (served July 25, 2013) (“*Berkshire Markup*”).

¹⁵ *Conrail Acquisition Order*, 3 S.T.B. 196, 265 (1998).

for rail service, regardless of the source of the funds used.¹⁶ And the current value of existing assets is best determined by estimating the replacement cost of those depreciated assets.

The weight of support for this economic position is overwhelming. Over 50 economists, including two Nobel Laureates, have advised the agency that it should use replacement costs.¹⁷ An independent federal agency set up specifically to advise the ICC on how to implement the Staggers Act concluded that the use of replacement costs was preferred.¹⁸ And in Ex Parte 722, Professors Kalt, Cornell, and Murphy testified that the economic theory on this issue remains as sound today as it was 30 years ago.¹⁹ The theoretical foundation for using the current value of rail assets is therefore rock solid.

But in the past there have been some practical issues with using current values. Specifically, the railroad industry was awash in excess capacity in the 1980s. At that time it would have been difficult to identify those assets needed to meet current and future demand. This is no longer the case. The modern railroad

¹⁶ See, e.g., CSXT EP 722 Opening at 1-13.

¹⁷ CSXT EP 722 Opening, Attachment 1, Economists' Statement in Support of the Staggers Act, ICC Docket Ex Parte No. 347 (Sub-No. 1), at 2 (dated February 25, 1985) ("Economist Letter").

¹⁸ R.R. Accounting Principles Bd., *R.R. Accounting Principles – Final Report*, Vol. 2, at 60 (Sept. 1, 1987) ("RAPB Report"), available at <http://archive.gao.gov/t2pbat20/134005.pdf> ("[C]urrent market valuation is preferable to historical valuation from a theoretical economic standpoint. In revenue adequacy applications, current market value represents that value upon which competitive returns must be earned to attract and retain capital.").

¹⁹ Kalt EP 722 Opening at 28-32; Murphy EP 722 Opening at 7-25; Cornell EP 722 Opening at 13-19.

industry is no longer burdened by substantial excess capacity.²⁰ Indeed, the industry now faces the opposite situation of strained rail capacity. So while those practical issues may have justified using accounting values in the annual revenue adequacy determinations—where the objective is simply to monitor the direction of the health of the industry—those practical considerations can no longer justify the continued use of accounting values when applying a revenue adequacy constraint.

Below CSXT discusses the overwhelming academic evidence in support of replacement costs as the proper measure of revenue adequacy. CSXT also illustrates why the principle remains valid for assets that will not be replaced, like land, or those that will be replaced infrequently, like bridges. CSXT then explains why the practical difficulties implementing a replacement cost approach can no longer justify using accounting measures to measure revenue adequacy. Moreover, Congress's recent changes to the definition of revenue adequacy indicate that it wishes the Board to use a forward-looking and current valuation of assets approach to determine the adequacy of revenues in rate regulation.

²⁰ See *Simplified Standards*, STB Docket Ex Parte No. 646 (Sub-No. 1) at 21 (“There is no longer [any] significant excess capacity in the rail industry”). See also USDA & DOT, *Study of Rural Transportation Issues*, at 335 (Apr. 2010) (“*Rural Study*”) available at <http://dx.doi.org/10.9752/TS041.04-2010> (projecting a 65% increase in domestic freight demand from 1998 to 2020) (citing FHWA, *FAF2, The Second Generation of the Freight Analysis Framework* (July 2007) (“Second Generation”)); see also AASHTO, *Freight Rail Bottom Line Report*, at 50 (2003), available at <http://rail.transportation.org/Documents/FreightRailReport.pdf> (projecting freight increase from 15.2 billion tons in 2000 to 24.5 billion tons in 2020); Second Generation (projecting total freight transportation will rise 93% from 2007 to 2035).

**a. Regulatory Policy Should Replicate The
Disciplining Forces Of Competition.**

The goal of regulation is to replicate the result in a competitive market.²¹

Where competition is adequate, regulation is not required. Where there is a market failure (*i.e.*, competition is ineffective), government-imposed rate regulation should strive to emulate the results of competitive markets. This proposition is well settled—“the single most widely accepted rule for the governance of regulated industries is regulate them in such a way as to produce the same results as would be produced by effective competition, if it were feasible.”²²

Indeed, this is now an “almost universally accepted principle” that cuts across industries and federal agencies.²³ As Professor Kalt explained, “[c]ompetitive markets provide the guiding principles by which rail rate regulation (and economic regulation in general) serves the public interest.”²⁴ This universally accepted principle—for regulators to be guided by competitive markets—is followed by other federal agencies tasked with regulating the natural gas, electricity, and telecommunications markets.²⁵ And Congress has instructed the STB to follow this

²¹ See Kalt EP 722 Opening at 21-23; Sappington EP 722 Opening at 4-5.

²² Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions*, (Vol. 1). New York: John Wiley & Sons, Inc., at 17 (3rd ed. 1990).

²³ William J. Baumol, J. Gregory Sidak, *Toward Competition in Local Telephony*, MIT Press, Am. Enterprise Institute, at 5 (1994) https://www.aei.org/wp-content/uploads/2014/07/-toward-competition-in-local-telephony_102104117761.pdf (noting that it is an “almost universally accepted in principle . . . that the proper role of regulation is [to] substitute for competitive market forces where those forces are weak or absent.”).

²⁴ Kalt EP 722 Opening at 21.

²⁵ Kalt EP 722 Opening at 21.

guiding principle, “to minimize the need for Federal regulatory control over the rail transportation system” and “to allow, to the maximum extent possible, competition and the demand for services to establish reasonable rates for transportation by rail.”²⁶

b. The Academic Support For The Use Of Replacement Costs Is Overwhelming.

Guided by competitive markets principles, current replacement costs (not historic book values) are viewed as the proper foundation for a meaningful, economically sound assessment of rail carrier revenue adequacy. Thirty years ago, a Blue Ribbon panel of more than fifty leading economists—including several Nobel Prize winners—laid the issue to rest:

The appropriate standard for determining the adequacy of railroad revenues is a rate of return equal to the current cost of capital on the replacement value of all rail assets that are required to meet the demands for railroad service, regardless of the source of funds used in investing in those assets.²⁷

This statement was presented in testimony to Congress and the Interstate Commerce Commission (“ICC”) on numerous occasions.²⁸ Several notable

²⁶ 49 U.S.C. § 10101(1).

²⁷ Economist Letter at 2.

²⁸ See, e.g., Economist letter incl. as Attachment 2, Testimony of William H. Dempsey, President, Association of American Railroads (“AAR”), *Staggers Rail Act (Part 1) Hearings Before the Subcomm. on Commerce, Transportation, and Tourism of the H. Comm. on Energy and Commerce of the House of Representatives*, 99th Cong. 315, 327-330, 338-339, 401-407 (1986); Economist Letter incl. as App’x IV, Testimony of William H. Dempsey, Pres., AAR, *Clean Coal Technologies – Part 2 Hearings Before the Subcomm. on Fossil and Synthetic Fuels of the H. Comm. on Energy and Commerce*, 99th Cong. 15-16, 32-33, 43-50, 90-91 (1986)); Verified Statement of William J. Baumol and Robert D. Willig, Ex Parte No. 393 (Sub-No. 1), at 8-10 & nn. 3, 6 (filed Aug. 4, 1986); Economist Letter incl. as Attachment 1,

economists testified recently in Ex Parte 722 that this proposition remains accepted today.²⁹

The reason economists support the use of replacement costs is simple: using current values flows naturally from the universally accepted principle of striving to replicate the results of competitive markets. Prices in competitive markets are based on current costs, not historical costs. For example, the price a trucking company sets to haul commodities in a very competitive marketplace will be based, in part, on the current value of the semitrailer needed to provide that service. If the firm fails to earn a reasonable return on the current value of that asset—the so-called “opportunity” cost of using that truck—the firm will have little choice but to sell the asset. Its investors would demand this response. In a competitive marketplace, no one cares what the firm paid for the truck when it was first purchased. If the firm paid more, tough luck; if they paid less, good for them. The competitive marketplace is indifferent. Nor are current or future investors in that firm interested in the original historic cost of assets. Rather, they are interested in the current cost at which they could purchase those assets in a competitive market and whether the firm is expected to earn a reasonable return on those assets.

The housing market provides another illustration. The current competitive rental rate for a house is not a function of its original, depreciated book value, but

Statement of William H. Dempsey, Pres., AAR, *Railroad Antimonopoly Act Hearings Before Subcomm. on Monopolies and Commercial Law of the H. Comm. on the Judiciary*, 99th Cong., 39, 59-60, 62-69, 71, 88, 94 (1985).

²⁹ See Kalt EP 722 Opening at 28-31; Cornell EP 722 Opening at 13-19; Murphy EP 722 Opening at 8-25.

rather of the current rental rates for other houses in the market. That competitive rate, in turn, is driven in significant part by the cost of construction of new rental houses in that market, including the land on which it was built. As a result, the competitive rental rate for an older house may have little relation to the depreciated historical book value of that house, or to the cost of the lot on which it sits at time it was originally constructed.

When there is a market transaction that sets the price of railroad assets, the Board requires carriers to adjust the book values upwards or downwards to reflect the “current” value of those assets.³⁰ At the time of sale, “market price (acquisition cost) becomes a better measure of value. It inherently takes into account the age of the assets purchased, the levels of maintenance performed, obsolescence, and the presence of any excess assets.”³¹ In short, the market transaction reveals the true value of the assets: “This market event provides an opportunity to replace the outdated book value of the assets with an updated estimate of the true valuation of those assets, bounded at all times by the total market price.”³²

Where there is no market transaction showing the outdated book values of assets, then the alternative approach is to use the current, replacement costs of the depreciated assets. To be clear, CSXT is not advocating that it be provided a reasonable return on the replacement cost of brand new equipment every single

³⁰ See generally *Berkshire Markup*, STB Docket No. 35506.

³¹ *Id.* at 10 (quoting *R.R. Revenue Adequacy – 1988 Determination*, 6 I.C.C.2d 933 (1990)).

³² *Id.* at 23.

year. If CSXT owns a 10-year-old locomotive, then it should get a reasonable return on the current value of that 10-year-old locomotive. If it owns an 80-year-old bridge, then it should get a reasonable return on the value of that 80-year-old bridge. By current replacement cost, CSXT means the cost of replacing that depreciated asset in a competitive marketplace today. That “replacement cost” reveals the true value of the 10-year-old locomotive, which may be quite different from the accounting measure of value.

In sum, the Board should seek to replicate the discipline of competitive market forces. And when regulating rates under that standard, the Board should be using the proper economic measure of the cost of the railroad assets: current, replacement cost. That valuation reflects the competitive market value. It is the only measure that will promote efficient prices and optimal resource allocation. And “carriers cannot attract and retain capital unless they are given the opportunity to be compensated for the real value of property, not just the book value.”³³

Crude approximations of adequate revenues or stand-alone cost based on the book values of assets may serve as indicators to monitor the financial health of the industry. But in rate reasonableness proceedings where the Board could intervene in the market by prescribing rates or awarding reparations, the Board must use credible evidence of replacement cost. “If book depreciation and economic

³³ *Conrail Acquisition Order*, 3 S.T.B. at 265.

depreciation are different (they are rarely the same), then the book profitability measures will be wrong; that is, they will not measure true profitability.”³⁴

c. What About Assets Like Land That Will Not Be Replaced?

The logic for using the current value of assets does not change when the asset is indestructible like land, or can be sustained for a long time with prudent maintenance. In these circumstance, the fundamental question remains unchanged: what kind of return on such assets should be permitted? The answer does not change either. In a competitive market, indestructible items like land will affect prices at their current replacement cost. Indeed, land offers the clearest example. Consider what would happen in a competitive market if the returns earned by a firm were insufficient to provide a reasonable return based on the current market value of the land beneath the property. Investors would force the firm to sell the property rather than suffer the lower return. In a competitive market, this is how inputs are deployed to their best and highest use.

As an illustration, consider the competitive commercial housing market. It is clear that in setting market leasing rates, the property owner will consider the current value of the land beneath. Rates will necessarily reflect the current value of land, not what the company paid for the property decades ago. And if the firm is not earning a reasonable return based on that current value of land—*i.e.*, not covering the opportunity costs of using that property in its business—then competitive

³⁴ Richard A. Brealey, Steward C. Myers, and Franklin Allen, *Principles of Corporate Finance*, (8th ed. 2006), p. 317.

market forces will force the firm to shut down and sell the property. The fact that land is indestructible and may never be replaced is irrelevant.

Consumers may contest that this would never happen in the railroad industry. If the STB deprived the railroads of an opportunity to earn a reasonable return on the current value of land, for example, a railroad might not immediately abandon the line and sell that underperforming asset, because of the sunk nature of many railroad investments. But investors would place tremendous pressure on the railroads to curtail future capital investments if there were a risk that a railroad could be prevented from earning a reasonable return on its assets. And it would be poor public policy for the Board to depart from the goal of replicating the result of competitive market forces because the railroad industry cannot easily pick up tracks and exit the marketplace. This kind of pre-Staggers mindset nearly bankrupted the entire industry.

d. The Practical Concerns With Using A Replacement Cost Approach For Annual Determinations Cannot Justify Using Accounting Measures Of Value In A Rate Reasonableness Proceeding.

In Ex Parte No. 679, the STB denied the AAR's petition requesting the STB to institute a rulemaking proceeding to consider the use of replacement cost methodology in the annual revenue adequacy determination. As the "biggest obstacle" to the use of a replacement-cost approach, the STB cited the difficulty of identifying and valuing, on a case-by-case basis, those rail assets that the railroad

will not replace in its current system.³⁵ Without an inquiry into whether all assets remain “used and useful,” the STB was concerned it would create “the perverse incentive” for railroads “to hold onto track, bridges, and facilities that are no longer used or useful because the regulatory framework would allow it to earn a full return on the full replacement costs of those assets.” *Id.* at 6.

There is no longer any factual justification for rejecting the use of replacement costs in an individual rate reasonableness case brought under the revenue adequacy constraint. Simply put, the industry is no longer burdened by substantial excess capacity. Decades ago, the ICC stated that “we are not persuaded that the railroads carry on their books more than a *de minimis* amount of truly unused and useless assets.”³⁶ Whether the ICC was correct or not is debatable. But more recently, the STB described as “outdated” its finding in 1996 that the rail industry had not yet become so efficiently sized that its current assets were used and useful and would warrant replacement as they wear out.³⁷ Because the railroads “are likely operating at a sufficiently efficient level,” the Board explained, “it would not be worth the time and considerable expense required to attempt to measure the amount of inefficiency”³⁸

³⁵ *AAR – Pet. Regarding Methodology for Determining R.R. Revenue Adequacy*, STB Docket Ex Parte No. 679, at 5-6 (served Oct. 24, 2008).

³⁶ *Standards II*, 3 I.C.C.2d at 293.

³⁷ *See Simplified Standards*, STB Docket Ex Parte No. 646 (Sub-No. 1), at 21 (“There is no longer [any] significant excess capacity in the rail industry”).

³⁸ *Id.* at 56.

The Board's most recent finding is confirmed by other authoritative studies, which warn that the railroad industry must invest aggressively to meet long-term demand for rail transportation in coming decades.³⁹ FRA echoed the STB's findings, noting that "if freight rail is to play a larger role in the national transportation system, its performance must improve. This will require expanding capacity, improving connections, reducing chokepoints, and providing new and expanded services."⁴⁰

Recent shipper testimony before the STB adds more support to the Board's finding that excess rail capacity is a feature of the industry's past. Shippers now are rightly concerned with tightening capacity.⁴¹ And Congress shared the Board's

³⁹ *Rural Study* at 335 (citing *Second Generation*) (projecting a 65% increase in domestic freight demand from 1998 to 2020); see also *Freight Rail Bottom Line Report* at 50 (projecting freight increase "from 15.2 billion tons in 2000 to 24.5 billion tons in 2020"); *Second Generation* (projecting total freight transportation will rise 93% from 2007 to 2035).

⁴⁰ FRA, *Preliminary Nation Rail Plan: The Groundwork for Developing Policies to Improve the United States Transportation System*, at 7 (Oct. 15 2009).

⁴¹ See Hearing Transcript, STB Docket Ex Parte No. 724 (filed Apr. 10, 2014) ("EP 724 Hearing") available at [http://www.stb.dot.gov/TransAndStatements.nsf/8740c718e33d774e85256dd500572ae5/a3e019b85169e49285257d27006bc689/\\$FILE/final%20transcript%20for%20April%2010%202014-%20EP-724.pdf](http://www.stb.dot.gov/TransAndStatements.nsf/8740c718e33d774e85256dd500572ae5/a3e019b85169e49285257d27006bc689/$FILE/final%20transcript%20for%20April%2010%202014-%20EP-724.pdf); Testimony of Hal Clemensen, South Dakota Wheat Growers Cooperative, STB Docket Ex Parte No. 724, at 369 ("We feel that there needs to be a lot more reinvestment in the rail system than what is being planned at this point."); Testimony of Lucas Lentsch, Sec. of Agriculture, State of South Dakota, STB Docket Ex Parte No. 724, at 95-96 ("Farmers spent the capital to increase production, grain companies have spent the capital to handle this new production, and now it is up to railroads to spend the capital to get this production to export. . . . [A]nd now is the time to build up the railroad infrastructure to handle this increased production."); Comments of Minnesota Grain and Feed Ass'n, STB Docket Ex Parte No. 724, at 2-3 (filed Apr. 10, 2014) ("Velocity and Cycle time of cars needs to obviously improve, which means that the railroads will need to put a lot of money into infrastructure improvements over the next few years."); Testimony

concern that excess capacity is a historical feature of the railroad industry and that the industry will need to invest to meet future demand.⁴²

There is therefore no factual basis for rejecting a replacement cost approach. Concerns about providing returns on unused and useless assets are obsolete and based on a railroad industry of the past, not the future. Moreover, even if there are some such assets in the CSXT network, a search to find and remove those facilities from the investment base would be counterproductive. When the ICC proposed the revenue adequacy constraint, it dismissed concerns that it was not proposing to remove assets that are no longer used and useful. The ICC explained that even if it could identify those assets, subsequent judgments about prior investments might discourage current investments or affect investors' evaluation of the risk associated with the rail industry. That would raise the cost of capital for new investment. "By excluding those investments from the investment base," the ICC concluded, "it is

of Lance Peterson, Am. Soybean Ass'n, STB Docket Ex Parte No. 724, at 124-25 ("The demand for rail shipments of soybeans is expected to continue to grow in the coming years . . . [T]he takeaway from most forecasts is that soybean shipments will be increasing, and the rail network needs to accommodate this growth along with the growth in crude oil shipments."); Oral Testimony Outline of T. Whiteside, Alliance for Rail Competition, STB Docket Ex Parte No. 724, at 14 (filed Apr. 15, 2014) ("This growth in traffic and the associated necessary rail expansion will lead to continuing capacity issues for the next 5 to 10 years.").

⁴² In the Ex Parte 705 proceeding, Senators Blunt, Chambliss, DeMint, Graham, Isakson, Johans, Kyl, Moran, Nelson, and Warner all filed letters with the Board supporting the railroads' ability to invest in their networks, as did Members of the House Committee on Transportation and Infrastructure and the following Representatives: Altmire, Brown, Costello, Culberson, Diaz-Balart, Granger, Graves, Hanna, Holden, LaTourette, Mica, Miller, Miller, Neal, Rahall, Rigell, Ruppersberger, Shuster, Smith, and Terry. In particular, members of the House Committee noted that "Transportation experts are united in predicting massive increases in freight movements over the next 20 years." Letter from U.S. Rep. Richard Neal to STB, STB Docket Ex Parte No. 705, at 1 (filed June 10, 2011).

not clear that the rates to captive shippers would necessarily decline; the increase in risk cost might more than offset any saving from the theoretically reduced asset base.”⁴³

So the “biggest obstacle” to using a replacement cost is no obstacle at all.

Once the Board looks past the hobgoblin of “unused and unuseful” assets, the other practical question is mechanics—how can we reasonably transform the unreliable accounting values into current replacement costs. The answer may lie within the BEA, an agency within the U.S. Department of Commerce.

BEA is one of the world’s leading statistical agencies. Although it is a relatively small agency, BEA produces closely watched economic statistics that influence the decisions made by government officials, business people, households, and individuals. BEA’s economic statistics, which provide a comprehensive, up-to-date picture of the U.S. economy, are key ingredients in critical decisions affecting monetary policy, tax and budget projections, and business investment plans. BEA produces economic accounts statistics that enable government and business decision-makers, researchers, and the American public to follow and understand the performance of the Nation’s economy. To do this, BEA collects source data, conducts research and analysis, develops and implements estimation methodologies, and disseminates statistics to the public. Each year, BEA publishes data that contrast the current value of railroad assets against the historic, depreciated book value.

⁴³ *Coal Rate Guidelines NPRM*, ICC Docket Ex Parte No. 347 (Sub-No. 1), at 15 n. 43.

CSXT urges the Board to begin a rulemaking proceeding to explore how to use this published data from our Nation's most esteemed statistical agency to more accurately value railroad assets.

It will not be perfect. But the Board is always mindful that "the best should not be the enemy of the good" and that it need not allow "the infeasible perfect to oust the feasible good."⁴⁴ And the STB "has consistently stated its preference for using the best valuation of a carrier's assets in performing its regulatory functions."⁴⁵ It has explained that "carriers cannot attract and retain capital unless they are given the opportunity to be compensated for the real value of property, not just the book value."⁴⁶ The BEA data may provide the Board a feasible, if not perfect, solution to assure that carriers can attract and retain capital by providing returns based on the real value of property.

e. Congress Recently Directed The STB To Use A Forward-Looking Valuation Basis To Determine The Adequacy Of Railroad Revenue.

Congress recently revised the standard for judging "revenue adequacy" for the first time in nearly 36 years, in the Surface Transportation Board Reauthorization Act of 2015 ("the Act"). The Act (S.808), which reauthorizes the Board as an independent agency, was sponsored by Senator Thune (Chair of the Senate Committee on Commerce, Science, and Transportation) and passed both houses of Congress unanimously.

⁴⁴ *Commonwealth of Pa. v. ICC*, 535 F.2d 91, 96 (D.C. Cir. 1976).

⁴⁵ *Berkshire Markup*, STB Docket No. 35506 at 23.

⁴⁶ *Conrail Acquisition Order*, 3 S.T.B. at 265.

Section 16 of the Act revised Section 10704(a)(2) to include additional language to “clarify that a carrier’s capability to meet its current and future needs is relevant when considering revenue adequacy.”⁴⁷ As revised, Section 10704(a)(2) (new language in bold) now reads:

The Board shall maintain and revise as necessary standards and procedures for establishing revenue levels for rail carriers providing transportation subject to its jurisdiction under this part that are adequate, under honest, economical, and efficient management, *for the infrastructure and investment needed to meet the present and future demand for rail services and* to cover total operating expenses, including depreciation and obsolescence, plus a reasonable and economic profit or return (or both) on capital employed in the business.

This new language must be given meaning. It is a “cardinal principle of statutory construction” that a court or agency must give effect, if possible, to every clause and word of a statute.⁴⁸ “An interpretation that needlessly renders some words superfluous is suspect.”⁴⁹ Moreover, in interpreting a statute, a court or agency “must give words their ordinary or natural meaning.”⁵⁰

The additional statutory language can be given effect, and its ordinary and natural meaning, only if it is interpreted as requiring the Board to use a forward-looking, replacement cost approach in rate reasonableness proceedings. The Board cannot meaningfully assess whether a rail carrier’s revenues are sufficient for the

⁴⁷ S. Rep. No. 114-52, 114th Cong., 1st Sess. 2015, at 8 (“Senate Report”).

⁴⁸ *Loughrin v. United States*, 134 S.Ct. 2384, 2390 (2014); *Duncan v. Walker*, 533 U.S. 167, 174 (2001); *Williams v. Taylor*, 529 U.S. 362, 404 (2000).

⁴⁹ *Crandon v. United States*, 494 U.S. 152, 171 (1990).

⁵⁰ *Leocal v. Ashcroft*, 543 U.S. 1, 9 (2004) (quotations omitted); *see also Pasquantino v. United States*, 544 U.S. 349, 356 (2005).

infrastructure needed to meet the *present and future* demand for rail services if it uses historical costs to determine the carrier's return on investment. It would be illogical to base a carrier's ability to meet *future* demand on *historical* costs. For example, a railroad's costs of building additional infrastructure today to meet future demand would be the *current* costs of that project, not what the project cost in the past. Moreover, because the ICC and the Board have based their revenue adequacy determinations on historical costs, interpreting "current and future demand" to continue the historical-cost approach would render the new language superfluous.

This interpretation is consistent with the legislative history of the new language added to Section 10704(a)(2). The Senate Report stated that this change was intended to "clarify standards and procedures for evaluating revenue adequacy and emphasizes the infrastructure needed in order for rail carriers to be able to meet the present and future demand for rail service."⁵¹ The new language was clearly a reflection of Congress's finding that "The U.S. freight and rail industry continues to be integral to the Nation's economy and global competitiveness," and its concern that railroads have sufficient revenue to make the investments necessary to meet current and future demand.⁵² For example, the Senate Report noted that rail carload plus intermodal traffic in 2014 increased by the highest yearly total since 2007, and that October 2014 was "the best month in history for U.S. intermodal traffic."⁵³

⁵¹ Senate Report at 14.

⁵² See *id.* at 2.

⁵³ *Id.*

The Senate Report did explain that the new language “would not require any change to how the STB determines railroad revenue adequacy.”⁵⁴ In contrast, in numerous other places, the Senate Report explained that other changes to the law “would require” the agency to begin a rulemaking procedure immediately to implement other statutory changes.

Congress’ decision not to mandate immediate changes is logical. First, if the Board abandons the revenue adequacy constraint—and instead used its annual finding only to gauge the general financial health of the railroad industry—there would be no reason for the STB to change “how it determines railroad revenue adequacy.” Second, Congress is presumed to be aware of the agency’s concern that there are practical challenges to surmount before shifting to a current value measurement. Congress is not going to force an agency to do the impossible. Instead, Congress codified the near unanimous preference for using current and forward-looking costs, leaving to the STB’s discretion how to put into practice the new language.

But the Board must give the new language meaning. This was the first time Congress has changed the definition of revenue adequacy in over three decades. The agency cannot lightly assume that the new language encourages no changes to how the Board values railroad assets. If there is perceived conflict between the statutory language and legislative history, the statute always wins. The Board should abandon the revenue adequacy constraint. If it does not, however, it must apply a

⁵⁴ *Id.* at 14.

standard that provides revenues adequate “*for the infrastructure and investment needed to meet the present and future demand for rail services.*”

The Board would be on shaky grounds using historical costs because it can now look beyond the hobgoblin of “unused and unuseful” assets and the BEA data may offer a practical path to transform unreliable accounting values into reliable current costs.

B. CONSUMERS CANNOT SEEK RELIEF UNDER BOTH THE SAC CONSTRAINT AND THE REVENUE ADEQUACY CONSTRAINT.

The STB should reject Consumer’s entire revenue adequacy presentation because it simultaneously pursued relief under the more targeted and preferred SAC test. Notwithstanding ICC language saying a complainant may submit evidence under multiple CMP constraints, there is no legal or economic basis to grant relief under the revenue adequacy constraint if the SAC analysis proves the rates are reasonable.

A centerpiece of the STB’s rate regulations is the prohibition against cross-subsidies. The ICC long ago declared that “[a] captive shipper should not bear the cost of any facilities or services from which it derives no benefit.”⁵⁵ A corollary “core economic underpinning of CMP is the principle that a shipper must cover its own attributable costs and only unattributable costs are to be allocated among the traffic group. Indeed, this theme permeates [*Coal Rate*] *Guidelines*.”⁵⁶

⁵⁵ *Coal Rate Guidelines*, 1 I.C.C.2d at 523.

⁵⁶ *Otter Tail*, Docket No. 42071, at 24.

However, a complainant cannot “shift responsibility for paying for facilities it uses to other shippers who do not benefit from those facilities.”⁵⁷ As the Board has explained, it would “turn the CMP principle against cross-subsidization on its head to protect a captive shipper from subsidizing other traffic, while at the same time allowing that shipper’s rates to be subsidized by other traffic.”⁵⁸ The D.C. Circuit, in affirming the Board’s interpretation of *Coal Rate Guidelines*, observed that “it is difficult to steal from a penniless Peter to pay Paul.”⁵⁹ And the STB recognized that it could improperly *exacerbate* an internal cross-subsidy by ordering the defendant to lower the challenged rate where the complainant was not covering its own attributable costs.⁶⁰ Accordingly, the Board has cautioned that its *PPL* cross-subsidy analysis “serves as both a threshold inquiry and a limit on potential rate relief.”⁶¹

This centerpiece of the STB’s rate regulations—the prohibition of cross-subsidies—prevents Consumers from seeking relief under both the SAC and the Revenue Adequacy constraint. Stated simply, if the challenged rate passes muster under the SAC analysis, then by definition the costs to construct, operate, and maintain the portion of the CSXT rail system used by Consumers exceed the properly attributable revenues. Accordingly, any relief accorded Consumers under

⁵⁷ *PPL Montana 2003*, 6 S.T.B. at 757-58 & n.21; see also *PPL Montana*, 2002, 6 S.T.B. at 286.

⁵⁸ *PPL Montana 2003*, 6 S.T.B. at 757.

⁵⁹ *PPL Montana*, 437 F.3d at 1246.

⁶⁰ See *PPL Montana*, 2002, 6 S.T.B. at 295 n.17.

⁶¹ *Otter Tail*, STB Docket No. 42071, at 11.

the Revenue Adequacy constraint would necessarily demand a cross-subsidy from the remaining “revenue adequate” portions of the CSXT system. Because preventing cross-subsidies is a bedrock of CMP and the legal, economic, and policy considerations underlying *Coal Rate Guidelines*, it would be arbitrary and capricious to award Consumers relief under the Revenue Adequacy constraint in the face of an unfavorable SAC outcome.

The same holds true if Consumers prevails under the SAC test, but the maximum lawful rate is above the expired contract rate. The STB would plainly create an impermissible cross-subsidy by prescribing rates below the level justified by the full SAC test. The Board has stated clearly that it will not itself create a cross-subsidy by prescribing a rate below the costs fairly attributable to Consumers.⁶² The Board’s final SAC analysis will show the costs attributable to serving Consumers, including both the expense of the highly congested Chicago gateway and the lighter density line that runs up the Michigan shoreline. No relief can be granted below those costs without tearing apart the basic fabric of CMP and the prohibition against cross subsidies. *Id.*

CSXT acknowledges that the ICC permitted a complainant to present evidence under both constraints simultaneously in the past.⁶³ And the ICC stated that “the various constraints contained in CMP may be used individually or in combination to analyze whether the rate at issue is unreasonabl[e].”⁶⁴ But the ICC

⁶² *Id.* at 11.

⁶³ See *Bituminous Coal*, 6 I.C.C.2d 1; *Ark. Power*, 3 I.C.C.2d 757.

⁶⁴ *Coal Rate Guidelines*, 1 I.C.C.2d at 548.

also said that “[a]lthough we have described the constraints in CMP separately, they are necessarily interrelated. *They represent different means of approaching that same basic issue*, i.e., the extent of unattributable costs to be covered through differential pricing and the portion that can be charged to the shipper involved.”⁶⁵

More importantly, neither the ICC or the STB ever prescribed relief under the revenue adequacy constraint when the complainant’s own SAC evidence—once corrected through the adjudicatory process—shows the challenged rate to be reasonable. The two constraints are different means of approaching the same issue. The SAC analysis will show the full cost of the facilities and services used to serve Consumers in the congested Chicago gateway and the proper portion of those costs that CSXT can lawfully recover from Consumers through differential pricing. There is simply no way to prescribe relief under the revenue adequacy constraint below the level determined by the SAC analysis without creating an impermissible cross-subsidy from the rest of CSXT’s 21,000 mile network, in violation of the heart of the Board’s rate regulation standards.

C. CSXT IS NOT REVENUE ADEQUATE.

Consumers argues that CSXT is revenue adequate and that the challenged rate is therefore unreasonable under the Revenue Adequacy Constraint adopted in *Coal Rate Guidelines, Nationwide*, 1 I.C.C.2d 520 (1985), *aff’d sub nom. Consolidated Rail Corp. v. United States*, 812 F.2d 1444 (3d Cir. 1987). Specifically,

⁶⁵ *Id.* at 547 (emphasis added).

Consumers asserts that “CSXT has achieved genuine revenue adequacy on a long-term basis” and therefore “should be prohibited from charging Consumers a higher Campbell rate than that in effect on December 31, 2014,” adjusted only for actual inflation—a remedy that Consumers characterizes as “consistent with the Board’s application of the Revenue Adequacy Constraint” in *CF Indus., Inc. v. Koch Pipeline Co.*, 4 S.T.B. 637 (2000), *aff’d sub nom. CF Indus., Inc. v. STB*, 255 F.3d 816, 828 (D.C. Cir. 2001). Consumers Op. IV-2.

The evidence, however, belies Consumers’ argument. For 29 consecutive years, the ICC and the Board have found that CSXT’s return on investment (“ROI”) is below the industry’s cost of capital—and that CSXT therefore has not earned adequate revenues. Those findings, by themselves, should resolve this matter, particularly since the Board’s current methodology overstates CSXT’s ROI. Even if the Board’s annual findings are not dispositive, Consumers has failed to produce any competent or probative evidence to support its contentions.

To apply the revenue adequacy constraint, the Board must address four questions. First, **the standard**—how to decide if CSXT is revenue adequate on a system-wide basis? Second, **the time period**—over what time period must CSXT be revenue adequate, a business cycle or the average life of railroad investments? Third, **the trigger**—what pattern of returns in excess of the cost of capital will trigger the revenue adequacy constraint? Fourth, **the constraint**—what kind of regulatory constraint will the STB impose on a carrier whose pattern of returns triggers the revenue adequacy constraint.

Answers to the second, third, and fourth questions (the time period, the trigger, the constraint) are unknown. When the ICC described the revenue adequacy constraint, it offered only limited guidance on each of these questions:

- **The time period**—the ICC emphasizes that revenue adequacy “is a long-term concept that calls for a company, *over time*, to average return on investment equal to its cost of capital.” *Coal Rate Guidelines*, 1 I.C.C.2d at 536.
- **The trigger**—the ICC explained that with this constraint it sought to curtail the use of differential pricing only where it observed a “consistent” pattern of returns “substantially” in excess of a carrier’s revenue needs. *Coal Rate Guidelines NPRM*, ICC Docket Ex Parte No. 347 (Sub-No. 1), at 16. “[W]here a consistent pattern of returns substantially in excess of a carrier’s revenue needs has been established,” the ICC proposed to “consider the reasonableness of rates . . . and prescribe lower rates in appropriate circumstances.” *Id.* The ICC also observed that increased returns may be related to pro-competitive behavior. So the ICC cautioned that “we would be reluctant to reduce existing rates on captive coal traffic if the source of an increased rate of return is increased efficiency in operations or a more profitable rate on competitive traffic.” *Id.* at 16.
- **The constraint**—In *Guidelines*, the ICC indicated that once the revenue adequacy constraint was triggered, there would be some undefined restriction on the permissible degree of demand based differential pricing.⁶⁶ But the ICC had also explained when it proposed this constraint that witnessing a pattern of returns substantially in excess of the revenue needs “does not mean that further rate increases on captive coal traffic would be unreasonable *per se* once a carrier achieves revenue adequacy.”⁶⁷ It further explained that it should not prohibit rate adjustments

⁶⁶ *Coal Rate Guidelines*, 1 I.C.C.2d at 535 (“Carriers do not need greater revenues than this standard permits, and we believe that, in a regulated setting, they are not entitled to any higher revenues.”) and (“In other words, captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs.”).

⁶⁷ *Coal Rate Guidelines NPRM*, ICC Docket Ex Parte No. 347 (Sub-No. 1) at 15.

because “[s]uch an approach would be economically unsound, as it would create disincentives to optimal market pricing.”⁶⁸

But the first question (**the standard**) has been resolved for 30 years, and is not open for debate within the context of a particular adjudication. Based on that standard, CSXT is not revenue adequate. No further inquiry into the time period, trigger, or constraint is needed.

1. The Single Standard—A Return On Investment In Excess Of The Industry Average Cost Of Capital.

The Board has binding legislative rules on how to determine revenue adequacy when monitoring the financial health of the industry. *Standards II*, 3 I.C.C.2d at, 267-268; *Standards I*, 364 I.C.C. 809-10. A railroad is “revenue adequate” in a particular year if it earns a return on capital above the industry-average cost of capital. Virtually all parties urged the ICC to use other financial measurements to assess railroad revenue adequacy. The ICC stood fast. It rejected a multi-indicator standard as impractical, believing that its ROI/cost of capital standard “is the most appropriate method for the determination of railroad revenue adequacy.” *Standards II*, 3 I.C.C.2d at 267. The ICC also explained that an “open-ended” multiple indicator standard “could lead to an evidentiary free-for-all” *Id.* at 268 (a prophetic statement in light of Consumers’ opening evidence). And in *Arkansas Power & Light Co. v. Burlington N. R.R.*, the ICC summarily dismissed the revenue adequacy claims:

It is undisputed that both the [defendant railroads] have been found not to be revenue adequate in the annual determinations

⁶⁸ *Id.* at 19.

made under our standards for the period covered by these complaints. Nevertheless, [the complainant] argues that [the defendant railroad] was revenue adequate and attempts to show that our established procedures for determining revenue adequacy were incorrect in a number of respects. This is a collateral attack on the standard adopted there which we reject.⁶⁹

In short, Consumers cannot launch a collateral attack on the single ROI standard adopted by the ICC to gauge revenue adequacy, a position CSXT took in its motion to dismiss.

The cost-of-equity component of the cost of capital determined by using an average of two established financial techniques is also a binding legislative rule. *Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry's Cost of Capital*, STB Docket Ex Parte No. 664 (Sub-No. 1) (served Jan. 28, 2009) (“*MSDCF Decision*”); *Methodology to be Employed in Determining the Railroad Industry's Cost of Capital*, STB Docket Ex Parte No. 664, (served Jan. 17, 2008)(“*CAPM Decision*”).

There are important questions that can be debated in a particular rate reasonableness proceedings that invokes the revenue adequacy test. A party can challenge the constraint in its entirety because *Coal Rate Guidelines* is a general statement of policy and not a legislative rule. A party can submit evidence over what time period a revenue adequacy inquiry should take place. A party can argue about what kind of pattern of returns in excess of the industry cost of capital should trigger a revenue adequacy constraint. And a party can submit evidence about how

⁶⁹ *Id.* at 765 (citing *Western Coal Traffic League v. ICC*, 735 F.2d 1408 (D.C. Cir. 1984); *Utah Power & Light Co. v. ICC*, 764 F.2d 865, 871, 876 (D.C. Cir. 1985).

the Board should apply this constraint once triggered. But Consumers cannot relitigate the single standard set forth in *Standards II*.

2. Even Under The Board's Flawed Annual Metrics, CSXT Has Not Been Revenue Adequate For Any Year Since the Agency Began Monitoring The Adequacy of Railroad Revenues.

Consumers' failure to support its claim is particularly notable because the Board and the ICC have found that CSXT is revenue-inadequate *every single year for almost three decades*. As shown below in **Table 1**, for each year since 1986 the ICC and the Board have found that CSXT's ROI is below the industry cost of capital—the agency's standard for measuring revenue adequacy.⁷⁰

⁷⁰ 1986 was the first year for which the ICC published a separate revenue adequacy finding for CSXT.

Table IV-1
STB/ICC Revenue Adequacy Findings

Year	Cost of Capital	CSXT ROI	STB/ICC Finding
2014	10.65%	10.18%	Revenue Inadequate
2013	11.32%	10.00%	Revenue Inadequate
2012	11.12%	10.81%	Revenue Inadequate
2011	11.57%	11.54%	Revenue Inadequate
2010	11.03%	10.85%	Revenue Inadequate
2009	10.43%	7.30%	Revenue Inadequate
2008	11.75%	9.34%	Revenue Inadequate
2007	11.33%	7.61%	Revenue Inadequate
2006	9.94%	8.15%	Revenue Inadequate
2005	12.20%	6.23%	Revenue Inadequate
2004	10.10%	4.43%	Revenue Inadequate
2003	9.40%	4.00%	Revenue Inadequate
2002	9.80%	5.20%	Revenue Inadequate
2001	10.20%	4.60%	Revenue Inadequate
2000	11.00%	3.60%	Revenue Inadequate
1999	10.80%	3.80%	Revenue Inadequate
1998	10.70%	8.10%	Revenue Inadequate
1997	11.80%	9.80%	Revenue Inadequate
1996	11.90%	8.90%	Revenue Inadequate
1995	11.70%	6.50%	Revenue Inadequate
1994	12.20%	8.10%	Revenue Inadequate
1993	11.40%	5.20%	Revenue Inadequate
1992	11.40%	0.10%	Revenue Inadequate
1991	11.60%	NM ⁷¹	Revenue Inadequate
1990	11.80%	6.80%	Revenue Inadequate
1989	11.50%	6.10%	Revenue Inadequate
1988	11.70%	0.92%	Revenue Inadequate
1987	11.60%	5.89%	Revenue Inadequate
1986	11.70%	5.46%	Revenue Inadequate

This unbroken string of annual agency determinations of CSXT's revenue inadequacy is particularly significant because flaws in those annual calculations

⁷¹ "NM" indicates that the railroad incurred an operating loss, resulting in a negative return.

overestimate a railroad's actual progress toward revenue adequacy. As CSXT and other railroads have demonstrated to the Board in Ex Parte 722, the Board's annual revenue adequacy findings understate CSXT's true revenue needs to maintain and replace its existing network because the findings are based on depreciated historic costs, not on the current value of CSXT's network. Yet even under the Board's conservative annual determinations, CSXT has been revenue inadequate in every year of the 29 years for which such a determination has been made. See **Table IV-1**, *supra*.

Indeed, according to the Board's annual findings, CSXT's revenues have fallen more than \$33.5 billion short of "revenue adequacy" on a present value basis since 1999.⁷² **Table IV-2** below reveals the annual pre-tax revenue adequacy shortfall under the STB's prior findings. CSXT adjusted the revenue shortfalls to current values using the industry average cost of capital, the same index used by the STB in its discounted cash flow analysis for SAC cases. The result is a massive, multi-billion dollar shortfall.

⁷² CSXT offers a 16-year analysis of its revenue adequacy shortfall simply as a matter of convenience and data availability. It should not be interpreted as a concession by CSXT that a 16-year analysis period is the proper time frame for measuring revenue adequacy.

Table IV-2
Annual CSXT Revenue Adequacy Shortfall
(Dollars in 000s)

Year	CSXT ROI	Cost of Capital	Revenue Adequacy Overage/ (Shortfall)⁷³	Present Value Overage/ (Shortfall)⁷⁴	Cumulative Overage/ (Shortfall), 2013\$
2014	10.18%	10.65%	(135,448)	(135,448)	(135,448)
2013	10.00%	11.32%	(\$368,181)	(408,624)	(544,072)
2012	10.81%	11.12%	(\$84,130)	(103,848)	(647,920)
2011	11.54%	11.57%	(\$7,478)	(10,278)	(658,198)
2010	10.85%	11.03%	(\$46,490)	(71,116)	(729,314)
2009	7.30%	10.43%	(\$814,006)	(1,378,796)	(2,108,111)
2008	9.34%	11.75%	(\$600,221)	(1,129,408)	(3,237,519)
2007	7.61%	11.33%	(\$897,724)	(1,884,136)	(5,121,655)
2006	8.15%	9.94%	(\$411,455)	(955,830)	(6,077,035)
2005	6.32%	12.20%	(\$1,328,230)	(3,425,321)	(9,502,356)
2004	4.43%	10.10%	(\$1,162,127)	(3,330,976)	(12,833,331)
2003	4.00%	9.40%	(\$1,013,335)	(3,187,670)	(16,021,002)
2002	5.20%	9.80%	(\$840,794)	(2,898,810)	(18,919,812)
2001	4.60%	10.20%	(\$1,019,941)	(3,868,096)	(22,787,908)
2000	3.60%	11.00%	(\$1,352,338)	(5,672,305)	(28,460,213)
1999	3.80%	10.80%	(\$1,086,438)	(5,053,712)	(33,513,925)

As the ICC has observed, “revenue adequacy is a long-term concept that calls for a company, *over time*, to average [a] return on investment equal to its cost of capital.”⁷⁵ What “long-term” means is undefined, however. Not surprisingly, the meaning of “long-term” is a matter of some debate in the current Ex Parte No. 722

⁷³ Overage/(Shortfall) restated on a pre-tax basis consistent with the Board’s RSAM calculation. See *Simplified Standards for Rail Rate Cases—Taxes in Revenue Shortfall Allocation Method*, STB Docket No. Ex Parte 646 (Sub-No. 2), (served Jan. 22, 2010) (adopting railroad-specific average state tax rates for each Class I railroad for use in the RSAM calculation).

⁷⁴ Present value calculated by compounding at industry-average cost of capital.

⁷⁵ *Coal Rate Guidelines*, 1 I.C.C.2d at 536 (emphasis in original).

proceeding.⁷⁶ Consumers is urging the Board to impose a burdensome rate freeze on CSXT if the company earns any returns in excess of the cost of capital over a four year period.⁷⁷ The proper period of time for analysis is the average life of railroad assets.⁷⁸ The Board, however, need not (and should not) resolve the dispute over the proper time frame for “long-term revenue adequacy” in this case, because under *any* time frame CSXT has fallen below the agency’s measurement of revenue adequacy.

3. The “Additional Evidence” That Consumers Offers Lends No Support To Its Claim That CSXT Is Revenue-Adequate.

Consumers attempts to sidestep this overwhelming body of agency findings by (1) ignoring the single ROI standard, (2) arguing the methodology for calculating the cost of capital is flawed or the Board should replace the industry average with an internal estimate of CSXT’s cost of capital, and (3) introducing a collection of “other probative evidence.”

