

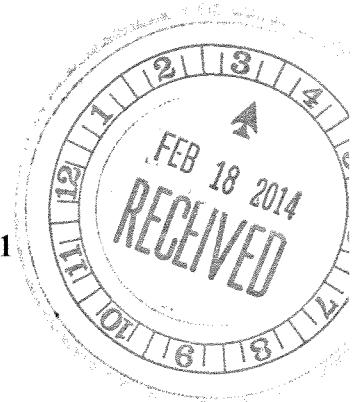
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BEFORE THE
SURFACE TRANSPORTATION BOARD

TOTAL PETROCHEMICALS & REFINING)
USA, INC.)
)
Complainant,)
)
v.)
)
CSX TRANSPORTATION, INC.)
)
Defendant.)

Docket No. NOR 42121



OPENING EVIDENCE OF
TOTAL PETROCHEMICALS & REFINING USA, INC.

Volume I of II

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February 18, 2014

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Case Glossary

<i>AEP Texas I</i>	<i>AEP Texas North Co. v. BNSF Railway</i> , STB Docket No. 41191, slip op. (STB served Nov. 8, 2006)
<i>AEP Texas II</i>	<i>AEP Texas North Co. v. BNSF Railway</i> , STB Docket No. 41191, slip op. (STB served Sept. 10, 2007)
<i>AEPCO</i>	<i>Arizona Electric Power Cooperative, Inc. v. BNSF Railway</i> , STB Docket No. 42113, slip op. (STB served Nov. 22, 2011)
<i>AEPCO II</i>	<i>Arizona Electric Power Cooperative, Inc. v. BNSF Railway</i> , STB Docket No. 42113, slip op. (STB served June 27, 2011)
<i>APS</i>	<i>Arizona Public Service Co. v. Atchison, Topeka & Santa Fe Railway.</i> , 2 STB 367 (1997)
<i>Cargill</i>	<i>Cargill, Inc. v. BNSF Railway</i> , STB Docket No. 42120, slip op. (STB served Aug. 12, 2013)
<i>Coal Rate Guidelines or Guidelines</i>	<i>Coal Rate Guidelines, Nationwide</i> , 1 I.C.C. 2d 520 (1985), <i>aff'd sub nom. Consolidated Rail Corp. v. United States</i> , 812 F.2d 1444 (3d Cir. 1987)
<i>Coal Trading Corp.</i>	<i>Coal Trading Corp. v. Baltimore & Ohio R.R.</i> , 6 I.C.C. 2d 361 (1990)
<i>Cost of Capital – 2008</i>	<i>Railroad Cost of Capital – 2008</i> , STB Ex Parte No. 558 (Sub-No. 12) (STB served Sept. 25, 2009)
<i>Cost of Capital – 2009</i>	<i>Railroad Cost of Capital – 2009</i> , STB Ex Parte No. 558 (Sub-No. 13) (STB served Oct. 29, 2010)
<i>Cost of Capital – 2010</i>	<i>Railroad Cost of Capital – 2010</i> , STB Ex Parte No. 558 (Sub-No. 14) (STB served Oct. 3, 2011)
<i>Cost of Capital – 2011</i>	<i>Railroad Cost of Capital – 2011</i> , STB Ex Parte No. 558 (Sub-No. 15) (STB served Sept. 13, 2012)
<i>Cost of Capital – 2012</i>	<i>Railroad Cost of Capital – 2012</i> , STB Ex Parte No. 558 (Sub-No. 16) (STB served Aug. 30, 2013)
<i>CP&L</i>	<i>Carolina Power & Light Co. v. Norfolk Southern Railway</i> , 7 S.T.B. 235 (2003)
<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</i> , 7 S.T.B. 89 (2003)

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<i>DuPont</i>	<i>E.I. du Pont de Nemours & Co., v. Norfolk Southern Railway</i> , STB Docket No. 42125
<i>FMC</i>	<i>FMC Wyoming Corp. v. Union Pacific R.R.</i> , 4 STB 699 (2000)
<i>Major Issues</i>	<i>Major Issues in Rail Rate Cases</i> , STB Ex Parte No. 657, slip op. (STB served October 30, 2006)
<i>Mkt. Dominance Determinations</i>	<i>Mkt. Dominance Determinations & Consideration of Product Competition</i> , 365 I.C.C. 118 (1981)
<i>McCarty Farms</i>	<i>McCarty Farms, Inc. v. Burlington Northern, Inc.</i> , 2 STB 460 (1997)
<i>Nevada Power II</i>	<i>Bituminous Coal – Hiawatha, Utah to Moapa, Nevada</i> , 10 I.C.C. 2d 259 (1994)
<i>OG&E</i>	<i>Oklahoma Gas & Electric Co., v. Union Pacific R.R.</i> , STB Docket No. 42111 (STB served July 24, 2009)
<i>Otter Tail</i>	<i>Otter Tail Power Co., v. BNSF Railway</i> , STB Docket No. 42071 (STB served Jan. 27, 2006)
<i>PSCo/Xcel I</i>	<i>Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington Northern & Santa Fe Railway</i> , 7 S.T.B. 589 (2004)
<i>PSCo/Xcel II</i>	<i>Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington Northern & Santa Fe Railway</i> , STB Docket No. 42057 (STB served Jan. 19, 2005)
<i>Rate Regulation Reforms Notice or Ex Parte 715 Notice</i>	<i>Rate Regulation Reforms</i> , STB Ex Parte No. 715 (STB served July 25, 2012)
<i>Rate Regulation Reforms or Ex Parte 715 Decision</i>	<i>Rate Regulation Reforms</i> , STB Ex Parte No. 715 (STB served July 18, 2013)
<i>TMPA</i>	<i>Texas Municipal Power Agency v. Burlington Northern & Santa Fe Ry.</i> , 6 STB 573 (2003)
<i>WFA/Basin I</i>	<i>Western Fuels Association, Inc. v. BNSF Railway</i> , STB Docket No. 42088 (STB served Sept. 10, 2007)
<i>WFA/Basin II</i>	<i>Western Fuels Association, Inc. v. BNSF Railway</i> , STB Docket No. 42088 (STB served Feb. 18, 2009)

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<i>WFA/Basin III</i>	<i>Western Fuels Association, Inc. v. BNSF Railway</i> , STB Docket No. 42088 (STB served June 5, 2012)
<i>Wisconsin P&L</i>	<i>Wisconsin Power & Light Co., v. Union Pacific R.R.</i> , 5 STB 955 (2001)
<i>West Texas Utilities</i>	<i>West Texas Utilities Co. v. Burlington Northern R.R.</i> , 1 S.T.B 638 (1996), <u>aff'd sub nom.</u> <i>Burlington Northern R.R. v. STB</i> , 114 F.3d 206 (D.C. Cir. 1997)

Acronyms

The following acronyms are used:

4WD	Four-wheel drive
AAR	Association of American Railroads
AASHTO	American Association of State Highway Officials
AEI	Automatic Equipment Identification
AEO	EIA's Annual Energy Outlook Forecast
AILF	All-Inclusive Less Fuel Index, published by AAR
AREMA	American Railway Engineering and Maintenance-of-Way Assoc.
ARRA	American Reinvestment and Recovery Act of 2009
ATC	Average Total Cost
ATF	Across-the-Fence
ATV	All-Terrain Vehicle
B&B	Bridge and Building
BNSF	BNSF Railway Company
C&S	Communications and Signals
CAGR	Compound Annual Growth Rate
CAPM	Capital Asset Pricing Model
CFO	Chief Financial Officer
CMP	Constrained Market Pricing
cmp	Corrugated Metal Pipe
CN	Canadian National Railway
CNW	Chicago and Northwestern
COBRA	Consolidated Omnibus Budget Reconciliation Act
CP	Canadian Pacific Railway
CPI	Consumer Price Index
CSX	CSX Corporation
CSXT	CSX Transportation, Inc.
CTC	Central Traffic Control
CWR	Continuous Welded Rail
CY	Cubic Yards
DCF	Discounted Cash Flow
DOT	Department Of Transportation
DP	Distributed Power
DTL	Direct to Locomotive Fueling
EDI	Electronic Data Interchange
EEO	Equal Employment Opportunity
EIA	Energy Information Administration
EOTD	End of Train Device
FED	Failed-equipment Detector
FRA	Federal Railroad Administration
FSC	Fuel Surcharge
G&A	General and Administrative
GDP-IPD	Gross Domestic Product – Implicit Price Deflator
GWR	Gross Weight on Rail
HDF	On-Highway Diesel Fuel Index

Acronyms

HR	Human Resources
ICC	Interstate Commerce Commission
IDC	Interest During Construction
IDS/IPS	Intrusion Detection System/Intrusion Prevention System
ISS	Interline Settlement System
IT	Information Technology
KCS	Kansas City Southern Railway Company
LAN	Local Area Network
LF	Linear Feet
LMR	Land Mobile Radio
LUM	Locomotive Unit Mile
MACRS	Modified Accelerated Cost Recovery System
MGA	Monongahela Railway
MGT	Million Gross Tons
MIT	Massachusetts Institute of Technology
MLO	Manager of Locomotive Operations
MMM	Maximum Markup Methodology
MOW	Maintenance of Way
MTO	Manager of Train Operations
NCREIF	National Council of Real Estate Investment Fiduciaries
NPI	NCREIF Property Index
NS	Norfolk Southern Railway Company
NT/PC	Network Personal Computer
O/D	Origin/Destination Pair
OSHA	Occupational Safety and Health Administration
PPI	Producer Price Index
PTC	Positive Train Control
R/VC	Revenue to Variable Cost
RCAF-A	Rail Cost Adjustment Factor, adjusted for productivity
RCAF-U	Rail Cost Adjustment Factor, unadjusted for productivity
REDI	CSXT Conductor Training
RMI	A GE Transportation Company
RMS	RMI's Revenue Management Services System
ROW	Right of Way
RSIA	Rail Safety Improvement Act of 2008
RTC	Rail Traffic Controller Model
SAC	Stand-Alone Cost
SARR	Stand-Alone Railroad
SEC	Securities Exchange Commission
STB	Surface Transportation Board
STCC	Standard Transportation Commodity Code
T&E	Train and Engine
TMS	RMI's Transportation Management Services System
TPI	Total Petrochemicals & Refining USA, Inc.
TPIRR	TPI Stand-Alone Railroad
UP	Union Pacific Railroad Company

Acronyms

UPS	Uninterruptible Power Supply
URCS	Uniform Railroad Costing System
USCG	US Coast Guard
USDA	US Department of Agriculture
VHF	Very High Frequency
VP	Vice President
WAN	Wide Area Network
WTI	West Texas Intermediate

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	III-H-6	Comparison of CSX Tariff Rates and Maximum Rates Per Car for TPI Movements – 1Q11
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	III-H-9	Comparison of CSX Tariff Rates and Maximum Rates Per Car for TPI Movements – 4Q11

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Testimony Part	Exhibit No.	Title
(1)	(2)	(3)
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	III-H-11	Comparison of CSX Tariff Rates and Maximum Rates Per Car for TPI Movements – 2Q12
	III-H-12	Comparison of CSX Tariff Rates and Maximum Rates Per Car for TPI Movements – 3Q12
	III-H-13	Comparison of CSX Tariff Rates and Maximum Rates Per Car for TPI Movements – 4Q12
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	III-H-15	Comparison of CSX Tariff Rates and Maximum Rates Per Car for TPI Movements – 2Q13
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III. STAND-ALONE COST

A. STAND-ALONE TRAFFIC GROUP

The testimony in this Part is being sponsored by Thomas D. Crowley, Michael E. Lillis (historical traffic and volumes), Daniel L. Fapp (revenue) and Sean D. Nolan (forecasted traffic and volumes), all of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV and summarized herein.

For the last 43 years, Mr. Crowley has been analyzing and evaluating economic and transportation options available to users of all transportation modes, as well as the transporters of products. In addition to railroads, pipelines, and truck transporters, Mr. Crowley has assisted shippers of chemical traffic, coal and aggregate traffic, grain and agriculture traffic, intermodal traffic as well as lumber and raw materials traffic, to analyze and evaluate different transportation options available to them in both competitive and captive environments in all parts of the United States. Mr. Crowley has sponsored economic evidence in every maximum rail-rate proceeding based on the stand-alone cost test filed at the Surface Transportation Board (“STB” or “Board”) and its predecessor agency, the Interstate Commerce Commission (“ICC”), since the adoption of the 1985 *Guidelines*.

Mr. Lillis has more than 25 years of experience solving economic, transportation, and fuel supply problems for different shippers throughout the United States. He has performed extensive analyses in the area of stand-alone costing, including traffic group identification, route layout, design and construction costs, revenue development, forecasting, and the development of detailed operating plans for various stand-alone railroads.

For over 20 years, Mr. Fapp has been involved in solving transportation, information systems, manufacturing, service, and operating issues. Mr. Fapp's primary experience lies in the fields of transportation management, optimization, cost of capital, and cost improvement. He

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has designed and executed analyses of the capital and operating costs associated with moving bulk commodities by diverse modes of transportation including rail, full truckload, less than truckload, and ocean vessel.