Even if the Board permits a “probative evidence” challenge to its annual findings, Consumers bears a heavy burden to overcome the fact that CSXT has fallen \$33.5 billion short of revenue adequacy over the last 16 years. The “additional

⁷⁶ In the Ex Parte No. 722 proceeding, the railroad industry has urged the Board to look to the economic life of railroad assets, while shippers have advocated a far shorter time period not to exceed a business cycle. Of note, however, Professor Bradford Cornell cautioned against using a business cycle to gauge revenue adequacy. He explained that “any period of time short of the full life of railroad assets is too short to make fully formed assessment.” Cornell EP 722 Opening at 28.

⁷⁷ Consumers Op. IV-42 to IV-46. If Consumers is seeking to capture a business cycle—the proper measure should be the average life of railroad assets—then this four year period is plainly too short. The Board has previously found that a 10-year period is better suited to cover an average business cycle.

⁷⁸ See Cornell EP 722 Opening at 23-28.

evidence” that Consumers has submitted is woefully insufficient to meet that burden. Although it cites financial data, analysts’ reports, numerous “financial ratios,” and CSXT’s “cash flow,” this “evidence” does not show that CSXT has earned, or will earn, the competitive return on investment that is necessary to attract capital. Thus, none of Consumers’ “other probative evidence” changes the reality that CSXT is not earning adequate revenues.

a. The Financial Data Cited by Consumers Say Nothing About CSXT’s Ability To Attract Capital In the Long Term.

Consumers contends that analyses prepared by “the financial and investment communities”—specifically, Value Line, Morningstar, and Standard & Poor’s—provide “strong confirmation that CSXT’s revenues, earnings, margins, operating ratio, cash flow, and projected performance are more than sufficient to attract investment for the company to remain healthy and sustainable for the long term.”⁷⁹ They show nothing of the sort. Wall Street analysts’ reports show, at most, only the current and predicted short-term changes in financial condition. They provide no indication of whether the railroad will earn a competitive return on investment over the long term.

The Board’s predecessor, the ICC, recognized almost 30 years ago that security analysts’ reports are an unreliable indicator of revenue adequacy, because the perspectives of the agency are different from those of Wall Street analysts. As the ICC stated, “Our concerns center on the long-term viability and capability of the

⁷⁹ Consumers Op. IV-37 to IV-42.

railroads to provide essential rail service,” whereas “security analysts are interested not only in long-term viability but also in the potential profits for the short term. Indeed, sometimes the potential to make a short term profit may far outweigh their interest in the long term health and earnings capacity of the railroad.”⁸⁰ Thus, the analyses described by Consumers are neither relevant nor competent evidence of revenue adequacy.

b. Consumers Cannot Prove Its Case By Relying On Different Cost of Capital Estimates.

Consumers also urges the Board to ignore the annual cost-of-capital findings and instead use a cost of equity based only on CAPM, revised as requested by Western Coal Traffic Lease in Ex Parte No. 664, or to abandon the decade old policy of relying on industry average cost of capital.⁸¹

Consumers’ argument fails for four reasons. First, the Board cannot depart from the methodology for estimating the cost of equity, which is a binding legislative rule. Second, CSXT and the AAR submitted ample evidence to support the Board’s current methodology for estimating the cost of equity, which CSXT incorporates by reference here. Third, the ICC and the STB have long used an industry-wide, rather than a carrier-specific, cost of capital to determine if a carrier is revenue adequate. Finally, Consumers tells the STB one thing, and its own regulators the opposite. Before its own regulators, Consumers extols the virtues of using multiple models, cautions against the use of CAPM in these times of

⁸⁰ *Standards II*, 3 I.C.C.2d at 267-68.

⁸¹ Consumers Op. IV-6 to IV-10.

depressed interest rates, and advocates for the same market risk premium used by the STB. Yet in this case, Consumers takes the polar opposite position. The STB should not countenance this kind of gamesmanship.

i. The Board cannot depart from its methodology for estimating the cost of equity, abandoning MSDCF and modifying CAPM.

“[I]t is hornbook administrative law that an agency need not—indeed, should not—entertain a challenge to a regulation, adopted pursuant to notice and comment, in an adjudication or licensing proceeding.”⁸² Even if Consumers may submit “other probative evidence” as to whether or not CSXT is revenue adequacy, that evidence cannot include mounting yet another attack on the methodology the Board uses to estimate the cost of capital for the railroad industry.

The STB has recognized that this administrative law principle applies to its determination of the cost-of-capital methodology. In its January 2008 decision in Ex Parte No. 664, the STB held that although it had previously allowed parties to challenge its methodology in the annual cost-of-capital-determination proceedings (the “Ex Parte No. 558” proceedings), it would “no longer do so. As such, future requests to [change our methodology] must be brought (in the form of a petition for a rulemaking) in a “664” proceeding, not in the annual 558 proceeding, in which we calculate the cost of capital for a particular year.”⁸³ In subsequent 558 proceedings the STB has refused to consider challenges to its methodology, stating that “[i]t is

⁸² *Tribune Co. v. FCC*, 133 F.3d 61, 68 (D.C. Cir. 1998); see also *New Jersey Dept. of Env. Protection v. United States Nuclear Comm’n*, 561 F.3d 132, 143 (3d Cir. 2009).

⁸³ *CAPM Decision*, STB Docket Ex Parte No. 664, at 2.

settled administrative law that an agency need not, and as a matter of sound procedure should not, permit parties to relitigate generic rules in individual proceedings that apply those rules.”⁸⁴

This settled principle applies with full force here. The STB has repeatedly stated that its annual determination of the railroads’ cost of capital is used “for a variety of regulatory purposes”—i.e., “maximum rate cases, feeder-line applications, rail line abandonments, trackage rights cases, rail-merger reviews, and, more generally, in the Uniform Railroad Accounting System,” and “is used annually to evaluate the adequacy of individual railroads’ revenues.”⁸⁵ The cost-of-capital determination “is the profitability threshold that plays a key role in determining whether a railroad is revenue adequate,” serves as the cost of capital in abandonment proceeding as the basis for computing opportunity costs, and serves as the basis for calculating rent in trackage rights cases.⁸⁶ As such, when the Board issued its NPRM and final rules that established the methodology for estimating the cost of capital, it created binding legislative rules that it would use “to evaluate the adequacy of individual railroads’ revenues.”

⁸⁴ *R.R. Cost of Capital – 2008*, STB Docket Ex Parte No. 558 (Sub-No. 12), at 2 (served Sept. 25, 2009) (citing *Tribune Co.* and decisions with similar holdings).

⁸⁵ *Pet. of the WCTL to Institute a Rulemaking to Abolish the Use of the Multi-Sage Discounted Cash Flow Model in Determining the Railroad Industry’s Cost of Equity Capital*, STB Docket Ex Parte No. 664 (Sub-No. 2), at 1 (served Dec. 20, 2013); see also Ex Parte No. 664 (Sub-No. 1), at 1 (served Jan. 23, 2009); *CAPM Decision*, STB Docket Ex Parte No. 664, at 3.

⁸⁶ *Railroad Cost of Capital – 2007*, STB Docket Ex Parte No. 558 (Sub-No. 11), at 2 (served Apr. 23, 2008).

While the Board has left open the possibility (which has yet to happen) of using a different cost of capital in a SAC case, there is no basis to make an exception for a revenue adequacy claim. The ICC held in *Coal Rate Guidelines* that the cost of capital used in the SAC analysis “should normally be at the same level prescribed by our revenue adequacy standard.”⁸⁷ However, the ICC also stated that it would allow parties to use an alternative level of capital costs “tailored more particularly to the capital sources the SAC system could draw upon, if it fully supports the proposed figures.”⁸⁸ As a general matter, the cost of capital in such substitutes “should reflect the market and financial risks of the particular SAC methodology.”⁸⁹

But there is no logical or legal basis for allowing a challenge to the industry average cost of capital used to gauge revenue adequacy. In *Coal Rate Guidelines*, the STB cautioned the industry that it might use a higher or lower cost of capital in a SAC case because the hypothetical SARR may draw on different capital sources. The revenue adequacy test is different, because it focuses on the revenue needs of the existing carrier. Nowhere in *Coal Rate Guidelines* did the agency caution the public that it might consider using a different cost of capital in a revenue adequacy complaint than published annually by the Board. (Even if it had, the legality of that policy would be questionable.) As such, the final rule adopted by the Board on how

⁸⁷ See *Ark. Power*, 3 I.C.C. at 776; *Coal Rate Guidelines*, 1 I.C.C.2d at 544 n.63 (“Presumably, the cost of capital for the SAC system would be at the same level [as the STB has] prescribed in Ex Parte No. 393.”).

⁸⁸ *Coal Rate Guidelines*, 1 I.C.C.2d at 544 n.63.

⁸⁹ *Ark. Power*, 3 I.C.C. at 776.

it intended to estimate the cost of capital for the industry is binding and cannot be subject to a collateral attack in this case.

- ii. Even if the Board had the authority to change the cost of capital in this adjudication, there is no reason to abandon the MSDCF or make the change to CAPM advocated by Consumers.**

Consumers supports abandoning the approach used by the STB to estimate the cost of capital by reference to the submission of Western Coal Traffic League in Ex Parte 664 (Sub-No. 2). *See* Consumers Op. IV-6. CSXT similarly endorses and adopts for purposes of this proceeding the comments and reply comments filed by the AAR in that proceedings.⁹⁰ Even if the Board has the authority to depart from those binding legislative rules—and it does not—the AAR comments demonstrate that there is no basis to abandon the methodology used by the STB to estimate the cost of capital for the railroad industry.

- iii. The Board uses an industry-wide cost of capital and the limited evidence about CSXT's own internal figure is irrelevant.**

The ICC and the STB have long used an industry-wide, rather than a carrier-specific, cost of capital to determine if a carrier is revenue adequate. The reason is twofold. First, an industry-wide figure is more reliable. This issue was investigated carefully by the Railroad Accounting Principles Board (“RAPB”), an independent agency Congress created to advise the ICC on how to carry out its new duties under

⁹⁰ AAR Opening and Reply Comments, STB Docket Ex Parte 664 (Sub No. 2) (filed Sept. 5, 2014 & Nov. 4, 2014).

the Staggers Act.⁹¹ The RAPB advised the ICC that using an industry-wide average made the estimate of the cost of equity more reliable, because of the difficulty in obtaining reliable separate average cost of capital estimates for individual railroads. According to the RAPB, “[t]he margin of error associated with estimates of capital cost for individual railroads would be too large to be able to detect any intra-industry differences in true capital costs that may or may not exist.”⁹²

Second, using an industry-wide figure promotes incentives for efficient management. The RAPB “concluded that it is appropriate to use an industry-wide cost of capital, as inclusion of the lower capital costs of stronger railroads would provide an incentive to individual railroads to be managed more efficiently.”⁹³ Moreover, in 1988, the ICC stated that “the use of an industry-wide cost of capital rate in lieu of a carrier-specific rate is consistent with the . . . Capital Principle” of the Railroad Accounting Principles Board.⁹⁴

The STB will therefore use an industry-wide cost of capital unless a “railroad is faced with economic circumstances beyond its control, which would result in

⁹¹ The RAPB was established by Congress to evaluate issues associated with rail costing and to propose principles to govern the estimation of such costs. See former 49 U.S.C. § 11161-63 (1995). Pursuant to the statute, the ICC gave great weight to the recommendations of the RAPB. See former 49 U.S.C. § 11163 (1995). While former sections 11161-63 are no longer in the governing statute and the RAPB no longer exists, the STB continues to accord great weight to the recommendations of the RAPB.

⁹² *RAPB Report* at 37 (quoting Litzenberger Verified Statement, ICC Docket Ex Parte No. 393 (filed Mar. 1981)).

⁹³ *CAPM Decision*, STB Docket Ex Parte No. 66, at 17 & n.50 (citing *RAPB Report* at 37).

⁹⁴ *Reasonably Expected Costs (Implementation of the R.R. Accounting Principles Board Findings)*, STB Docket Ex Parte No. 402, 1988 WL 225130, at *4 n.19 (1988).

capital structure and financing costs materially different from those of the stronger railroads.”⁹⁵ Recently, in its January 17, 2008 decision in Ex Parte No. 664, *Methodology To Be Employed in Determining the Railroad’s Industry’s Cost of Capital*, the STB rejected KCS’s argument that an individual railroad’s cost of capital should be used, rather than an industry-wide average, because of differences in the cost of capital among the railroads. Applying the RAPB’s standard, the STB ruled that KCS had not made the requisite showing that economic circumstances beyond the control of railroad management have resulted in a higher cost of capital for itself than for the other Class I carriers.

Moreover, using the industry average provides a useful way to provide the incentive for an individual railroad to be managed more efficiently. Without *compelling evidence* that KCS’s cost of capital is substantially above the industry average for reasons beyond its control, it is appropriate for us to continue to follow our longstanding practice and the recommendation of the RAPB by applying the industry-average cost of capital to all regulated carriers, including KCS.⁹⁶

Consumers has offered no evidence whatsoever to justify a departure from this precedent (assuming the Board even had the authority for such a departure in an individual rate case). It surely has not offered “compelling evidence.” For the reasons laid out by the ICC, the STB, and the RAPB, the Board must continue to use industry average cost of capital.

⁹⁵ *CAPM Decision*, STB Docket Ex Parte No. 664, at 17.

⁹⁶ *Id.* at 17-18 (emphasis added).

iv. Consumers' positions on its own cost of capital are irreconcilable with its claims here.

Consumers states that it “endorses and adopts for purpose of this proceeding” the WCTL’s filings in Ex Parte No. 664 (Sub-No. 2), including the WCTL’s argument that the Board should: (1) utilize only the Capital Asset Pricing Model (“CAPM”), and not the Multi-Stage Discounted Flow Model or any other model; (2) use a 50-year historical risk market risk premium (“MRP”), rather than the longer time period in the Morningstar/Ibbotson data; and (3) use a MRP no greater than five percent.⁹⁷ Consumers’ position here, however, is precisely the *opposite* of the position that it has taken before the Michigan Public Service Commission (“MPSC”) in the MPSC’s recent proceeding involving Consumers’ proposal to increase its rates for the generation and distribution of electricity.⁹⁸ That inconsistency, by itself, is sufficient reason to give no weight to Consumers’ position here.

(a) Use of Multiple Models

Consumers has argued here that the Board should use “only,” and “exclusively,” the CAPM to determine the cost of equity.⁹⁹ By contrast, in the MPSC proceeding Consumers’ cost-of-capital witness used multiple models—CAPM, the Discounted Cash Flow (“DCF”) model, the ECAPM model, the Risk Premium Model,

⁹⁷ Consumers Op. IV-6.

⁹⁸ See MPSC Case No. U-17735, *In the Matter of the Application of Consumers Energy Company For Authority To Increase Its Rates For the Generation and Distribution of Electricity and For Other Relief* (“MPSC Proceeding”).

⁹⁹ Consumers Op. IV-6; Consumers Op. Ex. IV-1 at 38-39.

and Comparable Earnings Analysis—to determine the cost of equity.¹⁰⁰ Mr. Rao testified that he used multiple models to compute a more reliable estimate of the cost of equity:

Although methodologies such as the CAPM, ECAPM, Risk Premium, DCF, and Comparable Earnings Analysis are often used in utility cost of capital determinations, *each one by itself is unlikely to perfectly simulate the operations of the market*. Furthermore these methods will often produce a wide range of values as illustrated by Exhibit A-9 (DVR-1), page 14. Accordingly, *the application of multiple methods combined with an overall assessment of the marketplace is appropriate in evaluating the market-required cost rate for common equity capital*. In addition, it is appropriate in evaluating results to take into consideration that results of the standard quantitative models often make assumptions that do not fully reflect the returns that investors expect given current economic and financial conditions.¹⁰¹

Mr. Rao further explained that each model is based on the assumption that economic conditions are relatively stable and that current market inputs are reflective of their long-term outlook—but that assumption “is not currently being met” because markets are volatile and “significant uncertainty” exists.¹⁰² “As a result, the models tend to *understate* the return that investors currently require to compensate them for risk.”¹⁰³

¹⁰⁰ Direct Testimony of Dhenuvakonda Rao on behalf of Consumers Energy Co., MPSC Case No. U-17735, at 4, 7 (filed December 5, 2014) (“Rao Testimony”).

¹⁰¹ *Id.* at 8-9 (emphasis added).

¹⁰² *Id.* at 9.

¹⁰³ *Id.* (emphasis added).

(b) CAPM

In this proceeding, Consumers has argued that CAPM should be the sole model used to calculate the cost of equity because it: (1) “is a very powerful but simple model” for which the necessary data are “relatively easy” to collect, compute, and interpret; and (2) is “widely recognized as a financial tool around the world, and is the dominant tool used by corporations and financial professionals to compute the cost of capital for corporations.”¹⁰⁴

Before the MPSC, however, Consumers painted a starkly different—and far more negative—picture of CAPM. Mr. Rao testified that CAPM results do not “provide a reasonable proxy for a required return,” because “CAPM has a number of shortcomings which are particularly relevant to public utilities”:

First, studies have shown that the CAPM tends to overstate the sensitivity of the cost of capital to beta. Low beta assets tend to have higher average returns than would be predicted, while high beta assets have lower returns. The beta of utilities, including our proxy group as shown on page 3 of Exhibit A-9 (DVR-1), are typically less than 1. Second, CAPM relies on beta to capture all the systemic risk faced by a company and assumes that the only unavoidable (or systemic) risks are fluctuations in the market. However, utilities are interest-rate sensitive and exposed to regulatory risk[,] neither of which are captured by traditional CAPM.¹⁰⁵

(c) Market Risk Premium

In the Board’s current Ex Parte No. 664 (Sub-No. 2) proceeding, the WCTL (whose position Consumers adopts here) argued that the Board should “utilize a MRP in the range of 5% or lower,” because “the norm is to utilize a MRP that

¹⁰⁴ Consumers Op. Ex. IV-1 at 38.

¹⁰⁵ Rao Testimony at 14-15.

currently is not more than 5.0%.”¹⁰⁶ By contrast, in the MPSC proceeding Consumers calculated a MRP of 6.96%—higher than the five percent ceiling that Consumers urges here.¹⁰⁷

Furthermore, Consumers has proposed entirely different time horizons for calculating the MRP in the two proceedings. Consumers argues in this proceeding that a 50-year period should be used, rather than the Morningstar/Ibbotson data that dates from 1926. Consumers asserts that “a time period going back from the present to 1926, as has been used by the STB, is unrealistic, given long-ago events such as the severe and unique U.S. depression experienced in the period shortly after 1926,” and that a shorter time period “is used by most users of the CAPM model.”¹⁰⁸

In the MPSC proceeding, however, Consumers did *not* use a shorter time period, but instead used the approach taken by the Board, relying upon Morningstar/Ibbotson data going back to 1926.¹⁰⁹ Consumers’ witness there *defended* this use of 1926-2013 data that Mr. Hennigan here claims is “unrealistic”:

The 88-year period reflects the entire period used in Morningstar/Ibbotson data. Over short periods of time, the equity risk premium can be quite volatile. However, when calculated using the entire data series, it is relatively stable. *It is appropriate in a market premium analysis to use the entire*

¹⁰⁶ Opening Comments of the Western Coal Traffic League, STB Docket Ex Parte No. 664 (Sub-No. 2), at 31 (filed Sept. 5, 2014).

¹⁰⁷ Rao Testimony at 12.

¹⁰⁸ Consumers Op. Ex. IV-1 at 40.

¹⁰⁹ Rao Testimony at 12.

*period of historical data in order to assess investors' expectations.*¹¹⁰

And, in contrast to its argument here that a shorter time horizon “is used by most users of the CAPM model,” Consumers asserted to the MPSC, without qualification, that “[t]he Morningstar/Ibbotson data is often used in developing the market risk premium.”¹¹¹

In short, the blatant inconsistencies in Consumers’ arguments make it impossible to ascribe any credibility to its current criticisms of the Board’s cost of capital calculations.

c. Consumers Cannot Prove Its Case By Relying On “Financial Ratios.”

Consumers also attempts to establish that CSXT has attained revenue adequacy by citing various “financial ratios.”¹¹² As Consumers acknowledges, however, the ICC abandoned consideration of these ratios long ago.¹¹³ The ICC explained in *Standards I* that because funds-flow analysis and other minimum standards of revenue adequacy are indicators only of the railroads’ financial health, they are “inappropriate as indicators of long-term revenue adequacy,” especially “as measures to measure limit rail pricing flexibility.”¹¹⁴ Adoption of such short-term

¹¹⁰ *Id.* (emphasis added).

¹¹¹ *Id.*.

¹¹² See Consumers Op. IV-25 to IV-37.

¹¹³ Consumers Op. IV-25 to IV-26; *Standards I*, 364 I.C.C. at 807-08.

¹¹⁴ *Standards I*, 364 I.C.C. at 808.

standards would likely result in denying railroads the very pricing flexibility necessary to obtain long-term revenue adequacy.¹¹⁵

Five years later, in *Standards II*, the ICC re-evaluated, and again rejected, the multi-indicator approach. The ICC explained that it continued to have concerns that there was no objective way to implement such an approach objectively:

The parties in this proceeding who advocate a multi-indicator approach have done little to alleviate these concerns as to how that approach might be designed and implemented. None offers a definitive or all-inclusive list of indicators. Nor do any of the parties attempt to assign performance standards or weights to the various indicators. For example, what level of or current ratio is adequate? Should one ratio be given more weight than the other in the revenue adequacy analysis? The resolution of these and similar questions is a prerequisite to the successful implementation of any multi-indicator standard.¹¹⁶

Similarly, in *Bituminous Coal*, the ICC reiterated its rejection of a multi-indicator approach, once again finding that a major problem with the approach was “determining what weight should be accorded each indicator,” which is “critical since different ratios can produce seemingly conflicting results.”¹¹⁷

In *Standards I*, as part of its rejection of a multi-indicator approach, the ICC specifically rejected the use of the types of “financial ratios” like those proposed by Consumers here, because they are unreliable indicators of revenue adequacy. The Commission stated:

¹¹⁵ *Id.*

¹¹⁶ 3 I.C.C.2d at 266.

¹¹⁷ *Bituminous Coal*, 6 I.C.C.2d at 8.

After considering these comments we now believe that using these financial ratios as conditions to a finding of revenue adequacy would be misleading. Financial ratios are intended to provide summary information that, if not interpreted within the proper context, could suggest incorrect conclusions. For example, a firm's fixed charge ratio might be low because of its ability to raise long-term debt. That ability could, in turn, be a reflection of its strong financial outlook. Yet the low fixed charge ratio would lead us to conclude the carrier was revenue inadequate. Because of the possible ambiguity, we have decided that these financial ratios should not be used in revenue adequacy determinations. We believe firmly that the rate of return standard is correct, and will base our determinations on it.¹¹⁸

Consumers concedes that the ICC abandoned the use of financial ratios to determine the cost of capital, but urges the Board to consider them again—without providing any reason why the Board should do so. Instead, Consumers offers only the hollow rationalization that in *Standards I* a minority of the Commission recommended continued reliance on the ratios.¹¹⁹ The Commission's analysis was correct in 1981, and correct today. The evidence of "financial ratios" here "does not alter" the conclusions and reasoning of *Standards I*, *Standards II*, and *Bituminous Coal*.¹²⁰ Consumers, moreover, fails to describe how its approach should be applied, and how much weight should be accorded each factor—the same flaws that led the ICC to reject the ratios more than 25 years ago.¹²¹

In any event, an examination of each of the "financial ratios" offered by Consumers confirms their unreliability as indicators of long-term revenue

¹¹⁸ 364 I.C.C. at 817.

¹¹⁹ Consumers Op. IV-26.

¹²⁰ See *Bituminous Coal*, 6 I.C.C.2d at 7-8.

¹²¹ *Id.*

adequacy.¹²² Consumers relies on: (1) market to book value ratios; (2) debt to capital ratios; (3) operating ratios; (4) return on equity; (5) cash flow to equity; and (6) dividend payout ratios (dividend yield).¹²³

Market to Book Value Ratios. Consumers' relies on the ratio of market to book value is not an "important metric [that] reflects the current and future expectations of capital providers or investors about the performance of the company relative to the initial or embedded equity investment."¹²⁴ This metric is fatally flawed because book values based on historical, depreciated purchase costs are inadequate to assess a firm's financial performance. The market regards replacement costs, not book values, as the proper basis for assessing financial performance. That is why the market routinely prices market values above book values for normal corporations that, like CSXT, have assets with long lives. The market to book value ratio only demonstrates that book value substantially understates replacement costs because the book values estimates are "outdated and do not reflect the market value of the assets-in-place at the firm."¹²⁵

Debt-To-Capital Ratios. Although Consumers describes the debt-to-capital ratios as an "important metric" (Consumers Op. IV-28), such ratios reflect only CSXT's choice about how much debt and equity capital to employ. That choice

¹²² See Brinner EP 722 Reply at 6-13 (describing the unreliability of these ratios, which were also proposed by WCTL in the Ex Parte No. 722 proceeding).

¹²³ Consumers Op. IV-25 to IV-37.

¹²⁴ Consumers Op. IV-26.

¹²⁵ Kalt EP 722 Reply at 13 (quoting Corporate Finance: Theory and Practice, 2nd Ed. (2001)).

depends upon a number of factors, such as the current level of interest rates and changes in the price/earnings ratio. Debt-to-capital ratios provide no indication of the adequacy of a railroad's rate of return on investment.¹²⁶

Operating Ratios. Consumers argues that the Board should consider CSXT's "improved operating ratios," which it describes as a "key metric for railroads as it serves to help identify the margin or dollars available for capital expenditures, dividends, and buybacks."¹²⁷ This argument is without merit. Operating ratios do not provide information about a firm's long-term financial viability. At most, an improved operating ratio shows that CSXT has been more successful in managing operating expenses than before. In addition, relatively low operating ratios flow from the relatively high required capital intensity of the railroad industry.¹²⁸ Finally, Consumers fails to mention that in *Standards I*, the ICC rejected the use of operating ratios (which it had originally proposed) because, as discussed above, they are intended to provide summary information which can be misleading.¹²⁹ That remains the case today.

Return on Equity. Contrary to Consumers' contention, CSXT's allegedly "consistently high" returns on equity should not be "considered more than sufficient to enable CSXT to attract and/or retain whatever equity capital is needed."¹³⁰ The

¹²⁶ Brinner EP 722 Reply at 8.

¹²⁷ Consumers Op. IV-29 to IV-32.

¹²⁸ Brinner EP 722 Reply at 9-11.

¹²⁹ 364 I.C.C. at 817.

¹³⁰ Consumers Op. IV-33.

ROI at best provides only a partial measure of railroad returns because it can also be directly affected by other factors that have nothing to do with a firm's overall ability to earn its weighted average cost of capital, which reflects both equity and debt.¹³¹

Cash Flow To Equity Ratios. Consumers contends that CSXT's average cash flow to equity ratio shows that CSXT has a high cash flow, which makes it less dependent on outside financing and more attractive to investors.¹³² As the ICC recognized, however, a funds flow analysis, and cash flow return on shareholders' equity, provide only a short-term analysis of a railroad's ability to raise capital.¹³³ Like a railroad's ROI, a cash flow to equity ratio focuses solely on the equity components of capital and is directly affected by other factors that have nothing to do with a railroad's ability to earn its weighted average cost of capital. Furthermore, the cash flow return on equity ignores the need for capital expenditures by capital-intensive firms such as railroads, which generally have high cash flows in order to fund capital expenditures.¹³⁴

Dividend Payment Ratios (Dividend Yields). Consumers argues that CSXT's "relatively stable" dividends over a five-year period compare favorably to yields on U.S. Treasuries over the same period, making CSXT a "preferred

¹³¹ See Brinner EP 722 Reply at 3-5, 11.

¹³² Consumers Op. IV-34 to IV-35.

¹³³ *Standards I*, 364 I.C.C. at 808.

¹³⁴ See Brinner EP 722 Reply at 12.

investment.”¹³⁵ That is incorrect. Dividend payout rates similar to those on five-year U.S. Treasury Bonds do not indicate that railroad stock will be attractive to investors.¹³⁶ Investors generally regard Treasury Bonds as risk-free investments, whereas equities are not. Equity investors expect to be compensated for the higher risks involved in investing in stocks, as evidenced by the inclusion of a risk premium in the CAPM model for determining the cost of capital.

For these reasons, Consumers has provided no basis for the Board to depart from the conclusions reached by the ICC regarding the “other evidence” that it offers. The STB should therefore adhere to the ICC’s position and give no weight to Consumers’ evidence.

d. The “Cash Cow” Fallacy

In the mid-1980’s, shipper groups argued to the ICC that the railroads were “cash cows.” They claimed that many railroads were taking excess earning and making substantial investments in non-rail companies. Three decades later, Consumers is recycling the same arguments. And, as in the 1980’s, Consumers’ arguments are baseless.

Consumers’ modern variation of the “cash cow” argument is that the railroads must be “revenue adequate” because they have enough cash on hand to make billions in capital expenditures yet still return substantial cash back to investors, so that those investors can make other investments outside the rail

¹³⁵ Consumers Op. IV-36 to IV-37.

¹³⁶ See Brinner EP 722 Reply at 13.

industry.¹³⁷ Apparently, Consumers is arguing that railroads that do not immediately reinvest their earnings in rail operations but instead use them to pay dividends or repurchase stock have achieved “extra” or “excessive” earnings on rail operations.

The opposite, however, is equally likely to be true. If railroads’ earnings on rail operations exceeded their cost of capital, railroads would aggressively seek out opportunities to expand their rail operations, invest in new rail technology and otherwise commit their capital to rail service. If railroads hold on to retained earnings, commit their capital to other industries, or return those earnings to investors, it is probably because they are not earning their cost of capital on the replacement cost of rail assets. This either drives them to diversify into industries that provide more assurance of a return commensurate with the cost of capital (the 1980’s response) or to return those earnings to investors (the modern response). Funds flee industries where earnings are inadequate.

The experience of Southern Pacific Railroad (“SP”) provides an excellent historical example of the latter scenario. During the 1970’s, SP decided to minimize capital investment in its railroad operations and use profits from those operations to invest in other sectors of the economy such as real estate, telecommunications, fiber-optic cable lines, and exploration and development in oil and gas. As result of “starving” the railroad operations of capital, by the early 1980’s SP’s railroad operations experienced congestion problems, SP lost substantial business to its

¹³⁷ See Consumers Op. IV-14, IV-19 to IV-20.

competitors, SP's profits from railroad operations became "slimmer and slimmer," and SP was "shut out of the capital market."¹³⁸ In the meantime, many of the non-rail assets acquired by SP performed poorly during the 1980-1981 recession, forcing SP to sell some of its profitable assets (such as telecommunications) because it was unable to accommodate their capital investment needs.¹³⁹ By the time Union Pacific and SP sought authority from the ICC to merge in the mid-1990's, SP's financial condition was, and would continue to be "weak."¹⁴⁰ As the ICC explained in its decision approving the merger:

SP's competitive position is eroding, and will continue to do so, because of its inability to generate sufficient capital to provide quality service. Other than in one representative year, 1994, SP has historically been financially weak and unprofitable, relying heavily on large real estate sales to generate necessary cash flows. SP cannot continue to generate funds from this source, however, because it has a dwindling amount of marketable real estate available for sales. As applicants note, SP's unsecured credit now has "junk bond status," and it is unable to secure additional funds from its lenders because it cannot meet the earnings tests of its loan covenants. Issuance of additional stock does not seem to be an option because it would further dilute the low value of existing shares without yielding any substantial additional funds. . . .

[W]e conclude that SP is, and will continue to be, weaker than its principal competitors in the West (BNSF and UP). Although SP could remain in operation as an independent carrier for some time absent the merger, its inability to generate adequate cash

¹³⁸ Larry Walsh, *Why the Southern Pacific Failed*, Texas Transp. Museum, <http://www.txtransportationmuseum.org/history-rr-southern-pacific-4.php>.

¹³⁹ Agis Salpukas, *Setbacks at Southern Pacific*, N.Y. TIMES, (Nov. 20, 1982), available at <http://www.nytimes.com/1982/11/20/business/setbacks-at-southern-pacific.html>.

¹⁴⁰ *Union Pacific Corp. et al – Control and Merger – Southern Pacific Rail Corp. et al.*, 1 S.T.B. 233, 382-383 (1996).

flow from operations, and limitations on its ability to borrow or to sell stock, will preclude it from being a strong competitor to UP or BNSF. The level of service now offered by SP is below that offered by its competitors, and declining; it is essentially a single-track, low-density, high-cost railroad.¹⁴¹

As a result of SP's dire financial condition at the time of the merger, "the troubled remnants of Southern Pacific weighed down Union Pacific's balance sheet for years."¹⁴²

SP's experience starkly illustrates that when a railroad takes "excess" earnings and makes substantial investments outside the railroad industry, that does not mean the carrier is revenue adequate. There can be no dispute that SP was never even close to being revenue adequate. And the worst possible regulatory response would be to cap the railroad's earnings whenever capital exited from the industry in this fashion. Such a cap would have accelerated the demise of the SP. And in the modern context, such a cap would accelerate the flight of capital with bigger dividend payments or larger stock repurchases. This accelerated capital flight could in turn prompt the Board to cap railroad earnings at progressively lower and lower levels. The Board, not the market, would then eventually drive the railroads out of business. Fortunately, neither the ICC nor the Board has ever accepted this cash-cow fallacy, and the Board should reject it here.

Consumers' argument is not only unsound, but also fundamentally inconsistent with the evidence in other competitive markets. In relying on the

¹⁴¹ *Id.* at 383-84.

¹⁴² Zack Greenburg, *Saving The Union (Pacific)*, FORBES (Oct. 13, 2009), <http://www.forbes.com/2009/10/11/union-pacific-railroad-business-logistics-union-pacific.html>.

amounts of stock repurchases and dividend payments, Consumers suggests that any firm able to retain earnings, pay dividends, or repurchase stock in addition to making capital investments has adequate revenues. That assumption, however, reflects a fundamental misunderstanding of how firms allocate available equity capital. It is a fundamental principle of finance that a firm has several basic ways to use its funds, including capital expenditures, dividends, stock repurchases, debt reduction, and cash retention. Firms in every sector of the U.S. economy routinely use—and are expected to use—revenues for each of these purposes to maximize value for their shareholders.¹⁴³ To compete in the intensely competitive capital markets, a railroad must follow suit. Thus, stock buybacks and dividend payments are not evidence of excessive revenues; rather they reflect a company's decision on how to allocate capital to remain competitive in the capital markets.

D. CONSUMERS IS WRONG TO CLAIM THAT EARNING ONE PENNY ABOVE THE COST OF CAPITAL SHOULD TRIGGER REVENUE ADEQUACY LIABILITY.

CSXT is not revenue adequate under the agency's single ROI standard. This is the binding legislative standard described in *Standards II* and is consistent with ICC guidance on how the constraint would be implemented.¹⁴⁴ This inquiry should

¹⁴³ Brinner EP 722 Reply at 13-15. For example, the S&P 500 companies have allocated 42% of their earnings to dividends (median value) between 1981 and 2014. Share repurchases increase market demand for shares and thus can increase the stock price for all shareholders. *Id.* at 14-15.

¹⁴⁴ *Coal Rate Guidelines*, 1 I.C.C.2d at 535 (“We have previously determined . . . that “adequate” revenues are those which provide a rate of return on net investment equal to the current cost of capital (i.e., the level of return available on alternative investments). This is the revenue level necessary for a railroad to

end here. If the Board somehow disagrees, then the next critical question is how far *above* the cost of capital will the Board permit a carrier to earn before it triggers burdensome Federal control and system-wide rate regulation?

Consumers urges the Board to override the marketplace and impose a rate freeze if CSXT earns a return that exceeds the cost of capital (over a four year period) *by a single penny*. Indeed, Consumers notes that even over just the past four years, CSXT's return on investment has missed the industry average cost of capital, but argues that the difference was "within a statistical margin of error." Consumers Op. I-49. It concludes, then, that CSXT has been "approximately" revenue adequate and the constraint should be triggered.¹⁴⁵

There is no basis for such a draconian sanction. Congress instructed the STB "to minimize the need for Federal regulatory control over the rail transportation system" and "to allow, to the maximum extent possible, competition and the demand for services to establish reasonable rates for transportation by rail."¹⁴⁶ This agency and the federal courts have observed that the cost of capital was intended as a floor, not a ceiling, on the revenue opportunities for carriers. And it is uncontested that firms routinely earn returns well in excess of their cost of capital in competitive markets that Congress wisely saw fit to leave unregulated.

compete equally with other firms for available financing in order to maintain, replace, modernize, and, where appropriate, expand its facilities and services.").

¹⁴⁵ See Consumers Op. Ex. IV-1 at 6 ("[T]he hypothesis that in recent years CSXT already has achieved revenue adequacy even under the STB's single-measure annual test cannot be rejected.").

¹⁴⁶ 49 U.S.C. § 10101(1).

When the ICC proposed the concept of a revenue adequacy rate constraint based on system-wide health, it explained that it sought to curtail the use of differential pricing only where it observed a “*consistent*” pattern of returns “*substantially in excess*” of a carrier’s revenue needs.¹⁴⁷ The ICC’s reluctance to regulate individual rates based on system-wide financial metrics—absent evidence of a *consistent* pattern of return *substantially* in excess of the cost of capital—was sound for three reasons.

First, the cost of capital is a *floor* on earnings, not a *ceiling*. The agency has long recognized this fact.¹⁴⁸ The federal courts also recognized that Congress intended the cost of capital to reflect a floor, not a ceiling, on the opportunities available to freight railroads.¹⁴⁹

¹⁴⁷ *Coal Rate Guidelines NPRM*, ICC Docket Ex Parte No. 347 (Sub-No. 1), at 16 (“[W]here a consistent pattern of returns substantially in excess of a carrier’s revenue needs has been established,” the ICC proposed to “consider the reasonableness of rates . . . and prescribe lower rates in appropriate circumstances.”) (emphasis added)

¹⁴⁸ See, e.g., *Adequacy of R.R. Revenue – 1978 Determination*, 362 I.C.C. 199, 201 (1979) (“Moreover, this study was designed to compute a *minimum* adequate revenue level for the Nation’s class I railroads; the methodology of the study is not necessarily appropriate for the determination of the maximum fair revenue issues involved in individual rate proceedings.”) (emphasis in original); *Standards I*, 364 I.C.C. at 809-10, *aff’d*, *Bessemer & Lake Erie R.R. Co. v. ICC*, 691 F.2d 1104, 1111 (3d Cir. 1982) (“*Bessemer*”) (“The minimum rate of return that will allow railroads to obtain investment funds is the cost of capital.”).

¹⁴⁹ See *Bessemer*, 691 F.2d at 1112 (“[T]he section was addressed to the opportunity to attain revenue levels which would reverse the long decline in the railroad industry. The specific objectives listed in section 205 should not in its view be read as limitations on revenue.”); *AAR v. ICC*, 978 F.2d 737, 739 (D.C. Cir. 1992) (“Revenues are deemed adequate when a railroad earns a rate of return on its investment at least equal to the current cost of capital, i.e., the market cost of debt and equity, otherwise understood as the ‘minimum necessary to attract and maintain capital in the railroad . . . industry.’”) (quoting *Standards I*, 364 I.C.C. at

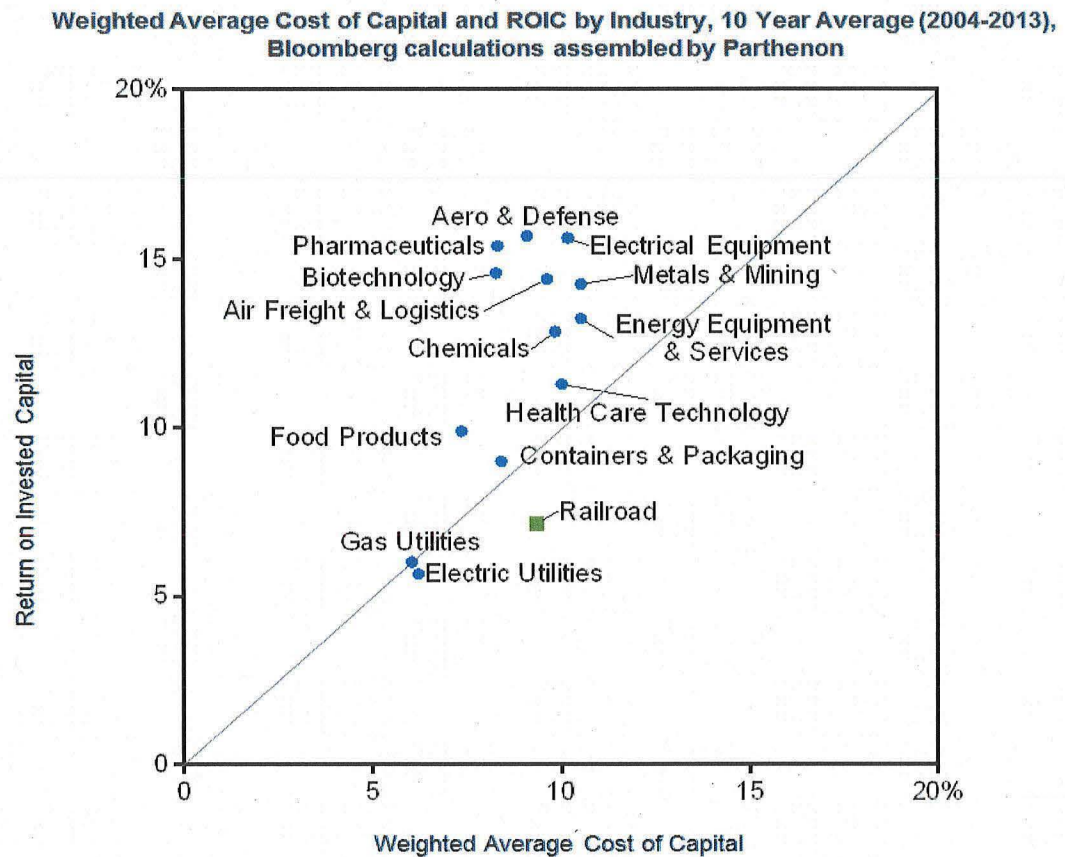
Second, as discussed above there is substantial measurement error in the Board's annual calculation of the revenue needs of the U.S. freight railroads.

Third, and most significantly, firms routinely earn more than their cost of capital in unregulated competitive markets. The AAR submitted testimony in EP 722 contrasting the rate of return for the railroad industry against a number of other competitive industries.¹⁵⁰ The evidence relied on consistent Bloomberg estimates for the return on investment and the cost of capital for the industry to permit an apples-to-apples comparison. CSXT includes below Dr. Brinner's chart from the AAR comments in that proceeding that make plain the fact that firms in competitive markets routinely earn a return on investment far in excess of their cost of capital.

809-10); see generally *Tenn. Gas Pipeline Co. v. FERC*, 926 F.2d 1206, 1208 (D.C. Cir. 1991) ("The cost of capital is the minimum rate of return necessary to attract capital to an investment.") (quoting A. Lawrence Kolbe *et al.*, *The Cost of Capital: Estimating the Rate of Return for Pub. Utilities* 13 (1984)); AD/SAT, A Division of Skylight, Inc., v. Associated Press, 920 F.Supp. 1287 (S.D.N.Y. 1996) ("The term 'cost of capital' is widely used in the literature of investment decision-making and generally refers to the minimum rate of return which a firm requires as a condition for undertaking an investment.") (quoting Victor Brudney & William W. Bratton, *Brudney and Chirelstein's Corporate Finance* 449 (4th Ed. 1993)).

¹⁵⁰ Brinner EP 722 Opening at 9-30.

Table IV-1¹⁵¹



Note: Bloomberg calculations are a total annual invested capital weighted average of S&P 500 companies within the industry during 2014
Source: Parthenon using Bloomberg data

CSXT strongly believes that any revenue adequacy constraint is unwarranted and inappropriate. Even putting aside the serious measurement errors created by using accounting measures of value, there is simply no meaningful correlation between the system-wide revenue needs of CSXT and the reasonableness of a particular rate.

But the Board certainly should not exercise Federal control and override the marketplace where a carrier is not earning a pattern of returns (on the replacement

¹⁵¹ Brinner Op. EP 722 Exhibit 2.

value of assets) ***substantially in excess*** of the industry average cost of capital. Otherwise, the Board ignores the plain Congressional directive to minimize the need for federal control and to rely on competition and the demand for services to establish reasonable rates for transportation by rail. The Board has no need to decide here what constitutes a pattern of returns substantially in excess of the minimum revenue needs of a carrier. As discussed above, CSXT is not revenue adequate under the Board's prescribed standard (or using the so-called "other probative evidence" submitted by Consumers). But it would be contrary to the spirit of the Staggers Act and the directive to minimize regulatory control to impose on the railroad industry a discredited form of heavy-handed regulation transported from a bygone era simply because Congress's desire to revitalize the industry through deregulation is being realized.

E. THE BOARD SHOULD AVOID NIXON-ERA PRICE CONTROLS EVEN IF A CARRIER IS EARNING A PATTERN OF RETURNS SUBSTANTIALLY IN EXCESS OF THE COST OF CAPITAL.

CSXT is not revenue-adequate. But assuming *arguendo* that CSXT someday becomes revenue adequate, and earns a pattern of returns substantially in excess of the industry average cost of capital, the Board must reject the Nixon-era price controls advocated by Consumers. The revenue adequacy constraint "does not mean that further rate increases on captive coal traffic would be unreasonable *per se* once a carrier attains revenue adequacy."¹⁵²

¹⁵² *Coal Rate Guidelines NPRM*, Ex Parte No. 347 (Sub-No. 1), at 15.

1. The Koch Pipeline Decision Relied On By Consumers Is No Basis For Imposing an Across-the-Board Price Ceiling In This Case.

Citing the *CF Industries* decision, Consumers proposes a *system-wide* price freeze on all captive traffic once a railroad becomes revenue-adequate, arguing that “if a carrier imposes a rate increase on captive traffic and that carrier was revenue inadequate ‘under its pre-increase structure,’ the rate increase is unlawful and the shipper’s maximum rate for the future should be limited to the ‘pre-increase . . . level.”¹⁵³ Such a result, however, would be contrary to the pricing flexibility that Congress conferred on the railroads in the 4-R Act of 1976 and the Staggers Rail Act of 1980.¹⁵⁴

In any event, Consumers’ reliance on, the *CF Industries* decision is misplaced for two reasons.¹⁵⁵ First, unlike the defendant pipeline in that proceeding, which simply argued that the revenue adequacy constraint had been improperly applied, CSXT is challenging the validity of the constraint here (as it did in Ex Parte No. 722).¹⁵⁶

Second, while a public utility model of rate regulation could perhaps be used to regulate pipeline rates, Congress rejected this model for the railroad industry. In *CF Industries*, the complainant challenged the reasonableness of an *across-the-*

¹⁵³ Consumers Op. IV-43 (quoting *CF Indus.*, 4 S.T.B. at 663-64).

¹⁵⁴ See, e.g., *Rail Transp. of Grain*, STB Docket Ex Parte No. 665, at 1 (served Jan. 14, 2008) (Staggers Act “specifically authorized differential pricing and largely removed regulatory controls over railroad pricing for competitive traffic”).

¹⁵⁵ See Consumers Op. I-47 to I-49, I-55 to I-56, I-59, IV-2, IV-43.

¹⁵⁶ See *CF Indus.*, 255 F.3d at 826, 831 (noting that defendant pipeline did not challenge the CMP guidelines, but only their application in the proceeding).

board rate increase for the pipeline system *in its entirety*. The pipeline in *CF Industries* closely resembled a traditional public utility monopoly because the pipeline was market-dominant as to virtually all of the destination points at issue.¹⁵⁷ Thus, *CF Industries* resembled a traditional public utility rate case, instead of a rail rate case where the complaint focuses on a limited portion of the network of the defendant railroad. Because the complainant in *CF Industries* was challenging rates across the pipeline system as a whole, its election to proceed under the top-down revenue adequacy constraint fit the facts of its rate case.

But “Congress deliberately chose to move away from a public utility model of regulation for the railroad industry.”¹⁵⁸ The STB explained that before 1976, “consistent with the public utility model of regulation, the ICC ‘was charged with examining *every* railroad shipping rate to ensure that it was ‘just and reasonable.’”¹⁵⁹ That all changed with the 4R Act. Thenceforth, the ICC was authorized to examine a rail carrier’s service rate only if the carrier had market dominance over such service. Further, in *Staggers*, Congress set forth a national policy of allowing, to the maximum extent possible, competition and the demand for services to establish reasonable rates for transportation by rail and minimizing the need for Federal regulatory control of the railroad industry.¹⁶⁰ The STB cannot

¹⁵⁷ See 4 S.T.B. at 643, 655 (finding that no effective competition existed for 19 of the 21 movements at issue).

¹⁵⁸ *Berkshire Markup*, STB Docket No. 35506, at 16.

¹⁵⁹ *Id.* (emphasis in original) (quoting *Ass’n of Am. R.Rs. v. STB*, 237 F.3d 676, 677 (D.C. Cir. 2001)).

¹⁶⁰ *Kawasaki Kisen Kaisha Ltd. v. Regal-Beloit Corp.*, 561 U.S. 89 (2010).

therefore impose a public utility model of regulation on the railroad industry that Congress deliberately rejected.¹⁶¹

2. A Price Freeze Would Create Unlawful Presumptions of Unreasonableness.

The railroad participants to the Ex Parte 722 proceeding demonstrated why a price freeze is ill-advised and unlawful. Such a freeze would have major significant pitfalls reminiscent of the failed price control policies adopted during the Nixon and Ford Administrations. CSXT embraces and reiterates those key points below.

a. A Price Freeze Would Violate Both the Interstate Commerce Termination Act of 1996 and the Administrative Procedure Act.

Consumers' proposal would effectively create a presumption that a rate increase imposed by a revenue-adequate railroad on regulated traffic is unreasonable. This presumption would shift the burden of proof in rate reasonableness cases from complaining shippers to defendant railroads, contrary to ICCTA and the Administrative Procedure Act.¹⁶² Indeed, Consumers' proposal would violate ICCTA by having the Board place a cap on railroad rates without any factual finding that the particular challenged rate is unreasonable.¹⁶³ It would be irrational, illogical, and illegal for the Board to presume that all rate increases—regardless of the level of the challenged rate—are unreasonable.

¹⁶¹ See *Berkshire Markup*, STB Docket No. 35506, at 17 (“The Board is also subject to statutory commands that negate regulating railroads under public utility-type cost of service ratemaking with a return allowance computed on an original cost rate base.”).

¹⁶² See 49 U.S.C. § 11701(a); 5 U.S.C. § 556(d).

¹⁶³ See 49 U.S.C. § 10707(c) (“[A] finding of market dominance does not establish a presumption that the proposed rate exceeds a reasonable maximum.”).

**b. A Rate Freeze Would Create an Unlawful
Presumption of Market Power.**

Consumers' proposal asks the Board to presume that *any* rate increase on regulated traffic by a revenue-adequate railroad is an inappropriate exercise of market power. Such a presumption would violate ICCTA, because it would also be contrary to the Board's statutory mandate to determine rate reasonableness individually on a rate-by-rate basis.¹⁶⁴ Furthermore, such a presumption is unjustifiable given the realities of the railroad industry. A railroad might increase a particular rate because increasing demand has tightened capacity in the transportation marketplace, such as Chicago. Such a reaction is consistent with the basic theory of differential pricing: that prices should be responsive to demand for that particular service. A rate freeze, however, would prevent responsive pricing adjustments based upon market demand. In this case, it would prevent the market for transportation through the most congested gateway in American from functioning as it should.

**c. A Rate Freeze Would Reduce CSXT's Ability and
Incentive To Make Necessary Capital Investments.**

A rate freeze would also reduce CSXT's ability and incentive to make investments necessary to maintain and improve service, increase productivity, innovate, and enhance the efficiency of its operations. Rate freezes would disable CSXT from increasing rates in the face of increasing demand for rail service,

¹⁶⁴ See *id.* U.S.C. § 100701(d)(1) (providing that if Board finds that railroad has market dominance over the traffic subject to the challenged rate, rate must be reasonable).

thereby preventing CSXT from earning the revenues to make the capital investments necessary to meet such demand. That would be contrary to the statutory goal of allowing railroads to earn sufficient revenues to expand the rail transportation network to meet shipper needs.¹⁶⁵

d. A Rate Freeze Would Deter Transportation Contracting.

Consumers' rate cap proposal would create a powerful disincentive for both shippers and CSXT to enter into transportation contracts, contrary to the objective of the Staggers Act.¹⁶⁶ CSXT would not agree to lower a contract rate in exchange for consideration from the shipper (e.g., capital investments or volume commitments) if it knew that at the expiration of the contract, the shipper could simply seek an order from the Board capping the rate indefinitely at that historic

¹⁶⁵ *See id.* § 10101(3).

¹⁶⁶ *See, e.g., Gen. Am. Transp. Corp. v. Indiana Harbor Belt R.R. Co.*, 3 I.C.C.2d 599, 611 (1987) (Staggers Act "mandated the Commission to allow railroads even greater flexibility in setting rates" and "encouraged the establishment of . . . contracts") (citing § 208 of Act, now 49 U.S.C. § 10713); *Contract Implementation Date*, 367 I.C.C. 399, 420 (1983) (Section 10713 "was specifically intended to encourage shippers and railroads to use contracts") (citation omitted).

contract level.¹⁶⁷ And shippers would be reluctant to enter into contracts that could relinquish rate freeze protections.¹⁶⁸

e. A Rate Freeze Would Create Market Distortions.

Consumers' proposed rate freeze would distort market signals by preventing price adjustments based upon consumer demand. Such a regime would also create shortages in available transportation options by preventing the rail industry from anticipating changing market demands. Finally, if a railroad knows that it is subject to a rate freeze on a large amount of traffic on a particular route, the railroad will have little incentive to invest or make improvements to that route, because the railroad will have no ability to recoup those costs from the very shippers who use those services. Instead, the railroad will devote its scarce capital resources to routes that are subject to effective competition, where it is free to adjust rates.

¹⁶⁷ Cf. *US Magnesium*, STB Docket No. 42114, at 18. ("In Three Benchmark cases, it is not our goal to create incentives against contracting by private parties in the rail industry. Providing a prescribed tariff rate at contract levels could discourage railroads from offering lower rates, for fear those lower contract rates would be used in rate cases without adequate consideration. Similarly, it could discourage certain parties from pursuing good faith negotiations, hoping instead to receive the lower contract rate as part of a tariff rate case.").

¹⁶⁸ Contract rates differ from tariff rates as a result of market conditions. *DuPont*, STB Docket No. 42125, at 57 n.3 ("In my view, it is difficult to treat contract rates and tariff rates as apples-to-apples comparisons because contract rates are often lower for a variety of reasons, including volume commitments.") (Chairman Elliott, concurring); see also *U.S. Magnesium*, STB Docket No. 42114, at 18 ("UP observed, and the Board agrees, that contract rates can in some instances be lower than tariff rates for a number of reasons (for instance, shippers in certain settings could negotiate indemnity or volume assurances with the carrier in exchange for a better rate).").

f. A Freeze Would Result In Numerous Challenges To the Adequacy of the Level of Rail Service.

A rate freeze would be even more illogical if the level of service was not also frozen. If the Board were to travel down the path proposed by Consumers, and cap only rates, it would be drawn into a morass of complex disputes over whether the service levels between tariffs can be compared, and if not how that would affect the rate freeze. This is a well-known problem with rate freezes learned from the failed Nixon and Ford era rate control policies.

g. A Freeze Would Result In Internal Cross-Subsidies.

Finally, and most fundamentally, Consumers' proposed rate freeze asks the Board to ignore the well-established, sound principle that a customer should pay for the facilities that it uses and not shift those costs to another customer.¹⁶⁹ A freeze would create precisely such a cross-subsidy, because it would allow long-term shipper customers of a particular railroad to benefit from "locked in" rates, without providing those same benefits to new shippers or shippers with shifting movement patterns resulting from a more fluid network of customers and suppliers.

* * *

For the reasons set forth above, the Board should dismiss the claim for relief under the revenue adequacy constraint described in *Coal Rate Guidelines* and clarify that such claims cannot stand in cases in which relief has also been sought under the SAC constraint.

¹⁶⁹ See, e.g., *Guidelines*, 1 I.C.C.2d at 528.

V. WITNESS QUALIFICATIONS AND VERIFICATION

Baranowski, Michael R.	V-1
Bell, Michael	V-8
Bobby, Paul	V-13
Gary Bonneau	V-28
Brown, Richard	V-38
Bryant, Patrick J.	V-43
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Fisher, Benton V.	V-62
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MICHAEL R. BARANOWSKI

Mr. Baranowski is a Senior Managing Director at FTI Consulting, Inc., an economic and consulting firm with offices located at 1101 K Street, NW, Washington, DC 20005. Since 1980, Mr. Baranowski has been involved in various aspects of transportation analysis including operations, engineering, facility requirements, valuations and costing. Mr. Baranowski is sponsoring portions of Section III-F, portions of Section III-G, and Section III-H of CSX Transportation, Inc. ("CSXT's") Reply Evidence. Mr. Baranowski has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

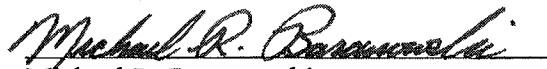
Mr. Baranowski holds a Bachelor of Science degree in accounting from Fairfield University in Fairfield, Connecticut. In 1980, he joined the consulting firm of Wyer, Dick and Company in Livingston, New Jersey as a consultant. He participated in a variety of studies for railroad, shipper and other clients including line abandonments, operations analysis, terminal switching studies, labor protection and rail facility and equipment valuation.

In late 1981, Mr. Baranowski became a consultant with Snavelly, King and Associates with offices in Morristown, New Jersey and Washington, D.C. While at Snavelly, King, he was involved in rail merger, traffic, switching, liquidation and valuation studies for a variety of rail and rail related clients. He was also responsible for engineering, operating and costing components in a number of Section 229 proceedings.

Mr. Baranowski joined Klick, Kent & Allen ("KK&A") in 1988 as a Senior Consultant. He became a principal of KK&A in 1989 and remained in that position until its acquisition by FTI in 1998. Mr. Baranowski has presented testimony before the Interstate Commerce Commission, Surface Transportation Board, Federal Communications Commission, Federal Regulatory Commission and a variety of state regulatory agencies.

VERIFICATION

I, Michael R. Baranowski, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Michael R. Baranowski

Executed on this 4th day of MARCH, 2016

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Mike Baranowski heads FTI's Network Industries Strategies practice and provides strategic, financial and economic consulting services to the telecommunications and railroad and pipeline transportation industries. He has special expertise in analyzing and developing complex costing and cash flow models, conducting detailed operations analysis, and transportation engineering. Much of his work involves providing oral and written expert testimony before courts, arbitration panels and regulatory bodies.

He is a recognized expert in railroad regulatory economics and has assisted FTI's railroad clients in a broad range of litigation and regulatory engagements involving pricing of services, contract disputes, damage calculations and analyses of the specific effects of pending or proposed changes in policy or regulation.

Some of Mr. Baranowski's representative experience includes:

- Development of strategic litigation approach for large railroad rate proceedings based on the theory of Constrained Market Pricing and the Stand-Alone cost test. Theory assumes the existence of a hypothetical, efficient competitor and involves detailed analysis of railroad operations, expenses, capital expenditures and revenues.
- Development of a suite of modeling tools to assess the regulatory risk of railroad rates for a mix of commodities based on key cost drivers and forecasts.
- Design and development of modeling tools designed to simulate the cost of competitive entry into local telecommunications markets and directing the efforts of a nationwide team of testifying experts presenting the cost model results in multiple proceedings across the country.
- Detailed analysis, critique and restatement of complex cost models developed for the railroad, telecommunications, pipeline and trucking industries.
- Designing modeling tools for use in calculating the costs of competitive entry into railroad, telecommunications and pipeline markets.
- Conducting detailed analyses of railroad operations and developing the associated capital requirements and operating expenses attributable to specific movements and the incremental capital and operating expense requirements attributable to major changes in anticipated traffic levels.

Mr. Baranowski holds a B.S. in Accounting from Fairfield University in Fairfield, Connecticut and has pursued supplemental finance studies at Kean College in Union, New Jersey.

SELECT RAILROAD TESTIMONY

Surface Transportation Board

March 1, 2005	Docket No. 42071 Otter Tail Power Company v BNSF Railway Company, Supplemental Evidence of BNSF Railway Company
April 4, 2005	Docket No. 42071 Otter Tail Power Company v BNSF Railway Company, Reply of BNSF Railway Company to Supplemental Evidence
July 20, 2005	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Evidence of BNSF Railway Company
May 1, 2006	Docket No. Ex Parte 657 (Sub-No. 1) Major Issues in Rail Rate Cases, Verified Statement Supporting Comments of BNSF Railway Company
May 31, 2006	Ex Parte 657 (Sub-No. 1) Major Issues in Rail Rate Cases; Verified Statement Supporting Reply Comments of BNSF Railway Company
June 15, 2006	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Supplemental Evidence of BNSF Railway Company
June 15, 2006	Docket No. 41191 (Sub 1) AEP Texas North Company v. BNSF Railway Company, Reply Supplemental Evidence of BNSF Railway Company
June 30, 2006	Docket No. Ex Parte 657 (Sub-No. 1) Major Issues in Rail Rate Cases; Verified Statement Supporting Rebuttal Comments of BNSF Railway Company
February 4, 2008	Docket No. 42099 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSX Transportation, Inc.
February 4, 2008	Docket No. 42100 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSX Transportation, Inc.
February 4, 2008	Docket No. 42101 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSX Transportation, Inc.
May 1, 2008	Docket No. Ex Parte 679 Petition of the AAR to Institute a Rulemaking Proceeding to Adopt a Replacement Cost Methodology to Determine Railroad Revenue Adequacy, Verified Statement of Michael R. Baranowski
July 14, 2008	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Third Supplemental Reply Evidence of BNSF Railway Company
July 14, 2008	Docket No. AB-515 (Sub-No. 2) Central Oregon & Pacific Railroad, Inc. -- Abandonment and Discontinuance of Service -- in Coos, Douglas, and Lane Counties, Oregon (Coos Bay Rail Line)
August 8, 2008	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Fourth Supplemental Evidence of BNSF Railway Company
August 11, 2008	Docket No. 42104 Entergy Arkansas, Inc. and Entergy Services, Inc. v Union Pacific Railroad Company and Missouri & Northern Arkansas Railroad Company, Inc.; Finance Docket No. 32187 Missouri & Northern Arkansas Railroad Company, Inc. -- Lease, Acquisition and Operations Exemption -- Missouri Pacific Railroad Company and Burlington Northern Railroad Company, Reply Evidence and Argument of Union Pacific
September 5, 2008	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Fourth Supplemental Reply Evidence of BNSF Railway Company

- September 12, 2008 Docket No. AB-515 (Sub-No. 2) Central Oregon & Pacific Railroad, Inc. -- Abandonment and Discontinuance of Service -- in Coos, Douglas, and Lane Counties, Oregon (Coos Bay Rail Line); Rebuttal to Protests
- August 24, 2009 Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Opening Evidence of Union Pacific Railroad Company
- October 22, 2009 Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Rebuttal Evidence of Union Pacific Railroad Company
- January 19, 2010 Docket No. 42110 Seminole Electric Cooperative, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.
- May 7, 2010 Docket No. 42113 Arizona Electric Power Cooperative, Inc. v. BNSF Railway Company and Union Pacific Railroad Company, Joint Reply Evidence of BNSF Railway Company and Union Pacific Railroad Company
- November 22, 2010 Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, BNSF Comments on Remand, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
- January 6, 2011 Docket No. 42056 Texas Municipal Power Agency v. BNSF Railway Company, BNSF Reply to TMPA Petition for Enforcement of Decision, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
- October 28, 2011 Docket No. FD 35506 Western Coal Traffic League - Petition for Declaratory Order, Opening Evidence of BNSF Railway Company, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
- November 10, 2011 Docket No. 42127 Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
- November 28, 2011 Docket No. FD 35506 Western Coal Traffic League - Petition for Declaratory Order, Reply Evidence of BNSF Railway Company, Joint Reply Verified Statement of Michael R. Baranowski and Benton V. Fisher
- May 10, 2012 Docket No. 42056 Texas Municipal Power Agency v. BNSF Railway Company, BNSF Reply to TMPA Petition to Reopen and Modify Rate Prescription, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
- November 30, 2012 Docket No. 42125 E.I. DuPont De Nemours & Company v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
- December 7, 2012 Docket No. Ex Parte 715, Rate Regulation Reforms, Reply Comments of the Association of American Railroads, Verified Statement of Michael R. Baranowski
- January 7, 2013 Docket No. 42130 SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
- March 1, 2013 Ex Parte No. 711 Petition for Rulemaking to Adopt Revised Competitive Switching Rules, Opening Comments of the Association of American Railroads, Verified Statement of Michael R. Baranowski and Richard W. Brown
- April 12, 2013 Docket No. 42136 Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company

- April 30, 2013 Ex Parte No. 711 Petition for Rulemaking to Adopt Revised Competitive Switching Rules, Reply Comments of the Association of American Railroads, Verified Statement of Michael R. Baranowski and Richard W. Brown
- June 20, 2013 Ex Parte No. 431 (Sub-No. 4) Review of the General Purpose Costing System, Comments of the Association of American Railroads, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
- September 5, 2013 Ex Parte No. 431 (Sub-No. 4) Review of the General Purpose Costing System, Reply Comments of the Association of American Railroads, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
- July 21, 2014 Docket No. 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.
- September 5, 2014 Ex Parte No. 722 Railroad Revenue Adequacy, Opening Comments of Norfolk Southern Railway Company, Verified Statement of Michael R. Baranowski
- November 4, 2014 Ex Parte No. 722 Railroad Revenue Adequacy, Reply Comments of Norfolk Southern Railway Company, Verified Statement of Michael R. Baranowski
- September 4, 2015 Docket No. FD 35743 Application of the National Railroad Passenger Corporation Under 49 U.S.C. § 24308(a) - Canadian National Railway Company, Opening Evidence of Illinois Central Railroad Company and Grand Trunk Western Railroad, Joint Verified Statement of Michael Baranowski and Benton Fisher
- October 7, 2015 Docket No. 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Supplemental and Compliance Evidence of CSX Transportation, Inc.
- October 23, 2015 Docket No. FD 33760 (Sub-No. 46) BNSF Railway Company - Terminal Trackage Rights -- Kansas City Southern Railway Company and Union Pacific Railroad Company, BNSF Rebuttal Statement, Verified Statement of Michael R. Baranowski

US District Court for Northern District of Oklahoma

- January 2, 2007 Case No. 06-CV-33 TCK-SAJ, Grand River Dam Authority v. BNSF Railway Company; Report of Michael R. Baranowski
- February 2, 2007 Case No. 06-CV-33 TCK-SAJ, Grand River Dam Authority v. BNSF Railway Company; Reply Report of Michael R. Baranowski

Circuit Court of Pulaski County, Arkansas

- August 17, 2007 Case No. CV 2006-2711, Union Pacific Railroad v. Entergy Arkansas, Inc. and Entergy Services, Inc., Expert Witness Report of Michael R. Baranowski
- December 14, 2007 Case No. CV 2006-2711, Union Pacific Railroad v. Entergy Arkansas, Inc. and Entergy Services, Inc., Reply Expert Witness Report of Michael R. Baranowski

U.S. District Court for the Eastern District of Wisconsin

- February 15, 2008 Case No. 06-C-0515, Wisconsin Electric Power Company v. Union Pacific Railroad Company, Expert Reply Report of Michael R. Baranowski

Arbitrations and Mediations

March 7, 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Expert Report on behalf of BNSF Railway Company
March 28, 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Rebuttal Expert Report on behalf of BNSF Railway Company
April 12, 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Supplemental Expert Report on behalf of BNSF Railway Company
April 19, 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Supplemental Rebuttal Expert Report on behalf of BNSF Railway Company
April/May 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Hearings before Arbitration Panel
February 20, 2007	In the Matter of the Arbitration between the Detroit Edison Company, et al, and BNSF Railway Company, Expert Report of Michael R. Baranowski on behalf of BNSF Railway Company
March 19, 2007	In the Matter of the Arbitration between the Detroit Edison Company, et al, and BNSF Railway Company, Supplemental Expert Report of Michael R. Baranowski on behalf of BNSF Railway Company
February 12, 2009	In the Matter of the Arbitration between Wisconsin Public Service Corporation and Union Pacific Railroad Company, Rebuttal Expert Report of Michael R. Baranowski on behalf of Union Pacific Railroad Company
October 16, 2009	In the Matter of Arbitration Between Norfolk Southern Railway Company and Drummond Coal Sales, Inc., Expert Report of Michael R. Baranowski on behalf of Norfolk Southern Railway Company
July 25, 2011	American Arbitration Association Case No. 58 147 Y 0031809, BNSF Railway Company and Kansas City Southern Railway Company, Expert Report of Michael R. Baranowski on behalf of BNSF Railway Company
April 25, 2013	JAMS REF #1340009009, Union Pacific Railroad vs. Canadian Pacific and Dakota, Minnesota & Eastern Railroad Arbitration, Expert Report of Michael R. Baranowski on behalf of Union Pacific Railroad Company
September 6, 2013	IN JAMS ARBITRATION, Case No. 1220044715, Union Pacific Railroad Company v. BNSF Railway Company, Expert Report of Michael R. Baranowski
October 25, 2013	IN JAMS ARBITRATION, Case No. 1220044715, Union Pacific Railroad Company v. BNSF Railway Company, Expert Reply Report of Michael R. Baranowski
January 1, 2014	IN JAMS ARBITRATION, Case No. 1220044715, Union Pacific Railroad Company v. BNSF Railway Company, BNSF Post-Argument Submission, Affidavit of Michael R. Baranowski

MICHAEL G. BELL

Mr. Bell is Team Leader of the Railroad Design Team at TranSystems. Mr. Bell has over 34 years of experience in engineering and has extensive intermodal railroad engineering and railroad design experience. Mr. Bell is sponsoring portions of Section II-B of CSX Transportation, Inc. ("CSXT's") Reply Evidence relating to market dominance. Mr. Bell has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Bell holds a Bachelor of Science in Civil Engineering from the University of Florida. Prior to joining TranSystems, Mr. Bell was Director of CSX Intermodal Terminal Development and Environmental Affairs where he was responsible for overseeing several outside engineering companies, track contractors, design firms, environmental companies, and general contractors engaged to manage CSX intermodal projects. At TranSystems, Mr. Bell is responsible for leading teams in the planning, design, and construction of rail related projects. Some of his projects have included the Canaveral Port Authority Rail Extension Project and Multimodal Terminal and Logistics Center development, both of which involved extensive coordination with public entities as well as environmental permitting. Mr. Bell has also been involved in numerous intermodal facility development projects for CSX, including those at Dames Point, FL and in North Baltimore, OH.

Mr. Bell is a member of the American Railway Engineering and Maintenance of Way Association.

A copy of Mr. Bell's curriculum vitae is attached.

VERIFICATION

I, Michael G. Bell, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Michael Bell

Executed on this 3 day of March 2016



Michael G. Bell, PE
Team Leader

Mr. Bell is an expert in intermodal railroad engineering and railroad design, leading TranSystems' Railroad Design Team since 2006. He has proven leadership experience as a team leader in planning, designing, and construction of rail related projects.

Before TranSystems, Mr. Bell, as Director of CSX Intermodal Terminal Development and Environmental Affairs, oversaw his internal staff, several outside engineering companies, track contractors, design/build firms, environmental companies, and general contractors to manage CSX Intermodal projects. He was responsible for coordinating and obtaining permits with government agencies (municipal, city/state, environment, etc.).

Registrations

Professional Engineer

Education

B.S., Civil Engineering
University of Florida, 1985

Affiliations & Memberships

American Railway Engineering & Maintenance of Way Association
(AREMA)

Years of Experience

34

Years with Firm

Canaveral Port Authority Rail Extension Project, Port Canaveral, Cape Canaveral, FL

Mr. Bell planned and led the design team that produced 30% design of the optimal rail extension alignment through the Kennedy Space Center from the terminus of the Center's plant rail in the Industrial Area of the KSC through Merritt Island and across the Banana River to the CPA's North Cargo Area. Mike also performed the inspections for serviceability of the KSC rail infrastructure and determined the needed upgrades for the CPA's proposed freight rail service. Since completion of 30% design of the rail extension through the KSC, Mr. Bell has provided critical information on the rail design and proposed construction methods to the STB as they prepare the EIS. Mr. Bell is leading the design team that is preparing the initial layouts for the rail yard and industrial spurs in the North Cargo Area and he developed the alignment and preliminary design and cost estimates for the feasibility study for aligning the freight rail extension from the Port along SR 401 and SR 528 to the FEC mainline west of US 1.

Canaveral Port Authority Multimodal Terminal and Logistics Center, Port Canaveral, Cape Canaveral, FL

Mr. Bell planned and led the design team that produced the 30% design of the rail yard and connection to the FEC mainline on the OUC Power Plant Indian River site. This effort included the planning of a rail connection from a new barge berth, a marshaling yard in the proximity of the barge berth, an at-grade crossing of US 1, a second marshaling and storage rail yard on the power plant property and a connection to the FEC mainline on the western boundary of the OUC site. Mr. Bell collaborated closely and effectively with the team's environmental specialist to ensure minimal



negative environmental impact of the proposed design and subsequent construction, thus facilitating the permitting process and maximizing project build-ability.

Dames Point ICTF (CSX) Design/Build, Jacksonville, FL

Project Manager. Jacksonville Port Authority selected TranSystems as part of a Design/Build team for the design, permitting and construction of an intermodal container transfer facility at Dames Point to provide near-dock CSX freight rail service to the Blount Island and Dames Point container terminals. The site is approximately 30 acres and the project entails the design and relocation of Dames Point Road, an existing CSX freight rail line that currently serves a private gypsum wallboard manufacturing plant, and CEMEX.

Sunrail Passenger Rail Design/Build, FDOT District 5, FL

SunRail is a commuter rail transit project that will run along a 61-mile stretch of existing rail freight tracks in Central Florida. TranSystems' scope of work includes, mainline, maintenance, and storage yard tracks, including embankment, culverts, and associated drainage; vehicle maintenance and storage facility site, including buildings, roadways, parking lots, drainage, and site design; operations control center building and vehicle storage and inspection building, including permitting; 12 station platforms; bridge over the St. John's River; and crash walls and retaining wall. Mr. Bell is TranSystems' project manager and point of contact with the design/build joint venture.

CSX NW Ohio Intermodal Terminal

The new intermodal project in North Baltimore, Ohio was a "green field" site. Mr. Bell worked with the client to define the true needs for the site including: Alternative yard layouts; Operational analysis; Preliminary planning; Coordination with main line rail traffic moves; Detailed design input; and Coordination with client relations to develop conceptual level plans. TranSystems further developed preliminary engineering plans used for soliciting design build proposals.

CSX Charlotte, NC Terminal

As project manager, Mr. Bell created concept level engineering for the addition and alteration of track in the Charlotte, NC and Monroe, NC areas. Tasks include site visit, topographical information, drainage, assessment of property issues modifications to existing culverts, review of grade crossing, known outside party project effects to conceptual plans, recommendations for design criteria.

CSX Florida Capacity S-Line Projects

Developed multiple concepts for improving rail traffic flow which resulted in providing detailed final plans for 18 sites in Florida and further developed engineering plans used for permitting of each project.

- ▶ Crawford, FL – Extend existing siding to total length of 4.4 miles with universal crossover
- ▶ Baldwin, FL - Design 3.6 miles of second main line
- ▶ Highland, FL - Upgrade universal crossover
- ▶ Starke, FL - Design new #20 universal crossover



- ▶ Richloam, FL - Design 4 mile siding, including a railroad bridge over an "outstanding Florida waterway".
- ▶ Anthony, FL - Design new 2 mile passing siding
- ▶ Wildwood, FL - Design several improves to create eight miles of double track
- ▶ Ocala, FL – Design multiple improvements to create 6 miles of double track.
- ▶ Vitis, FL - Upgrade siding south to total length of 5.7 miles

CSX Fairburn Intermodal Terminal Expansion (2007)

A partnership was formed between CSX Intermodal and the Burlington Northern Santa Fe railroads to create a high-volume rail corridor connecting California, Atlanta, and other locations throughout the southeastern part of the U.S. As a consequence, this placed new demands on CSX facilities and track. In response to this initiative, CSXI determined that it needed to expand the company's existing terminal in Fairburn, GA. The expansion will enable CSXI to handle additional intermodal freight as import and domestic requirements increase. The project involves constructing an additional 40 acres of parking for rail cars and associated site improvements. TranSystems worked with CSX personnel and appropriate local and state environmental officials to ensure that wetlands located on the site were not negatively impacted by the project. Mr. Bell, along with the Chicago rail design team are responsible for site plans for permitting and construction, cost estimating, and project management. Plans for all infrastructure requirements, including tracks, grading, drainage, and utilities are all part of TranSystems' responsibility for the \$25 million project.

PAUL E. BOBBY

Mr. Bobby is Director of Railroad Engineering, Midwest Region, with STV Inc., a professional firm offering engineering, architectural, planning, environment and construction management services located at 200 West Monroe Street, Suite 1650, Chicago, Illinois 60606. Mr. Bobby is sponsoring portions of Section III-F of CSXT's Reply Evidence related to Earthwork, Trackwork, and Public Projects. Mr. Bobby has signed a verification of the truth of the statements contained therein. A copy of the verification is attached hereto.

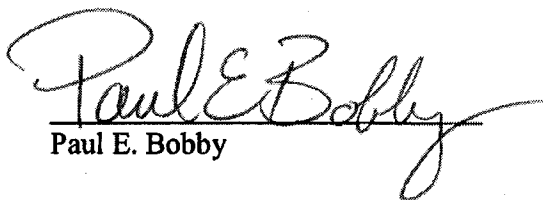
Mr. Bobby earned his Bachelor of Science degree in civil engineering from the University of Wisconsin/Platteville. He has experience in the design and construction of railroad improvements including rail clearance and grade separation programs. Mr. Bobby has participated in the design of roadway and track alignment, geometry, and right-of-way and utility conflict identification, working on feasibility studies, cost estimation and the development of staging plans for construction. Mr. Bobby's specific projects have included work on a railroad bridge for CSXT over the Hudson River, a railroad bridge for the Wisconsin Central Railroad over a roadway, and planning and design for the reconfiguration of a CSXT coal terminal in Baltimore, among several others.

Mr. Bobby is a member of the American Railway Engineering and Maintenance-of-Way Association ("AREMA"). He is also a member of the Maintenance-of-Way Club of Chicago.

Mr. Bobby's complete curriculum vitae is attached.

VERIFICATION

I, Paul E. Bobby, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Paul E. Bobby

Executed on this 2 day of March 2016.

Paul E. Bobby, P.E.

Director of Railroad Engineering - Midwest Region

Mr. Bobby is a project manager with more than 15 years of experience in the design and construction of railroad and highway improvements, including FTA New Starts projects and rail clearance and grade separation programs. He is adept at the design of roadway and track alignment, geometry, and ROW and utility conflict identification. Mr. Bobby has experience with feasibility studies, cost estimating, and the development of construction staging plans to maintain traffic and operations. He has also managed a variety of successful track capacity expansion and rail improvement projects for Metra, major Class I freight railroads, and design and construction phase services during the Chicago Region Environmental and Transportation Efficiency (CREATE) program, which is intended to help expedite freight rail travel through Chicago, the busiest freight gateway in the nation. The program is identifying and addressing key bottlenecks and other deficiencies within the region's transportation infrastructure.

Project Experience

IDOT IL-15 over IC Railroad and IL-13 Reconstruction - Rail Coordinator

Providing railroad coordination services for the \$14.4 million replacement of dual structures on IL-15 that span IL-13 and the Illinois Central (IC) railroad in St. Clair County, IL. An Illinois Department of Transportation (IDOT) inspection found the dual bridges to be in poor condition. The agency, therefore, recommended that both structures be replaced. The firm provided Phase I and Phase II design engineering services for the structural replacements. Phase I services included the preparation of a crash analysis, geometric studies, environmental coordination, public involvement, and all other work necessary to prepare a Project Report for design approval. Phase II includes the complete design of the new structures. Mr. Bobby communicates closely with the various rail agencies to keep them informed of the project plans and mitigate potential impacts the project may have on their operations.

EJE CN Bridge 198 Motor Control Improvement Design - Rail Operations Specialist

Evaluated operational impacts of the installation of a new standalone drive-and-control system for Elgin, Joliet, and Eastern Railway (EJE) to supplement the wound-rotor motor system on Canadian National Railway (CN) Bridge 198 in Joliet, IL. Improper seating was interfering with operation of the bridge, a vertical lift structure controlled by a 1940s-era motor system.

CSXT Bridge 45 - Rail Engineer

Responsible for the rail alignment design and construction staging plans for a new single-track railroad bridge over the Hudson River in Iona, NY. The

Firm

STV

Education

Bachelor of Science, Civil Engineering; University of Wisconsin/Platteville

Professional

Registrations

Professional Engineer: Georgia, Illinois, Indiana, Wisconsin

Training

OSHA 10-Hour Construction Health and Safety

Memberships

American Railway Engineering and Maintenance-of-Way Association (AREMA)
Maintenance-of-Way Club of Chicago
American Council of Engineering Companies (ACEC), Public Transportation

bridge was designed with environmental sensitivity to the Hudson River ecosystem. Mr. Bobby prepared staging plans to maintain rail operations during the bridge construction.

WisDOT Wisconsin Central Railroad Bridge over US 41 - Project Manager

Managed the replacement of the Wisconsin Central Bridge US 41 in Fond du Lac, WI. Mr. Bobby prepared the project work plan, budget, amendments, and schedule; made staff assignments; quality assurance; and managed all coordination with the client. The project encompassed five alternative studies for the new structure, which replaced the existing single-track bridge. The Wisconsin Department of Transportation (WisDOT) and the firm determined that two new bridges would best replace the single-track bridge over US 41. The design provided a new industrial spur railroad track off of the main line to the Fond du Lac Southwest Industrial Park. The firm also assisted in executing public information meetings and utilities coordination. Mr. Bobby's responsibilities included coordinating the evaluation of alternatives with WisDOT.

IDOT Elgin O'Hare West Bypass - Railroad Coordinator

Overseeing rail coordination efforts with the Union Pacific, Canadian Pacific, and Canadian National freight railroads, as well as the project team, for the proposed extension of the Elgin O'Hare West Bypass in Cook County, IL. This \$3.6 billion project began with an Environmental Impact Statement and feasibility study analyzing alternatives to improve transportation and ease congestion within the study area. Proposed improvements include widening existing roadways and extending the Elgin O'Hare Expressway east into O'Hare International Airport to provide western airport access. The initial study was completed and presented to the Illinois Department of Transportation (IDOT), which is moving forward with the design of the recommended improvements that have the least impact on the surrounding neighborhoods. Work includes design engineering services for various grade separations within the O'Hare Bypass area, and is designing improvements for the Bensenville Freight Yard, the Bryn Mawr Interlocking, the B-17 Interlocking, and various at-grade crossings. Mr. Bobby is overseeing the evaluation of the impacts of the proposed Elgin O'Hare West Bypass on the freight and passenger rail services located within the project area. The primary objectives of his coordination efforts are to keep the railroads informed of the progress of the study and to resolve any potential conflicts at an early stage. Mr. Bobby has also been working with the planning team during the alternative design process and advising them of potential rail impacts.

Illinois Tollway Open Road Tolling Plaza CM - Project Controls

Provided project controls for the firm's Phase III engineering services for plaza/roadway improvements for the open road tolling conversions at four main line plazas on the Tri-State Tollway for Illinois Tollway. The conversions included Tri-State Tollway milepost 19.5 (83rd Street - Plaza 39), milepost 19.8 (82nd Street - Plaza 36), milepost 30 (Cermak - Plaza 35), and milepost 39 (Irving Park- Plaza 33) in DuPage and Lake counties, IL. Mr. Bobby assisted

in cost analysis, construction revisions, quantity changes, and change order requests.

IDOT Dan Ryan Expressway Reconstruction - Project Engineer

Provided interdisciplinary coordination, road grading, and intersection grading design of the frontage road reconstruction from 63rd Street to 47th Street on the Dan Ryan Expressway in Chicago for the Illinois Department of Transportation (IDOT). Mr. Bobby's responsibilities included ramp relocations, writing special provisions, and horizontal and vertical design layout. He also designed 25 cast-in-place retaining walls, which line the frontage roads and ramps.

Village of Elwood Drummond Road Relocation - Project Engineer

Completed horizontal and vertical design, earthwork, storm sewer layout, and erosion control for the roadway design for the relocation of Drummond Road in Elwood, IL.

UP IL HSR Tier 4 CM - Project Manager

Overseeing the firm's construction management services for the Union Pacific Railroad (UP) Tier 4 package for the Illinois High Speed Rail (HSR) project in Normal, IL. The scope of work encompasses the reconstruction of three siding tracks along the UP Joliet – Springfield Subdivision. The construction involves the removal and disposal of existing signal foundations and track. The project also includes 45 at-grade crossing improvements, rail fencing and numerous new culverts and bridge modifications. Mr. Bobby is conducting on-site visits, communicating extensively with the client, and managing the project budget and schedule.

IDOT Granite City to St. Louis Corridor Phase I Environmental Studies - Project Manager/Project Engineer

Supervising preliminary engineering efforts during Phase I services for all work associated with the preparation of the Environmental Impact Study for the expansion of high-speed rail (HSR) service between Granite City, IL, and St. Louis, MO, for the Illinois Department of Transportation (IDOT). The 284-mile-long Chicago to St. Louis Corridor transportation network consists of highway, air, and rail (Amtrak) service. The purpose of the IDOT Chicago to St. Louis HSR Program is to improve rail service and to establish a more balanced use of the multimodal transportation network. As with the rest of the corridor, the 20-mile section of rail through Madison and St. Clair counties currently operates on one set of tracks. The design team is working to identify a preferred alternative to allow speeds up to 79 mph through the study section and increase on-time reliability for Amtrak service. As part of this project, the firm is studying roadway/rail grade separations at two locations. These include the existing at-grade crossings at Niedringhaus Avenue in Granite City, IL, and Bissell Avenue in Madison, IL. At both crossings, a full range of alternatives have been investigated, including vertical profile changes to both the existing roadway and rail alignments. The firm's scope of work includes data collection, preparation of base maps and mosaics, geometric studies, capacity analysis, railroad coordination, environmental field studies and

reviews, cost estimates, and public involvement. Mr. Bobby is providing overall project coordination of all engineering tasks, managing the firm's financial reporting and tracking, and reviewing all railroad alignments and feasibility analyses.

CSXT Jamestown Siding Track - Project Manager

Overseeing design plans to improve network capacity in Jamestown, IN, involving a new 10,000-foot rail siding, track installation and earthwork, new and rehabilitated grade crossings, and the installation of seven new culverts and headwalls along CSXT's Great Lakes Division. As part of an on-call contract, this \$9.9 million effort requires erosion control, site preparation, and track construction. Mr. Bobby is managing preliminary site assessments and geotechnical investigations, as well as developing construction plans.

CSXT/Chicago/Gary Regional Airport Authority CSXT Fort Wayne Line and NS Gary Branch Consolidation - Project Manager

Overseeing track and civil plans for the consolidation of CSXT's Fort Wayne Line and the Norfolk Southern Railway (NS) Gary Branch in Gary, IN. The work is being performed to facilitate the Chicago/Gary Regional Airport Authority's airport runway extension and includes the addition of a new connection from CSXT's Barr Subdivision to Canadian National (CN)'s reconfigured Elgin, Joliet & Eastern Railway line. A new industrial connection from the CSXT Porter Subdivision to the Indiana Sugars manufacturing facility will also be required. In addition, the project includes reconfiguring the Clarke Junction Interlocking between the Barr Subdivision, adding a new connection to the NS Chicago Line, and removing the Pine Junction Interlocking on the Barr Subdivision to improve speeds from 40 mph to 60 mph. Mr. Bobby is coordinating closely with the client while developing the track design. The firm is acting as the owner's representative for the project, and Mr. Bobby is reviewing documentation from the airport to the client to assess impacts to CSXT. He is identifying potential hazards, such as drainage issues, to make sure the interests of CSXT are maintained and their property is not affected during construction. Mr. Bobby is also managing the project budget, schedule, and staff.

CSXT GEC Services for CSXT CREATE Projects - Project Manager

Overseeing various projects under a general engineering consultant (GEC) contract with CSXT. The aim of the Chicago Region Environmental and Transportation Efficiency (CREATE) program is to help CSXT expedite freight rail transit through Chicago, the busiest rail freight gateway in the United States. The tasks under the contract involve interlocking, track, and signal modifications, which require civil and track engineering design and construction management services.

CSXT CREATE B-9 - Project Manager

Leading the design of a new double-track connection and crossover upgrades in Summit Argo, IL. The project will replace the connection between Canadian National and Baltimore & Ohio Chicago Terminal (B&OCT) tracks and increase the track capacity by extending the B&OCT siding track in

Bridgeview, IL. Mr. Bobby is also overseeing improvements to Argo Yard, including realigning switch lead tracks, installing three new yard tracks, and constructing a new industry lead track to avoid switching within the control point. He is developing project reports and plans, specifications, and estimates packages for the client and contractor. Mr. Bobby is also communicating with the railroad to make sure the designs effectively meet their needs while avoiding service disruptions.

CSXT CREATE B-16 Thornton Junction Connection Design - Project Manager

Developing a project report and design approval documents for a new track and associated switches to connect the Canadian National Elsdon Sub and Union Pacific Villa Grove Sub in South Holland, IL, as part of a general engineering consultant contract for CSXT. This will reestablish a former connection between the Beltway and Western Avenue corridors.

CSXT CREATE WA-2 Segment B - Project Manager

Oversaw the design of new crossovers between the Baltimore & Ohio Chicago Terminal (B&OCT) main tracks and modifications to the crossover between the B&OCT track and Norfolk Southern Railway tracks as part of a general engineering consultant contract with CSXT for projects within the CREATE program. Mr. Bobby worked closely with the various railroads involved to design new alignments and profiles within the project area. He also developed a project report and plans, specifications, and estimates packages for the contractor and the railroad.

CSXT CREATE WA-2 Construction Management - Project Manager

Oversaw the firm's construction management services during the 4-phase signal installation and construction of interlocking improvements at seven locations on the Western Avenue Corridor in Chicago from Ogden Junction to 75th Street, where a new centralized traffic control (CTC) signaling system was be installed. The CTC signaling and interlocking improvements increased train speeds and traffic capacity through better track utilization. The project was part of a general engineering consultant contract with CSXT.

CSXT CREATE B12 Third Main Construction Oversight - Project Manager

Oversaw the construction of a third main line along the Beltway Corridor from 123rd Street to CP San Francisco in Alsip and Blue Island, IL. This additional main line will increase freight rail capacity and decrease travel times within the area. Mr. Bobby managed construction of new track, track upgrades, signal work, and a new rail bridge over 127th Street under a general engineering consultant contract with CSXT.