Mr. Nolan has spent his 20-year consulting career evaluating railroad cost of service, pricing, and operations issues on behalf of shippers and government departments and agencies. The nature of his work has been supporting shippers in their procurement initiatives, including the purchase of fuel, transportation services, and equipment and the management of inventories. His development and analysis of alternative scenarios have been supported by tailored financial models used to estimate cost reductions and savings, actual versus budgeted variances, revenue to variable cost of service relationships, cash flows, and break-even and sensitivity analyses.

A more detailed description of each of the above witnesses' credentials is included in Part IV of this opening evidence.

The TPI Stand-Alone Railroad ("TPIRR") comprises 7,357 route miles, including 491 miles over which TPIRR will operate under trackage rights or joint facility agreements (as CSXT does today). The TPIRR system includes route miles in 17 states—Alabama, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia—and the District of Columbia. A schematic of the TPIRR routes appears in Exhibit III-A-1.

The TPIRR stand-alone traffic group volumes and associated revenues are discussed in the remainder of this Part III-A under the following topical headings:

1. Stand-Alone Railroad Traffic
2. Volumes (Historical and Projected)
3. Revenues (Historical and Projected)

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1. Stand-Alone Railroad Traffic

The TPIRR is designed to transport a broad range of commodities over its system, similar to what CSXT does over many of the same rail lines today. The TPIRR traffic group was developed utilizing CSXT car and container waybill data and CSXT car-event data for the third quarter (“3Q”) 2010 through the second quarter (“2Q”) 2013, which were produced by CSXT in response to TPI discovery requests. The development of the TPIRR traffic group based on data produced by CSXT was a complicated, time consuming, and data intense endeavor. The analytical processes undertaken to identify the CSXT traffic data and then to select the TPIRR traffic involved many steps. These steps as well as the data and decoders utilized by TPI are detailed in Exhibit III-A-2.

The resulting traffic includes merchandise (general freight), coal, and intermodal traffic.¹ The TPIRR traffic for the period from July 1, 2010 through June 30, 2011 (“3Q10-2Q11” or “First Year”) is shown in Exhibit III-A-3. The units (carloads/containers/trailers) and tons associated with this traffic are summarized in Table III-A-1 below.

¹ For purposes of this analysis, coal includes all traffic with a 2-digit STCC of “11”, general freight includes all other carload traffic, and intermodal includes all container/trailer waybill traffic.

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Table III-A-1
Summary of TPIRR First Year Carloads/Containers/Trailers and Tons
 (3Q10 – 2Q11)

Commodity (1)	First Year Traffic Data		Percent of Col (2) Total (4)
	Units (2)	Gross Tons 1/ (3)	
1. Coal	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
2. Chemicals or Allied Products	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
3. Transportation Equipment	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
4. Food or Kindred Products	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
5. Pulp, Paper, or Allied Products	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
6. Farm Products	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
7. Primary Metal Products	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
8. Non-metallic Minerals	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
9. Petroleum or Coal Products	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
10. Clay, Concrete, Glass, Stone Products	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
11. Waste or Scrap Material	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
12. Lumber or Wood Products	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
13. Metallic Ores	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
14. Other	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
15. Intermodal	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }
16. Total	{ { [REDACTED] }	{ { [REDACTED] }	{ { [REDACTED] }

Source: TPI Opening Exhibit III-A-3.

1/ CSXT only provided gross tons for intermodal traffic. For consistency, all volumes are therefore shown in gross tons.

As shown in Table III-A-1 above, the TPIRR First Year traffic consists of approximately 5.7 million units (carloads/containers/trailers) or 464 million gross tons of a wide range of commodities.

a. Re-routed Traffic

As detailed further in Section B(8) of Exhibit III-C-1, the routing of certain issue traffic moving on the TPIRR differs in part from the actual historical routing utilized by the corresponding traffic on CSXT rail lines. These reroutes are entirely internal to the TPIRR network. The reroutes were required because TPI did not replicate every line segment traversed by TPI issue traffic in the real world. However, the TPIRR network and operations ensure that

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the issue traffic moves efficiently over TPIRR trains along a valid route. The three areas where TPIRR reroutes issue traffic are discussed below.

1. Florida Panhandle. Historically CSXT routed issue traffic moving between New Orleans and Florida destinations² { [REDACTED] }. The TPIRR does not include the segment between { [REDACTED] } over which this traffic moved in the real world. Therefore, TPIRR rerouted this traffic in alternative manifest trains³ via Montgomery, AL, Atlanta, GA, and Waycross, GA.
2. Ohio to West Virginia. Historically CSXT routed issue traffic moving between Chicago and Clarksburg, WV⁴ via { [REDACTED] }. The TPIRR does not include the segments between { [REDACTED] } or between { [REDACTED] } over which this traffic moved in the real world. Therefore, TPIRR rerouted this traffic in alternative trains⁵ via Connellsville, PA, Newell, PA, and Grafton, WV.
3. Central Indiana. Historically CSXT routed issue traffic moving between Chicago and Ohio destinations⁶ via { [REDACTED] }. The TPIRR does not include the segment between { [REDACTED] } over which this traffic moved in the real world. Therefore, TPIRR rerouted this traffic in alternative manifest trains⁷ via Deshler, OH or Fostoria, OH and Lima, OH.

In addition to rerouted issue-traffic carloads, the route for some TPIRR trains differs slightly from their real-world counterparts.⁸ The reroutes are internal to the SARR segment between the TPIRR on-junction and the TPIRR off-junction, and any “cross-over” traffic is still interchanged with CSXT at a point along the actual route of movement. Board precedent permits such reroutes as long as they are reasonable and do not adversely impact the quality of service

² Lanes B12 (New Orleans – Oneco), B16 (New Orleans - Galloway), B38 (New Orleans – De Land), and B104 (New Orleans – De Land).

³ Trains Q612 and Q551.

⁴ Lanes B62 and B113.

⁵ Trains Q368, E833, E809, and B713.

⁶ Lanes B18 (Chicago – Cincinnati), B84 (Chicago – Wapakoneta), B109 (Chicago – Lima), and B110 (Chicago – Lima).

⁷ Trains Q501 (Lanes B18, B109, B110), Q382 (Lane B84), and Q339 (Lane B84).

⁸ CSXT operates many parallel line segments through major metropolitan areas that are relatively short in length. Where these short parallel lines occur, TPI has consolidated the traffic moving over these parallel lines into a single line, while ensuring that all TPI traffic is still adequately served.

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that the customers in question otherwise would receive from CSXT.⁹ The TPIRR reroutes meet these standards.

2. Volumes (Historical and Projected)

a. Historical Volumes

TPIRR historical traffic volumes were selected from the actual CSXT traffic data provided for the historical time period from July 1, 2010 through June 30, 2013. The TPIRR traffic selected for the First Year is summarized in Table III-A-2 below.

Table III-A-2
Summary of TPIRR First Year Traffic – 3Q10-2Q11

Train Type (1)	Carloads/ Containers (2)	Gross Tons (3)	Percent of Col (2) Total (4)
1. General Freight	{ [REDACTED] }	{ [REDACTED] }	{ [REDACTED] }
2. Coal	{ [REDACTED] }	{ [REDACTED] }	{ [REDACTED] }
3. Intermodal	{ [REDACTED] }	{ [REDACTED] }	{ [REDACTED] }
4. Total	{ [REDACTED] }	{ [REDACTED] }	{ [REDACTED] }

Source: TPI Opening Exhibit III-A-3.

As shown in Table III-A-2 above, the TPIRR First Year traffic comprises approximately 5.7 million carloads/containers/trailers and 464.7 million gross tons. TPIRR traffic for each year of the Discounted Cash Flow (“DCF”) model is shown in Exhibit III-A-4.

b. Projected Volumes

TPI forecasted TPIRR traffic volumes for the time period from July 1, 2013 through June 30, 2020. TPI’s forecast of TPIRR traffic volumes was based on actual CSXT public data, CSXT traffic data produced in discovery, and CSXT internal forecasts provided in discovery. TPI began the forecasting process by aggregating TPIRR traffic volumes first by 2-digit Standard Transportation Commodity Code (“STCC”), and then into one of five Commodity

⁹ See *TMPA* at 594-595; *AEP Texas II* at 11.

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Groups—Coal, Grain, Auto, Other Merchandise,¹⁰ or Intermodal—moving in identifiable trains moving on the TPIRR. TPI undertook this supplemental aggregation of forecast data on a Commodity Group basis to maintain consistency between the traffic-volume forecast and the train-growth forecast.

i. For The Period From July 1, 2013 through December 31, 2017

For the period July 1, 2013 through December 31, 2017, TPIRR traffic volumes were projected by adjusting Base Year (July 1, 2012 to June 30, 2013) traffic (which were the latest available twelve months of actual data) by annual volume change indices developed from CSXT shipment-volume forecasts provided in discovery. Specifically, using a purported CSXT internal traffic forecast¹¹ covering the 2013-2017 time periods that was produced in discovery, TPI aggregated the CSXT forecasted carload and container shipments by 2-digit STCC and Commodity Group, and developed year-over-year volume change indices.¹² The CSXT coal-volume-forecast indices were then disaggregated based on Energy Information Administration (“EIA”) coal-production regions. TPI then applied these annual volume-change indexes to the selected TPIRR Base Year traffic group.

By developing Commodity Group-specific growth rates, TPI was able to accurately reflect forecasted volume growth in the TPIRR traffic-group and train list. This aggregate approach is consistent with the model accepted by the STB in *CP&L*.¹³ In *CP&L*, the Board recognized that coal business in the East constantly shifts on an origin (origin district)/destination (“O/D”) pair basis and that an O/D-pair-specific approach to forecasting the

¹⁰ Other Merchandise is broken into an additional 26 groups.

¹¹ See “2013-2017STRATPLAN.xlsx” created by FTI consultant Rob Fisher on September 18, 2013 based on proprietary information contained in the file, and forwarded under a cover letter from CSXT’s external counsel on October 4, 2013 in response to TPI Request For Production numbers 30 and 157.

¹² For example, the projected issue-traffic volumes were developed based on CSXT’s forecasted growth rates for 2-digit STCC codes 28 and 29.

¹³ See *CP&L* at 249-251.

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traffic group would be too restrictive and result in understated volume growth. The same holds true for this case.¹⁴

ii. For The Period From January 1, 2018 through June 30, 2020

For the January 1, 2018 through June 30, 2020 time period, TPIRR traffic volumes, excluding coal, were determined by calculating the compound annual growth rate (“CAGR”) over the five (5) years of CSXT internal forecast data (i.e., for 2013 to 2017), and applying these compounded growth rates on a 2-digit STCC basis.

Using a CAGR approach to forecasting traffic volumes is consistent with Board precedent and has been accepted by railroads in recent SAC presentations. The Board accepted the use of compounded historic growth factors in developing traffic forecasts in *FMC*,¹⁵ and the Board used the same approach in developing the cost of equity in *AEP Texas II*.¹⁶ For coal shipments during the 2017 to 2020 time period, TPI continued to rely on the CAGR approach discussed above, aggregated based on EIA coal-production regions. Coal is a significant

¹⁴ Although the issue in *CP&L* was limited to coal-volume forecasting, the principles behind the Board’s decision are relevant to the forecast of coal and other commodities in this case. TPI applied the *CP&L* volume-forecasting methodology to all selected movements in its forecast model. As stated by the STB in *CP&L* “[a] customer may ship from one mine in one year, then shift to another the next year, and back to the first mine in the following year.” *CP&L* at 249. Similarly, a customer may not ship from a SARR-served mine in the base year, but it may do so in some or all subsequent years. Consequently, requiring exact origin-destination matches between forecasted traffic volumes and the selected base year is unduly restrictive and does not fairly reflect the traffic that would be available to the SARR in any given year. The better (and Board-endorsed) approach is to view the base-year traffic group selected by the shipper as a snapshot that is reflective of the traffic that can reasonably be assumed to be available to the SARR for any given year of the model period. Thus, the fact that some traffic would not continue to move from a specific origin to a specific destination throughout the SAC analysis period does not mean that other traffic would not move from the origins served by the SARR. It is therefore reasonable to treat the base traffic group selected by the shipper as a representative traffic group for all modeled years. Theoretically, there is no difference between coal and other commodities in this regard, so we have extended this Board-approved logic to cover all existing carload movements on the SARR.

¹⁵ See *FMC* at 730-732. A CAGR approach was presented by the shipper, used by the UP, the defendant railroad, and accepted by the Board in *FMC* for forecasting volumes and revenues. For “traffic volumes generally”, *FMC* “estimate(d) traffic growth beyond 2001 (or 2002)” using “the average (geometric mean) of the annual percentage change in traffic volumes contained in the LRP’s from 1997 to that time.” The Board decided to “use the traffic forecasts in the LRP’s for the years 1997 through 2001...for carrying those forecasts forward through 2017.” The UP in that same case “used the compounded average growth rate from 1999 through 2007...to develop its growth rate for soda ash for the period 2008-2017.”