CIISRA Los Angeles-to-Anaheim Project EIR/EIS - QA/QC Review

Conducting a QA/QC review, including track and alignments, of a 30-mile segment of high-speed rail line between Los Angeles and Anaheim, CA, for the California High-Speed Rail Authority (CHSRA). This is a high profile \$6.2 billion project. The proposed corridor runs adjacent to existing passenger and

freight lines and will travel at speeds up to 220 miles per hour. The segment requires the development of solutions for overlaying a new set of track infrastructure into a physically constrained rail corridor, which includes local and regional passenger service as well as local and transcontinental rail freight operating on a limited ROW in a dense urban environment. Mr. Bobby is providing a QA/QC review of the plan and profile drawings, as well as the inclusion of alternatives for at-grade, tunnel, and aerial portions during the evaluation process.

City of Ottawa O-Train Expansion - Lead Track Engineer

Oversaw the design of track and acceptance inspection activities during the service expansion of the O-Train light rail transit system in Ottawa, Ontario. To accommodate increased ridership on the 5-mile (8-km), single-track, diesel multiple unit (DMU) rail system, the city initiated efforts to install two new passing sidings on the single-track system. As part of this design-build effort, activities also included the replacement of the Ellwood Diamond (a crossing of the O-Train and the Canadian Northern Railway), signal system upgrades, civil grading and drainage, utility relocations, additional storage tracks at Walkley Yard, improvements to the Walkley Maintenance Facility, passenger station enhancements, and the acquisition of six new DMU train sets. As part of this effort, Mr. Bobby's responsibilities included developing the preliminary configurations for the two passing sidings, as well as performing acceptance inspection of the track work. In addition, he contributed to the preparation of an advanced material package and prepared bid documents.

CSXT Curtis Bay Coal Terminal Reconfiguration - Project Manager

Managed planning and design for the reconfiguration of CSXT's Curtis Bay coal terminal in Baltimore. The project consolidated yard tracks from the existing coal inbound yard and merchandise yard to provide three 130-foot inbound tracks to store unit coal trains. It also reconfigured the inbound lead tracks to the west yard to separate switching operations and implement new crossover arrangements at the existing three coal dumpers. The work was needed for CSXT's planned expansion of ground storage at the facility. Mr. Bobby oversaw conceptual layouts and design for the yard reconfiguration. The most challenging aspect was staging the sequence of construction for the maintenance of operations to minimize impacts to CSXT service during construction. He also conducted on-site visits, communicated extensively with the client, and managed the project budget and schedule.

UP Reconstruction of Metra Bellwood and Berkeley Stations - Project Manager

Led design engineering services for the reconstruction of Metra's Union Pacific West Line passenger stations in Berkeley and Bellwood, IL, as part of the CREATE B2 project. The firm provided engineering and architectural design services to modify the stations to accommodate a third main line track being constructed by the Union Pacific Railroad (UP). The station upgrades consisted of new center platforms, warming shelters, and pedestrian underpasses with retaining walls. Mr. Bobby worked closely with the railroads

to develop a phased implementation plan to coordinate with the third-track construction and oversaw the firm's construction phase services.

Sunoco Logistics Nederland Rail Facilities Upgrade - Rail Design Lead

Led the design of the rail component of the infrastructure upgrade at the large marine terminal in Nederland, TX, which provides oil loading and unloading facilities for extracting crude oil from rail cars. The site has two short existing tracks with a small number of equipment spots for loading and unloading oil. Mr. Bobby directed the design of the track extension to accommodate multiple 30-car loading and unloading spots. His team's rail plan included typical sections, alignment plan, profiles, cross sections, and track details. The track expansion was designed to be constructed under traffic to allow oil cars to still load and unload while the track extensions are constructed.

NICTD Kensington Interlocking Improvements CM Services - Construction Manager

Directed construction management (CM) services for improvements at the Kensington Interlocking on Chicago's south side, including the addition of a second Northern Indiana Commuter Transportation District (NICTD) route across the Canadian National railroad to the Metra Electric Mains. The firm provided a precondition survey to identify existing conditions of the rail and ROW within the project limits, including the existing signal system, structures, and track appurtenances, and oversaw all aspects of the contractor's construction methods. Mr. Bobby was responsible for field inspections, contract administration, project controls, quality assurance, safety monitoring, and procurement assistance.

CSXT CREATE WA-10 - Project Manager

Managed the final design of a rail interlocking to allow the interchange between the Canadian National and CSXT railroads in Blue Island, IL. Expanding this interlocking between these two main lines will increase rail traffic capacity and improve train movement through Chicago. Mr. Bobby coordinated work between the signal designers and each railroad and their respective labor forces. He also prepared plans, specifications, and estimate submittals to the Illinois Department of Transportation.

Metra Civil/Structural Blanket Engineering Services - Project Manager

Oversaw rail engineering services for the firm's civil/structural blanket project for Metra, for which the firm provided systemwide services on an as-needed basis. The firm's project scope varied by task order, and services included field verification of conditions, design of buildings and trackwork, rehabilitation of buildings and retaining walls, construction inspection and plan preparation, environmental assessments, traffic studies, roadway geometry, and property surveys. Mr. Bobby oversaw all 12 tasks associated with this contract, one of which involved conducting a thorough condition inspection, preparing a condition report, and developing the necessary rehabilitation activities for repair of the Rock Island District Turntable in Blue Island, IL.

NICTD West Lake Corridor New Starts Studies - Engineering Task Leader

Led Phase I engineering design of a commuter rail system for the Northern Indiana Commuter Transit District (NICTD) extending from Valparaiso to Lowell, IN, to Chicago. Mr. Bobby prepared travel-demand modeling, alternatives development, plan and profile development, and a public outreach campaign.

St. Louis Metro East Riverfront Interlocking - Project Engineer

Oversaw the track design for a new diamond interlocking located between St. Louis Metro's existing East Riverfront light-rail station and the Eads Bridge spanning the Mississippi River. The Eads Bridge is a 2-level structure carrying two sets of tracks for the MetroRail transit system on its lower level and a 4-lane highway on the upper level. The new interlocking is located in an area east of the bridge known as the East Arcade. Mr. Bobby and his team designed the new interlocking on a tight schedule and within a restricted area, which made design work challenging. The project required the installation of an asymmetrical double crossover using a combination of No. 6 and No. 8 turnouts on concrete ties to allow single-track operation over the Eads Bridge with minimal disruption to the passenger rail service while the bridge is rehabilitated. This project had an aggressive completion schedule, which required the firm to develop an independent material procurement package in advance of the construction contract. Mr. Bobby directed the track design for the new interlocking and reviewed the final plans, successfully meeting the aggressive schedule.

Metra Computerized Maintenance Management System Program - Project Manager

Oversaw the selection and implementation of a computerized maintenance management system (CMMS) for Metra's fixed facilities, including passenger train stations, locomotive and car shops, maintenance-of-way facilities, train control centers, and offices throughout Chicago and its surrounding suburbs. Mr. Bobby and his team collaborated with the agency to develop and implement a 2-phase plan to standardize and automate preventive maintenance work orders for Metra's fixed assets. As part of the project, the firm evaluated and customized an off-the-shelf Web-based CMMS application that would replace Metra's paper-based legacy system. Mr. Bobby led site inventories to survey and document Metra's facilities equipment and assets, which were then loaded into the CMMS asset database. During the second phase of the plan, he successfully managed the staggered implementation of the CMMS. Under Mr. Bobby's direction, the CMMS was fully implemented and is utilized across all of Metra's districts.

Metra Blanket Project Administration/Management Services - Project Manager

Oversaw the administration of projects for Metra to be designed by outside consultants. Mr. Bobby managed project controls and monitored compliance with approved budgets and schedules. Specific tasks under this blanket included administration and management of parking lot design, construction

inspection services, and Standard Cost Category Analysis for New Starts projects. Mr. Bobby was also responsible for making sure Metra's standards and guidelines were adhered to by the project teams and documented according to Metra project management guidelines.

Metra Standard Cost Category Analysis for New Starts Projects - Project Manager

Managed this project to assist Metra in standardizing the capital cost methodology and estimates for four Chicagoland projects according to FTA guidelines on Standard Cost Categories. These guidelines were required as part of the application process to enter the New Starts program for federal funding. Projects included new service to the STAR Line and Southeast Line; the Union Pacific Railroad (UP) Northwest Line track and signal improvement, as well as extension of service; and the UP West Line track and signal improvements.

NS Lakeside Dam Rehabilitation - Rail Engineer

Provided design services for rail alignment and related earthwork as part of the construction of a 1.5-mile realignment in Macon, GA, for the Norfolk Southern Railway (NS). The proposed alignment was partially over a 60-foot-high earthen dam. The project, which required coordination among many stakeholders, involved a complex intersection of the railroad, a major state route, and the dam.

CTA Brown Line Tie Renewal - Project Rail/Civil Engineer

Provided engineering and track inspection services for this \$18 million project, which included the renewal of dense, composite ties with Pandrol plates, as well as the replacement of timber guards, rail greasers, and contact rail chairs for the Chicago Transit Authority (CTA) Brown Line in Chicago. This project included the complete replacement of timber cross ties and outer guard with plastic composite cross ties and outer guards, all new tie plates, and other track materials. Live train testing was performed on the 50-foot-high elevated track, which spans 3 miles and encompasses eight stations. Mr. Bobby assisted with constructability reviews, project planning, inspection services, and emergency services.

CSXT Goldsboro Passing Siding - Lead Rail Engineer

Oversaw rail engineering for the design of a 2-mile passing siding on the W&W subdivision of the Atlantic Coast Line in Goldsboro, NC. Work for this project was performed on an accelerated schedule, allowing only four weeks from the start of engineering until the bid documents needed to be complete. Mr. Bobby prepared complete documents, including plans, special provisions, and cost estimates. The project was completed on time and within budget.

KCS Meridian Rail Siding - Lead Rail Engineer

Led the design team for a proposed rail alignment and related earthwork as part of the construction of a 3-mile double-track extension on the Meridian Speedway in Meridian, MS. The project had an aggressive schedule, and the line remained operational with staged construction. The project was part of a

master agreement with Kansas City Southern (KCS) to provide professional services on an on-call basis for the main rail lines.

KCS Meridian Connection - Lead Rail Engineer

Served as technical lead and managed the design team responsible for the design of the rail alignment and related earthwork as part of the construction of a 4-mile realignment and connection of the Norfolk Southern Railway (NS) and the Kansas City Southern (KCS) railway on the Meridian Speedway in Meridian, MS. The project required extensive coordination between the KCS and NS railroads, resulting in an operational staging plan suitable for both parties. The project was part of a master agreement with KCS to provide professional services on an on-call basis for the main rail lines.

NS Heartland Clearance Improvements CM - Rail Engineer

Provided design services in support of construction management (CM) for modifications to the Norfolk Southern Railway (NS) alignment in order to meet clearance requirements and developed an undercutting plan to be executed by the railroad for clearance improvements to 29 tunnels in Virginia, West Virginia, Kentucky, and Ohio known as the "Heartland Corridor." Mr. Bobby contributed to the design of overhead bridge-jacking plans to obtain vertical clearances. He modified slide fences, provided utility coordination, and reviewed track design. Mr. Bobby also created railroad bridge-lowering plans and stormwater pollution prevention plans at tunnel portals for this \$191 million project.

Michigan State University Rail Feasibility Study - Rail Advisor

Provided technical advisement to Michigan State University (MSU) for a feasibility study to expand its existing coal storage yard to allow for bulk unit trains. The study investigated the possibility of increasing both operational flexibility and capacity to allow MSU to store unit trains and perform switching operations. Mr. Bobby utilized his extensive rail experience to advise the client on geometric and operational solutions, and performed quality assurance for the study.

CTA Circle Line Alternatives Analysis - Task Manager

Served as civil task manager for the alternatives analysis of the new Chicago Transit Authority (CTA) Circle Line, which would connect the existing CTA transit lines and several Metra commuter lines by an outer loop track approximately two miles outside of downtown Chicago. Mr. Bobby performed project data collection, horizontal/vertical alignment development and analysis, and ROW and utility-conflict identification. The study focused on a series of elevated structures and underground tunnels required to make the connections.

Metra Southwest Service Expansion - Project Engineer

Led the rail design for this \$97 million main line expansion of Metra's Southwest Service Line in Chicago, a Federal Transit Administration New Starts project to support Metra's growing ridership needs. The scope of work included upgrading 3.2 miles of an existing single-track to a double-track to

increase the frequency of Metra's service to its existing areas and expand service to Manhattan, IL. The project also included four maintenance-of-way sidings, three interlockings, two new station layouts, and one new yard that included a maintenance facility. Mr. Bobby coordinated with the various project disciplines to develop the rail design according to the project plan. He also produced bid documents.

City of Ottawa Illinois Valley Commuter Rail Feasibility Study - Project Engineer

Provided conceptual engineering for the analysis of the physical, operational, and financial feasibility of providing commuter rail service on an existing active railroad ROW and trackage between Joliet and LaSalle/Peru, IL.

Forest City Enterprises Illinois Science and Technology Park - Project Manager

Oversaw the development of the master utility and drainage plan and the Phase I construction documents for this \$500 million, 23-acre redevelopment project in Skokie, IL. The scope of work included the demolition of multiple buildings, site utilities disconnection and demolition, partial utility tunnel demolition, site backfill, and temporary site and landscape improvements in preparation for new buildings, structures, and permanent landscape. Mr. Bobby managed the pre-design services, the development of site utility and drainage master plans, and limited interim site engineering for a master plan, all of which addressed current and future buildings, as well as phased development. He oversaw the integration of existing systems with new systems, and attended meetings with the client, utility companies, surveyors, public agencies, construction and demolition contractors, architects, and electrical/mechanical consultants.

St. Louis Metro General On-Call Architectural and Engineering Services - Project Manager

Oversaw the evaluation protection measures necessary to eliminate the risk of a train car derailed from an active adjacent track impacting a planned new passenger waiting station to be constructed as part of the extension of the Civic Center MetroLink Station in St. Louis as part of a task order contract with St. Louis Metro. Mr. Bobby and his team evaluated the proposed station configuration with respect to the need for derailment protection and recommended that the retaining walls in the front of the building be sufficient to provide impact protection.

City of Joliet Regional Multimodal Transportation Center - Engineering Lead

Provided railroad coordination and oversaw required infrastructure improvements as part of the development of a multimodal transportation center in Joliet, IL. Several modes of transportation will be relocated into a central facility located within the Joliet Union Depot Interlocking, which includes Union Pacific Railroad, BNSF Railway, Amtrak, and the Metra Rock Island District and Heritage Corridor rail lines, and will connect to the historic Joliet Union Station. Mr. Bobby coordinated with the various rail agencies, keeping

them informed of the project plans and mitigating potential impacts the project may have on the railroads. The firm provided professional services for the planning and engineering of the center and developed an implementation plan identifying possible funding sources and phasing of project elements over a multi-year timeframe. In addition to rail coordination, Mr. Bobby developed infrastructure improvements related to track realignments, platform configurations, interlocking modifications, bridge rehabilitations, and construction staging for the estimated \$42 million facility.

Riverview Trenton Rail Road Intermodal Facility - Design Engineer

Prepared plans for conceptual grade crossings, new yard layout, container storage, and trackwork for this intermodal facility in Detroit.

City of Lisle Commuter Rail Station - Resident Engineer

Completed inspection, material testing, and construction documentation for a commuter rail station rehabilitation in Lisle, IL. The project included construction of new precast platforms on grade beams, handicap ramps, hand railings, drainage, retaining walls, and stairways.

Amtrak Detroit Station - Design Engineer

Designed a parking lot, site drainage, and grading plans for the development of this rail station in Detroit. Mr. Bobby was also responsible for utility and rail coordination.

Jefferson Terminal Railroad Auto Mixing Facility - Design Engineer

Provided the conceptual design of an auto mixing facility in Detroit, MI, which incorporated over-the-road auto haulers with a rail yard and staging facility that included plans for conceptual grade crossings, new yard layout, container storage, and trackwork.

CSXT Piqua Yard - Design Engineer

Provided cost-estimating and design services for a new yard located in Fort Wayne, IN, to accommodate a new steel manufacturer in the area that needed rail service.

Metra 47th Street Trainwasher - Project Engineer

Provided on-site project-engineering services during construction for the layout of the yard lead track and new approach to the trainwasher.

MWRDGC Stickney Facility Centrifuge - Track Engineer

Designed the layout for additional yard track for the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) centrifuge in Stickney, IL. Mr. Bobby also incorporated a new car-mover with the existing facility.

CTA Block 37 Station and Tunnel Connector - Project Engineer/Lead Rail Engineer

Designed the rail alignment for a mined tunnel in water-bearing soft clay that connects the Chicago Transit Authority (CTA) Blue and Red transit lines in Chicago. Located at Block 37 between State and Dearborn streets, this tunnel links the two subways to a new underground station. Work for this project was

performed on an extremely complex and tight schedule, and had to be completed with minimal disruptions to the subway service. Mr. Bobby prepared all special trackwork and details, and established the horizontal geometry for the trackwork and alignment for the entire project.

**MWRDGC MUPPS for the North Side Water Reclamation Plant -
Project Engineer**

Provided overall engineering services to prepare a Master Underground Process Piping Survey (MUPPS) — a comprehensive geographic information system (GIS) database that identifies and locates all underground utilities, process piping, topographic features, and permanent structures — at the North Side Water Reclamation in Skokie, IL, for the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). The GIS system comprises AutoCAD Civil Map 3-D graphical objects with links to a customized Microsoft Access relational database, and facilitates an inventory and information retrieval on all site utilities. Mr. Bobby was responsible for the development and implementation of the GIS database system and researched and digitized existing district drawings and associated databases.

GARY BONNEAU

Mr. Bonneau is a Communications and Security Project Manager/Systems Integration Manager with STV Inc., a professional firm offering engineering, architectural, planning, environment and construction management services located at 111 North Orange Avenue, Suite 710, Orlando, Florida 32801. Mr. Bonneau is sponsoring portions of Section III-F of CSX Transportation, Inc. ("CSXT's") Reply Evidence relating to Communications. Mr. Bonneau has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Bonneau holds an Associate of Arts, Foundations of Business degree from the University of Phoenix. Mr. Bonneau has more than 30 years experience in project management with particular expertise in engineering and systems integration of communications and control systems for transportation agencies. Mr. Bonneau has worked on a variety of transportation communication projects, including a project for MassDot in which Mr. Bonneau provided engineering support services for the Longfellow Bridge design-restoration. Mr. Bonneau has also worked with the Charlotte, CDOT as the lead engineer and site inspector of traffic signals, CCTV cameras, and fiber optic cable in the city. Formerly, Mr. Bonneau worked with GE Transportation Systems as a project validation subsection manager, where he was responsible for testing and validating integrated communications systems.

Mr. Bonneau's complete curriculum vitae is attached.

VERIFICATION

I, Gary Bonneau, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Gary Bonneau

Executed on this 2nd day of March 2016.

Gary R. Bonneau

Communications and Security Project Manager/Systems Integration Manager

Mr. Bonneau has more than 30 years of experience in project management with expertise in engineering and systems integration of communications and control systems for transportation agencies. He has overseen design, installation, configuration, and commissioning of fiber and copper backbone, systems networks, network management, supervisory control and data acquisition (SCADA), telephone, closed-circuit television (CCTV), fire, intrusion, central control, voice and data radio, PA/variable message sign (VMS) systems, and railroad signaling systems for numerous light rail transit (LRT), freight systems, and subway systems. Mr. Bonneau has also performed the hands-on daily management of installation and commissioning of these systems.

Firm STV

Education
Associate of Arts,
Foundations of Business;
University of Phoenix

Certification
Contractor's License: Oregon

Project Experience

MassDOT Longfellow Bridge Rehabilitation Design-Build - Systems Integration Manager

Providing engineering support services for the \$255 million Longfellow Bridge design-build restoration for the Massachusetts Department of Transportation (MassDOT). Mr. Bonneau developed the systems integration plan and provided reviews during installation of various communication systems, including the fiber optic and copper cabling. The 2,135-foot-long structure, constructed in 1908, carries Route 3 and Massachusetts Bay Transportation Authority Red Line tracks over the Charles River between Boston and Cambridge, MA.

City of Boston Emergency Medical System Communications Control - Project Manager/Electronic Technician

Responsible for the installation, configuration, and testing of the City of Boston's emergency medical service Pentacom PCX system, which is the backbone for the city's Central Medical Emergency Direction (CMED) system. Boston Emergency Medical Services (EMS) operates the Metro-Boston CMED system, providing coordination between EMS field providers and area hospitals throughout the 62 cities and towns in the metropolitan Boston area. Boston EMS staffs the CMED Center 24 hours-a-day, linking field providers to hospitals, managing EMS channel use, providing EMS resource information, and offering command and control assistance during mass casualty incidents or disaster response in cooperation with on-scene commanders.

CDOT ITS and Traffic Engineering Consulting - Systems Integration Manager

Leading the engineering and site inspections of traffic signals, CCTV cameras, and fiber optic cable in Charlotte, NC, for the Charlotte Department of Transportation (CDOT). Rapid urban development and a booming population had caused a traffic spike in Charlotte, NC, which caused CDOT to seek innovative traffic management solutions, including an intelligent transportation system (ITS). Mr. Bonneau is providing systems designs for a 4.1-mile section of WT Harris Boulevard and a 2.7-mile section of Statesville Avenue between Graham/Dalton and Starita Road, making use of both aerial and underground fiber optic cable.

CDOT Traffic Signal System Upgrade - Systems Integration Manager

Led the engineering and site inspections of traffic signals and a camera fiber optic cable plant in Charlotte, NC. Mr. Bonneau designed a 5.5-mile section of aerial and underground fiber optic cable facilities for the Charlotte Department of Transportation (CDOT).

GE Transportation Systems - Former Project Validation Subsection Manager

Managed a team of more than 20 global field and office employees working domestically and internationally, including project engineers and technicians. Mr. Bonneau coordinated closely with program managers, system engineers, Center of Excellence engineers, and cross-functional teams to drive the execution of engineering development activities and took overall responsibility for directing the completion of engineering development within budget and on schedule. He was responsible for testing and validating integrated systems for intelligent control systems, including signaling, communications, substations, traction power systems, earth and bonding, SCADA, and operational control center. Mr. Bonneau was also responsible for the resolution of critical technical interface issues and interactions between the systems and construction activities.

GE Transportation Systems - Former Engineering Special Projects Manager

Responsible for resource and field management, budget tracking, integration engineering, custom software development, and closeout of critical projects. Mr. Bonneau oversaw the handoff of integrated systems from systems engineering to field installation and commissioning. He also produced and reviewed installation and in-service documentation of verified factory test results, and produced field validation procedures. Mr. Bonneau supervised nearly 40 systems engineers and technicians, identified field problems, collaborated with engineers to develop solutions, and provided customer service and support. He also created annual business plans, quarterly financial reports, and project performance effectiveness programs.

GE Transportation Systems - Former Operations and Engineering Manager

Managed the execution of technology-driven communications valued at more than \$75 million. Mr. Bonneau supervised a staff of 45 in a communications integration group, including mentoring and training engineers.

FEMA Disaster Deployment Vehicles - Engineering Integration Manager

Provided design, development, installation, and testing services of mobile voice, data, and satellite systems for the federal government. Mr. Bonneau also conducted classroom and hands-on training of all equipment integrated into the final product. He supplied FEMA with self-supporting mobile command centers capable of providing complete communications services for up to 10,000 subscribers in remote locations. Systems included KU-Band satellite systems; C-Band satellite systems; fiber optic systems; satellite and VF modems; Harris LR4-2000 LOS microwave systems; HF, VHF, and UHF transceivers (1.8MHz to 870 MHz); Motorola trunking radio system (806 MHz to 870 MHz); private automatic branch exchanges (PABXs); FAXs; PCs; printers; and multiplexers.

Portland Tri-Met Computer-Aided-Dispatch/Automatic Vehicle Location and Radio Replacement System - Project/Systems Integration Manager

Led the engineering and inspection of communications systems for the Tri-County Metropolitan Transportation District of Oregon (Tri-Met) transit system in Portland, OR. Mr. Bonneau designed, installed, and commissioned four new trunked multicast P25 land mobile radio systems tower sites, 650 buses, 300 vans, 200 light rail vehicles, 490 handheld radios, and 21 dispatch consoles to support the customer needs.

Region of Waterloo Rapid Transit Division ION LRT System - Systems Integration Manager

Providing engineering services for the ION LRT and bus rapid transit (BRT) systems for the Region of Waterloo Rapid Transit Division in Ontario, Canada. The 11.8-mile (19-km) network will operate 14 light rail vehicles across 22 stations. Mr. Bonneau is developing specifications and designs for the carrier transmission system, fiber optic cable plant, systems networks, passenger assistance intercom, service telephones, CCTV, fire, access control, voice and data radio, PA/VMS systems, and traffic control systems. The estimated \$818 million design, build, operate, and maintain project includes integration with the signaling and traction power systems. He is currently providing design services during construction.

CATS LYNX Blue Line Extension Light Rail Project - Systems Integration Manager

Providing engineering and systems integration design for the Charlotte Area Transit System (CATS) Blue Line Extension, adding 9.3 miles and 11 stations and support facilities to the existing 9.8-mile line. Mr. Bonneau is

focusing on integrating the extension's systems with legacy systems at the existing Rail Operations Control Center, including traction power, overhead contact, and signaling systems, and is working closely with CATS to manage the logistics of equipment and cabling modifications, replacement, and relocation services. The new IP-based system will carry multiple forms of data, such as cable transmission and PA systems, emergency, service, and passenger assistance phones; train-in-station indication; ticket vending machine data; and wireless data communication for internal agency use. Mr. Bonneau is also providing construction reviews for the communications systems for the estimated \$1.1 billion design-bid-build project.

GoTriangle Durham-Orange LRT Project - Systems Integration Manager

Developing communications and central control design criteria for GoTriangle for a DEIS as part of a proposed new 17.1-mile LRT alignment between Chapel Hill and east Durham, NC. The alignment runs along US 15-501 and would connect major regional travel destinations, including Research Triangle Park, the University of North Carolina Chapel Hill and Duke University and their respective medical centers, North Carolina Central University, and the Durham VA Medical Center, and provide convenient access to the Raleigh-Durham International Airport. The firm is responsible for utility design and coordination for the Durham-Orange LRT DEIS, which includes comparison of LRT to transportation systems management and no-build options. Mr. Bonneau is also providing engineering and systems integration design for the project's communications systems.

City of Ottawa Confederation Line LRT - Systems Integration Manager

Providing preliminary engineering design for communications systems and systems integration of the signaling and traction power systems for the \$2.1 billion, 7.8-mile Confederation Line for the City of Ottawa, Ontario. This is the first conversion of an exclusive, fully built-out bus rapid transit system to an LRT network in North America. Now under construction through a design-build contract, Mr. Bonneau is conducting construction reviews for the installation of the system's communications systems, which include a new fiber-optic backbone to support the existing Operations Control Center, as well as a new Backup Control Center. He is providing design services during construction.

City of Ottawa LRT Stage 2 - Systems Integration Manager

Providing preliminary engineering design for communications systems, as well as systems integration with signaling and traction power systems, for the 18.6-mile (30-km) Stage 2 light rail transit (LRT) system for the City of Ottawa, Ontario. Building on the Confederation Line project currently under construction, the Stage 2 LRT Plan is a package of three rail extensions from the Confederation and Trillium lines that will add 19 new stations farther east, west, and south. Mr. Bonneau is developing specifications and designs for the carrier transmission system, fiber optic cable plant, systems networks, passenger assistance intercom, service telephones, CCTV, fire, access

control, voice and data radio, PA and variable message sign systems, and traffic control systems. His primary focus is on systems integration with the ongoing Confederation Line work.

HRT The Tide LRT Extension - Systems Integration Manager

Providing preliminary engineering design services for communications systems to Hampton Roads Transit (HRT) for the 3.5-mile extension of The Tide, a 7.4-mile light rail transit (LRT) system between Norfolk and Virginia Beach, VA. Mr. Bonneau is providing services to integrate new and existing systems, including communications, signaling, and traction power systems. He is developing specifications and designs for the carrier transmission system, fiber optic cable plant, systems network, passenger assistance intercom, service telephones, CCTV, fire, access control, voice and data radio, PA and variable message sign systems, and traffic control systems.

Cablevision Wi-Fi Transit Project - Systems Integration Manager

Provided engineering and systems integration design and site surveys for a major Cablevision initiative to implement Wi-Fi wireless Internet access for all NJ TRANSIT commuter trains operating in New York and New Jersey. The program involves the development, testing, and deployment of high-technology access points for up to 60 passenger stations with Wi-Fi. The project also includes installing a custom suite of Wi-Fi equipment in NJ TRANSIT commuter coaches.

GE Transportation Systems - Former Integrated Solutions and Network Projects Manager

Managed the software production and design, installation, and commissioning for six domestic and international control center projects, including at Central Puget Sound Regional Transit Authority (Sound Transit) yard in Seattle and the Rotterdam Metro yard in Netherlands. Mr. Bonneau oversaw the schedule, budget, and overall project management, and was responsible for field management, enhanced engineering, custom software development, and project closeout. In this position, Mr. Bonneau also created annual business plans and quarterly financial plans, and developed and implemented growth strategies and project performance effectiveness programs.

Metro Expo LRT Phase I - Communications Systems Manager

Oversaw the design, installation, and commissioning of communications and security systems and inspection services on the 8.6-mile Los Angeles County Metropolitan Transportation Authority (Metro) Expo line between downtown Los Angeles and Culver City, CA. Mr. Bonneau supervised engineering of the CCTV, fire, intrusion, voice and data radio, and PA systems. He also integrated the signal system and was responsible for the installation of the fiber optic backbone system for the \$930 million design-build project.

Sound Transit Central Link - Communications Systems Manager

Led the design, installation, and commissioning of engineering and inspection of communications and security systems for the 13.9-mile double-tracked Central Puget Sound Regional Transit Authority (Sound Transit) Central Link LRT alignment from Convention Place through downtown Seattle to a park-and-ride facility with shuttle service to Seattle-Tacoma International airport. The Central Link includes a combination of elevated, at-grade, and underground alignments. Tunnels include the existing 1.3-mile Downtown Seattle Transit Tunnel, the new 1-mile-long Beacon Hill tunnel, and the Pine Street stub tunnel in the vicinity of the Convention Place station for crossover and turnback operations. Mr. Bonneau oversaw design of the network, SCADA, telephone, CCTV, fire, intrusion, central control, voice and data radio, and PA/VMS systems. He also integrated the signal system and installed the fiber optic backbone system.

Metro Gold Line Eastside Extension - Project/Systems Integration Manager

Led the design and installation of the communications and security systems for the 5.9-mile extension of Los Angeles County Metropolitan Transportation Authority (Metro) Gold Line LRT service from Los Angeles Union Station to East Los Angeles, CA. The \$898 million design-build project included two underground stations, six at-grade stations, and five interlockings. Mr. Bonneau was responsible for the integration and commissioning of radio, telephone, PA/VMS, CCTV, cable transmission, SCADA, intrusion detection and controlled access, fire detection and suppression monitoring, gas monitoring, seismic detection, facilities emergency management, communications power, and tunnel portal surveillance systems. The project included design integration with the traction power, overhead contact, and signaling systems.

GE Transportation Systems - Former Projects Leader

Provided leadership and executive management of project managers on the West Coast of the United States. Mr. Bonneau oversaw project management, design, engineering, installation, and commissioning of the \$40 million Central Puget Sound Regional Transit Authority (Sound Transit) Central Link LRT communications system. He supervised a staff of 22 and trained and developed engineers and technicians on state-of-the-art communications technology.

Sound Transit Sounder - Systems Integration Manager

Led the design, installation, and commissioning of engineering and inspection of communications and tracking systems for the 70-mile Central Puget Sound Regional Transit Authority (Sound Transit) Sounder commuter rail line between Tacoma and Everett, WA. Mr. Bonneau oversaw the communications, including the fiber optic wide area network (gigabit ethernet), emergency telephone, CCTV, passenger information, and global positioning systems.

Albanian State Railways - Systems Integration Manager

Provided management and technical leadership using a hands-on approach to complete the microwave and trunked radio system for the Albanian State Railways in the Republic of Albania. The system provides radio coverage for rail transport throughout the country utilizing four Harris Intraplex E1 microwave systems (5.8 GHz and 2.4GHz), towers, antennas, solar power systems, five UHF radio systems, control consoles, onboard train radio systems, and portable hand-held radios.

Metro-North Railroad Hudson Line - Systems Integration Manager

Led the design, installation, and commissioning of a fiber-optic backbone along the Hudson Line for Metro-North Railroad. Mr. Bonneau supervised the design and construction management for the installation of a fiber-optic system along the entire 74-mile line between Grand Central Station in Manhattan and Poughkeepsie, NY. The fiber-optic system provides more reliable communication with staff and customers.

NYC Transit ATS Implementation Program - Project Manager

Oversaw design, installation, and commissioning of a \$200 million automatic train supervision (ATS) system for New York City Transit (NYC Transit) Subdivision A rail territory, except for the No. 7 line. The ATS facilitates service management and consolidates most of the work currently performed at both the master towers and the subway control center in Brooklyn. It also provides real-time centralized train traffic control for the A Division from the rail control center operating theater, real-time train tracking, integrated voice communications with recording capabilities, and automatically developed train routing schemes based on schedule and service conditions. In addition, the ATS provides improved coordination of emergency response activities between operating divisions to expedite solutions, and effective, centralized management for better on-time performance.

St. Louis Metro St. Clair County Extension - Systems Integration Manager

Led the design, installation, and commissioning of the communications and security systems for the 17.4-mile extension of MetroLink light rail service from East Saint Louis to the campus of Southwestern Illinois College in Belleville, IL. The \$340 million St. Louis Metro project included eight new rail stations and utilizes both new and abandoned CSXT ROW.

NYC Transit Stations PA/CIS Systems - Project/Systems Integration Manager

Oversaw the design, installation, and commissioning of PA/customer information screens (CIS) in 140 New York City Transit (NYC Transit) subway stations. The information distributed through the PA/CIS system originates from NYC Transit's Rail Control Center, where customer service agents provide subway riders with up-to-date service status either as audio, visual, or synchronized audio and visual information, including countdown clocks showing the minutes until the next train arrives.

**St. Louis Metro Communications and Operations Systems - Project/
Systems Integration Manager**

Oversaw installation of communications and operations systems for the St. Louis MetroLink light rail transit system. The project used miles of unused rail bed and railroad right-of-ways that were expandable, as well as an unused rail deck on the Eads Bridge and tunnels under the downtown central business district. MetroLink opened in 1993 as the first light rail system in the St. Louis region, connecting 16 stations over 14 miles from St. Louis County in Missouri to St. Clair County in Illinois.

**Amtrak Boston CETC Communications Facility - Communications
Specialist**

Oversaw the replacement of Amtrak's Centralized Electronic Traffic Control (CETC) equipment in Boston. Mr. Bonneau was responsible for the technical installation and commissioning of the CETC equipment. He completed the amphitheatre installation, integrated communications with a tandem control system, and established and integrated all field control lines for signals and communications.

RICHARD BROWN

Mr. Brown is a Director at FTI Consulting, Inc., an economic and consulting firm with offices located at 1101 K Street, NW, Washington, D.C. 20005. With 28 years of experience in the railroad industry, Mr. Brown specializes in providing financial, economic and analytical consulting services to North America's largest railroads. Mr. Brown is sponsoring portions of Section III-D of CSXT's Reply Evidence relating to operating equipment, materials and supplies, and general and administrative expenses. Mr. Brown has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Brown received a Bachelor of Art degree in economics from Syracuse University in 1963 and a Master of Business Administration from Northwestern University in 1971. Prior to joining FTI, Mr. Brown spent 28 years with The Burlington Northern & Santa Fe Railway ("BNSF"), and its predecessor The Atchison, Topeka and Santa Fe Railway ("ATSF"). While at BNSF, Mr. Brown focused on strategic issues including the negotiation and implementation of the agreements between Union Pacific ("UP") and BNSF that were effected to facilitate the UP and Southern Pacific ("SP") merger. Additionally, he took a lead role in the analysis of the potential impact of regulatory changes on railroad marketing strategy.

Mr. Brown held numerous positions in Strategic Planning and Marketing at ATSF. He was involved in merger analysis and planning and played a key role in the attempted merger between ATSF and SP. Mr. Brown headed ATSF's Bulk Commodity Marketing which included Chemicals and Coal. In this role, he re-engineered a field sales organization with regional directors responsible for coaching and mentoring account managers. He also led ATSF's rail-truck retail efforts and negotiated several joint venture and business partnerships. While in this capacity, he developed a program for using rail truck transfer to increase car utilization. He implemented a joint venture with a major bulk truck line to bring intermodal rail service to dry

bulk shippers. Mr. Brown has provided expert testimony in merger proceedings before the Interstate Commerce Commission and the Surface Transportation Board.

Mr. Brown's complete curriculum vitae is attached.

VERIFICATION

I, Richard Brown, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Richard Brown

Executed on this 1 day of MARCH 2016

Richard W. Brown

Director – Economic Consulting

rick.brown@fticonsulting.com

FTI Consulting

1101 K Street, NW

Suite B100

Washington, DC 20005

Tel: (202) 312-9100

Fax: (202) 312-9101

EDUCATION

MBA from Northwestern
University Graduate School
of Management

BS in Economics from
Syracuse University

Richard Brown is a Director in FTI's Economic Consulting practice. With 28 years of experience in the railroad industry, Mr. Brown specializes in providing financial, economic and analytical consulting services to North America's largest railroads. Mr. Brown has provided expert testimony in merger proceedings before the Interstate Commerce Commission and The Surface Transportation Board. Mr. Brown is assigned to the DC office, however works from his home office at 925 Ranch Road, Copper Canyon, TX 76226.

Mr. Brown joined FTI Consulting in 1999. Much of the NIS group's work focuses on the economic and financial analysis of network industries, in particular different aspects of transportation. While at FTI, he has been involved in the analysis of rates, costs, and service in the railroad industry. Mr. Brown has worked extensively to develop expert testimony before the Surface Transportation Board ("STB") examining the reasonableness of railroad rates, railroads' applications for mergers and acquisitions. He also supported railroad internal strategic planning needs with respect to mergers and acquisitions and the impact of potential regulatory changes.

Prior to joining FTI, Mr. Brown spent 28 years with The Burlington Northern & Santa Fe Railway (BNSF), and its predecessor The Atchison, Topeka and Santa Fe Railway (ATSF). While at BNSF, he focused on strategic issues including the negotiation and implementation of the agreements between UP and BNSF that were effected to facilitate the UP-SP merger. Additionally, he took a lead role in the analysis of the potential impact of regulatory changes on railroad marketing strategy.

Mr. Brown held numerous positions in Strategic Planning and Marketing at ATSF. He was involved in merger analysis and planning and played a key role in the attempted merger between ATSF and Southern Pacific. He headed ATSF's Bulk Commodity Marketing which included Chemicals and Coal. In this role, Mr. Brown re-engineered a field sales organization with regional directors responsible for coaching and mentoring account managers; started a subsidiary company to handle tank containers as a retail intermodal options; and expanded on that with a joint venture with Bulkmatic, a major dry bulk truck line, to initiate a retail intermodal option for bulk containers.

Mr. Brown holds a Bachelors Degree in Economics from Syracuse University and an MBA degree from Northwestern University Graduate School of Management.

TESTIMONY

Surface Transportation Board

- September 20, 2002 Docket No. 42070 Duke Energy Corporation v. CSX Transportation, Inc., Written Reply Evidence and Argument of CSX Transportation, Inc.
- September 30, 2002 Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Written Reply Evidence and Argument of Norfolk Southern Railway Company.
- October 11, 2002 Docket No. 42072 Carolina Power & Light v. Norfolk Southern Railway Company, Written Reply Evidence and Argument of Norfolk Southern Railway Company.
- January 19, 2010 Docket No. 42110 Seminole Electric Cooperative, Inc. v. CSX Transportation, Inc., Written Reply Evidence of CSX Transportation, Inc.
- May 7, 2010 Docket No. 42113 Arizona Electric Power Cooperative, Inc. v. BNSF Railway Company and Union Pacific Railroad Company, Joint Reply Evidence of BNSF Railway Company and Union Pacific Railroad Company
- November 10, 2011 Docket No. 42127 Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
- November 30, 2012 Docket No. 42125 E.I. DuPont De Nemours & Company v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
- January 7, 2013 Docket No. 42130 SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
- March 1, 2013 Ex Parte No. 711 Petition for Rulemaking to Adopt Revised Competitive Switching Rules, Opening Comments of the Association of American Railroads, Verified Statement of Michael R. Baranowski and Richard W. Brown
- April 12, 2013 Docket No. 42136, Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
- May 30, 2013 Ex Parte No. 711 Petition for Rulemaking to Adopt Revised Competitive Switching Rules, Reply Comments of the Association of American Railroads, Verified Statement of Michael R. Baranowski and Richard W. Brown
- July 21, 2014 Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.

U.S. District Court for the District of Oregon

- February 5, 2010 CV No. 3:08-CV-415-BR. BNSF Railway Company v. Albany and Eastern Railroad Company, et al.

PATRICK J. BRYANT

Mr. Bryant is a Civil Engineer with STV, a professional firm offering engineering, architectural, planning, environment and construction management services located at 200 West Monroe Street, Suite 1650, Chicago, Illinois 60606. Mr. Bryant is sponsoring Section III-B and portions of Section III-F of CSXT's Reply Evidence relating to Earthwork, Trackwork and Public Projects. Mr. Bryant has signed a verification of the truth of the statements contained therein. A copy of the verification is attached hereto.

Mr. Bryant has more than 20 years of experience in rail, roadway, highway and bridge design and construction. He worked as Project Engineer on a CSXT coal terminal reconfiguration and as a Design Engineer for CSXT's Blue Island interchange with CN. He has also worked as a Track Engineer for the Elgin O'Hare West Bypass in Illinois and Gary Airport's Expansion Project's relocation of CSX and NS tracks in Gary Indiana. Mr. Bryant worked as a Rail Engineer on the KCS Meridian Connection, performing design for the rail alignment and related earthwork as part of a realignment and connection construction. For Norfolk Southern, Mr. Bryant worked as a Rail Engineer on the Lakeside Dam Rehabilitation, designing the rail alignment and related earthwork as part of a 1.5 mile realignment at the intersection of the railroad, a state road and an earthen dam.

Mr. Bryant earned his Bachelor of Science in civil engineering from the University of Illinois at Chicago. His complete curriculum vitae is attached.

VERIFICATION

I, Patrick J. Bryant, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.

Patrick J. Bryant

Patrick J. Bryant

Executed on this 2 day of March 2016.

Patrick J. Bryant, P.E.

Civil Engineer

Mr. Bryant is a civil engineer with more than 20 years of experience in roadway, highway, bridge, and rail design and construction. He has provided services as a project engineer, construction engineer, construction technician, and QA/QC specialist for numerous projects in Illinois, including for the Illinois Department of Transportation (IDOT) Elgin O'Hare West Bypass, for which he is providing conceptual track design for potential alignments and impacts to the Union Pacific Railroad, Canadian Pacific Railway, and Canadian National Railway. Mr. Bryant's experience includes the design of roadway geometry, grading, drainage, and utilities. He has been responsible for the design of roadway plans, including profiles, horizontal alignments, and cross sections, and is also experienced in track design for commuter rail agencies and freight railroads. In addition, Mr. Bryant's work on residential and commercial development projects showcases his knowledge of site/civil and environmental engineering.

Project Experience

IDOT Elgin-O'Hare Expressway Bridges - Inspection Engineer

Inspected the superstructure and substructure of all of the existing bridges for both the westbound and the eastbound Elgin-O'Hare Expressway in Cook and DuPage counties, IL. This work was associated with the handover of the Expressway from the Illinois Department of Transportation (IDOT) ownership to the Illinois Tollway. Mr. Bryant took field notes and photos, recorded damage, and coordinated with traffic control personnel. He also assisted with the preparation of the Bridge Condition Reports for both structures.

Illinois Tollway Jane Addams Memorial Tollway Lee Street to Kennedy Expressway Widening - Civil Engineer

Inspected the superstructure and substructure of the eastbound Jane Addams Memorial Tollway (I-90) bridge over Des Plaines River Road and the ramp bridge over Des Plaines River Road in Cook County, IL. This was part of the civil engineering services for the planned reconstruction and widening of 2.5 miles of the I-90 between Lee Street and Kennedy Expressway for the Illinois Tollway. Mr. Bryant took field notes and photos, recorded damage, and coordinated with traffic control personnel. He also assisted with the preparation of Bridge Condition Reports for both structures.

CDOT Torrence Avenue Vertical Lift Bridge Reconstruction - Inspection Engineer

Inspected all of the cables for the Torrence Avenue vertical-lift bridge over the Cal-Sag Channel in Cook County, IL. The \$25 million Chicago Department of Transportation (CDOT) project involved repair of the steel structure and mechanical and electrical components of the 276-foot-long lift span truss. Mr.

Firm STV

Education

Bachelor of Science, Civil Engineering; University of Illinois, Chicago

Professional

Registration

Professional Engineer:
Illinois

Training

NS/CSXT/UP Safety
Training

E-RailSafe Certified OSHA
10-Hour Construction Safety
and Health Training

Computer Skills

AutoCAD, Civil3D,
MicroStation, GEOPAK,
HydroFlow, TR20, Paydirt,
Visual Basic, AutoLisp,
Eaglepoint

Bryant took field notes and photos and recorded damage. He also coordinated with construction personnel for the redistribution of the bridge loading upon the cables to allow for even loading. Mr. Bryant also assisted with the preparation of the Wire Condition Report.

CSXT Manville Bridge Reconstruction - Track Engineer

Prepared track designs to address construction staging for CSXT's reconstruction of a railroad bridge over a waterway in Manville, NJ. The new structure increases CSXT's capacity from one track to two tracks in the Reading subdivision. Mr. Bryant designed track geometry, plan and profiles, and temporary shoofly alignments for the staging plans and final rail alignment.

CDOT Montrose Harbor Bridges and Underpasses - Project Engineer

Provided engineering services for the reconstruction of four concrete arch bridges originally built in the 1930s in Chicago's Montrose Harbor Park. The firm evaluated rehabilitation and reconstruction alternatives for each of the structures. Because the bridges are located in a historic park setting, the firm coordinated with the project architect to develop a structural system that maintained the existing architectural features while meeting current highway bridge standards. Mr. Bryant designed maintenance of traffic plans, which included assessing current traffic volume and developing a plan that would have minimal impact to commuters during construction. He also assisted with the drainage design plans for the Chicago Department of Transportation (CDOT) project.

Sharp Homes Commercial Development Projects - Project Engineer

Developed site plans for various commercial development projects in Joliet, IL. Mr. Bryant oversaw spur track design, road design, grading design, geometric alignments, stormwater management design, easement coordination, and utility design and coordination for the new industrial park, three commercial lots, and a railroad distribution center at the Mound Road Commercial Park.

O&S Holdings Bridge Street Mall - Project Engineer

Responsible for site plans for a 320-acre mall development project in Joliet, IL. The proposed mall would contain numerous stores, restaurants, and medical and professional offices. Mr. Bryant was responsible for parking lot, road, and grading design; geometric alignments; easement coordination; stormwater management system design; and utility design and coordination.

Taking Care of Business Inc. Crete Marketplace - Project Engineer

Developed site plans for a 100-acre commercial development project in Crete, IL. This commercial development contains 2 major department stores, a fast-food restaurant, 2 gas stations, and 12 other useable lots. Mr. Bryant was responsible for parking lot, road, and grading designs; geometric alignments; easement coordination; stormwater management design; and utility design and coordination.

Chovan Commercial Subdivision - Project Engineer

Developed site plans for a 20-acre commercial development project in Joliet, IL, consisting of medical and professional offices. Mr. Bryant was responsible for parking lot, road, and grading design; geometric alignments; easement coordination; stormwater management design; and utility design and coordination.

KDOT Fabyan Parkway at Van Nortwick Avenue Phase II Intersection Improvements - QA/QC

Performed QA/QC for the firm's Phase II engineering services for the Fabyan Parkway and Van Nortwick Avenue intersection in Batavia, IL, for the Kane County Division of Transportation (KDOT). The scope of work included road widening and the addition of a left-turn lane, as well as data collection, geotechnical services, and drainage design. The firm also extended lateral pipes in the widened area, replacing inlets along curb lines and a culvert to correct a drainage problem. The firm prepared construction documents in accordance with the IDOT Bureau of Local Roads manual and Kane County design standards. Mr. Bryant performed QA/QC of the final Phase II engineering plans that the firm submitted.

IDOT US 150 Phase I Study - Civil Engineer

Provided civil design for Phase I engineering for the preparation of a Categorical Exclusion Group II report for the widening of US 150 in Tazewell County, IL, to three lanes. Mr. Bryant was responsible for roadway design, including grading, geometric alignments, and easements on this Illinois Department of Transportation (IDOT) project.

Kendall County Highway Department/Sharp Homes Hunter's Ridge Road Widening - Project Engineer

Designed roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, for the widening of a 2-lane rural road to a 4-lane arterial with multiple intersections to support new residential developments in Joliet, IL. The project included widening a 1.5-mile stretch of roadway to accommodate the 130-acre Hunter's Ridge and 90-acre Jones Road subdivisions developed by Sharp Homes. Mr. Bryant was also responsible for developing site plans for the subdivision projects.

Illinois Tollway I-294 Reconstruction - Project Engineer

Managed the design of roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, for the reconstruction of six miles of I-294 in Cook County, IL for the Illinois Tollway. Mr. Bryant was also responsible for developing special provisions and preparing project cost estimates.

Kendall County Highway Department/Lakewood Homes Ridge Road Widening - Project Engineer

Supervised the design of roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, for 2 miles of a major 4-lane arterial in Joliet, IL. Mr. Bryant was also responsible for developing roadway

improvements funded by Lakewood Homes. All plans were submitted to the Kendall County Highway Department for review.

CDOT Racine Avenue Improvements - Project Engineer

Facilitated the design of roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems associated with the improvement of a 0.8-mile segment of Racine Avenue in Chicago. Mr. Bryant was also responsible for developing special provisions and preparing project cost estimates for this Chicago Department of Transportation (CDOT) project.

CDOT 37th Street Improvements - Project Engineer

Developed roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, for improvements for a 0.5-mile section of 37th Street in Chicago. Mr. Bryant also developed special provisions and prepared project cost estimates for the Chicago Department of Transportation (CDOT) project.

IDOT Golf Road Rehabilitation - Project Engineer

Designed roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, for the rehabilitation of four miles of Golf Road in Schaumburg, IL for the Illinois Department of Transportation (IDOT). Mr. Bryant also developed special provisions and prepared project cost estimates.

IDOT Higgins Road Rehabilitation - Project Engineer

Responsible for the design of roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, for the rehabilitation of four miles of Higgins Road in Schaumburg, IL for the Illinois Department of Transportation (IDOT). Mr. Bryant was also responsible for developing special provisions and preparing project cost estimates.

DuPage County Highway Department Road Improvement Projects - Construction Engineer

Inspected the resurfacing and repair of numerous county roads in DuPage County, IL, including Bloomingdale Road, Gary Avenue, Glen Ellyn Road, Naperville Road, 75th Street, and 63rd Street. Mr. Bryant also provided QA/QC of contractors' work on these road construction projects.

Illinois Tollway I-90 Improvements - Project Engineer

Responsible for the design of roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, for improvements to I-90 in Illinois for the Illinois Tollway. Mr. Bryant was also responsible for developing special provisions and preparing project cost estimates.

Cook County Highway Department Ashland Avenue - Construction Engineer

Inspected the construction of 1.5 miles of Ashland Avenue in Chicago for the Cook County Highway Department. Mr. Bryant also provided QA/QC of contractors' work on the highway and bridge construction.

Illinois Tollway Randall Road/I-90 Interchange - Project Engineer

Designed roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, for the Randall Road/I-90 interchange in Elgin, IL for the Illinois Tollway. Mr. Bryant was also responsible for developing special provisions and preparing cost estimates.

Cook County Highway Department Lehigh Avenue - Construction Engineer

Responsible for the construction of 1.5 miles of Lehigh Avenue in Morton Grove, IL for the Cook County Highway Department. Mr. Bryant provided QA/QC of the contractors' work.

IDOT IL-59 - Project Engineer

Prepared roadway plans, including profiles, horizontal alignments, cross sections, and drainage systems, as part of the design of 5 miles of IL-59 in Naperville, IL for the Illinois Department of Transportation (IDOT). Mr. Bryant was also responsible for developing special provisions and preparing cost estimates.

Illinois Tollway I-294 Improvements - Construction Engineer

Responsible for construction inspection during the repair and resurfacing of six miles of I-294 in Rosemont, IL. Mr. Bryant provided QA/QC of contractors' work on this Illinois Tollway project.

IDI Rock Run Industrial Park, Idi Service Group Inc. - Project Engineer

Provided road and grading designs, geometric alignments, easement coordination, and utility design and coordination for this 60-acre development in Joliet, IL.

UP Illinois HSR Tier 4 CM - Track Engineer

Coordinating track construction as part of overall construction management (CM) services that include general construction inspection, as well as the preparation of inspector daily reports and project reports, during the High-Speed Rail (HSR) Tier 4 initiative along the Union Pacific Railroad (UP) corridor from Chicago to St. Louis. This \$56.5 million portion of a larger \$1.5 billion effort includes extensive siding, retaining wall, grade crossing, and bridge rehabilitation work in Normal, IL. Mr. Bryant is overseeing the reconstruction of three siding tracks along the UP Joliet - Springfield Subdivision. Construction involves the removal and disposal of existing signal foundations and track. The project also includes 45 at-grade crossing improvements, rail fencing, and numerous new culverts and bridge modifications.

CSXT/Chicago/Gary Regional Airport Authority CSXT Fort Wayne Line and NS Gary Branch Relocation - Construction Manager

Managing the project contractor and coordinating work with railroad forces for the reconfiguration of CSXT's Fort Wayne Line onto the Norfolk Southern Railway (NS) Gary Branch in Gary, IN. The work was performed as a component of the Chicago/Gary Regional Airport Authority's airport runway

extension project and includes the addition of a new connection from CSXT's Barr Subdivision to Canadian National's reconfigured Elgin, Joliet & Eastern Railway Line. A new industrial connection from the CSXT Porter Subdivision to the Indiana Sugars manufacturing facility was also added. In addition, the scope of work includes reconfiguring the Clarke Junction Interlocking between the Barr Subdivision, adding a new connection to the NS Chicago Line, removing the Pine Junction Interlocking on the Barr Subdivision, and improving design speed from 40 mph to 60 mph. Mr. Bryant is also reviewing CSXT's invoices to the Gary Airport and to NS, and is providing inspections to confirm that work is being performed according to the project plans and specifications. He previously worked on the project as the Design Engineer.

**CSXT CREATE WA-2 Connection Track Construction Oversight -
Field Inspector**

Performing field inspections during the installation of two new crossovers and two new turnouts on CSXT's Blue Island at the 22nd Street, a connection to the Norfolk Southern Railway (NS), and the construction of an 800-foot-long connection track with the BNSF. Part of the Chicago Region Environmental and Transportation Efficiency (CREATE) program, this connection allows freight rail traffic to avoid congestion and decreases travel times within the area. Associated signal work for a complete replacement of the 22nd Street Interlocking was also included. Mr. Bryant is providing inspections to confirm that the work is being performed according to the project plans and specifications.

CSXT Public Project Engineering Review - Rail Engineer

Performing a review of public improvement projects along the CSXT right-of-way and developing force account cost estimates for public agency reimbursement. Typically consisting of public highway or utility at-grade crossings, the public improvement projects require detailed review of plan sets to identify and estimate impact to existing rail infrastructure. Mr. Bryant is performing plan reviews and developing force cost estimates for track material, special trackwork, and force account labor for public agency reimbursement.

NS Lakeside Dam Rehabilitation - Rail Engineer

Responsible for the design of the rail alignment and related earthwork as part of the proposed construction of a 1.5-mile realignment of Norfolk Southern Railway (NS) in Macon, GA. The proposed alignment was partially over a 60-foot-high earthen dam. The project, which required coordination among many stakeholders, was a complex intersection of the railroad, a major state route, and the dam.

Illinois Tollway/IDOT Elgin O'Hare West Bypass - Track Engineer

Coordinating design plans with various railroads and transportation agencies and preparing staging plans as part of the firm's freight rail coordination for the \$3.6 billion Elgin O'Hare West Bypass in Cook and DuPage counties, IL, for the Illinois Department of Transportation (IDOT). Mr. Bryant developed conceptual track engineering plans and cost estimates for potential track

alignments and impacts to the railroads during Phase I of this project. He also developed staging plans, cross sections, plan profiles, and drainage plans. The project has now moved into Phase II, and the firm is coordinating the approved plans among the Union Pacific, Canadian Pacific, and Canadian National freight railroads and the project team. The primary objective of the coordination is to keep the railroads informed of project progress and to resolve any potential conflicts at an early stage. Mr. Bryant is coordinating work with the planning team during the alternative design process and is advising them of potential rail impacts. He is also coordinating plans with signals and highway improvement work being performed simultaneously. The firm is also working closely with the Illinois Tollway on this project.

CSXT Utica Unimin Yard Expansion - Design Engineer/Field Inspector

Designed new main, ladder track, and siding tracks for CSXT's expansion in Utica, IL, on the New Rock Subdivision. This work allows CSXT to better handle the increased traffic from the Unimin Sand Products Yard Expansion, which included lead tracks and yard tracks long enough to handle 135-car unit trains. Mr. Bryant also performed field inspections and the survey layout for the construction of the new trackwork.

CSXT CREATE B-16 Connection Track Construction Oversight - Field Inspector

Performed field inspections for the construction of a connection track between CSXT's Elsdon Subdivision between Munster, IN and Chicago, IL, and the Union Pacific Railroad (UP)'s Villa Grove Subdivision at Thornton Junction in South Holland, IL. Part of the Chicago Region Environmental and Transportation Efficiency (CREATE) program, this connection allows freight rail traffic to avoid congestion and decreases travel times within the area. Associated signal work was also included. Mr. Bryant provided inspections to confirm the work was performed according to the project plans and specifications.

CSXT vs. Total Petroleum Rate Case Litigation Cost Assessments - Project Engineer

Assembled the planning, engineering, and construction costs to build a hypothetical contemporary operating railroad for CSXT. This hypothetical railroad was 7,000 miles long. Services included a complete itemization, justification, and documentation of all transportation, material, and labor construction costs associated with a contemporary construction costing. All submittals were entered as evidence to the Surface Transportation Board to justify contested rates for this coal rate case. Mr. Bryant worked on cost assessments including major earthwork and culvert construction and track construction.

CSXT Curtis Bay Coal Terminal Reconfiguration Outbound Tracks - Project Engineer

Planned and designed the reconfiguration of CSXT's Curtis Bay coal terminal in Baltimore. The scope of work involved the addition of a third coal track yard from the coal dumper buildings to the outbound yard tracks to allow for more efficient handling of empty coal cars. The project also required the

reconfiguration of some of the outbound storage tracks so that an existing treatment pond could be enlarged. Mr. Bryant oversaw the conceptual layouts and design for the yard reconfiguration. The most challenging aspect was staging the sequence of construction for the maintenance of operations to minimize impacts to CSXT service during construction.

City of Ottawa O-Train Expansion - Track Designer

Assisted with design activities during the service expansion of the 5-mile (8-km), single-track, diesel multiple unit (DMU) O-Train rail system located in Ottawa, Ontario. Because ridership had doubled since the light rail transit system's introduction in 2001, the city initiated efforts to install two new passing sidings to increase capacity, as well as various signal systems improvements and maintenance facility upgrades. As part of the track design and train control services, Mr. Bryant contributed to the design of the horizontal alignments and vertical profiles of the two passing sidings. In addition, he prepared designs to add additional storage tracks at the Walkley Yard maintenance facility.

CSXT CREATE WA-10 Connection Track Construction Oversight - Field Inspector

Performed field inspections for the construction of a connection track between CSXT's Elsdon Subdivision (formerly CN) between Munster, IN and Chicago, IL, and the CSXT's Blue Island Subdivision in Blue Island, IL. Part of the Chicago Region Environmental and Transportation Efficiency (CREATE) program, these crossovers allow freight rail traffic to avoid congestion and decrease travel times within the area. Associated signal work was also included. Mr. Bryant provided inspections to confirm work was performed according to the project plans and specifications.

UP vs. Intermountain Power Agency Rate Case Part 2 Litigation Cost Assessments - Project Engineer

Assembled the planning, engineering, and construction costs to build a hypothetical contemporary operating railroad for the Union Pacific Railroad (UP). This hypothetical railroad was almost 200 miles long. Services included a complete itemization, justification, and documentation of all transportation, material, and labor construction costs associated with a contemporary construction costing. All submittals were entered as evidence to the Surface Transportation Board to justify contested rates for this coal rate case. The cost assessments Mr. Bryant worked on included major earthwork and culvert construction.

CSXT Curtis Bay Coal Terminal Reconfiguration - Inbound Tracks - Project Engineer

Planned and designed the reconfiguration of CSXT's Curtis Bay coal terminal in Baltimore. The project involved consolidating yard tracks from the existing coal inbound yard and merchandise yard to provide three 130-foot inbound tracks to store unit coal trains. The firm also reconfigured the inbound lead tracks to the west yard to separate switching operations and implement new crossover arrangements at the existing three coal dumpers. The work was

required for CSXT's planned expansion of ground storage at this facility. Mr. Bryant oversaw the conceptual layouts and design for the yard reconfiguration.

NS vs. SunBelt Rate Case Litigation Cost Assessments - Project Engineer

Assembled the planning, engineering, and construction costs to build a hypothetical contemporary operating railroad for the Norfolk Southern Railway (NS). This hypothetical railroad was almost 600 miles long. Services included a complete itemization, justification, and documentation of all transportation, material, and labor construction costs associated with a contemporary construction costing. All submittals were entered as evidence to the Surface Transportation Board to justify contested rates for this coal rate case. Mr. Bryant worked on cost assessments including major earthwork and culvert construction.

NS vs. DuPont Rate Case Litigation Cost Assessments - Project Engineer

Assembled the planning, engineering, and construction costs to build a hypothetical contemporary operating railroad for the Norfolk Southern Railway (NS). This hypothetical railroad was over 7,000 miles long. Services included a complete itemization, justification, and documentation of all transportation, material, and labor construction costs associated with a contemporary construction costing. All submittals were entered as evidence to the Surface Transportation Board to justify contested rates for this coal rate case. Mr. Bryant worked on cost assessments including major earthwork and culvert construction.

CSXT/Chicago/Gary Regional Airport Authority CSXT Fort Wayne Line and NS Gary Branch Relocation - Design Engineer

Prepared track and civil plans for the reconfiguration of CSXT's Fort Wayne Line onto the Norfolk Southern Railway (NS) Gary Branch in Gary, IN. The work was performed as a component of the Chicago/Gary Regional Airport Authority's airport runway extension project and includes the addition of a new connection from CSXT's Barr Subdivision to Canadian National's reconfigured Elgin, Joliet & Eastern Railway Line. A new industrial connection from the CSXT Porter Subdivision to the Indiana Sugars manufacturing facility was also added. In addition, the scope of work included reconfiguring the Clarke Junction Interlocking between the Barr Subdivision, adding a new connection to the NS Chicago Line, removing the Pine Junction Interlocking on the Barr Subdivision, and improving design speed from 40 mph to 60 mph. Mr. Bryant also coordinated the design plans with the various railroads and transportation agencies.

NICTD Kensington Interlocking Improvement CM Services - Track Engineer

Developed track engineering for construction management (CM) services for improvements at the Kensington Interlocking, including the addition of a second Northern Indiana Commuter Transportation District (NICTD) route across the connect to the Metra electric mains. Mr. Bryant made recommendations for alterations to the original track design that were

incorporated into the final design and construction. He also performed office engineering tasks as well as field inspections. The firm oversaw all aspects of the contractor's construction methods and provided a precondition survey to identify existing conditions of the rail and ROW in the area of the Kensington Interlocking limits, including the existing signal system, structures, and track appurtenances.

UP vs. Intermountain Power Agency Rate Case Part 1 Litigation Cost Assessments - Project Engineer

Assembled the planning, engineering, and construction costs to build a hypothetical contemporary operating railroad for the Union Pacific Railroad (UP). This hypothetical railroad was almost 300 miles long. Services included a complete itemization, justification, and documentation of all transportation, material, and labor construction costs associated with a contemporary construction costing. All submittals were entered as evidence to the Surface Transportation Board to justify contested rates for this coal rate case. The cost assessments Mr. Bryant worked on included major earthwork and culvert construction.

CSXT CREATE B-12 Third Main Construction Oversight - Field Inspector

Performed field inspections for the construction of a third main line along the Beltway Corridor from 123rd Street to CP San Francisco in Alsip and Blue Island, IL, which included new track and upgrades to existing track. Part of the Chicago Region Environmental and Transportation Efficiency (CREATE) program, this additional main line increased freight rail capacity and decreased travel times within the area. A new rail bridge over 127th Street was also constructed, including associated signal work. Mr. Bryant provided inspections to make sure the work was performed according to the project plans and specifications.

CSXT CREATE WA-10 - Design Engineer

Prepared track and civil plans for the final design of the rail interlocking to allow the interchange between the Canadian National (CN) and CSXT railroads in Blue Island, IL. As a component of the Chicago Region Environmental and Transportation Efficiency (CREATE) program, the project involved reconfiguring the CSXT Vermont Street interlocking to provide a universal connection to the CN main line. Mr. Bryant also coordinated the design plans with the various railroads and transportation agencies.

TTC Transit City LRT Program Project Management Services - Track Design QC

Provided QC track and civil plans as part of the proposed 13.6-km (8.5-mile) Toronto Transit Commission (TTC) underground light rail transit (LRT) line and new Sheppard's Street station in Toronto, Ontario, Canada. Mr. Bryant verified that the project was designed according to the agency's design criteria and that it was constructable. He checked clearances, materials, profile grades, and drainage design.

St. Louis Metro East Riverfront Interlocking - Track Engineer

Prepared track and civil plans for the design of a new interlocking between the East Riverfront MetroRail station and the historic Eads Bridge, which connects St. Louis with East St. Louis, IL, over the Mississippi River. The Eads Bridge is a 2-level structure carrying two sets of tracks for the MetroRail light rail transit system on the lower level and a 4-lane highway on the upper level. The firm designed a new asymmetrical diamond crossover interlocking within the East Arcade located east of the bridge. To construct the new interlocking, approximately 206 feet of the roadway deck and superstructure was removed. The firm designed the new interlocking on a tight schedule and within a restricted area, making the design work challenging. The interlocking is 185 feet long and the crossover is confined within an 18-foot-wide area. Mr. Bryant performed track calculations and geometry to develop multiple track alignment options. The plans were then presented to the client, who chose an option most suitable to their needs. Mr. Bryant prepared track and civil design plans using AutoCAD. He also coordinated with other project disciplines to develop conduit plans for multiple systems, including electrical, communications, overhead catenary, and signals, all of which were located within the restricted area.

KCS Meridian Connection - Rail Engineer

Performed design for the rail alignment and related earthwork as part of the construction of a 4-mile realignment and connection of Norfolk Southern Railway (NS) and the Kansas City Southern (KCS) railway on the Meridian Speedway in Meridian, MS, as part of an on-call contract. The project required extensive coordination between KCS and NS, resulting in an operational staging plan suitable for both parties.

NS/PennDOT SR 0028 Improvement - Track Engineer

Facilitated track design to address Norfolk Southern Railway (NS) capacity issues during the Pennsylvania Department of Transportation (PennDOT) improvement of SR 0028 in Pittsburgh. To allow for single-tracking during roadway improvements, NS Control Point (CP) Herr will be eliminated. For NS to have capacity for this interlocking removal and single-tracking, the firm relocated two approaching interlockings: one at CP Etna, and one at CP Sharp. Mr. Bryant designed track geometry, plan and profile for relocation of the interlockings as well as an extension of the westward main track No. 2 and controlled siding. The total project increased block capacity by 2,700 feet.

KB Homes Streams of Plainfield Residential Subdivision, KB Homes - Project Engineer

Provided road design, grading design, geometric alignments, easement coordination, and utility design and coordination for this 80-acre residential subdivision in Plainfield, IL.

Gallagher and Henry Parker Road Residential Subdivision, Gallagher and Henry - Project Engineer

Responsible for road and grading designs, geometric alignments, easement coordination, and utility design and coordination for this 120-acre residential subdivision in Homer Glen, IL.

Sharp Homes Horton Farms Residential Subdivision, Sharp Homes - Project Engineer

Provided road and grading design, geometric alignments, easement coordination, stormwater management, and utility design and coordination for this 80-acre residential subdivision in Joliet, IL.

UP CREATE B-2 Project - Project Engineer

Delivered site design engineering services for the reconstruction of the Metra's Union Pacific West Line passenger stations in Berkeley and Bellwood, IL, as part of the Chicago Region Environmental and Transportation Efficiency (CREATE) program for Union Pacific Railroad (UP). The firm provided engineering and architectural design services to modify the stations to accommodate a third main line track being constructed by UP. The station upgrades consisted of new center platforms, warming shelters, and pedestrian underpasses with retaining walls. Mr. Bryant provided site design, including grading, drainage, signage, and construction staging, and construction support services.

City of Joliet Regional Multimodal Transportation Center - Track Engineer

Provided railroad coordination and designs for infrastructure improvements as part of the development of a multimodal transportation center in Joliet, IL. Several modes of transportation were relocated into a central facility that connects to the historic Joliet Union Station. This venture could eventually be a stop on the future high-speed passenger rail line, linking Chicago with St. Louis. The transportation center is located within the Joliet UD Interlocking, which includes Union Pacific Railroad (UP), BNSF Railway, Amtrak, and the Metra Rock Island District and Heritage Corridor rail lines. Mr. Bryant developed designs for the infrastructure improvements related to track realignments, platform configurations, interlocking modifications, bridge rehabilitations, and construction staging.

CDWM Sewer Improvement Projects - Project Engineer

Responsible for the design of plans, including profiles, horizontal alignments, and grading plans, for numerous sewer improvements in Chicago. These Chicago Department of Water Management (CDWM) projects ranged from spot repair to total reconstruction of road and sewers.

CDWM CHA Redevelopment Projects - Project Engineer

Designed sewer plans, including sewer profiles, sewer horizontal alignments, and grading plans associated with improvements to Chicago Housing Authority (CHA) public housing. Associated Chicago Department of Water

Management (CDWM) projects included the Stateway Gardens, Henry Horner, Ida B. Wells, and Lakeview Crescent developments.

KAUSTUV CHAKRABARTI

Mr. Chakrabarti is a Senior Director of Economic Consulting in the Network Industries Strategies ("NIS") Group of FTI Consulting, Inc., an economic and consulting firm with offices located at 1101 K Street, NW, Washington, DC 20005. Mr. Chakrabarti is sponsoring portions of Sections III-C and III-D implementing the SARR operating plan and calculating operating expenses, excluding General and Administrative and Maintenance of Way, of CSX Transportation, Inc.'s Reply Evidence. Mr. Chakrabarti has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Chakrabarti holds a Bachelor of Science degree in chemistry and economics from the College of William and Mary. He also has a Master of Arts in applied economics from Johns Hopkins University.

Mr. Chakrabarti has provided economic and financial analysis to the transportation, telecommunications, and energy industries. He has worked on transportation industry analysis to estimate and forecast operating expenses, investment costs, and variable costs. He has applied the Board's URCS regulatory costing model in SAC, Simplified SAC and Three-Benchmark rate cases.

Mr. Chakrabarti's curriculum vitae is attached.

VERIFICATION

I, Kaustuv Chakrabarti, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



Kaustuv Chakrabarti

Executed on this 29th day of February, 2016

Kaustuv Chakrabarti

Senior Director – Economic Consulting

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EDUCATION

Bachelor of Science in
Chemistry and Economics from
the College of William and Mary

Master of Arts in Applied
Economics from the Johns
Hopkins University

Kaustuv Chakrabarti is a Senior Director at FTI Consulting in the Network Industries Strategies group within the Economic Consulting practice in the Washington, DC office. Mr. Chakrabarti conducts economic and financial analysis for primarily the transportation, telecommunications, and energy industries. He holds an M.A. in Applied Economics from the Johns Hopkins University and a Bachelor of Science, majoring in Chemistry and Economics, from the College of William and Mary, and is a CFA (Chartered Financial Analyst) charterholder.

Background

Mr. Chakrabarti has developed analyses in the transportation industry to estimate and forecast operating expenses, investment costs, variable costs, and other income-related elements. He has constructed and utilized databases to analyze operational data and in support of strategic decision-making. He has applied the STB's URCS regulatory costing model and the above analyses in rate cases brought before the STB under the Full SAC, Simplified SAC, and Three-Benchmark standards. He has also conducted valuations of firms or business segments outside of the transportation industry. For these valuations, he analyzed financial statements and other income data to develop various discount cash flow models.

Mr. Chakrabarti has conducted numerous business case analyses for the federal government in voice telephony, information technology, and building construction. In these efforts, he worked with clients to design potential investment solutions; compare the costs, benefits, and risks of each; and identify the optimal solution.

TESTIMONY

Surface Transportation Board

November 30, 2012	Docket No. 42125 E.I. DuPont De Nemours & Company v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
January 7, 2013	Docket No. 42130 SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
April 12, 2013	Docket No. 42136, Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company

June 26, 2014 STB Ex Parte 665 (Sub-No. 1) Rail Transportation of Grain, Rate Regulation Review, Joint Verified Statement of Benton V. Fisher and Kaustuv Chakrabarti Supporting BNSF Opening Filing

July 21, 2014 Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.

August 25, 2014 STB Ex Parte 665 (Sub-No. 1) Rail Transportation of Grain, Rate Regulation Review, Joint Verified Statement of Benton V. Fisher and Kaustuv Chakrabarti Supporting BNSF Reply Filing

October 7, 2015 Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Supplemental and Compliance Evidence of CSX Transportation, Inc.

November 20, 2015 Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Reply to Supplemental and Compliance Evidence

BENTON V. FISHER

Mr. Fisher is Senior Managing Director in the Network Industries Strategies ("NIS") Group of FTI Consulting, specializing in the economic analysis of network industries, including railroad transportation. His business address is 1101 K Street, Suite B100, Washington, DC 20005. Mr. Fisher is sponsoring portions of Sections II-A, III-C, and III-D, excluding General & Administrative and Maintenance of Way, of CSX Transportation, Inc's ("CSXT's") Reply Evidence. Mr. Fisher has signed a verification of the truth of the statements contained therein. A copy of the verification is attached hereto.

Mr. Fisher is a graduate of Princeton University where he obtained a Bachelor of Science degree of Engineering, from the Civil Engineering and Operations Research department. He graduated with a concentration in Information and Decision Sciences, and also received a certificate for completing the requirements for the Engineering and Management Systems program. After graduating, Mr. Fisher served as the Deputy Controller for the U.S. Senate re-election campaign for Bill Bradley, and since April 1991 has been employed by FTI Consulting and Klick, Kent & Allen, an economic consulting firm that FTI Consulting acquired in 1998.

Much of the NIS group's work focuses on the economic and financial analysis of network industries, in particular different aspects of transportation. Mr. Fisher has spent more than 20 years involved in the analysis of rates, costs, and service, and the factors that affect them. In the rail industry, he has worked extensively to develop expert testimony before the Surface Transportation Board examining the reasonableness of railroad rates, railroads' applications for mergers and acquisitions, and rulemakings regarding the establishment, evaluation, revision, and implementation of rules and regulations. He has managed the development of expert testimony covering a variety of topics in numerous contract disputes in Federal Court or arbitration

proceedings, requiring the analysis of economic and operating issues and response to service performance or other claims.

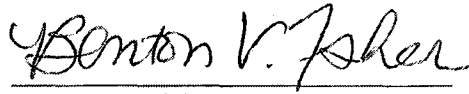
Much of Mr. Fisher's work for the railroad industry has required a detailed understanding of the regulations under which railroads operate, the rules by which rates are evaluated, and the costing approaches and models that are used. He has testified numerous times regarding stand-alone costs and URCS costs (Uniform Railroad Costing System, the STB's general purpose costing system) for individual movements, traffic groups, and entire networks. He has extensive experience with these costing approaches, including the detailed inputs and their sources, and the costing methodologies and formulae.

In addition to the rail industry, Mr. Fisher has been engaged with similar issues and disputes regarding the economic and financial analysis of telecommunications, postal, and energy matters. In those matters, as with rail, he has worked closely with detailed price, cost, and operational data and reviewed cost models and analyzed the sensitivity of multiple economic components, in evaluating rates, costs, and service in a variety of different contexts.

Mr. Fisher's complete curriculum vitae is attached.

VERIFICATION

I, Benton V. Fisher, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



Benton V. Fisher

Executed on this 2 day of March 2016

Benton V. Fisher

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EDUCATION

B.S. in Engineering and
Management Systems,
Princeton University

Benton V. Fisher is a Senior Managing Director of FTI's Economic Consulting group, located in Washington, D.C. Mr. Fisher has more than 20 years of experience in providing financial, economic and analytical consulting services to corporate clients dealing with transportation, telecommunications, and postal subjects.

North America's largest railroads have retained FTI both to assist them in making strategic and tactical decisions and to provide expert testimony in litigation. FTI's ability to present a thorough understanding of myriad competitive and regulatory factors has given its clients the tools to implement and advance their business. Mr. Fisher has worked extensively to develop these clients' applications for mergers and acquisitions and expert testimony justifying the reasonableness of their rates before the Surface Transportation Board. In addition to analyzing extensive financial and operating data, Mr. Fisher has worked closely with people within many departments at the railroad as well as outside counsel to ensure that the railroads' presentations are accurate and defensible. Additionally, Mr. Fisher reviews the expert testimony of the railroads' opponents in these proceedings, and advises counsel on the course of action to respond.

AT&T and MCI retained FTI to advance its efforts to implement the Telecommunications Act of 1996 in local exchange markets. Mr. Fisher was primarily responsible for reviewing the incumbent local exchange carriers' (ILEC) cost studies, which significantly impacted the ability of FTI's clients to access local markets. Mr. Fisher analyzed the sensitivity of multiple economic components and incorporated this information into various models being relied upon by the parties and regulators to determine the pricing of services. Mr. Fisher was also responsible for preparing testimony that critiqued alternative presentations.

Mr. Fisher assisted in reviewing the U.S. Postal Service's evidence and preparing expert testimony on behalf of interveners in Postal Rate and Fee Changes cases. He has also been retained by a large international consulting firm to provide statistical and econometric support in their preparation of a long-range implementation plan for improving telecommunications infrastructure in a European country.

Mr. Fisher has sponsored expert testimony in rate reasonableness proceedings before the Surface Transportation Board and in contract disputes in Federal Court and arbitration proceedings.

Mr. Fisher holds a B.S. in Engineering and Management Systems from Princeton University.

TESTIMONY**Surface Transportation Board**

January 15, 1999	Docket No. 42022 FMC Corporation and FMC Wyoming Corporation v. Union Pacific Railroad Company, Opening Verified Statement of Christopher D. Kent and Benton V. Fisher
March 31, 1999	Docket No. 42022 FMC Corporation and FMC Wyoming Corporation v. Union Pacific Railroad Company, Reply Verified Statement of Christopher D. Kent and Benton V. Fisher
April 30, 1999	Docket No. 42022 FMC Corporation and FMC Wyoming Corporation v. Union Pacific Railroad Company, Rebuttal Verified Statement of Christopher D. Kent and Benton V. Fisher
July 15, 1999	Docket No. 42038 Minnesota Power, Inc. v. Duluth, Missabe and Iron Range Railway Company, Opening Verified Statement of Christopher D. Kent and Benton V. Fisher
August 30, 1999	Docket No. 42038 Minnesota Power, Inc. v. Duluth, Missabe and Iron Range Railway Company, Reply Verified Statement of Christopher D. Kent and Benton V. Fisher
September 28, 1999	Docket No. 42038 Minnesota Power, Inc. v. Duluth, Missabe and Iron Range Railway Company, Rebuttal Verified Statement of Christopher D. Kent and Benton V. Fisher
June 15, 2000	Docket No. 42051 Wisconsin Power and Light Company v. Union Pacific Railroad Company, Opening Verified Statement of Christopher D. Kent and Benton V. Fisher
August 14, 2000	Docket No. 42051 Wisconsin Power and Light Company v. Union Pacific Railroad Company, Reply Verified Statement of Christopher D. Kent and Benton V. Fisher
September 28, 2000	Docket No. 42051 Wisconsin Power and Light Company v. Union Pacific Railroad Company, Rebuttal Verified Statement of Christopher D. Kent and Benton V. Fisher
December 14, 2000	Docket No. 42054 PPL Montana, LLC v. The Burlington Northern Santa Fe Railway Company, Opening Verified Statement of Christopher D. Kent and Benton V. Fisher
March 13, 2001	Docket No. 42054 PPL Montana, LLC v. The Burlington Northern Santa Fe Railway Company, Reply Verified Statement of Christopher D. Kent and Benton V. Fisher
May 7, 2001	Docket No. 42054 PPL Montana, LLC v. The Burlington Northern Santa Fe Railway Company, Rebuttal Verified Statement of Christopher D. Kent and Benton V. Fisher
October 15, 2001	Docket No. 42056 Texas Municipal Power Agency v. The Burlington Northern Santa Fe Railway Company, Opening Verified Statement of Benton V. Fisher
January 15, 2002	Docket No. 42056 Texas Municipal Power Agency v. The Burlington Northern Santa Fe Railway Company, Reply Verified Statement of Benton V. Fisher
February 25, 2002	Docket No. 42056 Texas Municipal Power Agency v. The Burlington Northern Santa Fe Railway Company, Rebuttal Verified Statement of Benton V. Fisher
May 24, 2002	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Opening Evidence and Argument of Norfolk Southern Railway Company

June 10, 2002	Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Opening Evidence and Argument of Norfolk Southern Railway Company
July 19, 2002	Docket No. 42059 Northern States Power Company Minnesota v. Union Pacific Railroad Company, Union Pacific's Opening Evidence
September 30, 2002	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Reply Evidence and Argument of Norfolk Southern Railway Company
October 4, 2002	Northern States Power Company Minnesota v. Union Pacific Railroad Company, Union Pacific's Reply Evidence
October 11, 2002	Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Reply Evidence and Argument of Norfolk Southern Railway Company
November 1, 2002	Docket No. 42059 Northern States Power Company Minnesota v. Union Pacific Railroad Company, Union Pacific's Rebuttal Evidence
November 19, 2002	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Rebuttal Evidence and Argument of Norfolk Southern Railway Company
November 27, 2002	Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Rebuttal Evidence and Argument of Norfolk Southern Railway Company
January 10, 2003	Docket No. 42057 Public Service Company of Colorado D/B/A Xcel Energy v. The Burlington Northern and Santa Fe Railway Company, Opening Evidence and Argument of The Burlington Northern and Santa Fe Railway Company
February 7, 2003	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad, Opening Evidence of The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad
April 4, 2003	Docket No. 42057 Public Service Company of Colorado D/B/A Xcel Energy v. The Burlington Northern and Santa Fe Railway Company, Reply Evidence and Argument of The Burlington Northern and Santa Fe Railway Company
May 19, 2003	Docket No. 42057 Public Service Company of Colorado D/B/A Xcel Energy v. The Burlington Northern and Santa Fe Railway Company, Rebuttal Evidence and Argument of The Burlington Northern and Santa Fe Railway Company
May 27, 2003	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad, Joint Variable Cost Reply Evidence of The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad
May 27, 2003	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad, Reply Evidence of The Burlington Northern and Santa Fe Railway Company
June 13, 2003	Docket No. 42071 Otter Tail Power Company v. The Burlington Northern and Santa Fe Railway Company, Opening Evidence of The Burlington Northern and Santa Fe Railway Company

July 3, 2003	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad, Joint Variable Cost Rebuttal Evidence of The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad
October 8, 2003	Docket No. 42071 Otter Tail Power Company v. The Burlington Northern and Santa Fe Railway Company, Reply Evidence of The Burlington Northern and Santa Fe Railway Company
October 24, 2003	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company Supplemental Evidence of Norfolk Southern Railway Company
October 31, 2003	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Reply of Norfolk Southern Railway Company to Duke Energy Company's Supplemental Evidence
November 24, 2003	Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Supplemental Evidence of Norfolk Southern Railway Company
December 2, 2003	Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Reply of Norfolk Southern Railway Company to Carolina Power & Light Company's Supplemental Evidence
January 26, 2004	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad Company, Joint Supplemental Reply Evidence and Argument of The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad Company
March 1, 2004	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. The Burlington Northern and Santa Fe Railway Company, Opening Evidence and Argument of The Burlington Northern and Santa Fe Railway Company
March 22, 2004	Docket No. 42071 Otter Tail Power Company v. The Burlington Northern and Santa Fe Railway Company, Supplemental Reply Evidence of The Burlington Northern and Santa Fe Railway Company
April 29, 2004	Docket No. 42071 Otter Tail Power Company v. The Burlington Northern and Santa Fe Railway Company, Rebuttal Evidence of The Burlington Northern and Santa Fe Railway Company
May 24, 2004	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. The Burlington Northern and Santa Fe Railway Company, Reply Evidence of The Burlington Northern and Santa Fe Railway Company
July 27, 2004	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. The Burlington Northern and Santa Fe Railway Company, Rebuttal Evidence of The Burlington Northern and Santa Fe Railway Company
March 1, 2005	Docket No. 42071 Otter Tail Power Company v. BNSF Railway Company, Supplemental Evidence of BNSF Railway Company
April 4, 2005	Docket No. 42071 Otter Tail Power Company v BNSF Railway Company, Reply of BNSF Railway Company to Supplemental Evidence
April 19, 2005	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Opening Evidence of BNSF Railway Company

July 20, 2005 Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Evidence of BNSF Railway Company

September 30, 2005 Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Rebuttal Evidence of BNSF Railway Company

October 20, 2005 Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Surrebuttal Evidence of BNSF Railway Company

June 15, 2006 Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Supplemental Evidence of BNSF Railway Company

June 15, 2006 Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Reply Supplemental Evidence of BNSF Railway Company

March 19, 2007 Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Reply Third Supplemental Evidence of BNSF Railway Company

March 26, 2007 Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Second Supplemental Evidence of BNSF Railway Company

July 30, 2007 Docket No. 42095 Kansas City Power & Light v. Union Pacific Railroad Company, Union Pacific's Opening Evidence

August 20, 2007 Docket No. 42095 Kansas City Power & Light v. Union Pacific Railroad Company, Union Pacific's Reply Evidence

February 4, 2008 Docket No. 42099 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSXT

February 4, 2008 Docket No. 42100 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSXT

February 4, 2008 Docket No. 42101 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSXT

March 5, 2008 Docket No. 42099 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Reply Evidence of CSXT

March 5, 2008 Docket No. 42100 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Reply Evidence of CSXT

March 5, 2008 Docket No. 42101 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Reply Evidence of CSXT

April 4, 2008 Docket No. 42099 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Rebuttal Evidence of CSXT

April 4, 2008 Docket No. 42100 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Rebuttal Evidence of CSXT

April 4, 2008	Docket No. 42101 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Rebuttal Evidence of CSXT
July 14, 2008	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Third Supplemental Reply Evidence of BNSF Railway Company
August 8, 2008	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Fourth Supplemental Evidence of BNSF Railway Company
September 5, 2008	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Fourth Supplemental Reply Evidence of BNSF Railway Company
October 17, 2008	Docket No. 42110 Seminole Electric Cooperative, Inc. v. CSX Transportation, Inc., CSX Transportation, Inc.'s Reply to Petition for Injunctive Relief, Verified Statement of Benton V. Fisher
August 24, 2009	Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Opening Evidence of Union Pacific Railroad Company
September 22, 2009	Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
October 22, 2009	Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Rebuttal Evidence of Union Pacific Railroad Company
January 19, 2010	Docket No. 42110 Seminole Electric Cooperative, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.
May 7, 2010	Docket No. 42113 Arizona Electric Power Cooperative, Inc. v. BNSF Railway Company and Union Pacific Railroad Company, Joint Reply Evidence of BNSF Railway Company and Union Pacific Railroad Company
October 1, 2010	Docket No. 42121 Total Petrochemicals USA, Inc. v. CSX Transportation, Inc., Motion for Expedited Determination of Jurisdiction Over Challenged Rates, Verified Statement of Benton V. Fisher
November 22, 2010	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Comments of BNSF Railway Company on Remand, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
January 6, 2011	Docket No. 42056 Texas Municipal Power Agency v. BNSF Railway Company, BNSF Reply to TMPA Petition for Enforcement of Decision, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
July 5, 2011	Docket No. 42123 M&G Polymers USA, LLC v. CSX Transportation, Inc., Reply Market Dominance Evidence of CSX Transportation, Inc.
August 1, 2011	Docket No. 42125 E.I. DuPont De Nemours and Company v. Norfolk Southern Railway Company, Norfolk Southern Railway's Reply to Second Motion to Compel, Joint Verified Statement of Benton V. Fisher and Michael Matelis
August 5, 2011	Docket No. 42121 Total Petrochemicals USA, Inc. v. CSX Transportation, Inc., Reply Market Dominance Evidence of CSX Transportation, Inc.

August 15, 2011	Docket No. 42124 State of Montana v. BNSF Railway Company, BNSF Railway Company's Reply Evidence and Argument, Verified Statement of Benton V. Fisher
October 24, 2011	Docket No. 42120 Cargill, Inc. v. BNSF Railway Company, BNSF Railway Company's Reply Evidence and Argument, Verified Statement of Benton V. Fisher
October 28, 2011	Docket No. FD 35506 Western Coal Traffic League - Petition for Declaratory Order, Opening Evidence of BNSF Railway Company, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
November 10, 2011	Docket No. 42127 Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
November 28, 2011	Docket No. FD 35506 Western Coal Traffic League - Petition for Declaratory Order, Reply Evidence of BNSF Railway Company, Joint Reply Verified Statement of Michael R. Baranowski and Benton V. Fisher
December 14, 2011	Docket No. 42132 Canexus Chemicals Canada L.P. v. BNSF Railway Company, BNSF Motion to Permit Consideration of 2011 TIH Movements from BNSF Traffic Data in Selecting Comparison Group, Verified Statement of Benton V. Fisher
February 13, 2012	Docket No. 42132 Canexus Chemicals Canada L.P. v. BNSF Railway Company, Opening Evidence of BNSF Railway Company, Verified Statement of Benton V. Fisher
March 13, 2012	Docket No. 42132 Canexus Chemicals Canada L.P. v. BNSF Railway Company, Reply Evidence of BNSF Railway Company
April 12, 2012	Docket No. 42132 Canexus Chemicals Canada L.P. v. BNSF Railway Company, Rebuttal Evidence of BNSF Railway Company
May 10, 2012	Docket No. 42056 Texas Municipal Power Agency v. BNSF Railway Company, BNSF Reply to TMPA Petition to Reopen and Modify Rate Prescription, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
November 30, 2012	Docket No. 42125 E.I. DuPont De Nemours & Company v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
January 7, 2013	Docket No. 42130 SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
April 12, 2013	Docket No. 42136, Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
June 20, 2013	Ex Parte 431 (Sub-No. 4) Review of the General Purpose Costing System, Comments of the Association of American Railroads, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
September 5, 2013	Ex Parte 431 (Sub-No. 4) Review of the General Purpose Costing System, Reply Comments of the Association of American Railroads, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher

- September 23, 2013 Docket No. 42113 Arizona Electric Power Cooperative, Inc. v. BNSF Railway Company and Union Pacific Railroad Company. BNSF's Position on Disputed Issues Relating to Reinstating the Rate Prescription
- June 26, 2014 Ex Parte 665 (Sub-No. 1) Rail Transportation of Grain, Rate Regulation Review, Joint Verified Statement of Benton V. Fisher and Kaustuv Chakrabarti Supporting BNSF Opening Filing
- July 21, 2014 Docket No. 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.
- August 25, 2014 Ex Parte 665 (Sub-No. 1) Rail Transportation of Grain, Rate Regulation Review, Joint Verified Statement of Benton V. Fisher and Kaustuv Chakrabarti Supporting BNSF Reply Filing
- September 19, 2014 Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, BNSF Railway Company's Reply Comments on Remand, Joint Verified Statement of Benton V. Fisher and Robert Fisher
- September 4, 2015 Docket No. FD 35743 Application of the National Railroad Passenger Corporation Under 49 U.S.C. § 24308(a) - Canadian National Railway Company, Opening Evidence of Illinois Central Railroad Company and Grand Trunk Western Railroad, Joint Verified Statement of Michael Baranowski and Benton Fisher
- October 7, 2015 Docket No. 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Supplemental and Compliance Evidence of CSX Transportation, Inc.
- November 20, 2015 Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., CSX Transportation, Inc.'s Reply to Supplemental and Compliance Evidence

U.S. District Court for the Eastern District of North Carolina

- March 17, 2006 Civil Action No. 4:05-CV-55-D, PCS Phosphate Company v. Norfolk Southern Corporation and Norfolk Southern Railway Company, Report by Benton V. Fisher

U.S. District Court for the Eastern District of California

- January 18, 2010 E.D. Cal. Case No. 08-CV-1086-AWI, BNSF Railway Company v. San Joaquin Valley Railroad Co., et al.