¹⁶ See *AEP Texas II*, slip op. at 107.

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commodity for the TPIRR. The TPIRR will serve six origin coal mines directly and will terminate coal shipments at 15 generating stations and industrial facilities located on the TPIRR system. In addition, the TPIRR will receive and/or deliver coal with other railroads that will transport this traffic to electric utilities, ocean coal terminals, or industrial facilities off system.

For all forecast years, electric-utility coal-volume growth was capped at an 85 percent plant capacity level at identified generating stations consistent with prior STB decisions in rate reasonableness proceedings involving the forecasted growth of coal to electric utilities. Because capping the amount of coal traffic to individual generating stations results in overall TPIRR coal volumes below the level that would result from universal application of the aggregate growth factor implicit in the CSXT coal-volume forecasts (adjusted by the annual growth factors described above), TPI recalibrated the growth factor for non-capped generating stations to accommodate the give-and-take needed to retain the overall growth projections reflected in the CSXT internal coal forecast. For example, assume a SARR serves two coal customers and each shipped 1 million tons in the base year (2 million tons in total). Also assume an aggregate forecast growth rate of 10 percent in year two, or 1.1 million tons to each generating station for a total of 2.2 million tons. Now assume one plant is capped at 1.05 million tons based on the 85 percent capacity factor limitation. The foregone growth from the limited generating station would be moved to the generating station with no capacity limit. In effect, one generating station would be receiving 1.05 million tons and the other 1.15 million tons resulting in the retention of the original aggregate 10 percent growth projection.¹⁷

As discussed above, CSXT internal forecasts for coal traffic have been broken out by EIA production region based on origin designations. For capped plants, the capped tons were

¹⁷ See *AEPCO* at 21.

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distributed to other shippers moving coal from the same origin regions to maintain the overall regional growth forecasted by CSXT.

Table III-A-3 below is a summary of the CSXT growth factors for coal by EIA production region.

<u>Time Period</u>	<u>CAPP</u>	<u>EINT</u>	<u>NAPP</u>	<u>SAPP</u>	<u>WPRB</u>	<u>Other</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. July 1 - Dec 31, 2010 1/	x	x	x	x	x	x
2. 2011 1/	x	x	x	x	x	x
3. 2012 1/	x	x	x	x	x	x
4. 2013 2/	0.933	0.933	0.933	0.933	0.933	0.933
5. 2014 3/	1.042	1.161	0.922	1.018	1.065	1.032
6. 2015 3/	0.971	1.142	1.033	0.954	0.923	1.008
7. 2016 3/	0.975	1.058	1.040	1.001	1.037	1.012
8. 2017 3/	1.004	1.024	1.059	1.001	1.034	1.023
9. 2018 4/	0.998	1.095	1.012	0.993	1.013	1.019
10. 2019 4/	0.998	1.095	1.012	0.993	1.013	1.019
11. Jan 1 - June 30, 2020 5/	0.999	1.046	1.006	0.996	1.007	1.009

Source: e-workpaper "Coal Volume Forecast Matrix.xlsx".
 1/ Traffic volumes are based on actual historical volumes for 2010 through June 30, 2013.
 2/ Based on CSXT's actual volumes as reported in its 2012 10-K Report and CSXT's forecasted 2013 volumes from CSXT's internal forecast "2013-2017STRATPLAN.xlsx".
 3/ Based on CSXT's internal forecast "2013-2017STRATPLAN.xlsx" for STCC 11.
 4/ Based on the "Compound Annual Growth Rate (CAGR)" for the CSX 2013-2017 internal forecast.
 5/ Represents 6 months of growth in the developed CAGR.

Table III-A-4 below summarizes the year-over-year TPIRR traffic growth rates by Commodity Group.

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Table III-A-4
TPIRR Traffic Growth Rates by Major Commodity Group (2 Digit STCC Code)

<u>Time Period</u> (1)	<u>Coal</u> <u>(STCC 11)</u> (2)	<u>Grain</u> <u>(STCC 1)</u> (3)	<u>Auto</u> <u>(STCC 37)</u> (4)	<u>Other</u> <u>Merch</u> 1/ (5)	<u>Intermodal</u> <u>("IN")</u> (6)
1. July 1 - Dec 31, 2010 2/	x	x	x	x	x
2. 2011 2/	x	x	x	x	x
3. 2012 2/	x	x	x	x	x
4. 2013 3/	0.933	1.048	0.987	1.065	1.065
5. 2014 4/	1.032	0.990	1.033	1.002	1.055
6. 2015 4/	1.008	1.015	1.042	1.046	1.072
7. 2016 4/	1.012	1.033	1.043	1.038	1.084
8. 2017 4/	1.023	0.995	0.999	1.010	1.048
9. 2018 5/	1.019	1.008	1.029	1.028	1.065
10. 2019 5/	1.019	1.008	1.029	1.030	1.065
11. Jan 1 - June 30, 2020 6/	1.009	1.004	1.014	1.016	1.032

Source: e-workpapers "Coal Volume Forecast Matrix.xlsx"; "Non-Coal Volume Forecast Matrix.xlsx".

1/ Other Merchandise is broken out into 26 additional groups.

2/ No traffic growth rates because traffic volumes are based on actual historical volumes for 2010 through June 30, 2013.

3/ Based on CSXT's actual volumes by business unit found in its 2012 10-K Reports and 2013 forecasted volumes.

4/ Based on CSXT's internal forecast "2013-2017STRATPLAN.xlsx"

5/ Based on the "Compound Annual Growth Rate (CAGR)" for the CSX 2013-2017 internal forecast.

6/ Represents 6 months of growth in the developed CAGR.

TPIRR traffic for each year of the Discounted Cash Flow ("DCF") model is shown in Exhibit III-A-4.

c. Peak Year Traffic

The peak traffic year for the TPIRR will be 3Q19 through 2Q20, the final year of the ten year DCF model evaluation. A summary of this traffic is shown in Table III-A-5 below.

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Table III-A-5
Summary of TPIRR Peak-Year Traffic – 3Q19-2Q20

<u>Train Type</u>	<u>Carloads/ Containers</u>	<u>Tons</u>	<u>Percent of Col (2) Total</u>
(1)	(2)	(3)	(4)
1. General Freight	2,850,685	316,053,736	38%
2. Coal	853,994	111,548,945	11%
3. Intermodal	3,801,157	106,197,049	51%
4. Total	7,505,836	533,799,730	100%

Source: "Revenue Summary Final.xlsx."

3. Revenues (Historical and Projected)

TPI developed total revenue for each traffic type (i.e., general freight, coal, intermodal) for each year in the ten year DCF model period using the revenue data provided by CSXT in discovery. These revenues reflected either single-line movements, interline movements, or cross-over movements handled by the TPIRR. A description of the general process used to develop total historical and projected revenues by traffic type is outlined below.

a. Historical Revenues

CSXT net revenues, (exclusive of fuel surcharges) were used to develop the historical (July 1, 2010 – June 30, 2013) rate per carload or container/trailer for each unique movement included in the TPIRR traffic group. A unique movement is defined by ultimate origin and destination pair, CSXT origin and destination pair, STCC, and contract (if available). As discussed below, the historic rates per carload/container/trailer are used to develop forecasted revenues for the TPIRR traffic. In addition, historic fuel surcharges, if any, were identified for each shipment

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The total TPIRR revenue (including fuel surcharges) equals \$[REDACTED] in the First Year as shown in Table III-A-6 below by traffic type.

Table III-A-6 Summary of TPIRR First Year Revenue -- 3Q10-2Q11 (\$ in millions)	
Traffic Type (1)	Revenue (2)
1.General Freight	[REDACTED]
2.Coal	[REDACTED]
3.Intermodal	[REDACTED]
4.Total	[REDACTED]
Source: "Revenue Summary Final.xlsx."	

b. Projected Revenues

TPI forecasted TPIRR revenue for the time period from July 1, 2013 through June 30, 2020 using CSXT’s traffic and revenue data, CSXT publicly available data, CSXT contracts and pricing authorities, CSXT internal forecasts provided in discovery, and publicly available forecasts of key economic indices. As summarized in Table 7 below, TPI adjusted the “revenue less fuel surcharge” portion of revenues based on CSXT’s internal forecasts.¹⁸ For coal and non-coal movements where contract data was made available by CSXT, contract adjustment mechanisms were used to forecast TPIRR revenues for the duration of the contract term.

For non-coal contracts that expired between 2013 and 2017, rates were adjusted based on the forecasted change in revenue per unit¹⁹ from the CSXT-provided carload or container forecasts. This is similar to the traffic volume growth procedures described above. If the 2-digit STCC was not included in CSXT’s forecast, a system-average growth rate from CSXT’s forecast was used. For coal contracts that expired between 2013 and 2017, or for coal movements that

¹⁸ CSXT’s internal revenue forecasts did not include fuel surcharges.

¹⁹ The forecasted revenue per unit change aggregated by the 2-digit STCC code.

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were not subject to contracts or other common-carrier pricing authorities, revenue projections through the 2017 time period were based on CSXT’s internal forecasts aggregated by EIA production region.

For the period from January 1, 2018 through June 30, 2020, TPIRR revenues for all traffic were determined by adjusting the prior year revenue per unit by the 2-digit STCC CAGR developed utilizing the five (5) years of CSXT internal forecast data for 2013 to 2017. As indicated above, a forecasting approach that relies upon CAGR has been repeatedly used by shippers and railroads, and accepted by the Board.²⁰

Table III-A-7 below summarizes the TPIRR revenue forecast procedures described above that TPI used during the forecast time period.

Study Period	Forecast Basis
(1)	(2)
A. All Commodities	
1. July 1, 2013 – December 31, 2017	CSXT Internal Forecast or forecasted contract adjustment mechanism (if available).
2. January 2, 2018 – June 30, 2020	CAGR ^{1/} or forecasted contract adjustment mechanism (if available).

^{1/} CAGR based on change in CSXT internal forecast for 2013-2017. Full year 2013 (the base year for future forecasts) was developed using the 2012-2013 annual change from system-wide revenue data reported in CSXT’s 10-K reports.

The TPIRR traffic revenues for each year in the DCF model period are summarized in Exhibit III-A-5.

²⁰ In addition, CSXT uses CAGR concepts and metrics in its normal course of business. A recent example is the presentation by CSXT Chief Financial Officer Fredrik Eliasson at the 2013 Deutsche Bank Global Industrials & Basic Materials Conference. Mr. Eliasson used CAGR comparisons numerous times throughout his presentation, including a discussion of CAGR in terms of earnings and traffic growth. A copy of Mr. Eliasson’s presentation is included in TPI’s e-workpapers at “2013 CSX Corporation - Deutsche Bank Presentation.pdf.”

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c. Fuel Surcharges

For coal and general-freight traffic, CSXT imposes a car-mile based fuel surcharge on each carload based on the price of On-Highway Diesel Fuel (“HDF”) two calendar months prior to the movement. The TPIRR uses the same fuel-surcharge program and formula that CSXT uses, and thus collects a per car-mile fuel surcharge on each carload based on the TPIRR movement miles, while CSXT will continue to collect its per-car-mile fuel surcharge on its portion of the movement.

For intermodal traffic, CSXT imposes a fuel surcharge calculated as a percentage of the base rate, again based on HDF prices two calendar months prior to the movement. The TPIRR uses this CSXT fuel-surcharge program to calculate total CSXT fuel-surcharge revenues and allocates a share of the total CSXT fuel-surcharge revenues to the TPIRR using the revenue-division percentage calculated under the ATC methodology.

For contract movements subject to CSXT fuel surcharges, the fuel surcharges are calculated based on the relevant contract terms. Where the contract specifies the use of HDF prices, TPI has applied the EIA forecast of HDF prices included in the January 2014 Short Term Energy Outlook (“STEO”) through 2015 and the forecast in the 2014 Early Release AEO for 2016 through 2Q20. For contracts specifying a surcharge based on West Texas Intermediate Crude Oil (“WTI”) prices, the WTI forecasts were also based on the EIA STEO and the AEO forecasts. After contract expiration and through 2Q20, fuel-surcharge rates are assumed to follow CSXT’s HDF surcharge programs.

d. Revenue By Movement Type

The TPIRR handles single-line movements, interline movements, cross-over movements and internally rerouted movements. Single-line movements originate and terminate on the TPIRR, and are carried by the TPIRR for the entire length of the movement. Interline

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movements are movements where the TPIRR either receives or delivers the railcar, container, or trailer (“unit”) to a railroad other than CSXT, and carries the unit completely along its own system from receipt or to delivery. Cross-over movements traverse over a portion of CSXT system that is not a portion that the TPIRR replicates, and are interlined between the TPIRR and CSXT. Internally rerouted movements move over a different route than historically used by CSXT but do so more economically and efficiently on the TPIRR.²¹ Single-line, interline, and cross-over movements may be internally rerouted over portions of the TPIRR.