Arbitrations and Mediations

- July 10, 2009 JAMS Ref. # 1220039135; In the Matter of the Arbitration Between Pacer International, Inc., d/b/a/ Pacer Stacktrain (f/k/a APL Land Transport Services, Inc.), American President Lines, Ltd. And APL Co. Pte. Ltd. And Union Pacific Railroad Company; Rebuttal Expert Report of Benton V. Fisher

MATTHEW GEHMAN

Mr. Gehman is a Senior Associate - Vice President with TransSystems Corporation, located in North Charleston, SC. Mr. Gehman is sponsoring portions of Section II-B of CSXT's Reply Evidence relating to market dominance. Mr. Gehman has signed a verification of the truth of the statements contained therein. A copy of the verification is attached hereto.

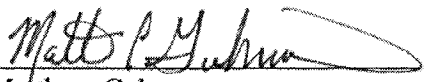
Mr. Gehman holds a Bachelor of Arts from Old Dominion University. Mr. Gehman has experience providing analyses for freight transportation projects as well as intermodal and freight railroad related infrastructure projects around the country. In his current position, Mr. Gehman is responsible for managing freight transportation projects including intermodal, port and industrial logistics park planning and analysis. He recently served as program manager for a \$200 million intermodal container transfer facility project in North Charleston, SC. Mr. Gehman has also developed and executed a business plan for implementing supply chain logistics consulting services and he has been involved in multiple terminal evaluations, providing expert consultation in capital expenditure and capacity projections.

Mr. Gehman is a member of the American Railway Engineering and Maintenance-of-Way Association (AREMA), the Propeller Club of Charleston, the American Planning Association, and the American Association of Port Authorities.

His complete curriculum vitae is attached.

VERIFICATION

I, Matthew Gehman, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Matthew Gehman

Executed on this 2 day of March 2016

MATTHEW CHRISTOPHER GEHMAN

4390 Belle Oaks Parkway Suite 220 North Charleston, SC 29405 • Phone: (843) 266-9311

Professional Experience

TranSystems Corporation – December 2012 to Present

North Charleston, SC

Senior Associate – Vice President

Responsible for managing freight transportation projects including intermodal, port and industrial logistics park planning and analysis tasks and marketing firm-wide services to port, railroad and logistic park clients in the US southeastern region. Program Manager for \$200M intermodal container transfer facility project in North Charleston, SC.

Marine Consulting Group – September 2012 to December 2012

Norfolk, VA

Contract Consultant

Independent consultant providing freight transportation planning and analysis for port, intermodal and logistics park developer clients.

Manhard Consulting – July 2010 to August 2012

Norfolk, VA

Director of Supply Chain Logistics Consulting

Responsible for development and execution of business plan for implementing supply chain logistics consulting services. Duties included developing new service lines, establishing team of planning and analysis professionals to support new service line, managing freight transportation planning and analysis projects and marketing services to freight transportation clients in the US.

TranSystems Corporation – June 1999 to June 2010

Norfolk, VA

Senior Freight Transportation Planner

Began career with firm as a junior freight transportation planner providing analyses for freight transportation projects, intermodal and freight railroad related infrastructure projects around the country. Professional experience includes domestic and international projects involving facility physical evaluation, terminal operation analyses and master planning of container terminals, bulk terminals, barge terminals, general cargo facilities, inland waterway ports and intermodal rail facilities. Projects included involvement with multiple terminal evaluations, representing both private investors and the public sector, providing expert consulting in capital expenditure and capacity projections.

Education

1997

Old Dominion University

Norfolk, VA

Bachelor of Arts - Geography

Certifications & Affiliations

- OSHA 10 and First Aid/CPR/AED
- American Railway Engineering and Maintenance-of-Way Association (AREMA), Propeller Club of Charleston, American Planning Association and American Association of Port Authorities

Computer Skills

- Proficient with Microsoft Office suite including Word, Excel, PowerPoint, Outlook and Project.

References Available Upon Request

JOHN GIBSON

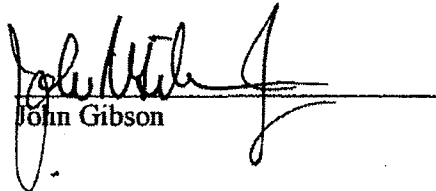
Mr. Gibson is the Principal at PC&N Consulting. Mr. Gibson's office is located at 4431 Harbour Island Dr., Jacksonville, Florida 32225. Mr. Gibson is sponsoring the operating plan described in Section III-C of CSXT's Reply Evidence. A copy of his verification is attached hereto.

Mr. Gibson holds a Masters of Business Administration from American University with a specialty in Finance as well as a Bachelor of Arts from the University of Maryland. Mr. Gibson has over twenty years of railroad experience and was employed by CSX Transportation between 1994 and 2009. Mr. Gibson served as CSXT Vice President- Operations Research and Planning between 2004 and 2009 during which he oversaw operations research and planning, including the development of an annual capacity capital plan, and the creation of capacity investment strategies to improve network fluidity. Mr. Gibson served as Assistant Vice President- Operations Planning between 1996 and 2004. During his fifteen years at CSXT, Mr. Gibson was responsible for managing CSXT's passenger operations, passenger and joint facility agreements, and office car departments. He also oversaw CSXT's strategic planning and contract negotiations. Beginning in 2009, Mr. Gibson joined PC&N Consulting. At PC&N, Mr. Gibson provides advice for rail management, capacity simulation modeling, and rail strategic planning.

Mr. Gibson's curriculum vitae is attached.

VERIFICATION

I, John Gibson, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


John Gibson

Executed on this 29th day of February 2016

John M. Gibson, Jr.
Principal
PC&N Consulting Inc.
2906 Lake Stall Lane
Tampa, Florida 33618
Cell 904-607-2785
john.pcnconsulting@gmail.com

Summary:

- Rail management veteran with 31 years of progressive achievement
- Skilled negotiator with more than \$2 billion in successful transactions
- Experienced speaker in all venues including: senior management, press interviews, litigation, Surface Transportation Board proceedings and Congressional hearings
- Managed CSX Transportation's (CSX) Operations Research, Operations Planning, Passenger Operations, Passenger and Joint Facility Agreements, and Office Car Departments
- Oversaw CSX's passenger operations, strategic planning and contract negotiations

Principal – PC&N Consulting

- Full range of duties for this small consulting firm which provides advice for rail management, passenger startups, capacity simulation modeling, business practice reviews and strategic planning

CSX Vice President Operations Research & Planning (2004 – 2009)

- Full control of 45 person department with an operating budget exceeding \$5 million per year. Direct reports included:
 - o Operations Research – performed traditional operating research functions including optimization modeling, new tool development, regulation analysis and implementation, and measurement of network efficiency. Led industry efforts to insure compliance with new Toxic Inhalation Hazard regulations.
 - o Operations Planning – developed annual capacity capital plan totaling up to \$150 million per year, created capacity investment strategies to improve network fluidity and created network and corridor models to evaluate the effectiveness of proposed capacity investments.
 - o Passenger and Joint Facilities Agreements – oversaw the negotiation and implementation of more than 1,500 joint facility agreements and all passenger agreements including Amtrak, MBTA, Metro North, SEPTA, MARC, VRE and TriRail.

- Amtrak and Commuter Operations – oversaw 24/7 operations desk, provided tactical guidance to recover from service delays, lead strategic efforts to improve on time performance and to improve processes for creating passenger operating schedules.
- Office Car Operations – managed operation of CSX's historic office car fleet for transportation, political, customer and charity events. Acquired, rehabilitated and retired equipments as appropriate. Operated 11 years injury free.

Assistant Vice President Operations Planning (1996 – 2004)

- Responsible for CSX's capacity capital budget, simulation modeling efforts and proposals to increase or introduce passenger service on CSX territory.

Director Business Development (1994 – 1995)

- Directed strategic acquisitions including investments in the Pittsburgh & Lake Erie, Paducah & Louisville, Pittsburgh & Ohio Valley and the Indiana Railroads.

President Three Rivers Railroad (1993 – 1994)

- Full range operating control of CSX Subsidiary after acquisition of assets from the Pittsburgh & Lake Erie Railroad. Employees included Sales and Marketing, Accounting, Transportation and Engineering supervision and 50 contract employees.

Manager/Director Shortline Sales (1983 – 1992)

- Negotiated and closed more than 100 transactions.

Education:

- BA University of Maryland with 2 majors: Economics and Public administration-1983
- MBA American University specializing in Finance-1986

Affiliations:

- 2011 – Present Jacksonville Public Library Board of Trustees
- 2010 – Present Children's Home Society
- 1999 – 2009 Habitat for Humanity of Jacksonville, FL. Board of Directors, former Chairman, Vice Chairman, various committee chairs
- 2005 – 2009 United Way of Northeast Florida. Campaign Board, CSX Campaign Co-Chair.

EDWARD HOGAN

Edward Hogan is Vice President Operations, for Port City Marine Services, Inc. Captain Hogan is a career marine operations manager with over 35 years experience in all areas of marine transportation involving tugs and barges. Captain Hogan is sponsoring portions of Section II-B of CSX Transportation, Inc. ("CSXT's") Reply Evidence relating to market dominance.

Captain Hogan joined the Wisconsin Michigan Steamship Company as Vice President Operations in 2007. His prior experience includes 13 years of hands-on experience, including six years as vessel master, operating various tugs on the Great Lakes and the St. Lawrence Seaway. He also served as Port Captain and then as Executive Vice President/VP Operations for a large Great Lakes Marine transportation company. Captain Hogan's more significant duties have included development and management of long term contracts with several Great Lakes and Gulf of Mexico clients for ship management services, as well as the development and administration of the American Waterways Operators-Responsible Carriers Program.

Captain Hogan also participates in the marine community through his involvement with the International Shipmasters Association and the Lake Carriers Association. Captain Hogan maintains his U.S Coast Guard credentials as a Masters License. Captain Hogan has signed a verification of the truth of the statements contained therein. A copy of the verification is attached hereto.

Captain Hogan's curriculum vitae is attached.

VERIFICATION

I, Edward Hogan, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



Edward Hogan

Executed on this 3 day of MARCH 2016

CAPTAIN EDWARD J HOGAN

Captain Hogan joined the Company as Vice President Operations of Wisconsin Michigan Steamship Company (A Sand Products Corp Subsidiary) in 2007. He is a career marine operations manager with over 35 years in all areas of marine transportation involving tugs and barges. The first 13 years were hands on for Captain Hogan including 6 years as vessel master operating various tugs on the Great Lakes and St Lawrence Seaway. He continued his career, shore side, starting as a Port Captain and continuing as Executive Vice President/VP Operations for a large Great Lakes Marine transportation company. Captain Hogan's more significant duties have included development and management of long term contracts with several Great Lakes and Gulf of Mexico clients for ship management services on both liquid and dry bulk vessels, development and administration of The American Waterways Operators-Responsible Carriers program, participation in the Oil Pollution Act of 1990 (OPA-90) regulation negotiation process, developed and maintains USCG approved Emergency Response Plans and administration of the Company's security plans including acting as Company Security Officer. In addition to The American Waterways Operators, he participates in the marine community through his involvement with the International Shipmasters Association and the Lake Carriers Association. Captain Hogan maintains his USCG credentials as a Masters License.

DAVID HUGHES

Mr. Hughes has over 30 years of experience as a professional engineer in railroad engineering and railroad operations and maintenance supervision. Mr. Hughes' business address is 1401 S. Ocean #601, Hollywood, Florida 33019. Mr. Hughes is sponsoring Section III-D of CSXT's Reply Evidence relating to Maintenance of Way. Mr. Hughes has signed a verification of the truth of the statements contained therein. A copy of the verification is attached hereto.

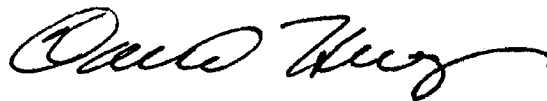
From 1967 to 1975, Mr. Hughes had numerous responsibilities at Southern Pacific Railroad, including first line supervision of track maintenance and bridge and building maintenance. Mr. Hughes served as Vice President of Engineering for the Boston and Maine Railroad from 1975 to 1980, where he had responsibility for track structures, signal systems maintenance, and reconfiguring and reconstructing 155 route miles of mainline. Mr. Hughes next served as President of Pandrol, Inc. and Speno Rail Services, where he assisted railroads in developing high-performance track components and mechanized rail and ballast maintenance practices. In 1985, Mr. Hughes became President of the Bangor & Aroostook Railroad, a regional railroad in the northeastern United States. He later served as Chief Engineer for the National Railway Passenger Corp ("Amtrak") and as its Acting President and Chief Executive Officer.

Mr. Hughes has previously served as Chairman of the Regional Railroads of America. He was a director of the American Railway Engineering Association ("AREA"). He has served on the Association of American Railroads Board of Directors.

Mr. Hughes' curriculum vitae is attached.

VERIFICATION

I, David Hughes, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.

A handwritten signature in black ink, appearing to read "David Hughes", written over a horizontal line.

David Hughes

Executed on this 1st day of March 2016

Curriculum Vitae

David Hughes

David Hughes is an independent consultant with broad consulting and executive experience in railroad operations, infrastructure and rolling stock. He advises on managing infrastructure investment, maintenance and operations to realize strategic objectives, optimize asset reliability and maximize long term business cash flow. His work focuses on the financial consequences of strategic infrastructure decisions.

Mr. Hughes works directly with five North American class I railroads regarding infrastructure maintenance, investment and safety matters. Assignments have included the assessment of various strategic operating and investment matters and assessment of Safety Management Systems.

He also has experience with dozens of due diligence projects for Class I, and regional and shortline railroads, evaluating infrastructure investment requirements and strategic infrastructure risks.

Internationally, Mr. Hughes has conducted railroad infrastructure related projects in 30 countries for over 50 railroads spread over South America, Southern Africa, and the Middle East and Africa region.

Mr. Hughes also has extensive executive, managerial and technical experience in the rail industry. Most recently he served as Acting President and CEO of Amtrak 2005-2006. He served four years as chief engineer of Amtrak before becoming Acting CEO. He also served as President of the Bangor and Aroostook Railroad, President of Pandrol Incorporated, a worldwide manufacturer of products for the railroad industry and President of Speno Rail Services, a maintenance contractor. Earlier in his career he was chief engineer and Acting President of the Boston & Maine railroad and held numerous engineering and management positions with Southern Pacific Railroad.

As former president of a regional railroad and former chairman of Regional Railroads of America (now Regional and Short Line Railroad Association) he is thoroughly familiar with the operations and maintenance practices of non-union regional and local railroads and has performed numerous consulting assignments to evaluate railroad operating and maintenance plans in conjunction with the purchase, sale or financing of regional railroads. He co-founded and was first chairman of Regional Railroads of America, a group formed to represent the interests of regional railroads to Congress. In that capacity, he testified on several occasions before House and Senate committees with jurisdiction over railroads.

His industry and community activities have included:

- Director, The Association of American Railroads
- Chairman and cofounder, Regional Railroads of America
- President, Maine Chamber of Commerce
- President, New England Transportation Research Form
- Director, Transporting the Elderly and Handicapped in New England
- Director, American Railway Engineering and Maintenance Association
- Member, AAR Track Research Advisory Committee

Page 2

Mr. Hughes has appeared on CNN, CNN International, CBS and Public Broadcasting commenting on passenger rail issues and has testified before Congress on several occasions regarding national railroad issues.

Mr. Hughes holds a B.S degree in civil engineering and an MBA from the Harvard Business School. He has 30 years of experience as a registered professional engineer and is fluent in English and a working knowledge of spoken and written Brazilian Portuguese.

DAVID K. MAAS

Mr. Maas is a Senior Vice President and Principal at TranSystems. Mr. Maas has extensive knowledge of the railroad industry, including in particular with railroad operations planning and analysis. Mr. Maas is sponsoring portions of Section II-B CSXT's Reply Evidence relating to Market Dominance. Mr. Maas has signed a verification of the truth of the statements contained therein. A copy of the verification is attached hereto.

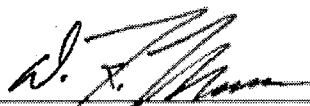
Mr. Maas holds a Bachelor of Science in Civil Engineering from the University of North Carolina and an M.B.A from Jacksonville University. Since joining TranSystems in 2006, Mr. Maas has been responsible for operations planning and analysis within the freight rail market. Prior to joining TranSystems, Mr. Maas spent 25 with CSXT, serving as Assistant Vice-President of Advanced Engineering, Managing Director of Finance for Mechanical and Engineering, and General Manager for Terminal Development. At CSXT, Mr. Maas was responsible for developing the business case for implementing new technology applications in the operating department. Mr. Maas has extensive experience in industrial engineering and facility design, including various rail terminal projects for BNSF and other major rail carriers.

Mr. Maas is a member of the American Railway Engineering and Maintenance of Way Association (AREMA), the Intermodal Association of North America, and the Transportation Research Board.

Mr. Maas' curriculum vitae is attached.

VERIFICATION

I, David K. Maas, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



David K. Maas

Executed on this 3rd day of March 2016



David K. Maas, PE
Senior Vice President and Principal

Dave joined TranSystems in 2006, bringing with him extensive knowledge of the railroad industry. Previously, Dave spent 25 years with CSX as Assistant Vice-President of Advanced Engineering, Managing Director of Finance for Mechanical and Engineering and General Manager of Terminal Development. Dave, prior to leaving CSX, was responsible for developing the business case for implementing new technology applications in the operating department. His responsibilities included conceptualization, facility sizing analysis, justification, securing capital funding, and implementation of major multi-year, multi-phase projects. His professional experience in the United States and internationally includes operations planning and analysis, industrial engineering, facility design a variety of rail terminal facilities projects. Dave has extensive experience in operations analysis using traffic studies and simulation modeling to determine facility requirements. Since joining TranSystems Dave has built an operations planning and analysis practice within the freight rail market sector. Leveraging our extensive rail operating experience, our simulation modeling capabilities, and industrial engineering expertise, Dave has molded an operations planning and analysis team that no other transportation consulting firm can offer.

BNSF AGS System Install at Alliance, TX

TranSystems provided the operations planning and analysis for the implementation of BNSF's Automated Gate Systems (AGS) at its Alliance Texas intermodal facility. TranSystems' analysis and recommended location for the new gate complex was a complete success and has relieved the facility of its capacity constraint to allow the facility volume to grow.

Ferrocarril Mexicano's Manzanillo Operations Analysis, Colonia Bosques de Las Lomas, Mexico

Working with Ferromex operational staff, TranSystems was able to develop work plan for performing a simulation that comprehensively identified the required processes for providing dynamic modeling and simulation services to address the project needs and objectives. TranSystems performed operations analysis scenarios with modeling tasks to explore operating trade-offs that

Registrations

Professional Engineer (Civil): FL, 1984

Education

B.S., Civil Engineering
University of North Carolina, Charlotte,
1978
M.B.A., Business Administration
Jacksonville University, 2000

Affiliations & Memberships

American Railway Engineering &
Maintenance of Way Association
(AREMA)
Intermodal Association of North
America
Transportation Research Board

Years of Experience

35

-- ... --



could potentially reduce infrastructure or provide a more effective Port rail system for servicing container, general cargo and dry bulk terminals at the Port of Manzanillo.

BNSF Operations Analysis and Infrastructure Recommendation at Everett Yard, WA

TranSystems' team of operations planning and analysis using on site observations and simulation modeling tools developed facility improvement requirements to alleviate a capacity constrained terminal that was driving a regional service performance problem. The modeling effort included a newly developed dynamic track assignment switching model that provided an advanced look-ahead module for making inbound track assignments and switching decisions to meet outbound train departure schedules.

BNSF Intermodal Terminal, Train Service Design, Terminal Sizing and Facility Design, Lancaster, TX

TranSystems provided the initial operating plan including facility sizing and conceptual design driven by an initial train service plan for a new BNSF intermodal facility in Lancaster, Texas, just south of Dallas. The new facility was sized using an unconstrained modeling technique based on train service plans and volume projections. The facility was sized and designed for 250,000 lifts per year with a maximum capacity of 1,000,000 lifts per year.

Canaveral Port Authority Barge Rail Design, Cape Canaveral, FL

The CPA intends to design and build a barge berth in the vicinity of the western abutment of the Jay-Jay Bridge on the Kennedy Space Center (KSC). The location is on the Indian River approximately 1,000 ft. west of the Intracoastal Waterway (ICW). The location is immediately southeast of the Jay-Jay railyard, an interchange yard used by the KSC and FEC. From the yard there are two spurs that connect to the north and southbound FEC mainline north of Titusville. TranSystems designed the barge berth and rail connection from the berth to the Jay-Jay interchange rail yard.

Spartanburg Rail Operations Study, Spartanburg, SC

TranSystems provided transportation planning package for INVISTA rail service expansion at its facility in Spartanburg South Carolina. TranSystems worked directly with the facility's operations and engineering departments to develop operational concepts to relocate satellite facilities onsite, expand railcar staging areas, which included the relocation of an existing class I mainline. TranSystems provided the complete rail and trans-load facility design as well as the initial operations planning effort. This facility went in service in 2010, less than two years from the start of the initial conceptual operating plan efforts.

East Metro Rail Capacity Study, Ramsey County Rail Authority, St. Paul, MN

Dave served as the Task Leader for the operation analysis and planning study to identify the impacts and recommend solutions to freight and passenger rail constraints for purposes of the development of a regional multimodal transit hub at the Union Depot in downtown St. Paul. The modeling study included operations for BNSF, UP, CPR, TCW, Amtrak and Red Rock Commuter trains within the



corridor. The study illustrated that sharing of the rail corridor infrastructure for both freight and passenger rail operations was feasible and the freight railroads agreed with the project.

Punta Colonet Corridor Analysis, BNSF/Ferromex

Project Manager for a feasibility study to analyze potential rail routes between the proposed Punta Colonet Port site located on the Mexican Baja to potential connection points with the BNSF throughout the southwestern portion of the United States. The project was a joint venture between BNSF and Ferromex. TranSystems used a GIS approach to develop the three dimensional modeling tool necessary to complete the potential routes. Publicly available data bases for imagery, topography, zoning, cultural sensitive areas, and drainage were combined into a single three dimensional modeling tool. Using predetermined maximum curvature, grades, and typical cut and fill sections, probable costs of construction were completed for all of the various route options including drainage and bridge structures. The alignments generated from the three dimensional model were converted for display using Google earth and Google Mapper for presentation to senior members of both BNSF and Ferromex.

DAVID A. MAGISTRO

Mr. Magistro is a Senior Engineer/Project Manager with STV, a professional firm offering engineering, architectural, planning, environmental and construction management services with offices located at 6701 West 64th Street, Suite 320, Mission, Kansas 66202.

Mr. Magistro has more than 17 years of experience with structural design, almost all of which have been focused on movable bridges and railroad structures. Mr. Magistro is sponsoring portions of Section III-F of CSXT's Reply Evidence relating to Bridges. Mr. Magistro has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Magistro's experience includes structural steel design, steel bridge rehabilitation, fixed bridge and moveable bridge inspection, fixed bridge and movable bridge design including structural and mechanical aspects, plan production, and project management for numerous railroad and transportation agency clients. Mr. Magistro holds a Bachelor of Science, Civil Engineering from Kansas State University and is a member of the American Railway Engineering and Maintenance-of-Way Association (AREMA).

Mr. Magistro's resume with additional project experience is attached hereto.

VERIFICATION

I, David A. Magistro, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



David A. Magistro

Executed on this 2nd day of MARCH 2016

David A. Magistro, P.E.

Senior Engineer/Project Manager

Mr. Magistro is a senior engineer with more than 15 years of experience in structural bridge design and project management for railroad projects, including movable bridge construction and rehabilitation for numerous private railroad and public transportation agency clients. He has handled all facets of project control, including design, plan production, and quality assurance on a variety of railroad bridges and intricate grade separations. An adept problem solver, Mr. Magistro works with stakeholders during and after construction to ensure that project goals are fulfilled. He excels at coordinating personnel and resources across disciplines, as well as suppliers, contractors, and inspectors to deliver projects on time and within budget.

Project Experience

BNSF Bridge 32.06 Swing Span Replacement Construction Support Services - Project Manager

Overseeing construction support services for the replacement of BNSF Bridge 32.06, a 90-foot through-plate girder, swing-span bridge that carries BNSF Railway tracks over the Bayou des Allemands in Des Allemands, LA. Mr. Magistro is supervising the review of shop drawings, RFIs, contractor submittals, and review of contractor design changes.

BNSF Bridge 32.06 Swing Span Replacement Design - Project Manager

Oversaw structural design of the new 90-foot through-plate girder swing span for BNSF Bridge 32.06, near Bayou Des Allemands, LA. Mr. Magistro was responsible for all facets of the firm's scope of the project, as well as coordination of structural issues with the mechanical and electrical design firm. The new through-plate girder for this bridge was designed for the typical 3-support continuous span arrangement for swing spans, as well as a simple-span load case over the entire span length for a temporary loading condition during construction. The firm's scope also included renovation of the existing substructure units.

Wisconsin Central Ltd. Bridge 1.73 Drive Replacement Construction Management - Project Engineer

Coordinated submittals and requests for information associated with the replacement of the electrical system of railroad Bridge 1.73 over the Des Plaines River near Joliet, IL, for Wisconsin Central Ltd. railroad. The 306-foot-long bridge carries a single railway track. Mr. Magistro coordinated the contractors' information to replace the drive system of the vertical lifting mechanism.

Firm STV

Education

Bachelor of Science, Civil Engineering; Kansas State University

Professional

Registrations

Professional Engineer:
Kansas, Missouri, Oklahoma

Memberships

American Railway
Engineering and
Maintenance-of-Way
Association (AREMA)

Chairman, AREMA
Committee 15 Subcommittee
6

Heavy Movable Structures
(HMS) Registrar, Treasurer

BNSF Bridge 6.3 Rail Joint Replacement - Project Manager

Designed a replacement of the rail joints and steel ties of a double-track bascule span for BNSF Railway in Ballard, WA. Mr. Magistro modified the structure's new steel ties and rail joints, and provided a construction sequence to complete the work.

BNSF Bridge 6.3 Operating Strut Reinforcement - Project Manager

Provided fabrication and installation recommendations for the replacement of the bearings and the support the main pinions inside the operating struts on this double-track bascule span in Ballard, WA, for BNSF Railway. Mr. Magistro reviewed fabrication shop drawings and construction sequences to complete the work.

EJE CN Bridge 198 Motor Control Improvement Design - Project Engineer

Provided structural and mechanical engineering design services to the Elgin, Joliet, and Eastern Railway (EJE) for the design and installation of a new standalone drive-and-control system to supplement the wound-rotor motor system on Canadian National Railway (CN) Bridge 198 in Joliet, IL. Improper seating was interfering with operation of the bridge, a vertical lift structure controlled by a 1940s-era motor system. The project also included span guide improvements, including new centering devices to make sure the span always returns to the same position.

BNSF Bridge 231.4 Inspection - Project Manager

Oversaw inspection of structural repairs of Bridge 231.4 completed in 2008 to verify that the as-repaired condition merited the as-repaired structural rating in Fort Madison, IA, for BNSF Railway.

BNSF/UP Precast Specification Update - Project Manager

Evaluated the shared standard specifications for the manufacture of precast and prestressed concrete components for BNSF and Union Pacific Railroad (UP). Mr. Magistro brought the standard specification into accordance with current fabrication tolerances. He also reviewed the chemical admixtures and mix specifications for concrete bridge structures.

BNSF Kansas City Movable Bridge Inspection - Project Manager

Provided walk-through maintenance inspection of the two BNSF Railway movable bridges, ASB and Hannibal, in the Kansas City area. Mr. Magistro inspection included observing all mechanical and electrical equipment in use, noting deficiencies and areas that require maintenance or repair. He prepared a report with recommendations for necessary maintenance and repair work.

NECR Bridge 15.21 Modification - Project Engineer

Provided mechanical and structural design services to the New England Central Railroad (NECR) for the conversion of a swing-span bridge from manual to mechanical operation in Swanton, VT. The bridge, which had been operated manually using a capstan, is protected as a state historic resource. The

project team successfully incorporated the electric-powered system without altering the appearance or function of the bridge.

SCFE Moore Haven Bridge Rehabilitation - Project Engineer

Prepared design plans for new mechanical equipment on this swing-span railroad bridge in Moore Haven, FL, which remained in operation during construction. Engineers completed the transition between the old and new system in a week without causing interruptions to South Central Florida Express (SCFE) train service.

VDOT Coleman Bridge Cable Replacement - Project Engineer

Designed emergency repairs to the structural and mechanical systems on this 3,750-foot-long, double swing-span bridge that crosses the York River between Yorktown and Gloucester Point, VA. A tug boat struck the bridge and damaged several cables. Mr. Magistro's work enabled the Virginia Department of Transportation (VDOT) to restore service to this important toll crossing, which carries the 4-lane US 117 and connects the Peninsula and Middle Peninsula areas of Virginia's Tidewater region.

BNSF Bridge 231.4 Structural Inspection, Load Rating, and Structural Repairs - Project Manager/Field Inspector/Design Engineer

Responsible for the comprehensive structural inspection and load rating of the floor system for the roadway portions of this double-deck structure over the Mississippi River in Fort Madison, IA, for BNSF Railway. The inspection and load rating was followed by a phase of structural repairs. Mr. Magistro was responsible for the design and construction sequencing of the structural steel repairs for an approach span through plate girders and floor system components, including stringers and floorbeams.

NS Bridge 6.66 Rehabilitation - Design Engineer

Managed the structural design for the replacement of curved segments on the rolling girders of this double-track rolling bascule span over the South Branch Elizabeth River in Gilmerton, VA. The Norfolk Southern Railway (NS) project included structural design and detailing, plan production, construction specifications, construction sequencing, and contractor coordination.

BNSF Bridges 5.8, 6.2, and 6.7 Structural Inspection, Load Rating, and Structural Repairs - Project Manager/Field Inspector

Directed the comprehensive inspection and load rating analysis of three structures over north Willamette Boulevard, north Lombard Street, and north Fessenden Street in Portland, OR. All three structures consist of a combination of deck plate girder spans and deck truss spans resting on either structural steel towers or concrete piers. Mr. Magistro also managed the follow-up BNSF Railway project to design structural retrofits to increase the load capacity of these structures.

BNSF Bridge 117.35 Electrical/Mechanical Rehabilitation - Project Manager

Responsible for the replacement of the drive system on this span drive vertical lift bridge over the Illinois River in Beardstown, IL. The BNSF Railway project included replacing the existing central reducer, drive motors, auxiliary drive system, shafts, bearings, and couplings.

CP Rail Bridge 283.27 Bearing Repair and Truss Jacking - Project Manager/Design Engineer

Responsible for design and detailing of jacking frames used to longitudinally jack two approach spans through trusses adjacent to this 360-foot swing span over the Mississippi River in La Crosse, WI. The Canadian Pacific (CP) project included construction sequencing and field assistance during construction.

VDOT I-264 Berkley Bridge Rehabilitation - Design Engineer

Participated in the rehabilitation of a 4-leaf bascule bridge over the New Elizabeth River in Norfolk, VA. The Virginia Department of Transportation (VDOT) project consisted of design and integration of a new drive system and machinery on top of an existing system of equipment and machinery. It included two complete designs to accommodate the original 2-leaf bascule built in 1950 and the second bascule pair built in 1992. Mr. Magistro's responsibilities included design of the new mechanical equipment, as well as structural retrofits required for installation of the new equipment.

BNSF Abo Canyon Double Track Capacity Design Project - Lead Bridge Engineer

Responsible for bridge layouts, design, quantity calculations and cost estimates for nine bridge structures along a 5-mile stretch of second main line track for the BNSF Railway through Abo Canyon, NM.

BNSF Bridge 0.80 Emergency Stringer Replacement - Project Manager/Design Engineer

Supervised the emergency replacement of eight stringers in the movable span floor system of this 450-foot swing span over the Missouri River in Kansas City. The scope of the BNSF Railway project also included shop inspection during fabrication of the fracture critical stringers.

CP Rail Bridge 283.27 Span Alignment Lock Design - Project Manager

Led the design and detailing of a new span alignment and span locking device for this 360-foot swing span over the Mississippi River in La Crosse, WI. The Canadian Pacific (CP) project included structural modifications to the approach span where the new device was located.

BNSF Bridge 37.0 Fender Replacement - Project Manager/Design Engineer

Oversaw design of a new fender system for the 260-foot swing span over the Snohomish River in Everett, WA. Mr. Magistro also supervised detailing of the fender replacement for the BNSF Railway project.

BNSF Bridge 14.2 Pier Rehabilitation - Project Engineer

Assisted in development and design of rehabilitation details for the rest pier, bridge bearings, lift tower structural support steel, and end floorbeam top flange replacement. Mr. Magistro also provided design for this BNSF Railway bridge located near Steilacoom, WA. The rest pier was rehabilitated and the live load bearing was replaced while maintaining both rail and navigation traffic.

EJE Bridge 728 Rehabilitation - Design Engineer

Responsible for the mechanical rehabilitation of this Scherzer single-leaf rolling bascule span over the East Chicago Canal in Gary, IN, for Elgin, Joliet and Eastern Railway (EJE). The project included replacement of the drive motor and central reducer, and all associated shafts, bearings, and couplings; installation of a new auxiliary motor and clutch; and upgrade of the control system. Mr. Magistro was also responsible for the design of the structural support system rehabilitation for new mechanical components, and construction sequencing and field assistance during construction.

CSXT Bridge L653.4 Span Replacement - Project Engineer

Participated in the inspection to evaluate the existing condition of the movable span for purposes of the United States Coast Guard Cost Apportionment. Mr. Magistro was responsible for the new bridge deck details, including timber ties, steel ties, and rail joints for this on-line swing span replacement with a new 360-foot vertical lift span over the Mobile River near Hurricane, AL.

EJE Bridge 198 Inspection and Rehabilitation - Design Engineer

Led the mechanical rehabilitation of this skewed 306-foot-long tower drive vertical lift bridge over the Des Plaines River in Joliet, IL. This Elgin, Joliet, and Eastern Railway (EJE) project included the replacement of an open gear set with an enclosed gear reducer, as well as the replacement of all impacted shafts, pinions, bearings, and couplings. Mr. Magistro was also responsible for the design of new mechanical system components, construction sequence, and field assistance during construction.

KCPL La Cygne Station Siding Addition - Project Manager

Provided a survey of existing track and topography needed for the design of the new siding addition at the Kansas City Power & Light Company (KCPL) generating Station in La Cygne, KS. Mr. Magistro designed track for the new siding and for a roadway overpass alignment that used a steel plate arch structure to remove the at-grade crossing. He also provided shop drawing review of the fabrication drawings for the steel plate arch structure.

ODOT Robinson Street Grade Crossing - Project Manager

Managed construction of a detour for rail and vehicular traffic that will be used during construction of a permanent BNSF Railway grade separation at Robinson Street in Norman, OK. This railroad corridor receives heavy freight traffic and is also an Amtrak corridor. The shoofly design for the Oklahoma Department of Transportation (ODOT) permitted rail and roadway traffic to

continue during construction. In addition, Mr. Magistro assisted the contractor with the design of shoring for the permanent bridge structure.

CSXT vs. TPI Rate Case - Project Engineer

Responsible for the bridge evidence in the CSXT vs. Total Petrochemical Incorporated (TPI) rate case, officiated by the Surface Transportation Board. Mr. Magistro is responsible for evaluating opening evidence generated by TPI, and compiling reply evidence on behalf of CSXT to establish the construction cost of a standalone railroad system, upon which the CSXT shipping rates are based.

NS vs. Sunbelt Rate Case - Project Engineer

Responsible for the bridge evidence in Norfolk Southern Railway (NS) vs. Sunbelt chemical rate case, officiated by the Surface Transportation Board. Mr. Magistro was responsible for evaluating opening evidence generated by Sunbelt, and compiling reply evidence on behalf of NS to establish the construction cost of a standalone railroad system, upon which the NS shipping rates are based.

NS vs. DuPont Rate Case - Project Engineer

Responsible for the bridge evidence in the Norfolk Southern Railway (NS) vs. DuPont chemical rate case, officiated by the Surface Transportation Board. Mr. Magistro was responsible for evaluating opening evidence generated by DuPont and compiling reply evidence on behalf of NS to establish the construction cost of a standalone railroad system, upon which NS's shipping rates are based.

IPA vs. BNSF/UP Rate Case - Project Engineer

Responsible for the bridge evidence in the Intermountain Power Agency (IPA) vs. BNSF Railway/Union Pacific Railroad (UP) coal rate case, officiated by the Surface Transportation Board. Mr. Magistro was responsible for evaluating opening evidence generated by IPA, and compiling reply evidence on behalf of BNSF and UP to establish the construction cost of a standalone railroad system, upon which the shipping rates of BNSF and UP are based.

UP Oklahoma City I-40 - Project Engineer

Reviewed project plans for the realignment of train tracks along this highway corridor in Oklahoma City. Mr. Magistro reviewed the overhead structures and foundation configuration at each grade separation to determine if the arrangements, clearances, and structural designs met American Railway Engineering and Maintenance-of-Way Association and Union Pacific Railroad (UP) requirements. He provided reviews through the duration of the project and interacted with UP, the Oklahoma Department of Transportation, utility owners, and construction contractors.

AEPCO vs. UP Rate Case - Project Engineer

Responsible for the bridge evidence in Arizona Electric Power Cooperative (AEPCO) vs. Union Pacific Railroad (UP) coal rate case, officiated by the Surface Transportation Board. Mr. Magistro was responsible for evaluating

opening evidence generated by AEPCO, and compiling reply evidence on behalf of UP to establish the construction cost of a standalone railroad system, upon which the UP shipping rates are based.

AEPCO vs. BNSF Rate Case - Project Engineer

Responsible for the bridge evidence in the Arizona Electric Power Cooperative (AEPCO) vs. BNSF Railway coal rate case, officiated by the Surface Transportation Board. Mr. Magistro was responsible for evaluating opening evidence generated by AEPCO, and compiling reply evidence on behalf of BNSF to establish the construction cost of a standalone railroad system, upon which the BNSF shipping rates are based.

Seminole Electric vs. CSXT Rate Case - Project Engineer

Responsible for the bridge evidence in the Seminole Electric vs. CSXT coal rate case, officiated by the Surface Transportation Board. Mr. Magistro was responsible for evaluating opening evidence generated by Seminole Electric, and compiling reply evidence on behalf of CSXT to establish the construction cost of a standalone railroad system, upon which CSXT's shipping rates are based.

BNSF Richmond Turntable Rehabilitation - Project Engineer

Responsible for design of the new mechanical components in the rehabilitation of this 110-foot turntable structure in Richmond, CA. The BNSF Railway project included design and details for new end trucks, new enclosed gear reducer to replace open gear set, new shafts and bearings, and new structural supports.

BNSF Bridge 1136.3 Rail Joint Replacement - Design Engineer

Responsible for the replacement of the rail joints on this Abbott Style single-leaf bascule bridge over the Old River in Orwood, CA. The BNSF Railway project also involved installation of steel ties under the new joints, replacement of one approach span, and rehabilitation of the span lock. Mr. Magistro's responsibilities also included engineering design, plan production, and field assistance during construction.

MICHAEL MATELIS

Mr. Matelis is a Senior Director in the Network Industries Strategies (“NIS”) Group of FTI Consulting, Inc., an economic and consulting firm with offices located at 1101 K Street, NW, Washington, DC 20005. Mr. Matelis is sponsoring portions of Section III-A, relating to identification of the SARR traffic group, and portions of III-C, relating to implementation of the SARR operating plan, of CSX Transportation, Inc.’s (“CSXT’s”) Reply Evidence. Mr. Matelis has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Matelis holds a Bachelor of Arts degree in economics from the University of North Carolina at Chapel Hill. He provides financial and economic consulting services to the transportation, energy, and telecommunications industries. Mr. Matelis has led efforts assessing data quality and performed complex economic and financial analysis.

Mr. Matelis previously worked as a management consultant for a number of government and private organizations, providing quantitative analysis.

Mr. Matelis’s curriculum vitae is attached.

VERIFICATION

I, Michael Matelis, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Michael Matelis

Executed on this 7th day of March 2016.

Michael Matelis

Senior Director – Economic Consulting

michael.matelis@fticonsulting.com

FTI Consulting

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Washington, DC 20005

Tel: (202) 312-9100

Fax: (202) 312-9101

EDUCATION

BA in Economics from University
of North Carolina at Chapel Hill

Michael Matelis is a Senior Director in the Network Industries Strategies group of the FTI Economic Consulting group, located in Washington, D.C. Mr. Matelis provides financial and economic consulting services to the transportation, energy and telecommunications industries.

Mr. Matelis has developed and managed complex database systems incorporating data from various sources to generate enterprise-level information for analysis. He has worked with clients to define data requirements and identify appropriate data sources for various projects. He has led efforts assessing data quality – ensuring proper configurations, linkages, and values contained within data sets. He has performed economic and financial analysis and developed methodologies to model operations, examine costs, establish pricing rates, and ensure compliance with regulations.

Prior to joining FTI Consulting, Mr. Matelis worked as a management consultant leading projects specializing in analytical and data-driven efforts for various government and private organizations. These efforts included: creating data collection and analysis tools, developing and analyzing performance measures, designing and implementing national surveys, and developing information systems. His core skills include quantitative analysis, data management, and information system development.

TESTIMONY

Surface Transportation Board

August 1, 2011	Docket No. 42125 E.I. DuPont De Nemours and Company v. Norfolk Southern Railway Company, Norfolk Southern Railway's Reply to Second Motion to Compel, Joint Verified Statement of Benton V. Fisher and Michael Matelis
November 30, 2012	Docket No. 42125 E.I. DuPont De Nemours & Company v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company January 7, 2013 Docket No. 42130 SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company

January 7, 2013 Docket No. 42130 SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company

July 21, 2014 Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.

October 7, 2015 Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Supplemental and Compliance Evidence of CSX Transportation, Inc.

November 20, 2015 Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., CSX Transportation, Inc.'s Reply to Supplemental and Compliance Evidence

RICHARD MEYER

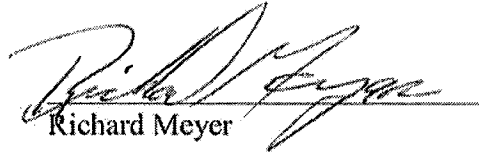
Mr. Meyer is a Senior Signal Designer with STV Inc., a professional firm offering engineering, architectural, planning, environment and construction management services located at 200 West Monroe Street, Suite 1650, Chicago, Illinois 60606. Mr. Meyer is sponsoring portions of Section III-F of CSX Transportation, Inc. ("CSXT's") Reply Evidence relating to Signals. Mr. Meyer has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Meyer holds an Associate of Science, Electronic Engineering degree from ITT Technical Institute. Mr. Meyer has more than 35 years of experience in the design, construction, installation, monitoring, and troubleshooting of rail signal systems. Mr. Meyer has particular in-depth knowledge of communication-based train control and automatic train control systems. Mr. Meyer has worked on a variety of railroad communications projects, including a project for the Region of Waterloo Rapid Transit Division in which he wrote the specifications and developed the design for the automatic train control system used in the region. Mr. Meyer has also provided signal design rehabilitation for a variety of projects in Ohio and for the SEPTA system in Philadelphia. Mr. Meyer served as the senior signal designer providing design, testing, and installation of track circuits, switches, interlockings and highway crossings for the DART light rail transit system in Texas.

Mr. Meyer's complete curriculum vitae is attached.

VERIFICATION

I, Richard Meyer, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



Richard Meyer

Executed on this 3RD day of March 2016.

Richard A. Meyer

Senior Signal Designer

Mr. Meyer is a signal designer with more than 35 years of experience in the design, construction, installation, monitoring, and troubleshooting of rail signal systems. He has in-depth knowledge of communication-based train control and automatic train control systems; microprocessors and relay-based interlockings; highway crossings; and microprocessor-based track circuits, such as types DC, AC, AF, and PF (25 Hz, 60 Hz, and 100 Hz). Mr. Meyer has additional experience with switch machines, railroad pole lines, radio, and microwave communications. He has worked with railroad contractors and regional agencies, as well as international clients. Mr. Meyer is also experienced in training staff to operate and maintain signal equipment.