The procedures used to calculate the revenues associated with each movement type are detailed below and are based on data made available by CSXT during discovery.

i. Single-Line Movements

In 2012, the last full calendar year of actual traffic data available, the TPIRR will handle approximately 234,026 carloads of general freight, 184,775 carloads of coal, and 351,079 intermodal containers/trailers in single-line service, i.e., service in which the TPIRR carries the unit completely from origin to destination.²² TPIRR revenue from single-line movements was developed assuming that 100 percent of the CSXT revenue will accrue to the TPIRR.

ii. Interline Movements

In 2012, the TPIRR will handle approximately 368,361 carloads of general freight, 90,146 carloads of coal traffic, and 450,805 containers in interline service, i.e., a movement that involves at least one interchange with a railroad other than CSXT and where TPIRR handles the entire movement between the same two stations as CSXT.²³ TPIRR revenue from these interline

²¹ It must be remembered that the most efficient way to transport a unit does not necessarily invoke the shortest route given the economies of density inherent in the railroad industry.

²² See e-workpaper “Revenue Summary Final.xlsx.”

²³ *Id.*

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movements was developed assuming that 100 percent of the CSXT revenue will accrue to the TPIRR.

iii. Cross-Over Movements

TPI has included cross-over traffic in the SARR traffic group consistent with the underlying objectives for which cross-over traffic has become an “indispensable” part of the SAC test.²⁴ Specifically, TPI’s use of cross-over traffic keeps the SAC analysis focused on the portion of the CSXT system that is needed to transport the issue traffic, while permitting the TPIRR to achieve the same economies of scale, scope, and density as the real-world CSXT without expanding the SARR to an ever larger and more complex system. In the following subparts, TPI reviews the reasons why the Board has concluded that cross-over traffic is indispensable, explains how TPI’s use of cross-over traffic is consistent with those reasons, and explains why the Board’s concerns in *Ex Parte 715* do not warrant any restrictions upon cross-over traffic in this case.

(1) Cross-over Traffic is an Indispensable and Well-established Device for Simplifying What the Board Itself has Described as a “dauntingly” Complex, Long and Expensive SAC Analysis

The SAC methodology is a “dauntingly large and detailed task” due to its complexity, length, and expense.²⁵ When the Board’s *Coal Rate Guidelines* decision was affirmed on appeal, these concerns were clearly on the mind of the Court. In a concurring opinion, Judge Becker cautioned:

Although I join the majority in upholding the Commission’s adoption of Stand Alone Cost modeling within its guidelines, I also write separately to identify the serious problems that I see developing if the Commission does not effectively minimize the costs incurred by shippers in challenging the carrier’s rates (either through a Stand Alone Cost model or through any

²⁴ See *WFA/Basin I*, slip op. at 11.

²⁵ See *PSCo/Xcel I* at 603.

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other Constrained Market Pricing constraint) and maximize the discovery available to them when doing so. The shippers argue forcefully that rate challenges will be frustrated by the complexity of the Commission's inhospitable rules and procedures. Because I agree that rules and regulation that produce such futility would violate the shipper's statutory right to challenge rates, I write to note my belief that future courts may have to set aside the rules if the Commission does not resolve these problems.²⁶

The SAC process has only become more complex since Judge Becker expressed those concerns. Cross-over traffic is one of the most important tools that the Board has adopted to make the SAC process more manageable and less costly.

The use of cross-over traffic in the SAC analysis has been well-established precedent for nearly 20 years. It was founded upon basic SAC principles and the need to ensure effective access to regulatory remedies through a manageable SAC process. The Board first approved the use of cross-over traffic in *Nevada Power II*, because excluding cross-over traffic "would weaken the SAC test" by "depriv[ing] the SARR of the ability to take advantage of the same economies of scale, scope and density that the incumbents enjoy over the identical route of movement."²⁷ The SAC analysis attempts to replicate a contestable market,²⁸ which is one of two economic theories that are central to the principle of constrained market pricing that is at the core of the SAC analysis.²⁹ "A contestable market is one into which entry is absolutely free and exit absolutely costless where the new entrant suffers no disadvantage relative to the incumbent."³⁰ If the SARR may not select from the same traffic that is available to the incumbent, including cross-over traffic, then the SAC analysis cannot truly replicate a contestable market because the SARR suffers a disadvantage relative to the incumbent.

²⁶ *Consol. Rail Corp. v. U.S.*, 812 F.2d 1444, 1457-58 (3d Cir. 1987) (Becker, J. concurring in part and dissenting in part).

²⁷ See *Nevada Power II* at 265, n. 12.

²⁸ *Id.* at 266.

²⁹ See *Coal Rate Guidelines* at 525 and 528-529.

³⁰ See *Nevada Power II* at 266, citing *Guidelines* at 528.

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Moreover, the SARR may replace a subset of the incumbent's products or services, including a subset of the incumbent's service for the traffic that the SARR selects, *i.e.*, cross-over traffic, because contestable market theory holds that an entrant into a market need not replace the incumbent in its entirety.³¹

In 2004, ten years after *Nevada Power II*, the STB observed that “[t]he use of cross-over traffic to simplify the SAC presentation is a well-established practice.”³² The STB identified multiple reasons why cross-over traffic is both necessary and desirable, all of which remain true today.

First, the Board observed that “[p]ermitting [the complainant] to use cross-over traffic in its SAC presentation...keeps the SAC analysis properly focused on the core inquiry—whether the defendant railroad is earning adequate revenues on the portion of its rail system that serves the complaining shipper.”³³ “Creating a SARR to serve the same traffic group without using the cross-over traffic device would dramatically enlarge the geographic scope of a SARR” by requiring a complainant to build a SARR capable of handling the cross-over traffic from its origin to its destination, thus including far more facilities than those needed to handle the issue movement.³⁴ Instead of focusing upon the portion of the defendant's rail system that handles the issue traffic, a SARR would become many multiples larger by broadening its size and scope to accommodate traffic other than the issue movements.³⁵

³¹ That subset of services can take two forms. The SARR may choose to carry any subset of traffic on a particular line segment and it may choose to provide only a portion of the total service for the traffic it selects. In both cases, the SARR is choosing to serve a subset of the incumbent's relevant market, as contemplated by contestable market theory. The latter form specifically includes cross-over traffic. Thus, restricting cross-over traffic would violate the tenants of sustainability required for a contestable market. *See* Baumol, William J., John C. Panzar, and Robert D. Willig, “*Contestable Markets and the Theory of Industry Structure*,” New York, Harcourt Brace Jovanovich (1982) (“Baumol, Panzar and Willig”) at page 197.

³² *See PSCo/Xcel I* at 601 (citations omitted) (underline added).

³³ *Id.*

³⁴ *Id.*

³⁵ *See, e.g., PSCo/Xcel I* at 601 (the 400 mile *PSCo/Xcel* SARR would need to be 10 times larger to serve the

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Second, the Board correctly observed that expanding a SARR will not eliminate cross-over traffic, but simply create new groups of cross-over traffic.³⁶ Because each extension of a SARR to originate and/or terminate one group of cross-over traffic would create a new group of cross-over traffic over the added line segments, a shipper would have to extend its SARR even further “to generate the same economies of density” that the defendant railroad enjoys over the newly-extended SARR. This would quickly become a “cascading analysis [that] could result eventually in a complainant having to replicate almost all of [the defendant’s] system. The scope and complexity of the proceeding would expand exponentially.”³⁷

Third, as an extension of the preceding two principles, the Board concluded that:

The use of cross-over traffic thus provides a reasonable measure of simplification that allows SAC presentations to be more manageable. Curtailing the geographic scope of the SARR greatly simplifies the operating plans that must be developed, thus limiting the complexity of what is nevertheless still a dauntingly large and detailed task. Without cross-over traffic, captive shippers might be deprived of a practicable means by which to present their rate complaints to the agency.³⁸

In *PSCo/Xcel I*, the Board observed the following consequences from expanding a SARR to originate and/or terminate cross-over traffic:

While the WCC is a relatively small and straight-forward SARR, the parties had to produce, and the Board analyze, dozens of volumes of evidence on the costs associated with acquiring the land, designing, building, and operating this short SARR (approximately 400 route-miles). It is difficult to imagine the amount of materials that would have to be produced and analyzed to put together the evidence needed to design a railroad 10 times larger. The number of disputed issues would also escalate, and the operating plans and computer simulation models would become so complicated as to risk being intractable.³⁹

destinations); *Nevada Power II* at 263 (the 1,400 mile SARR would double to 2,800 miles).

³⁶ See *PSCo/Xcel I* at 602.

³⁷ *Id.*

³⁸ *Id.* at 603.

³⁹ *Id.* at 602-603.

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Based upon these prior Board observations, any restrictions upon the use of cross-over traffic either would increase SARRs exponentially or deny a shipper any regulatory remedy at all because the cost and complexity of the SAC analysis will have become so overwhelming that it would not be practical for a shipper to pursue its remedies.

The Board very recently held that both of these consequences (*e.g.*, an expanded SAC analysis or an impractical rate-review process) are unacceptable, and reaffirmed its rationale for using cross-over traffic as a modeling device:

[T]his device has become an indispensable part of administering a workable test. Without cross-over traffic, the SARR would need to replicate the entire service provided by the defendant railroad for all of the traffic included in the SAC analysis.... Such an expanded SAC analysis, however, could be impracticable and would not allow us to meet our regulatory objectives, and we must guard against the SAC process becoming so complex and expensive as to deny captive shippers meaningful access to the rate review provided for under Guidelines.⁴⁰

The Board adopted the cross-over traffic device within the context of unit train coal SAC cases that, although very complex and expensive in their own right, pale when compared with the cost and complexity of carload SAC cases such as TPI's. Thus, if anything, the justifications for cross-over traffic in the foregoing Board precedent apply to an even greater magnitude in this proceeding.

(2) TPI Has Used Cross-over Traffic Consistent With Board Precedent

TPI's use of cross-over traffic in this proceeding is consistent with each of the three foregoing reasons why the Board consistently has held that cross-over traffic is both necessary and desirable.

⁴⁰ See *WFA/Basin I*, slip op. at 11 (emphasis added) (footnote omitted); see also, *PSCo/Xcel I* at 603 ("Without cross-over traffic, captive shippers might be deprived of a practicable means by which to present their rate complaints to the agency...[which] would be contrary to the policy directives set by Congress...").

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First, TPI has designed its SARR to focus on the core inquiry of whether CSXT is earning adequate revenues on the portion of its rail system that is required to serve the issue traffic. This means that the TPIRR is comprised almost entirely of the main line and branch line segments required to transport the issue traffic, and little more. On those lines, TPI has built only the facilities necessary to provide the service required by the SARR's chosen traffic group that moves over those line segments. Yet, even with this limited focus, the TPIRR still is the second largest SARR ever presented in a SAC case, at 7,357 route miles.⁴¹ But, if the TPIRR were required to build the line segments needed to provide complete end-to-end service for its cross-over traffic, the TPIRR would more than double in size and would quickly become the size of CSXT's entire system. Two separate exhibits illustrate this fact.

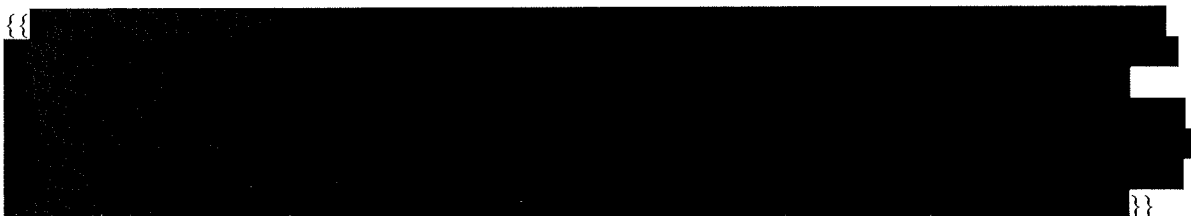
Exhibit III-A-6 shows the TPIRR system overlaid on top of the real-world CSXT system. There are many mainline gaps in the CSXT system that the TPIRR does not replicate, but that are part of the route for cross-over traffic. For example, although the TPIRR does not replicate the CSXT line between Cincinnati, OH and Richmond, VA, it handles cross-over traffic beyond one or both of those points. The same is true for traffic between Orangeburg, NY and Baltimore, MD; Montgomery, AL and Waycross, GA; Marion, OH and Laurens, SC; Grafton, WV and Cumberland, MD; and Pembroke, NC and Waycross, GA, among others. Without cross-over traffic, TPI would have to expand the SARR thousands of miles across those segments, and others, to achieve the same economies of scale, scope and density as the real-world CSXT on the SARR lines required to serve the issue traffic. TPI's use of cross-over traffic, therefore, keeps the SAC analysis properly focused on the portions of the CSXT system that are needed to serve the issue traffic.

⁴¹ The largest SARR has been presented by DuPont in STB Docket No. NOR 42125, *E.I. du Pont de Nemours and Company v. Norfolk Southern Railway Company*, which currently is pending before the Board.

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Exhibit III-C-5 also shows the TPIRR system overlaid on top of the real-world CSXT system, and shows the additional line segments that would be required to provide only the local-train service for cross-over traffic, *i.e.*, this analysis does not consider the segments that would be required to provide line-haul service from end-to-end. The TPIRR operates all local trains that are required to provide end-to-end service for the issue traffic, as well as all other local trains that handle non-issue traffic and operate entirely within the geographic footprint of the TPIRR, for a total of 42,208 trains in the base year. However, there are an additional 27,829 local trains whose real-world routes would take them on- and off-SARR (often multiple times) to provide terminal service for non-issue traffic. It would be impractical and inefficient for the TPIRR to interchange those local trains with the residual CSXT as they move on- and off-SARR.⁴² But, if the TPIRR were to provide complete local-train service for the traffic moving on those 27,829 trains, it would have to add more than 6,000 route miles to the TPIRR, which would increase the SARR's route miles by more than 80 percent. Those additional segments are shown in green on Exhibit III-C-5. Therefore, to keep the SAC analysis focused on the portions of the CSXT system that are required to serve the issue traffic, while also providing the most efficient local service for non-issue traffic, the TPIRR handles this non-issue traffic as cross-over traffic that it interchanges with the residual CSXT at the same yards where CSXT itself switches that traffic between line-haul trains and local trains.⁴³ This enables the residual CSXT to provide the same single-line local-train service that this non-issue traffic receives today.

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⁴³ For a small group of 122 local trains in the base year that handle issue traffic, the TPIRR will provide all of the local service up to a SARR end-point near the issue traffic destination, where it will interchange the train with

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Second, if TPI were to expand the TPIRR to handle the local trains that originate and terminate the current group of cross-over traffic, that would not eliminate either the line-haul or local train cross-over traffic, but merely create new groups of line-haul and local cross-over traffic that the TPIRR would need to interchange with the residual CSXT en route. To achieve the same economies of scale, scope, and density as CSXT on the added line segments, the TPIRR would need to handle cross-over traffic that moves in trains that traverse other lines that would not be part of the SARR. To eliminate this second group of trains moving cross-over traffic, even more extensions of the SARR would be required. Each extension would create an entirely new group of cross-over traffic that would require even more extensions, until the SARR replicated the entire CSXT system. For example, Exhibit III-C-5 shows that just the first step in this cascading effect for just local trains would expand the TPIRR by over 6,000 route miles. Similar cascading extensions of the TPIRR would be required for line-haul trains. Consequently, it is impossible to eliminate cross-over traffic and still permit the TPIRR to achieve the same economies as CSXT without replicating the entire CSXT system. This is yet another reason why the Board has found cross-over traffic to be essential to the SAC analysis.

Third, TPI's use of cross-over traffic provides a reasonable measure of simplification that allows its SAC presentation to be more manageable by limiting the complexity of this already dauntingly large and detailed TPIRR operating plan. Presenting a SAC analysis for carload traffic, even with the cross-over traffic device, is far more daunting and detailed than the coal unit-train SAC presentations that the Board found so complex when it first adopted the cross-over traffic device. The operating plan is more complex and the size of the SARR must be so much greater just to accommodate the multiple origins and destinations of the issue traffic.

the residual CSXT to complete the local service at more distant locations.

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Moreover, carload shippers, like TPI, have been unable to pursue large rate case regulatory remedies for nearly 30 years because the time, cost, and complexity of the SAC standard has placed the economics of litigation out of reach due to the unique characteristics of carload traffic, including lower traffic volumes, constantly shifting customers, and an exponentially greater number of origin-destination pairs. Only the abuse of market power by railroads to impose enormous rate increases on carload traffic in recent years has brought those economics within reach of carload shippers, while simultaneously rendering the need for rate relief that much greater.⁴⁴ However, if the Board were to restrict the use of cross-over traffic in these cases, TPI would be deprived of a practical means by which to present its rate complaint to the agency because the SAC process will have become so impracticable, complex, and expensive that the pursuit of regulatory rate remedies would be futile.⁴⁵ Such a result would be contrary to Congressional intent and would implicate the concerns raised by Judge Becker, in the judicial affirmance of *Guidelines*, that future courts may have to set aside the SAC standard if its complexity and cost render regulatory remedies futile in violation of a shipper's statutory right to challenge rates.

⁴⁴ See "Opening Market Dominance Evidence of Total Petrochemicals USA, Inc.," Ex. II-B-7 (filed May 5, 2011) (showing the enormous CSXT rate increases for the issue traffic over the three (3) years prior to TPI filing its Complaint).

⁴⁵ That process already has become far longer and more costly than TPI reasonably anticipated at the start of this case due to the Board's decision to bifurcate market dominance and rate reasonableness just four weeks before TPI was scheduled to submit its opening evidence. As a consequence of the decision itself and its timing, TPI has incurred the cost of preparing SAC evidence twice and suffered the costs of paying a tariff premium to CSXT during the ensuing two years that was required for the submission of bifurcated market dominance evidence and for the Board to issue its market dominance decision.

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(3) The Board's Reservations With The Use of Carload and Multi-carload Cross-over Traffic are Both Misplaced and Inapplicable to the TPIRR

In *Ex Parte 715 Decision*, the Board recently expressed “reservations about the growing use of carload and multi-carload cross-over traffic in Full-SAC cases.”⁴⁶ These reservations are predicated upon the following observations:

There is a disconnect between the hypothetical cost of providing service to these movements over the segments replicated by the SARR and the revenue allocated to those facilities. When the proposed SARR includes cross-over traffic of carload and multi-carload traffic, it generally would handle the traffic for only a few hundred miles *after* the traffic would be combined into a single train. As such, the “cost” to the SARR of handling this traffic would be very low. In recent cases, litigants have proposed SARRs that would simply hook up locomotives to the train, would haul it a few hundred miles without breaking the train apart, and then would deliver the train back to the residual defendant. All of the costs of handling that kind of traffic (meaning the costs of originating, terminating, and gathering the single cars into a single train heading in the same direction) would be borne by the residual railroad. However, when it comes time to allocate revenue to the facilities replicated by the SARR, URCS treats those movements as single-car or multi-car movements, rather than the more efficient, lower cost trainload movements that they would be. As a result, the SAC analysis appears to allocate more revenue to the facilities replicated by the SARR than is warranted.⁴⁷

Despite its reservations, the Board declined to adopt proposed restrictions on such cross-over traffic because of its utility in SAC cases. The Board's reservations, however, are both misplaced and inapplicable to the TPIRR.

The above expression of concern by the Board is misplaced for two principal reasons.

First, the fundamental premise of the Board's reservations as expressed in the underlined sentence above—that there may be a “disconnect” between the SARR's “hypothetical cost” of handling such cross-over traffic and “the revenue allocated to those facilities” by the ATC methodology—is flawed. The Board never intended any connection between cross-over revenue

⁴⁶ See *Ex Parte 715 Decision* at 27.

⁴⁷ See *Ex Parte 715 Notice* at 16 (italics in original; underline added).

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allocations and the SARR's operations, because revenue divisions are calibrated based on the incumbent railroad's relative cost to provide service over segments traversed by the cross-over traffic. The Board clearly explained this in *Major Issues* and *WFA/Basin II*. In *Major Issues*, the Board explained that ATC estimates the incumbent's cost of service over each line segment, and allocates revenues to those segments based on the incumbent's relative costs for each segment.⁴⁸ The Board clarified that ATC should use the incumbent's traffic density over each line segment, not the SARR's density and that "the objective of ATC is to reflect the defendant carrier's relative costs of providing service over the relevant segments of its network."⁴⁹ Thus, ATC revenue allocations are intended to reflect the incumbent railroad's cost of operating over the line segments replicated by the SARR, and any attempt to create a connection with the SARR's operating costs would be a departure from both precedent and the theory upon which ATC is based.⁵⁰

Second, ATC's allocation of cross-over revenue based upon the incumbent's costs produces fair and compensatory revenue allocations, as the Board intended in *Major Issues*. In *Ex Parte 715 Notice*, however, the Board incorrectly assumes that the "disconnect" between ATC and the SARR's costs creates a shipper bias in the cross-over revenue allocation. This alleged bias appears to relate to two separate activities: origin/termination switching and intra- and inter-terminal ("I&I") switching. But, because ATC is designed to reflect the incumbent's cost of service over the on-SARR and off-SARR segments, it allocates additional revenue to

⁴⁸ See *Major Issues*, slip op. at 34.

⁴⁹ See *WFA/Basin II*, slip op at 13. (underline added).

⁵⁰ The Board's attempt to align the ATC revenue divisions with the SARR's operations also is at odds with the long-held view that the SARR does not need to be another railroad. See *Guidelines* at 543. This understanding was one of three explanations that the Board provided in *WFA II* for using the incumbent's densities rather than the SARR's. See *WFA/Basin II* at 14. Because the SARR does not need to be another railroad, how the SARR runs its operations is immaterial to the division of cross-over revenue under the ATC methodology.

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whichever entity (e.g., the SARR or the residual incumbent) performs those services. Thus, in neither scenario is there a shipper bias.

There is no bias with respect to origin/termination switching because the purpose of ATC is to reflect the incumbent's relative average costs of providing service over the on-SARR and off-SARR segments, including all "costs of originating, terminating, and gathering the single cars into a single train heading in the same direction." Therefore, if the incumbent performs more costly origin and termination switching of cross-over traffic on the off-SARR segment, URCS assigns additional costs to those segments, which means that ATC assigns additional cross-over revenue to the residual incumbent. Conversely, if the SARR performs more costly origin and termination switching of cross-over traffic on the on-SARR segment, URCS assigns appropriate costs to those segments, which means that ATC assigns additional cross-over revenue to the SARR in that case. ATC is designed to be revenue neutral, regardless of which segments are replicated by the SARR. Thus, contrary to the Board's assumption in *Ex Parte 715 Notice*, ATC allocates revenue to both the SARR and the residual incumbent based on the origin and termination services each performs, and the costs the residual incumbent incurs to do so in the real world.

There also is no bias with respect to I&I switching. URCS assigns I&I switching costs on a system-average basis in 200-mile increments, rather than to actual movements where such switching occurs, based upon the assumption that I&I switching occurs on average every 200 miles for non-trainload traffic. While this assumption creates imprecision, it does not create bias, because this imprecision can work equally in favor of the SARR or the residual incumbent. Thus, there is no basis to conclude that the ATC methodology systematically fails to allocate sufficient revenue to the residual incumbent for the I&I switching that it performs.

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Finally, and most importantly, the Board's reservations expressed in *Ex Parte 715 Notice* simply are not present in this proceeding. The TPIRR is not a predominantly "hook-and-haul" railroad that leaves all of the origin/termination and I&I switching to the residual incumbent. The TPIRR provides I&I switching at numerous points throughout its system, including at 11 hump yards, and those costs are reflected in the SAC analysis. The TPIRR also provides origin/termination services for much of its carload traffic via 42,208 local trains that it operates in the base year. Even for those local trains that the residual CSXT operates, the TPIRR provides the services and facilities needed to switch cars between the local and line-haul trains.⁵¹ Thus, the Board's reservations with carload and multi-carload cross-over traffic are not applicable to the TPIRR.

(4) ATC Calculations

Using CSXT's 2012 URCS variable and fixed costs, and the density and miles of each segment, TPI calculated CSXT's average total cost per segment for movements in 2012, the last full calendar year of traffic and density data provided by CSXT. The development of the variable- and fixed-cost components are discussed below.

(a) Variable Costs

Variable costs were calculated for both the TPIRR segment ("on-SARR") and the residual CSXT segment ("off-SARR") of each cross-over movement in the TPIRR traffic group based on 2012 statistics, the most current full calendar year of data made available by CSXT. The Board has historically released its URCS costing models for a particular year approximately 11 to 12 months after the close of the year. For example, documentation on the Board's website shows the 2009, 2010, and 2011 URCS models were released in November of the following

⁵¹ As noted in the preceding section, the carload cross-over traffic that the TPIRR does not originate and/or terminate would require an enormous expansion of the TPIRR beyond the facilities needed by the issue traffic and its operations would be far more complex to model. *See also* TPI Op. Ex. III-C-5.

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year.⁵² However, because of the adjustments made to the BNSF's 2012 Annual Report Form R-1 due to its acquisition by Berkshire Hathaway, the Board has delayed the issuance of its 2012 URCS costing models for all railroads until early February 2014. Because the STB has delayed the issuance, TPI developed the CSXT 2012 URCS variable costs using an URCS model based upon the STB's programs and procedures.

TPI used this model to develop the URCS Phase III variable costs for both the on-SARR and off-SARR segments. TPI began the process by developing the variable costs for the entire CSXT movement. TPI next developed the variable costs for the TPIRR portion of the movement. TPI then subtracted the variable costs for the TPIRR portion of the movement from the variable costs for the entire CSXT movement to develop the variable costs for the residual CSXT.⁵³

Variable costs for individual movements for both the entire CSXT movement and the TPIRR segment were developed using the nine URCS Phase III inputs identified in *Major Issues* (a tenth input, intermodal plan code, was developed for container and trailer traffic) and were extracted from a combination of waybill and car-event data (and related information) provided in discovery. Each input value, and its derivation, is discussed below.