Project Experience

Region of Waterloo Rapid Transit Division ION LRT System- Engineering Specialist

Writing the specifications and developing the design for the automatic train control (ATC) system of the ION light rail transit (LRT) design-build project for the Region of Waterloo Rapid Transit Division in Ontario, Canada. The train control system is comprised of microprocessor-based interlockings, which control the interlocking signals, switch machines, and cab signal generation for the automatic train protection (ATP) system. The train control system also controls the highway grade-crossing warning systems. Mr. Meyer's responsibilities include block layout design and run time analysis and calculations for crossing warning systems for the \$818 million, 11.8-mile (19-km) main line project.

CATS LYNX Blue Line Extension Light Rail Project - Engineering Specialist

Reviewing the design of the train control system and offering recommendations for a new train control system on the 9.3-mile line expansion for the Charlotte Area Transit System (CATS). The Blue Line will extend from uptown Charlotte northeast to the US 29/I-485 interchange near the University of North Carolina at Charlotte. The train control system is comprised of microprocessor-based interlockings, which control the interlocking signals, switch machines, and the automatic train control (ATC) CAB signal generation. This system also controls the highway grade-crossing warning system. Mr. Meyer's responsibilities include block layout design, run time analysis and calculations for crossing warning systems, and providing customer support and training to the CATS signal department in maintaining their existing system.

Firm STV

Education
Associate of Science,
Electronic Engineering;
ITT Technical Institute

Training
Eventrak, Genisys, and
Microlok Field Service
Certification
Basic Electricity and
Electronics and Interior
Communications Training;
U.S. Navy

GCRTA Interlocking Rehabilitations - Signal Designer

Provided signal design for the rehabilitation of the I-70, Brookpark Tower, and Cleveland Hopkins International Airport interlockings in Brookpark, OH, for the Greater Cleveland Regional Transit Authority (GCRTA).

SEPTA Orange Line Rehabilitation - Signal Designer

Tested the new signal system on the rehabilitated Orange Line between the Fernrock Yard and Olney interlockings in Philadelphia. The project involved cutover plans and wiring modifications to complete the redesign of the signal system. Mr. Meyer also programmed vital and non-vital microprocessors for the Orange Line to troubleshoot and complete the design of US&S microprocessor programming.

Republic of China Tibet Railroad CBTC - Signal Designer

Completed factory testing of Vital Harmon Logic Controller (VHLC) and Non-Vital Harmon Logic Controller (NVHLC) microprocessors for the communication-based train control (CBTC) system for the province of Tibet. Starting from the Golmund in the western Qinghai Province, the 620-mile line climbs to a maximum height of over 16,400 feet, making it the highest railway climb in the world.

SEPTA Region 5 Main Line Interlockings - Signal Designer

Responsible for the programming of vital and non-vital microprocessors for interlockings on the SEPTA Region 5 Main Line, which provides service to the Philadelphia area for more than five million passengers a year. This project involved adding new interlockings to the existing signal systems at Tabor, Jenks, Jenks South, Carmel, and Carmel South. The Tabor Interlocking in Philadelphia is a basic crossover about 1 mile north of Newtown Junction and is the end of the third track siding between the two. A former Reading Railroad flat junction, the Carmel Interlocking in Glenside, PA, is located at the junction between the Lansdale/Doylestown and Warminster Lines and is the northern terminal point for the Airport service. Its reconstruction included the addition of new bracket and cantilever signal masts at the north end. Mr. Meyer's responsibilities included writing microprocessor logic equations for safe train operation, providing testing support and troubleshooting support programs written by SEPTA staff.

DART LRT System Maintenance Training - Signal Designer

Trained Dallas Area Rapid Transit (DART) personnel in the operation and maintenance of signal equipment used in each location of the 20-mile light rail transit (LRT) starter system. The signal system comprised 100-Hz power frequency double- and single-rail track circuits, relay-based interlockings with non-vital processors, and relay-based crossing control. Mr. Meyer's teaching responsibilities under this project primarily included explaining microprocessor logic equations to new DART maintenance and operations personnel.

DART LRT Build-Out - Senior Signal Designer

Provided design, testing, and installation of track circuits, switch machines, interlockings, and highway crossings related to the commissioning of the 23-mile extension of the DART light rail transit (LRT) system from Plano to Garland, TX.

PAAC Overbrook Line - Signal Inspector

Supervised the installation of signal equipment for the Overbrook Line and checked that it was installed according to the correct specifications for the Port Authority of Allegheny County (PAAC). The 6-mile rail line extends from Mount Washington to Shannon, PA.

Amtrak Highway Crossing Designs - Senior Signal Designer

Performed signal design for quad-gate highway crossing applications at various at-grade crossings throughout Connecticut. In approving Amtrak's High-Speed Rail Passenger Service Improvement Program, the Federal Railroad Administration (FRA) mandated that trains not exceed 80 mph over a highway crossing unless full barrier protection is provided, and that train speeds in excess of 95 mph require closed crossings or grade separation. A prototype quad-gate barricade system was approved by the FRA for installation at the School Street crossing in Mystic, CT, on Amtrak's New Haven to Boston main line. Mr. Meyer designed the signals for the quad-gate crossing at School Street and for similar crossings at Freeman Street in Hartford; at Walker Lane in Woodbridge; and at Broad Street, Latimer Point, Miner Lane, Palmer Street, and Wamphassuc Point Road in Stonington.

Taipei Metropolitan Area Rapid Transit Various Projects - Consulting Engineer

Responsible for the design, testing, and installation of stabling yards, including Genisys and Microlok microprocessors, in Taipei, China.

GCRTA AF-700 Installation - Consulting Engineer

Performed factory and field testing and installation of the Greater Cleveland Regional Transit Authority (GCRTA) Audio Frequency (AF) model 700 track circuit, along with relay-based interlockings.

KEVIN MURPHY

Professor Murphy is the George J. Stigler Distinguished Service Professor of Economics, Department of Economics and Booth School of Business at the University of Chicago. Professor Murphy also serves as a faculty research associate at the National Bureau of Economic Research and is the Co-Chair of the Becker Friedman Institute for Research in Economics at the University of Chicago. Professor Murphy is also a Senior Consultant to Charles River Associates ("CRA"), a consulting firm that specializes in the application of economics to law and regulatory matters. Professor Murphy is sponsoring Exhibit II-B-XX of CSX Transportation, Inc. ("CSXT's") Reply Evidence, regarding market dominance. Professor Murphy has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

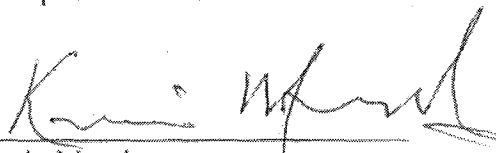
Professor Murphy holds a Ph.D. from the University of Chicago and an A.B., Economics from the University of California, Los Angeles. Prior to becoming the George J. Stigler Distinguished Service Professor of Economics in 2005, Professor Murphy held a variety of teaching positions at the University of Chicago, beginning in 1982. Professor Murphy teaches graduate level courses in microeconomics, price theory, empirical labor economics, and sports analytics. His teaching focuses primarily on how to use the tools of economics to understand the behavior of individuals, firms and markets; and how to apply economic analysis to data.

Professor Murphy was elected to the American Academy of Arts and Sciences in 1998. Professor Murphy has authored and co-authored more than 65 articles in a variety of areas in economics and has submitted testimony in a variety of proceedings in Federal Court and before federal and state regulatory bodies, including the S.T.B.

A copy of Prof. Murphy's curriculum vitae is attached.

VERIFICATION

I, Kevin Murphy, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Kevin Murphy

Executed on this 29th day of February, 2016

Curriculum Vitae

Kevin M. Murphy

February 2016

Business Address:

The University of Chicago
Booth School of Business
5807 South Woodlawn Avenue
Chicago, Illinois 60637
email: kevin.murphy@chicagobooth.edu

Home Address:

1810 Pennington Court
New Lenox, Illinois 60451
Phone: (815)463-4756
Fax: (815)463-4758

Current Positions

July 2005-Present: George J. Stigler Distinguished Service Professor of Economics,
Department of Economics and Booth School of Business, The University of Chicago

Faculty Research Associate, National Bureau of Economic Research

Co-Chair Becker Friedman Institute for Research in Economics, The University of
Chicago

Education

University of California, Los Angeles, A.B., Economics, 1981

The University of Chicago, Ph.D., 1986

Thesis Topic: *Specialization and Human Capital*

Previous Research and Academic Positions

2002-2005: George J. Stigler Professor of Economics, Department of Economics and
Booth School of Business, The University of Chicago

1993 – 2002: George Pratt Shultz Professor of Business Economics and Industrial
Relations, The University of Chicago

1989 – 1993: Professor of Business Economics and Industrial Relations, The University
of Chicago

1988 – 1989: Associate Professor of Business Economics and Industrial Relations, The University of Chicago

1986 – 1988: Assistant Professor of Business Economics and Industrial Relations, The University of Chicago

1983 – 1986: Lecturer, Booth School of Business, The University of Chicago

1982 – 1983: Teaching Associate, Department of Economics, The University of Chicago

1979 – 1981: Research Assistant, Unicon Research Corporation, Santa Monica, California

Honors and Awards

2008: John von Neumann Lecture Award, Rajk College, Corvinus University, Budapest

2007: Kenneth J. Arrow Award (with Robert H. Topel)

October 2005: Garfield Research Prize (with Robert H. Topel)

September 2005: MacArthur Foundation Fellow

1998: Elected to the American Academy of Arts & Sciences

1997: John Bates Clark Medalist

1993: Fellow of The Econometric Society

1989 – 1991: Sloan Foundation Fellowship, The University of Chicago

1983 – 1984: Earhart Foundation Fellowship, The University of Chicago

1981 – 1983: Fellowship, Friedman Fund, The University of Chicago

1980 – 1981: Phi Beta Kappa, University of California, Los Angeles

1980 – 1981: Earhart Foundation Fellowship, University of California, Los Angeles

1979 – 1981: Department Scholar, Department of Economics, University of California, Los Angeles

Publications

Books

Social Economics: Market Behavior in a Social Environment with Gary S. Becker, Cambridge, MA: Harvard University Press (2000).

Measuring the Gains from Medical Research: An Economic Approach, edited volume with Robert H. Topel, Chicago: The University of Chicago Press (2003).

Articles

“Government Regulation of Cigarette Health Information,” with Benjamin Klein and Lynne Schneider, 24 *Journal of Law and Economics* 575 (1981).

“Estimation and Inference in Two-Step Econometric Models,” with Robert H. Topel, 3 *Journal of Business and Economic Statistics* 370 (1985).

“Unemployment, Risk, and Earnings: Testing for Equalizing Wage Differences in the Labor Market,” with Robert H. Topel, in Unemployment and the Structure of Labor Markets, pp. 103-139, ed. Kevin Lang and Jonathan S. Leonard. London: Basil Blackwell (1987).

“The Evolution of Unemployment in the United States: 1968-1985,” with Robert H. Topel, in NBER Macroeconomics Annual, pp. 11-58, ed. Stanley Fischer. Cambridge, MA: MIT Press (1987).

“Cohort Size and Earnings in the United States,” with Mark Plant and Finis Welch, in Economics of Changing Age Distributions in Developed Countries, pp. 39-58, ed. Ronald D. Lee, W. Brian Arthur, and Gerry Rodgers. Oxford: Clarendon Press (1988).

“The Family and the State,” with Gary S. Becker, 31 *Journal of Law and Economics* 1 (1988).

“A Theory of Rational Addiction,” with Gary S. Becker, 96 *Journal of Political Economy* 675 (1988).

“Vertical Restraints and Contract Enforcement,” with Benjamin Klein, 31 *Journal of Law and Economics* 265 (1988).

“Income Distribution, Market Size, and Industrialization,” with Andrei Shleifer and Robert W. Vishny, 104 *Quarterly Journal of Economics* 537 (1989).

“Wage Premiums for College Graduates: Recent Growth and Possible Explanations,” with Finis Welch, 18 *Educational Researcher* 17 (1989).

“Industrialization and the Big Push,” with Andrei Shleifer and Robert W. Vishny, 97 *Journal of Political Economy* 1003 (1989).

“Building Blocks of Market Clearing Business Cycle Models,” with Andrei Shleifer and Robert W. Vishny, in NBER Macroeconomic Annual, pp. 247-87, ed. Olivier Jean Blanchard and Stanley Fischer. Cambridge, MA: MIT Press (1989).

"Efficiency Wages Reconsidered: Theory and Evidence," with Robert H. Topel, in Advances in the Theory and Measurement of Unemployment, pp. 204-240. ed. Yoram Weiss and Gideon Fishelson. London: Macmillan (1990).

"Empirical Age-Earnings Profiles," with Finis Welch, 8 *Journal of Labor Economics* 202 (1990).

"Human Capital, Fertility, and Economic Growth," with Gary S. Becker and Robert F. Tamura, 98 *Journal of Political Economy*, S12 (1990).

"Accounting for the Slowdown in Black-White Wage Convergence," with Chinhui Juhn and Brooks Pierce, in Workers and Their Wages: Changing Patterns in the United States, pp. 107-143, ed. Marvin Kesters. Washington, D.C.: American Enterprise Institute (1991).

"The Role of International Trade in Wage Differentials," with Finis Welch, in Workers and Their Wages: Changing Patterns in the United States, pp. 39- 69, ed. Marvin Kesters. Washington, D.C.: American Enterprise Institute (1991).

"Why Has the Natural Rate of Unemployment Increased over Time?" with Robert H. Topel and Chinhui Juhn, 2 *Brookings Papers on Economic Activity* 75 (1991).

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Expert Report of Kevin M. Murphy, March 13, 2015, in the Matter of Processed Egg Products Antitrust Litigation, Indirect Purchaser Action, The United States District Court for the Eastern District of Pennsylvania. Case No. 08-MD-02002.

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Expert Report of Kevin M. Murphy, March 16, 2015, in the Matter of Matthew Edwards, et al. v. National Milk Producers Federation, et al., The United States District Court for the Northern District of California Oakland Division. Case No. 3:11-cv-04766 JSW.

Brief of Professor Kevin M. Murphy, April 9, 2015, in the Matter of The Dow Chemical Company v. Industrial Polymers, Inc., Quabaug Corporation, and Seegott Holdings, Inc., et al., On Petition for Writ of Certiorari to the United States Court of Appeals for the Tenth Circuit, The Supreme Court of the United States. No. 14-1091.

Testimony of Kevin M. Murphy, April 21, 2015, in the Matter of Processed Egg Products Antitrust Litigation, Indirect Purchaser Action, The United States District Court for the Eastern District of Pennsylvania. Case No. 08-MD-02002.

Declaration of Kevin M. Murphy, April 29, 2015, in the Matter of Teladoc, Inc., Teladoc Physicians, P.A., Kyon Hood, and Emmette A. Clark v. Texas Medical Board, Michael Arambula, Julie K. Attebury, Manual G. Guajardo, John R. Guerra, J. Scott Holliday, Margaret C. McNeese, Allan N. Shulkin, Robert B. Simonson, Wynne M. Snoots, Paulette B. Southard, Karl W. Swann, Surenda K. Varma, Stanley S. Wang, and George Willeford III, et al., The United States District Court for the Western District of Texas Austin Division.

Declaration of Kevin M. Murphy, April 29, 2015, in the Matter of Anne McVicar, et al. v. Goodman Global, Inc., et al., The United States District Court for the Central District of California. Case No. 8:13-cv-01223-DOC-RNB.

Declaration of Kevin M. Murphy, April 30, 2015, in the Matter of PB Property Management, Inc., Janet Helm, Jimmy Jewell, Deborah L. Wagner and Stanley H. Wagner, et al. v. Goodman Manufacturing Company, L.P., and Goodman Global, Inc., The United States District Court for the Middle District of Florida Jacksonville Division. Case No. 3:12-cv-1366-HES-JBT.

Deposition of Kevin M. Murphy, May 1, 2015, in the Matter of The Dial Corporation, Henkel Consumer Goods, Inc., H.J. Heinz Company, H.J. Heinz Company, L.P., Foster Poultry Farms, Smithfield Foods, Inc., HP Hood LLC, BEF Foods, Inc. and Spectrum Brands, Inc. v. News Corporation, News America Inc., News America Marketing FSI L.L.C., News America Marketing In-Store Services L.L.C., The United States District Court for the Southern District of New York. Case No. 13-cv-06802 (WHP).

Deposition of Kevin M. Murphy, May 13, 2015, in the Matter of Processed Egg Products Antitrust Litigation, Indirect Purchaser Action, The United States District Court for the Eastern District of Pennsylvania. Case No. 08-MD-02002.

Deposition of Kevin M. Murphy, May 19, 2015, in the Matter of Hoskin Hogan et al. v. BP West Coast Products LLC et al., The United States Superior Court for the State of California, City of Los Angeles. Case No. BC460880.

Rebuttal Expert Report of Kevin M. Murphy, May 29, 2015, in the Matter of ContentGuard Holdings, Inc. v. Amazon.com, Inc. et al., The United States District Court for the Eastern District of Texas Marshall Division. Case No. 2:13-cv-01112 (JRG).

Expert Report of Kevin M. Murphy, June 8, 2015, in the Matter of Kleen Products LLC, et al. v. International Paper, et. al., The United States District Court for the Northern District of Illinois Eastern Division. Case No. 1:10-cv-05711.

Confidential Submission to the U.S. Department of Justice in Connection with Modification of the ASCAP Consent Decree, June 23, 2015.

Testimony of Kevin M. Murphy, July 23, 2015, in re: STB Docket No. EP 722, Railroad Revenue Adequacy.

Expert Report of Kevin M. Murphy, July 27, 2015, in the Matter of Go Computer, Inc., and S. Jerrold Kaplan v. Microsoft Corporation, The United States Superior Court of the State of California for the City and County of San Francisco. Case No. CGC-05-442684.

Supplemental Verified Statement of Kevin M. Murphy, August, 6, 2015, in re: STB Docket No. EP 722, Railroad Revenue Adequacy.

Testimony of Kevin M. Murphy, August 6, 2015 and August 7, 2015, in the Matter of Hoskin Hogan et al. v. BP West Coast Products LLC et al., The United States Superior Court for the State of California, City of Lost Angeles. Case No. BC460880.

Rebuttal Disclosure of Kevin. M. Murphy, August 17, 2015, in the Matter of Go Computer, Inc., and S. Jerrold Kaplan v. Microsoft Corporation, The United States Superior Court of the State of California for the City and County of San Francisco. Case No. CGC-05-442684.

Direct Testimony of Kevin M. Murphy, August 18, 2015, in the Matter of US Airways, Inc. v. Sabre Holdings Corp., Sabre, Inc., and Sabre Travel International Ltd., The United States District Court for the Southern District of New York. Case No. 1:11-cv-02725-MGC.

Expert Report of Kevin M. Murphy, August 24, 2015, in the Matter of Fernanda Garber, Mark Lerner, Derek Rasmussen, Robert Silver, Garrett Traub, and Vincent Birbiglia et al. v. Office of the Commissioner of Baseball, et al., The United States District Court for the Southern District of New York. Case No. 12-cv-3704 (SAS).

Deposition of Kevin. M. Murphy, August 28, 2015, in the Matter of Go Computer, Inc., and S. Jerrold Kaplan v. Microsoft Corporation, The United States Superior Court of the State of California for the City and County of San Francisco. Case No. CGC-05-442684.

Expert Report of Kevin M. Murphy, September 8, 2015, in the Matter of Parallel Networks Licensing, LLC v. Microsoft Corporation, The United States District Court for the District of Delaware. Case No. 13-2073-SLR.

Deposition of Kevin M. Murphy, September 16, 2015, in the Matter of Kleen Products LLC, et al. v. International Paper, et. al., The United States District Court for the Northern District of Illinois Eastern Division. Case No. 1:10-cv-05711.

Deposition of Kevin M. Murphy, September 28, 2015, in the Matter of Parallel Networks Licensing, LLC v. Microsoft Corporation, The United States District Court for the District of Delaware. Case No. 13-2073-SLR.

Expert Report of Kevin M. Murphy, October 27, 2015, in the Matter of ABS Global, Inc. v. Inguran, LLC d/b/a Sexing Technologies and XY, LLC v Genus PLC, The United States District Court for the Western District of Wisconsin. Case No. 14-cv-503.

Trial Testimony of Kevin M. Murphy, November 13, 2015 and November 17, 2015, in the Matter of Lori Aspinall and Thomas Geanocopoulos, on behalf of themselves and all others similarly situated, v. Philip Morris, USA, Inc., Superior Court for the Commonwealth of Massachusetts. Case No. 98-6002-BLSI.

Deposition of Kevin M. Murphy, January 5, 2016, in the Matter of ABS Global, Inc. v. Inguran, LLC d/b/a Sexing Technologies and XY, LLC v Genus PLC, The United States District Court for the Western District of Wisconsin. Case No. 14-cv-503.

Supplemental Expert Report of Kevin M. Murphy, January 13, 2016, in the Matter of The Dial Corporation, Henkel Consumer Goods, Inc., H.J. Heinz Company, H.J. Heinz Company, L.P., Foster Poultry Farms, Smithfield Foods, Inc., HP Hood LLC, BEF Foods, Inc. and Spectrum Brands, Inc. v. News Corporation, News America Inc., News America Marketing FSI L.L.C., News America Marketing In-Store Services L.L.C., The United States District Court for the Southern District of New York. Case No. 13-cv-06802 (WHP).

Declaration of Kevin M. Murphy, January 26, 2016, in the Matter of ABS Global, Inc. v. Inguran, LLC d/b/a Sexing Technologies and XY, LLC v Genus PLC, The United States District Court for the Western District of Wisconsin. Case No. 14-cv-503.

Expert Report of Kevin M. Murphy, February 5, 2016, in the Matter of Moldex Metric, Inc. v. 3M Company and 3M Innovative Properties Company, The United States District Court for the District of Minnesota. Case No. 2014-cv-01821 (JNE/FLN).

JOSEPH OLSON

Mr. Olson is an engineering specialist with STV Inc., a professional firm offering engineering, architectural, planning, environment and construction management services located at 200 West Monroe Street, Suite 1650, Chicago, Illinois 60606. Mr. Olson has experience providing civil engineering design and review for passenger and freight rail projects. Mr. Olson is sponsoring Section III-B and portions of Section III-F of CSX Transportation, Inc. ("CSXT's") Reply Evidence relating to Earthwork, Trackwork, and Public Projects. Mr. Olson has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

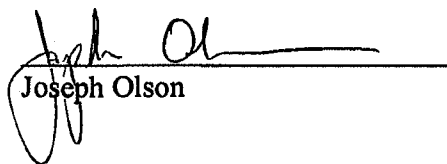
Mr. Olson holds a Bachelor of Science, Civil Engineering from the University of Iowa. Mr. Olson is a registered engineer-in-training. Mr. Olson's experience at STV includes assisting railroads with public improvement projects, including review of the impact of rail infrastructure on at grade crossings. Mr. Olson has also assisted in the design of several network capacity improvement projects, including yard reconfiguration projects and rail siding design and installation work. In addition, Mr. Olson drafted a design plan for a new double-track connection in Summit Argo, IL, as part of the Chicago Region Environmental and Transportation Efficiency (CREATE) program.

Mr. Olson is a member of the American Society of Civil Engineers, the Institute of Transportation Engineers, and the American Railway Engineering and Maintenance of Way (AREMA).

A copy of Mr. Olson's curriculum vitae is attached.

VERIFICATION

I, Joseph Olson, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Joseph Olson

Executed on this 2 day of March, 2016.

Joseph E. Olson

Engineering Specialist

Mr. Olson is an engineering specialist with experience providing civil engineering design and review for passenger and freight rail projects. He is familiar with all aspects of geometric design and has developed horizontal and vertical alignments and cross sections for complex rehabilitation and new construction projects. Mr. Olson excels as a technical author, specializing in drafting memorandums and project reports in support of transportation feasibility studies, EISs, and railroad litigations.

Project Experience

Illinois Tollway Elgin O'Hare Western Access - Engineering Specialist

Developing concept plans and preliminary alternatives for the \$3.6 billion extension project to widen roadways and extend the expressway east to provide western access into O'Hare International Airport in a heavily populated region west of Chicago. Mr. Olson is providing design services during the development of detailed engineering layouts, environmental mitigation requirements, construction sequencing, and financing strategies for the construction of 15 miles of new tollways/freeways, 12 miles of improvements to existing tollways, nearly 30 miles of arterial improvements, and provisions for future transit facilities in Cook and DuPage counties, IL. The firm's scope of work includes providing design engineering services for various grade separations within the 127-square-mile project area and for improvements to the Bensenville Freight Yard, the Bryn Mawr Interlocking, and the B-17 Interlocking.

IDOT Granite City to St. Louis Corridor Phase I Environmental Studies - Engineering Specialist

Developing concept plans, preliminary alternatives, and managing interdisciplinary data coordination in preparation of the Environmental Impact Study for the Granite City, IL, to St. Louis, MO, segment of the Chicago to St. Louis High-Speed Rail (HSR) project. The purpose of the Illinois Department of Transportation (IDOT) project is to analyze infrastructure improvements for faster, more reliable passenger service along the existing Amtrak route on Union Pacific Railroad (UP) and Terminal Railroad Association of St. Louis ROW. Mr. Olson coordinates the collection and distribution of railroad data between the HSR team and the railroads. He is also coauthoring technical memos to be included in the study as well as assisting in project management tasks.

CSXT Public Project Engineering Review - Engineering Specialist

Assisting in the review of public improvement projects along the CSXT ROW and developing force account cost estimates for public agency reimbursement. Consisting of public highway or utility at-grade crossings, the public improvement projects require detailed review of plan sets to identify and estimate impact to existing rail infrastructure. Mr. Olson is performing plan

Firm

STV

Education

Coursework towards Master of Science, Project Management (Concentration in A/E/C Business Management); McCormick School of Engineering, Northwestern University
Bachelor of Science, Civil Engineering; University of Iowa

Professional

Registration

Engineer-in-Training

Training

OSHA 10-Hour Construction Safety & Health

Memberships

American Society of Civil Engineer (ASCE)

Institute of Transportation Engineers (ITE)

American Railway Engineering and Maintenance of Way (AREMA)

Computer Skills

MicroStation, GEOPAK, AutoCAD Civil 3D, ArcGIS, Google Earth Pro

reviews and developing cost estimates for track material, special track work, and force account labor for public agency reimbursement.

CSXT Capital Improvements - Engineering Specialist II

Assisted in the design of several network capacity improvement projects with CSXT Great Lakes Division, including a siding in Jamestown, IN and one in Seymour, IN, as well as a yard reconfiguration in Willard, OH. Mr. Olson led an initial site survey, developed preliminary concepts, and prepared track design, a construction plan set, and specifications. He also assisted with subconsultant and client coordination for environmental permitting, geotechnical investigation, and utility relocation.

CSXT Jamestown Siding Track - Engineering Specialist

Directed an initial site survey and assessment in Jamestown, IN, as part of network capacity improvement plans along CSXT's Great Lakes Division. This \$9.9 million effort involves preparing plans to construct a new 10,000-foot rail siding, track installation and earthwork, new and rehabilitated grade crossings, and installing seven new culverts and headwalls. Mr. Olson also prepared preliminary design concepts and developed track designs and specifications. In addition, he contributed to geotechnical investigations and coordinated environmental permitting.

CSXT vs. TPI Coal Rate Case Litigation Cost Assessments (STB Docket 42121) - Engineering Specialist II

Prepared engineering and construction cost estimates for a hypothetical contemporary railroad network in defense of contested coal/commodity shipping rates for CSXT. Mr. Olson developed complex cost models, analyses, and supporting narratives to be submitted to the Surface Transportation Board (STB) as an expert engineering witness for CSXT. His duties included analyzing detailed construction/material costs associated with earthwork, drainage, track work, OTM, at-grade highway crossings, and bridges; drafting engineering schematics, track charts, construction phase plans, and exhibits; and authoring legal narrative and technical supporting documents to explain engineering analyses to STB. Mr. Olson also managed and assigned tasks and client correspondence for this case.

CSXT Curtis Bay Coal Terminal Reconfiguration - Engineering Specialist

Created the horizontal design for the reconfiguration of CSXT's Curtis Bay coal terminal in Baltimore. The project will consolidate yard tracks from the existing coal inbound yard and merchandise yard to provide three 130-foot inbound tracks to store unit coal trains. The project will also reconfigure the inbound lead tracks to the west yard to separate switching operations and implement new crossover arrangements at the existing three coal dumpers. The work is needed for CSXT's planned expansion of ground storage at this facility. Mr. Olson also prepared plan sets and client correspondence for various phases of the Curtis Bay project.

CSXT Fort Wayne Line and NS Gary Branch Consolidation - Engineering Specialist

Developed plans for the consolidation of the CSXT Fort Wayne Line and the Norfolk Southern Railway (NS) Gary Branch in Gary, IN. The work was required to facilitate the Chicago/Gary Regional Airport Authority's airport runway extension, and included a new connection from CSXT's Barr Subdivision to Canadian National Railway (CN)'s reconfigured Elgin, Joliet & Eastern Railway (EJE) Line and a new industrial connection from the CSXT Porter Subdivision to the Indiana Sugars manufacturing facility. Mr. Olson prepared stormwater pollution prevention plans (SWPPPs) and assisted with the design of horizontal and vertical alignments.

CSXT CREATE B-9 - Engineering Specialist

Drafted design plan set for a new double-track connection between the Beltway and East-West corridors and upgraded main line crossovers in Summit Argo, IL, as part of the Chicago Region Environmental and Transportation Efficiency (CREATE) program. Mr. Olson performed preliminary QA/QC checks for design and quantities, and assisted with plan preparation.

NS City Track Connection - Engineering Specialist

Assisted in the development of alignment design for a new connection track between the Canadian National Railway (CN)'s City Track and the Norfolk Southern Railway (NS) Gary Branch in Gary, IN. The work, which included a new bridge over the Grand Calumet River, was a result of expansion activities of the Gary Airport and the need to connect existing rail lines. Mr. Olson's responsibilities included the SWPPPs, plan preparation and drafting, quantity estimates, and drafting construction specifications.

UP vs. Intermountain Power Agency Rate Case Part 2 Litigation Cost Assessments (STB Docket 42136) - Engineering Specialist

Performed historic, geological, and geographical research, complex data analysis, and hydraulic modeling for an approximately 200-mile rail network in Utah for the Union Pacific Railroad (UP). This modeling was included in preparing planning, engineering, and construction costs in defense of contested coal/commodity shipping rates to be submitted to the Surface Transportation Board (STB) as an expert engineering witness for UP. Cost assessments included major earthwork, bridge and culvert construction, track, communications and signalization, engineering design, construction management, facilities, material costs and logistics, mobilization, and contingencies. Mr. Olson analyzed roadbed and track work engineering designs as well as performed a detailed hydraulic analysis of watersheds, existing drainage structures, and proposed drainage structures along the project right-of-way. From his previous STB rate case experience, Mr. Olson drafted the majority of supporting technical documents and authored the final legal narrative for this case.

City of Ottawa O-Train Expansion - Engineering Specialist

Provided preliminary engineering for the addition of two passing sidings on the Ottawa O-Train. The light rail transit service currently operates on a single 5-mile (8-km) track from the OC Transpo Bay View Station to the Greenboro

Station. The passing sidings allowed increased service while reducing headway times. Mr. Olson's responsibilities included design of preliminary alignments, plan preparation, and design support and drafting of signal systems.

NICTD Kensington Interlocking Improvements - Engineering Specialist

Drafted signal plan as-builts as part of post-construction services for the addition of a second route across the Canadian National Railway (CN) to the Metra Electric Line at the Kensington Interlocking in Chicago. The \$15.5 million Northern Indiana Commuter Transportation District (NICTD) project involved redesign of significant portions of the interlocking's track, signal system, and overhead contact system. Mr. Olson reviewed and amended post-construction as-built plans, drawings, and schematics for signals and signal houses controlling the interlocking.

NS vs. DuPont Rate Case Litigation Cost Assessments (STB Docket 42125) and NS vs. SunBelt Rate Case Litigation Cost Assessments (STB Docket 42130) - Engineering Specialist

Prepared engineering and construction cost estimates for a hypothetical contemporary railroad network spanning the Eastern United States in defense of contested coal/commodity shipping rates for Norfolk Southern Railway (NS). Mr. Olson developed complex cost models, analyses, and supporting narratives to be submitted to the Surface Transportation Board (STB) as an expert engineering witness for NS. Cost assessments included major earthwork, bridge and culvert construction, track, communications and signalization, engineering design, construction management, facilities, material costs and logistics, mobilization, and contingencies. Mr. Olson analyzed detailed construction/material costs associated with earthwork, drainage, track, other track material, and bridges. He also drafted complex engineering schematics and exhibits, and authored legal narrative/technical supporting documents pertaining to earthwork.

MARK A. PETERSON

Mr. Peterson is a Vice President and Architect with STV, a professional firm offering engineering, architectural, planning, environmental and construction management services with offices located at 1055 West Seventh Street, Suite 3150, Los Angeles, California 90017.

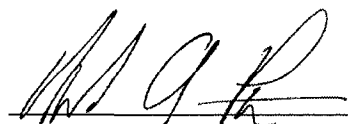
Mr. Phillips has more than 25 years of experience in the design and oversight of new and renovated transportation, healthcare, and laboratory facilities. Mr. Peterson is sponsoring portions of Section III-F of CSXT's Reply Evidence relating to Facilities. Mr. Peterson has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Peterson's transportation work has included master planning, programming, and design for vehicle maintenance, service and inspection, parking, operations and administrative, and communications facilities for state and regional transit agencies as well as for railroads. Mr. Peterson holds a Bachelor of Arts, Architecture from Washington University and is a member of the American Institute of Architects.

Mr. Peterson's resume with additional project experience is attached hereto.

VERIFICATION

I, Mark A. Peterson, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.


Mark A. Peterson

Executed on this 2nd day of March, 2016

Mark A. Peterson, AIA

Architect

Mr. Peterson is an architect and project manager with more than 30 years of experience in the design and oversight of new and renovated transportation, healthcare, and laboratory facilities. His transportation work has included master planning, programming, and design for vehicle maintenance, service and inspection, parking, operations and administrative, and communications facilities for state and regional transit agencies and railroads. Mr. Peterson also brings a high degree of knowledge and experience in the resolution of challenging projects within operating facilities, which includes leading teams in the design of transit security and operations and data centers.

Project Experience

City of Los Angeles Convention Center LACOEX - Project Director

Maintained oversight of the firm's design review services for the planned demolition of the Los Angeles Convention Center's West Hall and construction of the new 200,000-sf LACOEX hall, which would feature a multilevel glass atrium, a large interior multipurpose space, and meeting rooms, as part of a 5-year on-call architectural services task-order contract with the City of Los Angeles. Acting as the city's representative, Mr. Peterson's team's responsibilities included evaluating the adequacy of designs, determining the construction sequence, and confirming that construction documents met all city Department of Engineering requirements.

LACDPW Olive View UCLA Medical Center - Architect of Record

Provided architectural oversight for the design of a new cleanroom and anteroom at the Olive View – University of California, Los Angeles (UCLA) Medical Center in Sylmar, CA. Under an architectural and engineering design services task-order contract with the Los Angeles County Department of Public Works (LACDPW), The firm designed a renovation of an existing pharmacy area at this 377-bed hospital to accommodate an International Organization for Standardization (ISO) Class 5 intermediate cleanroom for intravenous compounding and chemotherapy, an ISO Class 7 anteroom, and a Talyst machine. Mr. Peterson oversaw design plans, which encompassed architectural, mechanical, and structural disciplines. As part of this complex renovation, the firm designed a standalone HVAC system with separate exhaust; electrical, plumbing, and fire protection system improvements; a horizontal and vertical flow hood; and upgrades to the pharmacy restroom, in accordance with ADA requirements. The firm also designed the anchorage for three carousel prescription dispensers planned for installation and verified that the pharmacy's floor could support their load, strengthening the floor beams, as required. The California Office of Statewide Health Planning and Development approved the firm's plans for the project.

Firm

STV

Education

Bachelor of Arts,
Architecture; Washington
University

Professional

Registration

Licensed Architect:
California

Membership

American Institute of
Architects (AIA), Los
Angeles Chapter

VA Building 99 Seismic Upgrade and HVAC Systems Replacement - Architect

Led initial building evaluation and formulation of the design approach, phasing, and costing for the seismic retrofit of a single-story, long-term U.S. Department of Veterans Affairs (VA) care facility in Sepulveda, CA. The project scope for this occupied 50,000-sf facility included full replacement of the HVAC system, slab-on-grade and foundation wall moisture sealing, and replacement of all interior finishes.

VA Long Beach Campus ADA and Life Safety Systems Upgrades - Project Architect

Provided design for the upgrade of numerous structures for compliance with ADA guidelines and life safety codes on the U.S. Department of Veterans Affairs (VA) campus in Long Beach, CA, as part of an open-ended contract. The project included initial evaluation of deficiencies within fire-rated existing systems, reporting, and the development of construction documents detailing corrective measures.

U.S. FamilyCare Medical Center Expansion - Project Manager/Architect

Provided design for the seismic upgrade and expansion of a 101-bed acute care facility in Montclair, CA. The project goals included a seismic upgrade and market-driven expansion of the hospital from 72,000 to 100,000 sf while avoiding impact to the census or services at any time. Mr. Peterson's design included phased upgrades to all departments and complete redesign of the site. All mechanical and electrical systems were replaced to comply with current standards, including life safety and critical branch power requirements.

LACDPW Camp Vernon Kilpatrick Replacement - Lead Designer

Prepared the demolition package for the existing facilities and the programming and bridging documents for design-build bidding for the estimated \$41 million Los Angeles County Department of Public Works (LACDPW) replacement of the Camp Vernon Kilpatrick juvenile probation campus in Malibu, CA. The two large residential dormitories will be replaced with four 6,625-sf cottages to which the 120 residents can be assigned according to their treatment needs. Other new structures will include a 6,900-sf administration building, a 3,400-sf support center, and a 5,000-sf ancillary building. Parking, utilities, and security will also be updated, and a new multipurpose athletics field is planned. The new Camp Kilpatrick campus is intended to earn LEED® Silver certification.

NASA Jet Propulsion Laboratory Improvements - Contract Manager/Project Architect

Responsible for the administration and direction of projects under an open-ended contract with NASA's Jet Propulsion Laboratory in Pasadena, CA. Projects typically ranged from \$700,000 to \$1.5 million and included optical, flight hardware development, and super-computing laboratories; administrative and records archiving units; and cafeterias. Other projects

included clean rooms, specialized utility delivery requirements, and addressing security issues.

BNSF Intermodal and Automotive Facility Expansions - Project Manager/Project Architect

Led design for numerous rail and building projects in Los Angeles associated with a \$150 million expansion of the world's largest intermodal facility. One project was the complete redesign of secure parking facilities, which included security systems; gate reconfiguration; and supporting administrative, repair, and mechanical structures. Mr. Peterson helped develop a complete master plan corresponding to the rolling 5-year goals of the BNSF Railway Company. He was responsible for the programming and design of a new 30,000-sf operations and administrative command center serving the nearly 500 employees and contractors at the Los Angeles facility, as well as a new, secure communications hub built to emergency services standards in Stockton, CA, to provide connectivity between operations centers in Los Angeles; Northern California; and Fort Worth, TX. Mr. Peterson assumed a similar design role for the Memphis Intermodal Yard Expansion, which was one of the first in the nation to employ European wide-span crane technology.

POLA/BNSF Southern California International Gateway - Task Manager/Project Architect

Coordinated with the Port of Los Angeles (POLA) and BNSF Railway Company to plan a new sustainably designed intermodal facility, the Southern California International Gateway (SCIG), on a 153-acre site in the San Pedro neighborhood of Los Angeles. The \$500 million SCIG will provide much-needed near-dock capacity with direct access to the Alameda Corridor, a 20-mile-long, grade-separated rail line between the ports and downtown Los Angeles. The design is based on minimizing the environmental footprint and employs highly efficient wide-span cranes capable of serving up to eight intermodal tracks. The cranes are electric and use cogeneration of power in their operation. All hoisting equipment will use either compressed natural gas or liquefied natural gas to reduce emissions. Yard lighting is designed to virtually eliminate light trespass and uses highly efficient lamps. Yard operations are designed efficiently to further reduce hostling operations and third-party truck dwell time. This efficiency also reduces the overall area of impact for stormwater management.

WRTA Bus Maintenance, Operations, and Storage Facility - Lead Designer

Oversaw architectural design for a new \$75 million vehicle maintenance, operations, and storage facility in Worcester, MA, for the Worcester Regional Transit Authority (WRTA). The 2-story, 150,000-sf facility will have a capacity for 80 vehicles and space for 155 employees. It will include bus lifts, wash and fueling bays, a body shop and paint booth, fluid dispensing systems, general parts and tire storage operations and retrieval, operations and maintenance personnel welfare areas, bus and van dispatch space, and office and administration spaces. Mr. Peterson is currently providing design support during the construction phase of the project.

OCTA On-Call A/E Design and Construction Support Services for Facility Modification Projects - Project Manager

Responsible for architectural and engineering (A/E) design and construction support services for facility modification projects under a 2-year task-order contract with the Orange County Transportation Authority (OCTA). Tasks to date include a 192-space surface parking lot adjacent to the Golden West Transportation Center in Huntington Beach, CA; upgrades to the methane gas detection systems at the Anaheim and Garden Grove bus bases; and reconstruction of an exterior curtain wall assembly damaged by water intrusion at a bus fueling facility in Anaheim. Mr. Peterson is responsible for providing programming, conceptual layouts, bidding, and construction support services.

OCTA Transit Security and Operations Center Site Selection and Master Planning - Project Manager

Overseeing site selection and master planning for a proposed new Orange County Transportation Authority (OCTA) Transit Security and Operations Center (TSOC) to be located in Orange County, CA. Services Mr. Peterson is responsible for include analysis of potential sites for the new TSOC; programming and conceptual layouts with cost estimates; and identification of local, state, and federal funding sources.

OCTA Golden West Transportation Center Surface Parking Lot - Project Manager

Led the design of a temporary 192-space vanpool and carpool parking lot on a property adjacent to the Golden West Transportation Center in Huntington Beach, CA, as part of a 2-year architectural and engineering design and construction task-order contract with the Orange County Transportation Authority (OCTA). Services included preparing a conditional use permit, water quality management plan, drainage report, and contract documents for the 1.8-acre site and two 24-foot-wide driveways. The design had to meet stringent city requirements for landscaping, lighting, and drainage. Mr. Peterson was also responsible for construction support services and the preparation of as-built drawings.

OCTA Anaheim Base Curtain Wall Replacement - Project Manager

Directed field investigations and the preparation of plans and specifications for the reconstruction of an exterior curtain wall assembly damaged by water intrusion at a bus fueling facility in Anaheim, CA, as part of a 2-year architectural and engineering design and construction task-order contract with the Orange County Transportation Authority (OCTA).

OCTA Methane Gas Detection Systems - Project Manager

Oversaw design of upgrades to the methane gas detection systems at the Orange County Transportation Authority (OCTA) bus bases in Anaheim and Garden Grove, CA, as part of a 2-year architectural and engineering services task-order contract. The scope of work includes the replacement of the existing control panels, detection systems, wiring, and aboveground conduit inside the

bases. Mr. Peterson was also responsible for the firm's design support during construction.

**Omnitrans East Valley Vehicle Maintenance Facility Modifications -
Project Manager**

Led architectural and engineering services for project development — including preliminary engineering and final design; engineering support services during construction; and development of plans and procedures for start-up, commissioning, operations, and maintenance — for the Omnitrans East Valley Vehicle Maintenance Facility in San Bernardino, CA. The facility needed \$6 million in modifications to accommodate the introduction of up to 23 sixty-foot-long articulated buses associated with the sbX bus rapid transit project. All maintenance services had to remain operational throughout the construction period.

**SANDAG South Bay Bus Operations and Maintenance Facility
Expansion - Project Manager**

Oversaw architectural design and structural, mechanical, electrical, and industrial engineering for the design-build expansion of the San Diego Metropolitan Transit System's South Bay Bus Operations and Maintenance Facility in Chula Vista, CA. The \$28 million San Diego Association of Governments (SANDAG) project included alterations to the existing maintenance building; a new 2-story, 12,000-sf operations and administrative building; a new 2-bay bus wash building; and miscellaneous site structures, including trash and equipment enclosures and bollards. The new operations and administrative building houses 10 open service bays for 40-foot buses, 5 service bays for longer articulated buses, a chassis wash bay, parts storage and distribution, fluid storage, workshops and tool storage, administrative and managerial offices, staff support areas, and mechanical and electrical rooms. The project received a 2016 Engineering Excellence Honor Award from the American Council of Engineering Companies of California in the Building/Technology Systems category.

POLA Pacific Harbor Line Maintenance Facility - Project Manager

Managed design services for an 8,200-sf maintenance facility and a 5,000-sf prefabricated office building at the Port of Los Angeles (POLA) in Wilmington, CA, to accommodate the Pacific Harbor Line. The maintenance facility provides two covered inspection pits, a fueling track, sanding facility, and an oil/water separator. In addition to the service areas, the building houses a storage area, machine shop, tool corral, break room, office area, locker room, and restrooms. The office building houses administrative offices, a dispatching center, support spaces, a conference room, and employee welfare spaces. The design for the \$90 million project featured a broad range of sustainable strategies and project-specific innovations to comply with the California Green Building Code. Due to uncertainty in the economy, the project was put on-hold several times, after which Mr. Peterson has successfully regrouped the project team and gotten them back up to speed.