- (1) **Railroad** -- Consistent with STB precedent, TPI used the 2012 CSXT Phase III URCS model to develop variable costs for the entire CSXT movement and the TPIRR portion of each cross-over movement.⁵⁴
- (2) **Commodity Code** -- TPI identified each shipment's 2-digit Standard Transportation Commodity Code ("STCC") from waybill data provided in discovery. Where the waybill data did not identify a STCC for a particular movement, a proxy STCC 46, "All Other Mixed Shipments" was used.

⁵² See URCS Uniform Rail Costing System, <http://www.stb.dot.gov/stb/industry/urcs.html> (follow URCS Substitutions document hyperlinks) (last visited Feb. 14, 2014).

⁵³ Such an approach is feasible because Board precedent requires the removal of interchange related costs when developing ATC percentages.

⁵⁴ See *Major Issues* at 26.

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- (3) **Railcar Ownership** -- Railcar ownership was developed from waybill and equipment data provided in discovery. Where a railcar's ownership information was not included in CSXT equipment data, TPI assumed a shipper supplied railcar. TPI believes this is a logical assumption as CSXT should know whether it provided one of its own railcars for a movement.
- (4) **Railcar Type** -- Railcar type was developed from waybill and equipment data provided in discovery. Where a railcar's AAR car type was not included in the CSXT equipment data, a railcar type of "17," or "All Other Freight Cars," was used as a proxy if the shipment was a carload shipment, and railcar type "11," or "Intermodal Flat Car," was used for all proxy intermodal movements.
- (5) **Shipment Size** -- The number of units per shipment was identified from the car and container waybill data provided in discovery.
- (6) **Shipment Type** -- The shipment type was based on the number of units per shipment included in the waybill data provided in discovery, and followed standard STB variable-costing procedures. Shipments with 5 units or less were costed as single carload shipments. Shipments with 6 to 49 units were costed as multi carload shipments, and movements with more than 50 carloads were costed as trainload shipments.
- (7) **Movement Type** -- Movement type, or whether the railroad originated or received, and delivered or terminated a shipment, was developed from waybill and car event data produced in discovery. Specifically, for the CSXT portions of the movement, CSXT was assumed to originate and/or terminate the movement if the AAR Rule 260 code included in waybill data equaled "712."⁵⁵ A Rule 260 Code not equaling "712" indicates CSXT was not the originating and/or terminating railroad and the movement was designated received and/or delivered, respectively.⁵⁶

For the TPIRR portion of the movement, TPI used the same movement type category as the CSXT movement where the TPIRR replaced the CSXT at the origin and/or destination. Where the TPIRR received the shipment from or delivered the shipment to CSXT as part of a cross-over movement, TPI assigned a movement type of received and delivered, respectively. TPI also removed the interchange costs from the URCS variable costs when TPIRR

⁵⁵ Data provided in discovery by CSXT stated that the Ultimate Origin FSAC and Ultimate Destination FSAC included in the CSXT waybill data consisted of a combination of 3-digit Railroad Rule 260 code and 6-digit freight station accounting code.

⁵⁶ The waybill data provided in discovery included a field named "Traffic Class," which indicated the type of movement. However, there were numerous instances where data was missing from this field, or this field had codes not decoded by CSXT. Since all waybill data included the Rule 260 information, TPI chose to use the more consistent data to develop this input.

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received and/or delivered a shipment to the CSXT consistent with Board precedent.⁵⁷

- (8) **Movement Miles** -- TPI developed mileage statistics from waybill and car event data provided in discovery. For the entire CSXT railcar movement, car/container/trailer miles were developed by summing the car-miles included in the car event data along the actual route of each movement.⁵⁸

Where railcar event data was not available for the shipment or the railcar event data did not provide mileage statistics, proxy miles were developed from similar traffic. Specifically, where railcar/containers/trailers moved under the same waybill as other railcar/containers/trailers, the average miles for the other units moving on the same waybill were used. If the shipment did not move on the same waybill as other movements, proxy miles were developed based on the average miles for other railcar/containers/trailers moving between the same CSXT origin and CSXT destination as indicated on the railcar's waybill. Finally, if use of the CSXT origin and CSXT destination did not produce a feasible mileage proxy, proxy miles were developed based on the shipments ultimate origin and ultimate destination as indicated in the waybill data.

TPIRR miles were developed using a similar methodology of summing the car-miles over TPIRR routes identified in the railcar event data. However, as explained in greater detail in Part III-C, there were numerous instances where TPI chose to not move a particular piece of traffic over a CSXT route replicated by the SARR, and instead chose to let CSXT handle the local portion of the movement. In all cases, this was done to maximize the efficiency of the TPIRR and CSXT portions of crossover-traffic movements and ensure high levels of service for TPIRR shippers. Therefore, TPIRR miles were developed by summing the car mileage data from the car-event data for segments that were identified as traversing the SARR and moving on SARR trains. Where SARR-miles could not be identified from the car-event data, proxies were developed using the same approaches used to develop the proxy miles for the full CSXT movement, i.e., proxies based on railcars moving on the same waybill, between the same CSXT origins and destinations, or the same ultimate origins and destinations.

- (9) **Tons Per Shipment** -- TPI developed tonnage statistics from waybill data provided in discovery. For both the CSXT and TPIRR movements in railcars, average tons per car were extracted from the car waybill data. Where tonnage data was not included in the waybill data, proxy tons were developed from similar movements. Where railcars moved under the same waybill as other railcars, the average tons per car for the other railcars moving on the same

⁵⁷ See *AEP Texas II* at 13.

⁵⁸ To ensure only loaded miles were captured, TPI only summed miles when the lading miles were greater than zero (0).

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waybill were used. If the shipment did not move on the same waybill as other movements, proxy tons were developed based on the average tons per car for other railcars moving between the same CSXT origin and CSXT destination as indicated on the railcar's waybill. Finally, if use of the CSXT origin and CSXT destination did not produce a feasible tonnage estimate, proxy tons were developed based on the shipments ultimate origin and ultimate destination as indicated in the shipment's waybill data.

Tonnage for intermodal movements was developed by summing the gross tonnage for each container or trailer included in the intermodal waybill shipment data and moving on the same railcar. Such a combination is consistent because in costing intermodal movements, it is the cost per railcar that is being developed in the URCS model. The resultant cost is then divided by the number of units on the railcar to develop the variable cost per unit. Therefore, the sum of the gross tons of the units on a railcar equals the railcar's lading tons. TPI did not need to develop proxy tons for intermodal traffic since intermodal waybill data listed valid weight statistics in all cases.

- (10) **Intermodal Plan** -- TPI also developed the intermodal plan for container shipments to go along with the standard nine (9) URCS inputs. TPI developed its intermodal plan code from CSXT plan code information included in the container waybill data.

(b) Fixed Costs

The fixed cost component of ATC requires the development of the following metrics for both the on-SARR and the off-SARR portion of each movement: 1) route density, and 2) fixed costs per route mile. Each metric is discussed below.

- (1) **Route Density** -- The route densities for each movement included in the TPIRR traffic group, both on-SARR and off-SARR, were developed using the density data produced by CSXT in discovery. TPI requested that CSXT update the density data originally provided in the case so that TPI could reflect the most current data available. On October 17, 2013, CSXT updated the gross tonnage density statistics it develops in the normal course of its business, but also included net tonnage density data it developed as part of an unrequested special study.⁵⁹ CSXT alleges that use of the gross tonnage data could lead to overstatements of gross tonnages on individual segments because the tons may reflect traffic that traverse only a small portion of the segment and not the full segment, especially around terminal areas. CSXT claims that given the alleged limitations of the gross tonnage density data, it performed its own special study to develop net tonnage calculation for each segment. This special study went well beyond the

⁵⁹ A copy of the letter included with the discovery production is included in TPI's e-workpapers at "October 17, 2013 Sidley Letter.pdf."

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scope of the parties' agreement for updating discovery responses. Rather than merely updating its prior discovery response with the most current versions of the same density data previously produced, CSXT created all new data through a special study. For that reason alone, CSXT's special study should be rejected.⁶⁰ TPI, however, analyzed the special study and determined that it could provide more accurate density information provided that certain flaws are corrected.

TPI reviewed CSXT's special study of net density data, and found that it suffers from a similar flaw to the normal course of business gross density data originally provided in the case. While use of the gross tonnage data may lead to an overstatement of tonnage on a particular segment, CSXT's special study can lead to an extreme understatement of net tons on segments, especially long segments, where traffic only moves a short distance on the segment. {{

}}. The disconnect in tonnage statistics is due to the length of haul each shipment has on the segment and the overall length of the segment.

The subject segment terminates in CSXT's Grand Rapids, MI yard at MP CGE 0.0. {{

}}. This density calculation is clearly erroneous and is wholly due to traffic nicking a small portion of the segment as it passes through a yard.

CSXT's special study is also flawed because it takes into consideration only CSXT traffic moving on the line and disregards foreign traffic entirely.

{{

}}. CSXT's exclusion of the foreign traffic leads to a severe understatement of the segment density. In addition, while CSXT's gross tonnage density charts take into consideration all the lines over a certain route segment (first main, second main, etc.), it appears CSXT's special study density only takes into consideration certain line segments between mileposts and not all rail lines on the route segment.

⁶⁰ A special study that CSXT did not previously perform is a new discovery response, rather than an updated response. Even if the special study contained more accurate data, it would be procedurally unfair for CSXT to selectively choose which discovery requests to supplement with new information in this manner, because CSXT arbitrarily could choose to do so only for information it deems helpful to its case while ignoring information that would benefit TPI.

⁶¹ See e-workpaper "CSXT Segment Ton-Miles from Car Event Data.xlsx," which was produced in discovery by CSXT on October 17, 2013.

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To rectify the understatement of tonnage on certain line segments, TPI used a combination of the net and gross tonnage data provided by CSXT in discovery to develop its tonnage statistics. Where CSXT's net tonnage statistics severely understated the net tons moving over a line segment due to failing to take into foreign traffic moving on a segment, or did not consider other lines, TPI adjusted the gross tonnage data to reflect the actual net tons operating on the line segment.⁶² This produced a reasonable estimate of the average net tons per line segment.

- (2) **Fixed Cost Per Route Mile** -- TPI calculated the CSXT fixed cost per route mile by subtracting CSXT's 2012 total system variable costs from CSXT's 2012 total costs as developed in URCS. Specifically, TPI developed average fixed cost per route mile for track which CSXT owns, and for track which CSXT operates over via trackage rights.

TPI calculated fixed cost per route mile for CSXT owned track by first calculating the "above the wheel," and "below the wheel" fixed cost from CSXT's 2012 URCS variable costs.⁶³ Next, TPI divided the fixed costs by the total CSXT route miles to develop the average fixed cost per mile. In prior cases, system route miles were developed from Schedule 700 data included in the incumbent railroad's Annual Report Form R-1. However, in this proceeding TPI found that the route miles included in CSXT's net ton density data were significantly different than the route miles reported in CSXT's 2012 Annual Report.⁶⁴ Since CSXT's net tonnage statistics were developed based on the miles included in the net density table, TPI used the route miles included in the CSXT density data to develop the fixed cost per mile to maintain a consistent cost basis.

TPI also developed different route mileage statistics depending upon whether it was used to develop "above the wheel" or "below the wheel" fixed cost per mile. Specifically, "below the wheel" costs were divided by the miles of CSXT owned track to develop a cost consistent with CSXT's fixed cost of track ownership. "Above the wheel" fixed costs were divided by total CSXT miles operated to develop a cost consistent with the fixed cost of CSXT train and overhead operations.

TPI developed the average fixed cost of operating over CSXT owned track by adding together the "above the wheel" and "below the wheel" fixed cost per mile. TPI used the "above the wheel" fixed cost per mile on segments where CSXT operates via trackage rights. In this way, TPI ensured CSXT's fixed cost of operations were covered, but not the cost associated with track ownership.

- (3) **Fixed Cost Per Unit** -- TPI developed the fixed cost per unit using the following process. First, TPI developed the average fixed cost per route mile for the TPIRR

⁶² See e-workpaper "2012 Fixed Cost Per Mile By Segmentv4.0.xlsx."

⁶³ *Id.*

⁶⁴ CSXT's density data indicates 21,848 operating route miles while CSXT's Schedule 700 shows 20,470 operating route miles.

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and CSXT portions of each movement by calculating the average fixed cost per net ton for each line segment. TPI began this process by classifying each line segment as either CSXT owned or CSXT operated based on data provided in discovery and on publicly available sources. Next, TPI multiplied the route miles for each segment as indicated in the CSXT density data by the appropriate fixed cost per route mile to develop each segment's total allocated fixed costs. TPI then divided the segment's allocated fixed costs by the net tons operating on the segment to develop an average fixed cost per ton for each segment.