NCTC St. Louis Metro Bus Maintenance Facility - Deputy Project Manager

Provided programming and architectural design for a planned new bus storage and maintenance facility within a larger transit center for the North County Transit Center (NCTC) in St. Louis. The facility would hold approximately 70 buses that are 35 feet and 40 feet (with space in the future for 60-foot articulated buses), as well as smaller coaches. It would include room for light maintenance of 25 paratransit vans, 11 bus repair bays, an automatic drive-through bus wash, service islands with diesel fueling stations, and a cyclone vacuum system. It would also include an area for dispensing lube oil, coolant, and DEF (a urea additive) for NO_x emissions control. In addition, the facility would house the operations and dispatch center with employee welfare functions, a drivers' dayroom, and an administrative office.

City of Ottawa Confederation Line LRT- Vehicle Maintenance Facility Design Lead

Led a team of engineers and architects in the development of the bridging documents for the vehicle maintenance and operations center for a groundbreaking, \$2.1 billion light rail transit (LRT) line for the City of Ottawa, Ontario — the first conversion of an exclusive, fully built-out bus rapid transit system to an LRT network in North America. The firm is providing analysis, preliminary engineering, and specifications for the 7.8-mile line, which features 13 stations, 4 of which in a 1.5-mile tunnel under downtown Ottawa, and a new vehicle maintenance and storage facility with a 172,000-sf maintenance shop, a 21,000-sf car cleaner/transportation/ maintenance-of-way facility, a 258,000-sf covered storage building, and a traction power substation.

WMATA Greenbelt Test Track and Commissioning Facility Design-Build - Lead Designer

Prepared 90% architectural design for a 2-story, 65,000-sf building in Greenbelt, MD. The first floor will house shop and storage areas, mechanical and electrical rooms will be located on the mezzanine level, and the top floor will house Washington Metropolitan Area Transit Authority (WMATA) office areas. The facility will be used to commission new Kawasaki 7000 series cars and 8000 series cars that will be procured in the future for use on the Silver Line and the replacement of the 2000 series and 3000 series cars. Features include two tracks with commissioning/repair spots for two married pairs of vehicles, allowing the facility to commission up to eight cars at a time. The project is being delivered through a design-build contract.

NS Coal Rate Case Litigation Cost Assessments - Lead Evidence Sponsor

Prepared the response to plaintiffs' claims for Norfolk Southern Railway (NS) for submittal to the Surface Transportation Board to justify contested tariff rates for the shipping of DuPont products. The assessment included planning, engineering, and construction costs to build a hypothetical contemporary operating railroad. The firm's services included a complete itemization, justification, and documentation of all transportation, material, and labor construction costs.

Caltrans Rainbow Truck Inspection Facility Improvements - Project Manager

Oversaw architectural and engineering services for the renovation of a California Department of Transportation (Caltrans) truck inspection facility on I-15 in Temecula, CA. The design includes the removal and replacement of the office building associated with the truck inspection facility, augmentation to and replacement of the facility's CCTV system, and renovations to the on-site sanitary sewer system.

Amtrak High-Speed Rail Maintenance Facility Expansion Feasibility Study and Conceptual Design - Lead Designer

Responsible for the development of conceptual designs for a study on the proposed expansion of Amtrak's Acela maintenance facilities at Ivy City Yard, in Washington, D.C.; Sunnyside Yard, in Queens, NY; and Southampton Yard, in Boston. The scope of work involved conceptual designs and cost estimates for expanded 2-track and 4-track service and inspection shops and associated track realignments at each yard to accommodate longer 8-coach trains and a new storage yard in Readville, MA, to house trains displaced from Southampton Yard.

LADOT CNG Fueling and Bus Maintenance Facility Feasibility Study - Project Manager

Led a feasibility study of three locations for a proposed new Los Angeles Department of Transportation (LADOT) fueling and maintenance facility for its 60-vehicle compressed natural gas (CNG) Downtown Area Short Hop bus fleet, with layover area for up to 64 Commuter Express buses. The facility will include vehicle storage, CNG fueling stations, maintenance bays, office space, parking for employees and non-revenue vehicles, welfare facilities, and a dispatch center. In addition to determining minimum site size and configuration, the conceptual feasibility evaluation included environmental and accessibility requirements, capacity for future expansion, general floor plans, rendered elevations, and cost estimates. Issues Mr. Peterson and his team addressed included the maneuvering and parking needs of the 30-foot-long and 40-foot-long vehicles, traffic patterns and impacts in and around the sites, and the availability of adequate quality natural gas, as well as integration with and support for planned future high-speed rail service in the region.

CHSRA Los Angeles-to-Anaheim Project EIR/EIS - Facilities Programming and Design Manager

Led the team for preliminary design of three stations and a rolling stock vehicle maintenance facility for a 30-mile high-speed train corridor between Los Angeles and Anaheim, CA, for the California High Speed Rail Authority (CHSRA). The maintenance facility will provide Class 1-3 vehicle maintenance services for 28 trainsets daily. The contextual nature of the proposed facilities is seen as critical in terms of aesthetic, scale, massing, and traffic impact. Early on, Mr. Peterson led the team's effort to generate projections for vehicle design, operations, ridership numbers, and demographics: parameters that CHSRA had not yet defined. These projections

distilled down into sensible design solutions. Despite significant changes to the project due to immense political pressures, Mr. Peterson's leadership enabled the team to complete deliverables on time. Design is now progressing toward a 30% design deliverable in support of the EIS/EIR for the design-build procurement package. Mr. Peterson met and coordinated with numerous agencies and cities along the corridor. He also addressed complex integration issues with the Anaheim Regional Transit Intermodal Center.

NCTD On-Call Projects - Project Manager

Oversaw design for several on-call engineering, planning, and design projects for the North County Transit District (NCTD) in San Diego County. Projects included development and site adaptation of a bus shelter prototype design, facility and site modifications at the Oceanside Transit Center, and design for the installation of a new standby electrical generator and automatic transfer switch at the Solana Beach Station.

NCTD Oceanside Transit Center Bus Island and Ticketing Building Renovations - Project Manager

Oversaw the renovation and repurposing of the Bus Island Security building, Greyhound Ticketing Office, and Transit Store at the Oceanside Transit Center in Oceanside, CA, as part of a task-order contract with the North County Transit District (NCTD). Modifications included the addition of a ticketing counter, an office area, and lockers and a break room for the district's security personnel. Mr. Peterson was responsible for updates to the interiors, including the design new paneling and casework; refinish of the toilet rooms; and new HVAC. The project also involved the design of new landscaping and modifications to hardscaping to address accessibility concerns.

NCTD Oceanside Transit Center Modifications - Project Manager/Project Architect

Managed the design of several North County Transit District (NCTD) projects to update a 2-story, 3,448-sf intermodal facility constructed in 1982 in Oceanside, CA. Tasks included renovation of the security center, featuring new casework, data systems, an extensive array of wall-mounted flat-screen monitors, and new HVAC units. Services also included the addition of emergency power, installation of insulation to meet the current code requirements, upgrades to the building interiors and lighting, new wayfinding and signage installation, new landscape and hardscape design, and new site lighting. Mr. Peterson also oversaw modifications to the center's four canopy structures, including the replacement of an acre of polycarbonate panels and the replacement of deteriorated structural elements.

NCTD Solana Beach Station Standby Generator - Project Manager

Led design for the installation of a new standby electrical generator and automatic transfer switch for a light rail station in Solana Beach, CA, as part of a task-order contract with the North County Transit District (NCTD).

NCTD Bus Shelter Prototype - Project Manager

Worked with a prefabricated bus shelter manufacturer to develop a prototypical design for bus shelters to be deployed at several transit centers for the North County Transit District (NCTD) in San Diego County to provide shade and cover from the weather for up to 30 passengers. The design provides the basic canopy elements and is then clad to work with the established aesthetic and context of the individual transit centers. Mr. Peterson's responsibilities included assisting the NCTD with site layout of the canopies for each location and the selection of appropriate finishes.

OCTA Metrolink Capital Improvement Program Study - Project Manager

Oversaw a comprehensive assessment for the Orange County Transportation Authority (OCTA) of the 12 rail stations served by the Metrolink system in Orange County, CA, to evaluate current conditions and prioritize potential enhancements. The study provided a comprehensive inventory of station facilities and amenities, highlighting issues associated with public safety; station accessibility; and ease of transfer between rail, bus, and other modes of surface transportation. Mr. Peterson and his team ranked the recommended improvements to the Metrolink stations based on priority and implementation timeframe.

SJRRC ACE Authority Equipment Storage and Maintenance Facility - Project Manager

Oversaw the design of a new \$65 million service and inspection facility in Stockton, CA, for the San Joaquin Regional Rail Commission (SJRRC) Altamont Commuter Express (ACE) rail service. Mr. Peterson managed a team of approximately 100 people, including various subconsultants. The site is bordered to the north by a residential community, and Mr. Peterson worked throughout the development of the project to mitigate the massiveness of the facility through design, coordinating closely with the City of Stockton and the neighboring community. The project is also the first vehicle maintenance shop of its type pursuing LEED® certification and includes a 110,000-sf shop with areas for maintenance, wheel truing, fueling, service, and inspection; 12,000-sf of office and welfare areas; and a 1,840-sf trainwasher. The industrial nature of the facility, which services diesel locomotives, made it an unusual LEED candidate, and many of the sustainable design techniques considered conflicted with building codes. Despite these challenges, Mr. Peterson proposed several sustainable techniques including water reclamation from industrial processes for reuse in pressure washers and as graywater in toilets, and strategies that use automatic processes to minimize energy consumption. One such process uses air quality monitors to control exhaust fans to run as needed. Other sustainable strategies include photovoltaic panels, rainwater harvesting for irrigation, and drought tolerant plants. Mr. Peterson suggested significant design changes to the client that would have netted cost savings, had they been adopted. The project is LEED-registered with the goal of Silver certification.

SCRRA On-Call Professional Engineering Design Services - Project Manager

Directed design to 30% and preparation of design-build bridging documents for the consolidation of several Southern California Regional Rail Authority (SCRRA) properties into a single campus in Pomona, CA. The campus consists of a 64,000-sf maintenance support facility and a 28,000-sf train control center (TCC), which houses a modified Metrolink operations center that will remain online during the project as a back-up to the new facility. Upon approval at a public hearing, the project was praised by the City of Pomona Planning Commission as a “very attractive” building that will be an asset to the community. The TCC was designed according to the strict standards of California’s essential services building regulations and includes a dispatch center and a significant data center. It will provide several modes of wireless communications including a microwave array and two cellular towers. The design team secured environmental clearances for the NEPA and the California Environmental Quality Act. The project also includes positive train control systems, which are mandated to be installed on all railroads in California by 2015.

OCTA On-Call Design and Construction Support Services - Project Manager

Directed personnel, development of proposals, and fees and budgets for an on-call contract with the Orange County Transportation Authority (OCTA) for improvements to its Southern California bus maintenance facilities. Projects included modifications to steam cleaning facilities to replace siding panels and lighting fixtures damaged by the corrosive environment; replacement of piping and structural elements in bus wash areas, and the design of a roof access ladder; the addition of an uninterruptible power system at a fuel building; upgrades to restroom and employee break rooms; and the addition of a mezzanine for parts storage.

OCTA Worker Fall Protection at Three Sites - Project Manager/Project Architect

Managed and led the design of new fall protection systems at the Orange County Transportation Authority (OCTA) Santa Ana, Garden Grove, and Anaheim, CA, bus maintenance facilities to allow OCTA personnel to safely access the bus roofs. The design met the needs for servicing several bus designs, which range in length from 40 feet to 60 feet. The primary challenge was retrofitting fall protection systems into the repair bays to allow for effective bus maintenance while limiting the impact on existing overhead utility systems. In addition, Mr. Peterson’s team of designers had to keep the number of support system types to a minimum to reduce the cost of the installations.

Metro Union/Patsaouras Plaza Busway Station - Architect

Coordinated with project design architects and the engineering group to define the aesthetics for and functionality of a new bus station at Patsaouras Plaza adjacent to Union Station and US 101 in Los Angeles for the Los Angeles County Metropolitan Transportation Authority (Metro). Mr. Peterson

participated in a number of design charrettes and worked with Metro to develop the signage and wayfinding design package. He also participated on the art component selection committee, which entertained proposals from 120 internationally recognized artists.

NCTD East Division Bus Maintenance Facility Expansion - Project Manager/Project Architect

Provided project design and management for the expansion of this North County Transit District (NCTD) facility in Escondido, CA, to accommodate compressed natural gas-fueled buses. The \$5 million project involved renovation of the existing 9,760-sf maintenance building and construction of a 7,420-sf addition housing eight new service bays. The new building features many sustainable design elements, including controlled daylighting and convective ventilation integrated with the HVAC systems. Challenges included maintaining maintenance operations through construction via phasing and developing a site layout that could accommodate the increased bus count and provide safe and adequate circulation to service facilities without an increase in available property. Mr. Peterson and his team addressed this by performing a detailed analysis of service sequencing, site circulation, and queuing for morning roll-out, then developing a facility layout and construction phasing scheme that accommodated the increased bus count and provided safe and adequate circulation.

NCTD Sprinter DMU Maintenance Facility - Construction Manager

Provided personnel management and technical review associated with the construction of the \$25 million North County Transit District (NCTD) Sprinter Maintenance Facility in Escondido, CA. The 40,000-sf facility houses maintenance functions for 12 diesel multi-unit (DMU) commuter vehicles and serves as the central location for operations, dispatch, and security for the 22-mile-long Sprinter light rail line. Features include a fueling depot, a train wash facility, and various administrative offices.

NCTD 810 Mission Avenue Board Room Remodeling - Project Manager

Managed this project to remodel the public board room at the North County Transit District (NCTD) offices in Oceanside, CA. The design also included a private, break-out meeting room adjacent to the main conference area. Mr. Peterson led the design for revised casework for board members, upgrades to IT and communications systems, HVAC system and lighting modifications, and furnishing specifications.

NCTD West Division Fuel System Replacement - Project Manager

Oversaw design for the removal of underground diesel and gasoline storage tanks for North County Transit District (NCTD) buses and other non-revenue vehicles at the West Division Bus Maintenance Facility in Oceanside, CA. The final design included several aboveground diesel fuel and one gasoline tank as well as new fuel distribution and management systems.

NCTD San Luis Rey Transit Center - Project Manager

Worked with the North County Transit District (NCTD) to integrate bus services into a new mixed-use development in Oceanside, CA, that includes multifamily residences, offices, and other business functions. The design includes pedestrian and vehicular circulation to serve 12 bus bays, a ticket office with restrooms, and four covered shelters with seating and restroom facilities. Particular effort was dedicated to the interface with the development and its aesthetic and to the site's vertical challenges for accessibility.

Amtrak Seattle Yard Interim Improvements - Project Manager

Managed the proposed modification of track configurations in a Seattle rail maintenance facility in response to a main line shift by the BNSF Railway Company and to improve storage. This shift also required modifications to the existing drop table and drop table building. Mr. Peterson developed a plan to separate the stormwater and sewage, which commingled in an outdated drainage system. This involved massive underground water storage tanks. He also customized the preliminary design so that all modifications satisfied the initial project requirements as well as the needs of anticipated build outs in the future. Using a highly successful design-build team approach, Mr. Peterson delivered plans that met all project goals. However, the project was never constructed due to budget constraints.

Amtrak Southampton Drop Table Study - Project Manager

Oversaw the design of several studies to add a new drop table and progressive maintenance track to a maintenance facility serving the northern terminus of Amtrak's Acela service in Boston. The project posed several challenges, including a severely constrained site, a high water table, and differential settlement issues. Mr. Peterson helped develop innovative foundation concepts to minimize construction impacts to yard operations and capacity. To address the storage shortage on the site, the team developed a design scheme for storing full locomotive truck sets on a mezzanine level created in the drop pit. The project also required a comprehensive fire response and suppression system plan with the Boston Fire Department. There was no existing fire plan prior to the study and the department initially wanted a fire access road constructed adjacent to the facility. Through Mr. Peterson's coordination efforts and the assistance of a property risk management consultant, the fire department agreed to a standpipe system. The standpipe was a much safer solution, considering the extensive catenary system, and created minimal impact to yard operations compared to the fire access road originally requested.

Arlington County Department of Environmental Services Division of Transportation ART House Master Plan - Project Director

Performed a concept study under an on-call contract for a temporary and subsequent permanent bus maintenance facility in Crystal City, VA, to house the Arlington Transit (ART) bus fleet, as a task under an on-call contract for the Arlington County Department of Environmental Services Division of Transportation. The project, which included planning, civil, architectural, and engineering services, was accomplished in four phases. Mr. Peterson assisted in site assessment, site and facility design, and vehicle circulation analysis.

Subsequent to the original study, the master plan was updated to accommodate an additional land purchase and a larger fleet.

UP Intermodal and Welfare Facility Projects - Principal-in-Charge/Project Architect

Responsible for overseeing design and providing overall direction for numerous improvements projects at Union Pacific Railroad (UP) facilities. Mr. Peterson led the design efforts to improve the UP intermodal yard in Salt Lake City. Improvements included new automated gate system inbound and outbound gates with canopies, an office and gate control building, welfare facilities, and hostler facilities. He also served as the principal-in-charge of architectural and engineering services for two new welfare and office buildings at UP intermodal yards in Southern California and a new maintenance-of-way crew building in Oxnard, CA. Other projects included replacement of HVAC systems at the UP Los Angeles Police Department building; a new yard crew facility in Martinez, CA; and a warehouse expansion in Roseville, CA.

Amtrak Passenger Platform Expansion - Project Manager

Worked with Amtrak, BNSF Railway Company, and the City of Hanford to develop an 800-foot second passenger platform to support a second main line in Hanford, CA. Platform and shelter designs reflected the historic context of the Hanford Depot and interfaced with the city's adjacent intermodal transit facilities. The 7th Street at-grade crossing and pedestrian safety were major considerations in the design solution.

NCTD Fallbrook Junction MOW Facility Replacement - Project Manager

Oversaw preliminary design and pricing for the replacement of the North County Transit District (NCTD) maintenance-of-way (MOW) building and yard north of Oceanside, CA. The study looked at several sites to satisfy environmental impact requirements and ultimately was developed to conform to a specific site. The facility included four vehicle bays, welfare facilities for business operations and employees, a partially covered spur track, and parking and material laydown areas.

Caltrans/Amtrak National City Car Service Facility and Passenger Platform - Project Manager

Led the design of a service and inspection facility for Amtrak trains at a layover storage yard in National City, CA. The facility includes a 2-track inspection service and fueling facility designed for joint use with BNSF Railway Company. On-site improvements for this joint California Department of Transportation (Caltrans)/Amtrak project also included storage for six trainsets and a train wash, administrative shop, and storage building. The project also entailed the design of a new passenger platform and trans-load dock, as well as 6 miles of track improvements through downtown San Diego. Complexities of this project included the number of rail lines servicing the area as well as working with the city to get the facility to conform with its vision of growth for the community.

CHARLES REX

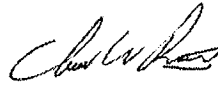
Mr. Rex is the sole proprietor of RMI Midwest, an appraisal company with offices located at 1200 Central Avenue, Suite 330, Wilmette, Illinois 60091. Mr. Rex is a member of the Appraisal Institute, MAI designation, Certificate No. 6853. Mr. Rex has extensive experience in the valuation and analysis of corridors and other railroad properties, as well as conservation easements and development lands. Mr. Rex is sponsoring portions of Sections III-F of CSX Transportation, Inc. ("CSXT's") Reply Evidence relating to land acquisition. Mr. Rex has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Rex holds a Bachelor of Arts in Economics from the Virginia Military Institute. Mr. Rex is certified as a General Real Property Appraiser in ten states, including Illinois, Indiana, and Michigan. Prior to beginning his work at RMI Midwest in 1992, Mr. Rex was President of Rex-McGill, Inc., from 1987 to 1992. Mr. Rex became an appraiser with Rex-McGill in 1971. Mr. Rex also served as an education consultant at the Appraisal Institute from 1992 to 1993. In addition to his experience in the valuation of corridors, his primary assignments also include the valuation of large land tracks (including development land, agricultural properties, timberlands, multi-use developments, and environmentally sensitive lands) and partial interests.

A copy of Mr. Rex's curriculum vitae is attached.

VERIFICATION

I, Charles Rex, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



Charles Rex

Executed on this 29 day of February, 2016

CHARLES W. (SANDY) REX III, MAI
QUALIFICATIONS

BUSINESS

ADDRESS

RMI Midwest
1200 Central Avenue, Suite 330
Wilmette, Illinois 60091
Telephone: 847-920-9033
Mobile: 847-507-7212
Fax: 847-920-9450
e-mail: cwrexiii@rmimidwest.com

**PROFESSIONAL
ORGANIZATIONS**

Member of the Appraisal Institute;
MAI designation, Certificate No. 6853

EXPERIENCE

Partner & co-owner of RMI Midwest, 1992-present

Education consultant, Appraisal Institute, 1992-1993

President of Rex-McGill, Inc., 1987-1992

President of Pinel, Rex & Carpenter, Inc., 1986 to 1987

Appraiser with "Rex-McGill," beginning in 1971

Specializing in the valuation and analysis of corridors and other railroad properties, as well as conservation easements and development lands.

Primary assignments also include the valuation of large land tracts (including development land, agricultural properties, timberlands, multi-use developments, and environmentally sensitive lands) and partial interests.

Valuing partnership interests, conservation easements, lease fee interests, leasehold interests, air rights, transferable development rights, joint ventures, as well as fee simple rights.

Clients include government agencies (federal and state), corporations, pension funds, investment bankers, financial institutions, insurance companies, nonprofit conservancy groups, attorneys, and individuals.

Qualified as an expert witness in the Federal District Courts in Florida and Illinois; US Court of Claims; US Bankruptcy Court; Florida and Illinois Circuit Courts.

Approved appraiser for the Florida Department of Environmental Protection.

CERTIFICATIONS

Alabama Certified General Real Property Appraiser
No. G00610

Florida Certified General Appraiser, No. 0000143

Georgia Certified General Real Property Appraiser,
No. 285622

Illinois Certified General Real Estate Appraiser,
No. 553-000785

Indiana Certified General Appraiser,
No. CG40300403

Massachusetts Certified General Real Estate Appraiser,
No. 5601-257042

Michigan Certified General Appraiser, No. 1201007606

New Jersey Certified General Appraiser, No. 42RG00194200

New York Certified Real Estate General Appraiser,
No. 46000039279

Oregon State Certified General Appraiser
No. C000992

EDUCATION

Virginia Military Institute, Bachelor of Arts in Economics, 1972

Completed and passed all courses for the MAI designation under the direction of the former American Institute of Real Estate Appraisers (now the Appraisal Institute).

Certified under the Appraisal Institute's voluntary program of continuing education for its designated members. MAIs who meet the minimum standards of this program are awarded periodic educational certification.

PROFESSIONAL
TEACHING

Approved Appraisal Institute instructor for the following: *Valuation of Conservation Easements* course; *Case Studies in Highest and Best Use, Partial Interest Valuation — Divided, Partial Interest Valuation — Undivided* seminars.

Appraiser continuing education instructor for the Ohio Association of REALTORS® (1995) and for the Wisconsin Association of REALTORS® (2000): Market Analysis and Highest and Best Use; Transitional Properties.

Instructor for Reporting the Results of Forestland Appraisals course, Duke University School of the Environment, 1993; co-instructor for Valuation of Timberlands seminar, Duke University School of the Environment, 1987; panel member at the Fourth Timberland Marketplace Conference, Duke University, 1985.

EDUCATIONAL
PROGRAM
DEVELOPMENT

Course co-developer of the Appraisal Institute's Conservation Easement Professional Development Program.

Developer of Appraisal Institute seminars: *Partial Interest Valuation — Divided, Partial Interest Valuation — Undivided* (1999); *Highest and Best Applications* (1995); *Subdivision Analysis* (1993).

Developer of the Appraisal Institute's Report Writing and Valuation Analysis course (1986) and of AIREA's Real Estate Appraisal Applications state-certification module (1989).

Co-developer of the Appraisal Institute's *Timberland Valuation* seminar (1988).

PRESENTATIONS

Panel speaker, "The Rails to Trails Program and the CSX High Line Project" at the American Railway Development Association annual meeting; San Francisco, 2013.

Conservation easement valuation presentation at International Right-of-Way Association Annual International Education Conference; Austin, Texas, 2008.

Corridor valuation presentation at American Railway Development Association annual meeting; Santa Fe, 2008.

Conservation easement valuation presentations at Land Trust Alliance conferences; Nashville, 2006; Madison, Wisconsin, 2005.

“Corridors and Rights-of-Way: Valuation & Policy,” sponsored by The Centre for Advanced Property Economics and International Right of Way Association, 2002; “Linear Rights of Way: Federal Agency Rent Schedules Reforged,” sponsored by the Appraisal Institute for the US Bureau of Land Management and US Forest Service, 2001.

Southwest Florida Land Trust's conservation easement seminar, 1997; Coastal Georgia Land Trust, Inc.'s conservation easement seminar, 1994; Red Hills Conservation Association's Conservation Easements and Estate Planning program, 1993.

PROFESSIONAL
SERVICE

Member, *Appraisal Journal* Review Panel, 2006 – 2008.

Member, Region III Nominating Committee, Appraisal Institute, 2001.

Chair, Education Committee; Chicago Chapter of the Appraisal Institute, 1997-2000.

Member, General Appraiser Board Education Committee and Body of Knowledge Committee; Appraisal Institute, 1994.

Vice President and President-elect, 1991, Greater Florida Chapter of the Appraisal Institute; Chair, Education Committee, AIREA Florida Chapter 2, 1988-91.

Coordinator, Level II Curriculum Development, 1990-1991; Member, Division of Curriculum, Appraisal Institute, 1985-1991; Chair, Development Subcommittee, Appraisal Institute, 1989-1991; Appraisal Institute.

RECOGNITIONS

Chicago Chapter of the Appraisal Institute's Distinguished Service Award, 1999.

Appraisal Institute's George L. Schmutz Award in recognition of contributions to the advancement of appraisal knowledge, 1991.

SETH SCHWARTZ

Mr. Schwartz is President of Energy Ventures Analysis, Inc. ("EVA"), with offices located at 1901 North Moore Street, Arlington, VA 22209. Mr. Schwartz is sponsoring portions of Section II-B and portions of Section III-A of CSXT's Reply evidence relating to Market Dominance and Traffic and Revenue, specifically coal volume projections. Mr. Schwartz has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

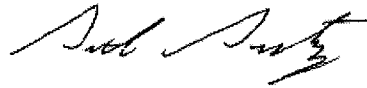
Mr. Schwartz directs EVA's coal and power practices and manages the COALCAST Report Service produced by EVA. Mr. Schwartz has expertise in the analysis of fuel procurement, coal supply and demand, production, productivity and mining costs. In addition Mr. Schwartz has experience in conducting audits of utility fuel procurement practices, system dispatch, and off-system sales. Mr. Schwartz has extensive experience testifying before federal and state courts, arbitration panels and regulatory agencies regarding prevailing market prices, industry practice in the use of contract terms and conditions, market conditions surrounding initial contracts, and damages resulting from contract breach.

Mr. Schwartz holds a Bachelor of Science in Geological Engineering from Princeton University. Mr. Schwartz is a co-founder of EVA and has been a partner at the firm since its founding in 1981.

Mr. Schwartz's resume with additional project experience is attached hereto.

VERIFICATION

I, Seth Schwartz, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



Seth Schwartz

Executed on this 4th day of March, 2016

RESUME OF
SETH SCHWARTZ

EDUCATIONAL BACKGROUND

B.S.E. Geological Engineering, Princeton University, 1977

PROFESSIONAL EXPERIENCE

Current Position

Seth Schwartz is the President and co-founder of Energy Ventures Analysis. Mr. Schwartz directs EVA's coal and utility practice and manages the COALCAST Report Service. The types of projects in which he is involved are described below:

Fuel Procurement

Assists utilities, industries and independent power producers in developing fuel procurement strategies, analyzing coal and gas markets, and in negotiating long-term fuel contracts.

Fuel Procurement Audits

Audits utility fuel procurement practices, system dispatch, and off-system sales on behalf of all three sides of the regulatory triangle, i.e., public utility commissions, rate case intervenors, and utility management.

Coal Analyses

Directs EVA analyses of coal supply and demand, including studies of utility, industrial, export, and metallurgical markets and evaluations of coal production, productivity and mining costs.

Natural Gas Analyses

Evaluates natural gas markets, especially in the utility and industrial sectors, and analyzes gas supply and transportation by pipeline companies.

Expert Testimony

Testifies in fuel contract disputes and rate cases, including arbitration, litigation and regulatory proceedings, regarding prevailing market prices, industry practice in the use of contract terms and conditions, market conditions surrounding the initial contracts, and damages resulting from contract breach.

Acquisitions and Divestitures

Assists companies in acquisitions and sales of reserves and producing properties, both in consulting and brokering activities. Prepares independent assessments of property values for financing institutions.

Seth Schwartz
Page Two

Prior Experience

Before founding Energy Ventures Analysis, Mr. Schwartz was a Project Manager at Energy and Environmental Analysis, Inc. Mr. Schwartz directed several sizable quick-response support contracts for the Department of Energy and the Environmental Protection Agency. These included environmental and financial analyses for DOE's Coal Loan Guarantee Program, analyses of air pollution control costs for electric utilities for EPA's Office of Environmental Engineering and Technology, Energy Processes Division, and technical and economic analysis of coal production and consumptions for DOE's Advanced Environmental Control Technology Program.

Publications

Crerar, D.A., Susak, N.J., Borcsik, M., and Schwartz, S., "Solubility of the Buffer Assemblage Pyrite + Pyrrhotite + Magnetite in NaCl Solutions from 200° to 350°", Geochimica et Cosmochimica Acta (42)1427-1437, 1978.

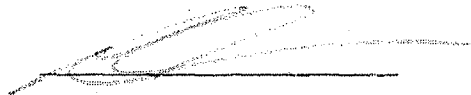
GLENN TOBIAS

Mr. Tobias, who holds a B.S. in Finance from Lehigh University, is a Senior Managing Director in FTI's Corporate Finance and Restructuring practice and FTI's broker dealer, FTI Capital Advisors, LLC, in that firm's New York City offices. Mr. Tobias' professional experience includes mergers and acquisitions, placement of private and public debt and raising of equity capital, executive management (CFO and CRO roles), corporate restructuring, project finance, merger integration and corporate strategy. Mr. Tobias holds Series 79, Series 82 and Series 63 Investment Banking Licenses.

Mr. Tobias previously worked at Global Crossing, LTD as Vice President of Corporate Development and Vice President Structured Finance, and during his time there executed over \$10 billion of capital markets and M&A transactions. Mr. Tobias also spent 15 years in investment banking, the last 12 with BNP Paribas, where he was Managing Director-Head of BNP Paribas' Energy, Natural resources and Project Finance Group.

VERIFICATION

I, Glenn Tobias, verify under penalty of perjury that I have read the portion of the Reply Evidence of CSX Transportation, Inc. in this proceeding on equity flotation costs that I am sponsoring; that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

A handwritten signature in dark ink, appearing to read "Glenn Tobias", is written over a horizontal line.

Glenn Tobias

Executed on this 29th day of February 2016.

Glenn Tobias

Senior Managing Director

glenn.tobias@fticonsulting.com

FTI Consulting

New York, New York

Tel: (646) 453-1217

CERTIFICATIONS

FINRA Series 79, Series 82 and
Series 63 Licenses

EDUCATION

B.S. in Finance,
Lehigh University

Glenn Tobias is a Senior Managing Director at FTI Consulting and is based in New York. Mr. Tobias is a licensed investment banker in FTI Capital Advisors, LLC. Mr. Tobias' has more than 25 years of professional experience, including mergers and acquisitions (M&A); private and public debt and equity capital markets; executive management, including appointments as chief financial officer and chief restructuring officer; corporate restructuring; project finance; merger integration; and corporate strategy.

Mr. Tobias has advised clients across a diverse range of industries including energy, media, telecommunications, software, internet, defense, retail, financial services and consumer businesses. He is currently providing M&A advice to a telecom company, an internet advertising company, an insurance company and a clean tech company, as well as raising capital for a clean tech company. Mr. Tobias recently provided M&A and restructuring advice to a media company; served as interim Chief Financial Officer of several software companies and an online clothing retailer; provided project development advice to a power/data center company; and provided business restructuring advice to a telecom company.

Mr. Tobias joined FTI Consulting in 2009 after spending two years as an independent consultant, advising clients on M&A and corporate restructurings in the telecom, cable, media, investment management and consumer sectors.

Prior to that, Mr. Tobias worked at Global Crossing for eight years as Vice President of Corporate Development and Vice President of Structured Finance. While there, he executed over \$10 billion of capital markets and M&A transactions, and was instrumental in the company's successful reorganization and exit from one of the largest U.S. bankruptcies and the company's further success post emergence. At Global Crossing, Mr. Tobias handled a myriad of corporate development, corporate finance and operational roles. His accomplishments included the execution of subsidiary divestitures, corporate takeovers through public tenders and private acquisitions and the post-merger integration of these acquisitions; capital raises including senior bank loans and high yield debt raises; negotiation of DIP and exit finance facilities; management of the company's Pacific operations; and equity, equity linked and equity derivative transactions.

Before that, Mr. Tobias spent 15 years in investment banking, with the last 12 at BNP Paribas, where he was Managing Director and head of BNP Paribas' Energy, Natural Resources and Project Finance group. His client driven focus led to the completion of \$15 billion of project financings, acquisitions, equity investments and corporate financings throughout the Americas and Asia. His principal responsibilities included client and business development, strategy, transaction structuring and negotiation, portfolio management, loan workout and recruitment.

Mr. Tobias has a B.S. in finance from Lehigh University. Mr. Tobias holds Series 79, Series 82 and Series 63 investment banking licenses.

DAVID R. WHEELER

Mr. Wheeler is the founder of Rail Network Analytics, with offices located at 9222 Nottingham Way, Mason, Ohio 45040. Mr. Wheeler has extensive experience developing railroad operation simulations, including the use of the Rail Traffic Controller ("RTC") program. Mr. Wheeler is sponsoring portions of Section III-C of CSX Transportation, Ins.'s Reply Evidence relating to the RTC Simulation. Mr. Wheeler has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

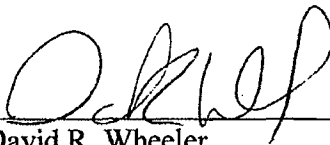
Throughout his career, Mr. Wheeler has focused on advanced analytical techniques for operational improvements and strategic planning. Prior to founding Rail Network Analysis, Mr. Wheeler was employed at Union Pacific Railroad and held various positions, including General Director of Capacity and Operations Analysis. Mr. Wheeler has more than fifteen years experience in areas including rail operations analysis, capacity analysis, simulation, stand-alone rate cases litigation, structured problem solving using the Six Sigma methodology, supply chain efficiency and mergers & acquisitions. Mr. Wheeler's simulation experience includes not only railroads, but also other high technology industries including cockpit simulation work on the F-16 and F-22 fighter aircraft.

Mr. Wheeler holds a Bachelor of Science degree in engineering and computer science from Merrimack College as well as a Masters of Business Administration degree in finance and operations management from Miami University. Mr. Wheeler has training in the Six Sigma methodology and holds a Six Sigma Blackbelt certification.

Mr. Wheeler's resume with additional project experience is attached hereto.

VERIFICATION

I, David R. Wheeler, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



David R. Wheeler

Executed on this 29th day of FEB 2016.

DAVID R. WHEELER – C.V.

- Surface Transportation Board Rate Case: FMC v. Union Pacific Railroad
- Surface Transportation Board Rate Case: Wisconsin Power & Light v. Union Pacific Railroad
- Surface Transportation Board Rate Case: Duke Energy v. CSXT Railroad
- Surface Transportation Board Rate Case: Xcel Energy v. BNSF Railroad
- Surface Transportation Board Rate Case: Otter Tail Power v. BNSF Railroad
- Surface Transportation Board Rate Case: Western Fuels v. BNSF Railroad
- Surface Transportation Board Rate Case: Arizona Electric Power v. BNSF Railroad
- Surface Transportation Board Rate Case: Arizona Electric Power v. Union Pacific Railroad
- Surface Transportation Board Rate Case: Arizona Electric Power v. Union Pacific Railroad and BNSF Railroad
- CSXT Southeast Corridor (Chicago – Jacksonville) simulation and 5 year capacity growth plan
- CSXT Montgomery, AL to Jacksonville simulation as alternate to KCS Meridian speedway
- BNSF Coal Network Analysis; long term coal train capacity development at 5, 10, 15 and 20% volume increase levels - Powder River Basin – Denver – Kansas City – Creston

- BNSF Alliance Terminal process improvement project
- Discounted Cash Flow and Valuation Analysis: Business model and network model development for the acquisition of the Mexican Railroad concessions
- Union Pacific Railroad - team member - capacity development plan to recover the Houston Gulf Coast infrastructure during the operating crisis of 1998
- Incremental Amtrak Passenger Service passenger service simulation and operating analysis between Las Vegas and Los Angeles
- Incremental Amtrak Passenger Service simulation and operating analysis between Shreveport and Dallas/ Ft Worth
- Union Pacific Railroad Feather River versus Donner Pass route analysis
- Surface Transportation Board – team member on the Union Pacific / Southern Pacific Mitigation plan including the Reno and Wichita oppositions to the merger
- Surface Transportation Board - Environmental Analysis for the Union Pacific Railroad purchase of the Northeast Kansas & Missouri Railroad (NEKM)
- UP/SP Merger Capacity Plan development and implementation
- Surface Transportation Board for Entergy v. Union Pacific Railroad
- Surface Transportation Board Rate Case for Seminole Energy v. CSXT Railroad
- Surface Transportation Board Rate Case for TPI v. CSXT Railroad

- Surface Transportation Board Rate Case for M&G v. CSXT Railroad
- Surface Transportation Board Rate Case for DuPont v. NS Railroad
- Surface Transportation Board Rate Case for Drummond Coal Sales, Inc v. NS Railroad
- Union Pacific Railroad – Amtrak 7-day service Sunset Limited capacity impact study
- Surface Transportation Board Rate Case for Intermountain Power v. Union Pacific Railroad
- Surface Transportation Board Rate Case for Sunbelt v. NS Railroad

MONIQUE L. WHITEHEAD

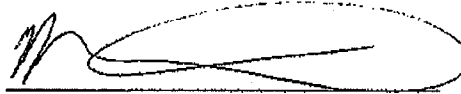
Ms. Whitehead is an Intermodal and Industrial Rail Specialist at TranSystems. Ms. Whitehead has experience with railroad intermodal terminal management. Ms. Whitehead is sponsoring portions of Section II-B of CSX Transportation, Inc. ("CSXT's") Reply Evidence relating to market dominance. Ms. Whitehead has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Ms. Whitehead holds a Bachelor of Science in Business Administration and Operations Management from the University of Dayton, as well as a Master of Science in Project Management from The Citadel. Prior to joining TranSystems, Ms. Whitehead worked at CSX Intermodal Terminals, Inc. ("CSXI") as an Operations Supervisor of the Fairburn, GA ramp and then as Terminal Manager of the Charleston, SC ramp. At CSXI, Ms. Whitehead was responsible for intermodal traffic handling and related activities. She has experience in operations planning and analysis, capacity and throughput analysis, and in developing cost effective solutions for facilities experiencing significant volume growth. Ms. Whitehead has provided expert analyses for several industrial and intermodal rail projects, including the Suffolk CenterPoint Intermodal Center in Suffolk, VA and the Jafza master plan project in Santee, SC.

A copy of Ms. Whitehead's curriculum vitae is attached.

VERIFICATION

I, Monique L. Whitehead, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.

A handwritten signature in black ink, appearing to be 'Monique Whitehead', written over a horizontal line.

Monique Whitehead

Executed on this 3 day of March 2016



Monique L. Whitehead, PMP

Intermodal and Industrial Rail Specialist

Ms. Whitehead joined TranSystems after beginning her career with CSX Intermodal Terminals, Inc. (CSXI) as a Management Trainee. While at CSXI she quickly ascended the ranks to become one of the company's youngest intermodal terminal managers in the history of the railroad. At TranSystems Ms. Whitehead has joined our freight transportation planning and design group as an Industry Specialist with an emphasis on intermodal transportation. She has provided expert analyses for several industrial and intermodal rail projects, as well as several port-related rail projects by providing operations and capacity analysis, as well as facility and infrastructure planning. Since joining TranSystems Monique has performed research, calculations and analyses to generate solutions meeting customer requirements.

Ms. Whitehead spent 5 years with CSXI as the Terminal Manager of the Charleston, SC ramp, Operations Supervisor of the Fairburn, GA ramp, and Management Trainee. Monique was responsible for containerized traffic handling and related activities. Her professional experience has included operations planning and analysis, capacity and throughput analysis, and developing cost effective solutions for facilities that have endured volume growth of up to 98% within four years.

Suffolk CenterPoint Intermodal Center, Suffolk, VA

TranSystems provided conceptual design and operations analysis services to CenterPoint Properties for a proposed intermodal container transportation facility (ICTF) located in Suffolk, VA. Ms. Whitehead provided all operations analyses associated with the project. The developed concept was to accommodate a potential shuttle train service to include six shuttle trains per day with a minimum capacity of 56 FEU per train. The project scope included in the design required supporting infrastructure including a wye and sidings between the ICTF and the Virginia International Gateway for mitigating impacts to existing Class I rail operations.

Jafza - Updated Master Plan, Santee, SC

TranSystems provided professional planning and preliminary engineering services in support of updating the Jafza master plan based on the findings of a revised market assessment and the impacts of the Highway 301/Interstate 95 extension project in Orangeburg, SC. Major tasks associated with the project included; updating the previous land use plan, utility plan, City Center

Registrations

Project Management Professional (PMP)
Technical PM Certification
Scrum Master

Education

B.S. Business Administration and Operations Management, University of Dayton, 2010
M.S. Project Management, The Citadel, 2015

Years of Experience

5

Years with Firm

1



plan, and phased development plan. Monique was responsible for all intermodal and freight rail planning associated with the project, including operations and capacity analyses.

ICTF - Basis of Design, North Charleston, SC

TranSystems was contracted by Palmetto Railways to develop a basis of design (BOD) document in support of later design phases to their ICTF. Monique was responsible for ensuring compliance with Palmetto Railways anticipated operating model of the ICTF. The BOD document developed design criteria based on the following; Class I intermodal design standards, Palmetto Railways operation and safety protocols, and TranSystems proven BOD methods. The BOD document included intermodal design criteria as well as design measures for all roadway and bridge improvements associated with the project and required to execute the design of the project.

Charleston ICTF Program Management, Charleston, SC

TranSystems has provided Program Manager Services for the \$250 million NBIF project for the past three years, working for Palmetto Railways in conjunction with the South Carolina State Ports Authority, SCDOT, US Army Corps of Engineers Charleston District, City of North Charleston, and multiple federal and state agencies. Monique is currently serving as Deputy Program Manager for the project. TranSystems has provided a technical management role to provide intermodal terminal planning, special and feasibility studies, preparation of grant applications, representation for Palmetto Railways at meetings, and provided direct design and construction administration for each specific project element. TranSystems was responsible for developing and managing the project budget, as well as tracking, managing, and reporting on project consultant performance from the conceptual phase through construction.

NATHANIEL ZEBROWSKI

Mr. Zebrowski is a Senior Consultant in the Network Industries Strategies (“NIS”) Group of FTI Consulting, Inc., an economic and consulting firm with offices located at 1101 K Street, NW, Washington, DC 20005. Mr. Zebrowski is sponsoring portions of Sections III-A, III-B and III-F of CSX Transportation, Inc.’s (“CSXT’s”) Reply Evidence. Mr. Zebrowski has signed a verification of the truth of the statements contained therein. A copy of that verification is attached hereto.

Mr. Zebrowski holds a Bachelor of Arts degree in economics from Northwestern University and a Graduate Certificate in transportation economics from George Mason University. He provides financial and economic consulting services to the transportation, energy, and telecommunications industries. Mr. Zebrowski has contributed to the design of freight rail costing systems and to the incorporation of cost information into the development of freight rail rates.

Mr. Zebrowski’s curriculum vitae is attached.

VERIFICATION

I, Nathaniel Zebrowski, declare under penalty of perjury that I have read the portions of the Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.



Nathaniel Zebrowski

Executed on this 7 day of March 2016.

Nathaniel S. Zebrowski

Senior Consultant – Economic Consulting

Nathaniel.zebrowski@fticonsulting.com

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Fax: (202) 312-9101

EDUCATION

B.A. in Economics from
Northwestern University;
Graduate Certificate in
Transportation Economics from
George Mason University

Nathan Zebrowski is a senior consultant in the Network Industries Strategies group of the FTI Economic Consulting group, located in Washington, D.C. Mr. Zebrowski provides financial and economic consulting services to the transportation, energy and telecommunications industries.

Mr. Zebrowski combines economic training with deep transportation industry research to develop cost benefit analyses of various transportation investment and logistics alternatives. In addition, he contributes a strong technical understanding of computer systems and languages required to perform data intensive analysis. Since joining FTI in 2011 he has performed rate analysis, capital valuation studies, and contract evaluation for Class I railroads. His work includes designing computer models to analyze how volume, revenue, and cost differentials affect the economic value of network industry enterprises. Mr. Zebrowski has contributed to the design of freight rail costing systems and to the incorporation of cost information into the development of freight rail rates. His work developing and using railroad costing systems relies on knowledge of current best practices in freight rail operations, including the ability to verify and develop updated operating parameters. Further, through his experience analyzing pricing trends and business strategies in the freight rail industry, combined with his involvement in determining the stand alone costs of freight rail service, Mr. Zebrowski provides forward looking cost estimates and contract expectations for freight rail service. His work also includes the use of geographic information systems and the incorporation of spatial data into applied freight transportation cost benefit models. Through his work estimating the replacement costs of system wide freight rail networks, and his deep involvement analyzing the changing dynamics of freight flows, Mr. Zebrowski brings a strong understanding of the specific capabilities and constraints of domestic freight rail service as influenced by the rail networks in place and the expectations of system development.