Second, to calculate the average fixed costs per unit, TPI used 2012 CSXT car event data provided in discovery to identify the on-SARR and off-SARR line segments each unit traversed. TPI then summed the average fixed cost per ton for each line segment on which the unit operated to develop a total fixed cost per ton for each movement.

As with the variable cost component, fixed cost for the residual CSXT on cross-over movements was developed by subtracting the fixed cost per unit for the TPIRR portion of the movement from the fixed cost per unit for the entire CSXT movement. The difference represented the fixed cost per unit for the residual CSXT.⁶⁵

(5) ATC Allocations

The total CSXT revenues for each movement (including fuel surcharges) were then allocated in proportion to the average total cost of the movement on-SARR and off-SARR using the procedures adopted by the Board in *Ex Parte 715*.⁶⁶

The ATC procedures require that the revenue allocated to both the TPIRR the residual CSXT do not fall below the CSXT's URCS variable costs for the movement over those segments. If the revenue allocation to either the on-SARR or off-SARR segment resulted in revenues falling below CSXT's URCS variable costs for that segment, the revenue allocation to the on-SARR or off-SARR segment was then raised to equal 100 percent of the CSXT's URCS variable costs of providing service over that segment. If the total revenue from the cross-over movement was below the total CSXT variable cost for the entire movement, revenue was

⁶⁵ As with the development of CSXT and TPIRR tons and car miles, there were instances where TPI could not develop fixed cost for a unit due to issues with the underlying data. In those instances, TPI developed proxy fixed costs by calculating the average fixed cost per ton for movements moving between the same origins and destinations.

⁶⁶ See e-workpaper "TPIRR ATC Divisions.xlsx."

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allocated between the two cross-over segments to maintain the existing total R/VC ratio on both segments.⁶⁷

In performing the calculations described above, TPI relied upon CSXT traffic data produced in discovery and on its train list and operating plan to identify the points on the TPIRR where cross-over traffic received on the TPIRR from CSXT would enter the TPIRR system, and where traffic destined for off-SARR delivery would leave the system.

The TPIRR revenue division ratios, developed as described above, were based on the 2012 traffic, i.e., final calendar year of actual data, and were applied to traffic moving in each year of the DCF model life, regardless of when the movement over the TPIRR starts or terminates.⁶⁸ A complete technical summary of TPI's ATC development process is included in TPI's workpapers.⁶⁹

iv. Re-routes

TPIRR movements that were internally rerouted required a special procedure. Specifically, TPI identified the portion of CSXT revenue attributable to the actual on-SARR route of movement for these shipments and assigned that portion of total revenue to the TPIRR. Stated differently, the ATC calculations were based on real-world routes of movement, not the SARR reroutes. This was accomplished by calculating ATC divisions primarily using CSXT car movement records, which show the actual route of movement.

⁶⁷ *Id.*

⁶⁸ *See AEP Texas II* at 13.

⁶⁹ *See* e-workpaper "Development of Data For ATC Calculations.wpd."

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III. STAND-ALONE COST

B. STAND-ALONE RAILROAD SYSTEM

The evidence in this Part is sponsored by Richard H. McDonald, President of RHM Consulting, Inc., and Charles A. Stedman of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV and summarized herein. Mr. McDonald has over 40 years of experience in the railroad engineering and operations fields, primarily at the former Chicago and NorthWestern (“CNW”) which is now part of the Union Pacific Railroad Company (“UP”). Mr. McDonald began his railroad career in 1958 at the New York Central Railroad, where he held positions as Assistant Engineer, Roadmaster and Division Engineer (for both the New York Central and Penn Central). In 1974, Mr. McDonald left Penn Central and joined CNW, where he held several positions of increasing responsibility in the Engineering and Operating Departments including Assistant Division Manager-Engineering and later Division Manager at St. Paul, MN, Vice President-WRPI, Vice President-Operating Administration, Vice President-Transportation, Vice President-Operations, and Vice President-Planning & Acquisitions.

Mr. Stedman has over thirty (30) years of experience in solving economic, marketing, transportation, and fuel supply problems. He has directed and performed extensive analyses in the area of stand-alone costing, including route layout, design, and construction costs, as well as the development of detailed operating plans for various stand-alone railroads.

1. Route and Mileage

The TPIRR is an extensive system travelling through seventeen (17) states¹ (and the District of Columbia) that mimics much of the CSXT including:

1. Chicago, IL south to New Orleans, LA;
2. Chicago, IL southeast to Indianapolis, IN;

¹ Alabama, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia.

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3. Chicago, IL east to Selkirk Jct., NY;
4. Selkirk Jct., NY south to Orangeburg, NY;
5. Fostoria, OH south to Marion, OH;
6. East St. Louis, IL east to Washington, DC;
7. Deshler, OH southwest to Nashville, TN;
8. Cincinnati, OH south to Stilesboro, GA;
9. Montgomery, AL north to Baltimore, MD
10. Nashville, TN southwest to Memphis, TN;
11. Parkwood Jct., AL east to Manchester, GA;
12. Nashville, TN south to Orlando, FL; and
13. Callahan, FL south to Oneco, FL.

The TPIRR includes 50 branch lines across its system. The TPIRR constructs all or part of 42 of these branch lines and eight (8) are operated utilizing trackage rights and joint facility agreements. These branch lines serve TPI issue locations, power plants and other industrial destinations, water/rail transfer terminals, and interchange locations. The TPIRR will operate a total of 7,356.91 route miles. Of this amount, the TPIRR will construct 6,865.94 miles and utilize trackage rights and joint facilities agreements for the remaining 490.97 miles. Exhibit III-A-1 is a schematic showing the TPIRR route including an identification of the TPI issue origins, destinations and interchange points. A complete listing of the TPIRR interchange locations, and the applicable carriers is included in TPI's yard matrix.²

The constructed route mileages for the TPIRR's main and branch line segments are summarized in Table III-B-1 below.³ CSXT operating timetables and track charts, which were produced by CSXT in discovery, are the primary source documents used to identify the TPIRR route mileages.⁴ Additional material used to develop the TPIRR route miles is also included in TPI's workpapers.⁵

² See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx."

³ See e-workpaper "TPIRR Route Miles Opening Grading.xlsx."

⁴ The track chart pdf files provided by CSXT in discovery, along with scanned versions of the hard-copy timetables provided in discovery, are included in TPI's electronic workpapers.

⁵ See the sub-directory "Additional Mileage Support" included in TPI's workpapers.

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Table III-B-1
TPIRR Constructed Route Mileage

Segment	Constructed Miles
(1)	(2)
A. Main Line Segment Miles	
1. Chicago, IL to Buffalo, NY	532.90
2. Buffalo, NY to Selkirk, NY	299.84
3. Greenwich, OH to Alexandria Jct, MD	479.60
4. E. St. Louis, IL to W. Haley, IN	161.49
5. E. Haley, IN to Greenwich, OH	297.76
6. Chicago, IL to Nashville, TN	362.02
7. Deshler, OH to Nashville, TN	447.36
8. Baltimore, MD to Pembroke, NC	407.03
9. Nashville, TN to Memphis, TN	229.98
10. Nashville, TN to New Orleans, LA	614.38
11. Nashville, TN to Atlanta, GA	283.62
12. Montgomery, AL to Pembroke, NC	522.05
13. N. Union City, GA to Jacksonville, FL	331.19
14. Baldwin, FL to Orlando, FL	123.35
15. Callahan, FL to Oneco, FL	247.46
16. Chicago / Thornton Jct., IL - N. Hunt, IN	159.86
17. Parkwood Jct., AL - Manchester, GA	177.80
18. Howell Tower, GA - Belt Jct., GA	8.29
19. Marion, OH - Fostoria, OH	42.08
20. Latonia, KY - Junta, GA	433.87
21. Total Main Line Segment Miles	6,161.93
B. Main Line/Branch Line Miles	
1. Total Main Line Miles	6,161.93
2. Total Branch Line Miles	704.01
3. Total Constructed Route Miles	6,865.94

Source: e-workpaper "TPIRR Route Miles Opening Grading.xlsx."

The constructed route mileages shown in Table III-B-1 (and the additional trackage rights miles described above) include mileage only for the lines over which the TPIRR operates its own trains with its own locomotives and crews. The TPIRR's rail lines are shown in the stick diagrams for the TPIRR included in TPI's electronic workpapers.⁶ The stick diagrams are the track charts for the TPIRR.

⁶ See e-workpaper "TPIRR Opening Stick Diagrams.pdf."

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The TPIRR interchanges traffic with six (6) Class I railroads (UP, BNSF, CN, CP, CSXT, and NS) along with over 75 regional and short-line railroads with which CSXT actually interchanges today.⁷

2. Track Miles and Weight of Track

The TPIRR's track and yard configuration was developed by TPI's expert operating witnesses, Richard McDonald and Charles Stedman.⁸ The system configuration was developed to accommodate the TPIRR's traffic group using several tools, including: (1) information provided by TPI Witness Lillis (and supported by data produced by CSXT) concerning the TPIRR's peak-year traffic volumes and flows, and the trains that will move over the TPIRR system in the peak week of the peak traffic year; (2) the detailed TPIRR operating plan developed by Mr. McDonald (assisted by Mr. Burris); (3) CSXT's operating timetables and track charts for the divisions and subdivisions involved; and (4) a simulation of the TPIRR's operations executed by Messrs. Fapp, Crowley, and Humphrey using the Rail Traffic Controller ("RTC") model, which has been accepted by the Board as an appropriate operational modeling tool in several previous rail rate cases.⁹ The TPIRR stick diagrams contain detailed track diagrams for the entire TPIRR system.

The TPIRR's track miles are shown in Table III-B-2 below.¹⁰

⁷ See e-workpapers "TPIRR Yard Matrix Opening Grading.xlsx" and "TPIRR Opening RR interchanges.xlsx."

⁸ These witnesses' qualifications are detailed in Part IV.

⁹ See, e.g., *PSCo/Xcel I* at 613-614; *WFA/Basin I* at 15. A detailed explanation of the RTC Model simulation that was conducted in developing the TPIRR system configuration is set forth in Part III-C-2.

¹⁰ See e-workpapers "TPIRR Route Miles Opening Grading.xlsx" and "TPIRR Yard Matrix Opening Grading.xlsx."

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Table III-B-2 <u>TPIRR Constructed Track Miles</u>	
Type of Track (1)	Constructed Miles (2)
1. Main line track	
a. Single first main track ^{1/}	6,865.94
b. Other main track ^{2/}	3,353.29
c. Total main line track	10,219.23
2. Helper pocket and setout tracks	136.10
3. Yard tracks (including interchange tracks) ^{3/}	1,467.19
4. Total track miles	11,822.52
^{1/} Single first main track miles equal total constructed route miles including branch lines, but excluding yard tracks and the 490.97 route miles of trackage rights that are operating miles that the TPIRR does not construct.	
^{2/} Other main track equals total miles for constructed second and third main tracks and passing sidings.	
^{3/} Includes all tracks in yards, such as locomotive fueling tracks and car classification tracks.	

a. Main Line

As shown in the TPIRR stick diagrams, the TPIRR’s main line consists of sections of single main track and sections of multiple main track (including signaled passing sidings) sufficient to enable the TPIRR to move its peak period trains efficiently and without delay. The TPIRR has a total of 10,219.23 track miles of multiple main track/passing sidings.

All constructed main track and passing sidings in line segments carrying 20 million or more gross tons per year (“MGT”) consist of new 136-pound continuous welded rail (“CWR”). Standard rail is used for all mainline track except that premium (head-hardened) rail is used on curves of three (3) degrees or more, where rail wear is heaviest. The main tracks in segments carrying less than 20 MGT (including all branch lines) consist of new 115-pound CWR.

All of the TPIRR’s track and structures are designed to accommodate a gross weight on rail (“GWR”) of 286,000 pounds per car and maximum train speeds of 60 mph, conditions permitting.

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b. Branch Lines

As described above, the TPIRR will construct and/or operate fifty (50) branch lines. These branch lines are used to serve industrial facilities, origin coal mines, destination power plants, water/rail transfer terminals, and interchange points. The track configurations for these branches are shown in the TPIRR's stick diagrams.¹¹

c. Sidings

The TPIRR's passing sidings are considered part of its main tracks in both main lines and branch lines and are discussed in Subparts a. and b. above.

d. Other Tracks

Other tracks include pocket tracks for helper locomotives and set-out tracks for bad order cars. Yard tracks (including interchange tracks) are discussed in the next section.¹²

i. Helper Pocket and Other Setout Tracks

The TPIRR has thirteen (13) helper districts as described in detail in Part III-C. Trains are helped in the specified direction and each helper district has helper pocket tracks at both ends of the district if no yard exists. These tracks are double-ended tracks, 850 feet in length (including turnouts).

In addition, one setout track is placed on each side of each of the TPIRR's Failed-Equipment Detectors ("FED"), as described in Parts III-C and III-F, with one FED on each track in areas with two main tracks. All of these setout tracks are single-ended tracks, 735 feet in length (including the turnout). This provides 600 feet in the clear to accommodate both the occasional bad-order car and the temporary storage of maintenance-of-way ("MOW") equipment.

¹¹ See e-workpaper "TPIRR Opening Stick Diagrams.pdf."

¹² See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx."

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The locations of the helper pocket and setout tracks are shown on the TPIRR stick diagrams.¹³ They consist of 115-pound new CWR. The TPIRR has a total of 136.10 track miles for these tracks.

3. Yards

The TPIRR has a total of two hundred twenty-nine (229) yards. This total includes twelve (12) major yards (eleven of which are hump yards), sixty-eight (68) other yards (where some of the various activities identified below occur), nineteen (19) intermodal facilities, twenty (20) automotive facilities, twenty-three (23) bulk transfer facilities, and eighty-seven (87) additional interchange yards.¹⁴ These yards are used for train staging, 1000/1500-mile car inspections, crew changes, locomotive servicing and fueling, car classification, interchanges, local train operation, and originating/terminating traffic. A listing of all of the TPIRR yards is included in TPI's workpapers.¹⁵ Table III-B-3 below shows the TPIRR's major yard locations.

Table III-B-3 <u>TPIRR Major Yard Locations</u>	
1.	Chicago, IL (Barr Yard)
2.	Willard, OH (Willard Yard)
3.	Selkirk, NY (Selkirk Yard)
4.	Cumberland, MD (Cumberland Yard)
5.	Indianapolis, IN (Avon Yard)
6.	Cincinnati, OH (Queensgate Yard)
7.	Louisville, KY (Osborn Yard)
8.	Nashville, TN (Radnor Yard)
9.	Birmingham, AL (Boyles Yard)
10.	Atlanta, GA (Tilford Yard)
11.	Hamlet, NC (Hamlet yard)
12.	Waycross, GA (Rice Yard)
Source: e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx"	

¹³ See e-workpaper "TPIRR Opening Stick Diagrams.pdf."

¹⁴ The additional interchange yards are different from the major and other yards on the TPIRR in that they are used only for interchanging traffic between the TPIRR and other railroads. They consist only of interchange tracks and do not have any of the facilities identified at the major and other yards, except for the occasional crew change facility, if necessary. They are present at interchange locations where there is no major or other yard.

¹⁵ See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx."

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a. Location and Purpose

As described above in Part III-B-2, TPI relied on data from a variety of sources in order to determine the number, type, location, size, use, and configuration of the various yards needed by the TPIRR. The operating plan developed by TPI witness McDonald was particularly important in determining the activities that need to occur at each yard on the TPIRR. The activities that occur at the yards include those specified above in the preceding paragraph. TPI has also identified the facilities at each yard including car inspection tracks, fixed fueling and servicing platforms, direct-to-locomotive (“DTL”) fueling facilities, rip tracks, and yard buildings. Locomotive shops are located at Willard Yard (Willard, OH), Cumberland Yard (Cumberland, MD), Radnor Yard (Nashville, TN), and Rice Yard (Waycross, GA). Crew change facilities are located at many of the TPIRR’s yards. Detailed characteristics of TPIRR’s yards are described in TPI’s workpapers.¹⁶

Much of the yard activity on the TPIRR occurs at the twelve (12) TPIRR major yards (identified in Table III-B-3 above). Each major yard has car classification tracks where large amounts of cars are classified and blocked for train movement each day. Barr Yard in Chicago is a large flat yard but the other eleven (11) major yards are hump yards. Train inspections are performed at each major yard. Yard crews are present at each major yard as well as transportation department field personnel. Each major yard has fixed fueling platforms and six (6) yards also have DTL fueling. As noted above, there are locomotive repair facilities at four (4) major yards and a contractor’s car repair shop at three (3) major yards. Rip tracks for bad ordered cars are included at each major yard and the TPIRR provides repair tracks for each of the contractor’s car shops. Each major yard has a large crew change facility and a large yard building. Traffic is interchanged with other railroads at eight (8) of the major yards. The

¹⁶ See e-workpaper “TPIRR Yard Matrix Opening Grading.xlsx.”

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characteristics of the TPIRR's major yards, as well as all TPIRR yards, are detailed in TPI's workpapers.¹⁷

b. Miles and Weight of Yard Track

The TPIRR's two hundred twenty-nine (229) yards contain a total of 1,467.19 miles of track.¹⁸ The yard tracks are 115-pound new CWR.

The development of the yard track miles on the TPIRR was based on a combination of various sources. TPI's operating plan identified the location of major and other yards where activities such as train staging, car inspection, crew changes, locomotive fueling and servicing, car classifications, local train operations, and originating/terminating traffic would take place. Traffic is interchanged with other railroads at many of these yards, as well. These activities require trains to wait in yards for various lengths of time. The number and length of the "running tracks" in each yard (the tracks necessary to handle the peak period trains moving through the yards of the TPIRR) were based on the results of the RTC Model.¹⁹

Intermodal, automotive, and bulk transfer facilities located on the lines of the TPIRR were added manually to the TPIRR yard list. The number of tracks and track miles for the intermodal and automotive facilities were taken from material provided by CSXT in discovery.²⁰ For the bulk transfer facilities, the track miles were taken from material provided by CSXT in discovery while the number of tracks were identified based on a review of the facility using either schematics provided by CSXT or Google Earth. Additional interchange locations, i.e., interchanges that take place in locations other than previously identified yards, were identified based on information provided by CSXT in discovery and a review of traffic data.

¹⁷ See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx"

¹⁸ *Id.*

¹⁹ See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx," tab "TPIRR Yards," footnotes 1 through 3.

²⁰ CSXT did not provide track miles for some of the automotive facilities. For those facilities, the track miles were estimated using Google Earth. See e-workpaper "TPIRR IM AUTO BULK Terminals.xlsx."

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The location, number, and length of classification tracks were developed based on the classification car counts at each yard.²¹ The number and length of tracks needed for locomotive repair facilities, locomotive fueling and servicing facilities, and car repair (rip tracks) were determined based on the traffic movements on the TPIRR and the activities taking place in the various yards.²²

4. Other

a. Joint Facilities

The TPIRR operates over 490.97 miles of joint facilities/trackage rights owned by other carriers. A complete description of these facilities is included in Part III-C.

b. Signal/Communications System

Current federal law mandates that the TPIRR be equipped with Positive Train Control (“PTC”) by December 31, 2015. Rather than construct a Central Traffic Control (“CTC”) system at the outset of TPIRR operations (July 1, 2010) and then convert it to PTC, the TPIRR will install PTC at the beginning of TPIRR operations. The PTC system is discussed in more detail in Part III-F-6. Power switches are used for the connections between the main line segments and the TPIRR’s branch lines, the helper pocket tracks, the yard lead and relay tracks, and the spurs at local origins and destinations. Interior yard switches and set-out track switches are hand-thrown switches.

Communications are conducted using a microwave system, with microwave towers at appropriately-spaced intervals as described in Part III-F-6. All locomotive engineers, dispatchers, and field supervisory personnel are equipped with radios connected to the microwave system. Certain employees also will be equipped with cellular telephones for

²¹ See e-workpaper “TPIRR Yard Matrix Opening Grading.xlsx,” tab “Class Track Length.” This process is discussed in Part III-C.

²² See e-workpaper “TPIRR Yard Matrix Opening Grading.xlsx,” tab “Additional Track.”

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emergency railroad use, as a back-up to the radios. Further details on the TPIRR's signal and communications system are provided in Part III-F-6.

c. Turnouts, FEDs, and AEI Scanners

All turnouts between the TPIRR's main tracks are No. 20 turnouts. This permits trains to operate through the turnouts at speeds of up to 40 miles per hour (conditions permitting). No. 20 turnouts are used between the main line and branch lines, as well as for the yard leads and the main running tracks at both ends of each of the TPIRR's yards. No. 14 turnouts are used between main tracks and all other tracks, including interchange tracks, the connections with the origin and destination spurs, and helper pocket tracks, where trains move at slower speeds. Trains can operate through these turnouts at a speed of up to 25 miles per hour. No. 10 turnouts are used within yards and for setout and MOW equipment storage tracks.

FEDs, which include hot-bearing, dragging-equipment, cracked-wheel, and wide/shifted load detection systems, have been spaced approximately every 10 to 25 miles along the TPIRR's route. FED placement is based on actual placement of FEDs along the CSXT lines being replicated by the TPIRR with some modifications made where actual CSXT FEDs are placed close together.²³ Multiple-track FEDs are provided at each location that has multiple main tracks (one for each track). Each FED is accompanied by two (2) setout tracks, each located within two (2) miles on either side of the FED.²⁴ As discussed above, each such track is a 735-foot single-ended track (with 600 feet in the clear) to facilitate the setout of bad-order cars after a train has passed an FED. These tracks are used primarily for temporary storage of bad-order cars detected by the FEDs but can also be used for temporary storage of work equipment.

²³ See e-workpaper "FED Locations on the TPIRR.xlsx."

²⁴ In locations with three (3) main tracks, setout tracks are provided on only the two outside tracks. Trains in the middle track can travel to the setout tracks for the next FED if necessary.

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Automatic Equipment Identification (“AEI”) scanners are located at or near many of the locations where the TPIRR interchanges trains with other railroads. A total of 105 AEI scanners have been provided.²⁵ The AEI scanners have been placed so as to enable them to capture all train movements that occur on the TPIRR, including both local and interline movements.

²⁵ See e-workpaper “TPI AEI Readers.xlsx.”

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III. STAND-ALONE COST

C. STAND-ALONE RAILROAD OPERATING PLAN

The operating plan for the TPIRR was designed by Richard H. McDonald, one of the nation's leading rail operations and management experts, with assistance from Mr. Philip H. Burris, Robert D. Mulholland, Timothy D. Crowley, and William H. Humphrey, all of L. E. Peabody & Associates, Inc., who developed the TPIRR train lists and operating specifications. Mr. Burris also analyzed and incorporated the joint facilities with the assistance of Brian A. Despard, also of L.E. Peabody & Associates, Inc. Daniel L. Fapp, also of L. E. Peabody & Associates, Inc., along with Mr. Crowley and Mr. Humphrey, performed a simulation of the TPIRR's peak-period operations using the Rail Traffic Controller ("RTC") model with operating inputs provided by Mr. McDonald.

The detailed operating plan is designed to enable the TPIRR to transport its peak-year traffic volume, and the trains moving on the system during the peak week of the peak year, in a manner that meets the transportation needs of its traffic group, and in full compliance with all applicable CSXT transportation and service commitments to the customer group involved. The operating plan and the RTC model are used to optimize the TPIRR's track configuration, as described in Part III-B, and provide the basis for many of the TPIRR's annual operating expenses shown in Part III-D.

The TPIRR operating plan is explained in this part of TPI's opening evidence plus the following six (6) supporting exhibits:

Exhibit III-C-1 – TPIRR train list development

Exhibit III-C-2 – CSXT's October 11, 2013 letter explaining how to evaluate the data it provided

Exhibit III-C-3 – A technical outline of the TPIRR train list development procedures

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Exhibit III-C-4 – A flow chart demonstrating how the train lists were developed

Exhibit III-C-5 – A map demonstrating the first round of local train cascading

Exhibit III-C-6 – TPIRR RTC modeling procedures and results

1. General Parameters

The TPIRR's configuration and operating plan have been designed to provide service to all of the TPIRR traffic (including issue traffic) and to accommodate its peak seven-day traffic volume and train frequencies during the 10-year DCF period. The peak traffic volume and train movements were developed by TPI Witnesses Mulholland and Crowley using the full-year 2012 and January through June 2013 traffic data¹ provided by CSXT in discovery and the traffic forecast procedures described in Part III-A.

The TPIRR system and operating plan were developed through a series of steps. First, Mr. McDonald reviewed the CSXT operating timetables and track charts for the lines being replicated.² Mr. McDonald also reviewed maps of various facilities, joint-facility/joint-use agreements between CSXT and other railroads for the lines being replicated, and CSXT interrogatory responses describing the operation of TPI issue traffic and other trains, including items such as CSXT train profiles, CSXT actual helper service and CSXT crew districts. Next, Mr. McDonald reviewed the TPIRR Base Year trains moving over the TPIRR system by segment and direction of movement. Mr. McDonald also reviewed the TPIRR cars to be classified per day and the trains to be inspected per day at locations on the TPIRR. A preliminary track configuration for the TPIRR was developed, starting with CSXT's present main-track/passing siding configuration for all of the lines being replicated. Then, the operating plan elements to be input into the RTC Model were developed.

¹ As discussed in greater detail in Exhibit III-C-1, the term "Traffic data" collectively refers to CSXT car waybill data, container waybill data, car shipment data, car event data, and train sheets data.

² The CSXT operating timetables and track charts for all of the lines involved are reproduced in the e-workpapers for Part III-B.

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TPI has relied upon CSXT's own operations as the template for the TPIRR's operating plan. The STB has made it abundantly clear in prior SAC decisions that SARR operating plans that stray too far from the incumbent's real-world operations run the risk of being rejected for being infeasible. In *Duke/NS*, although the complainant posited a more efficient operating plan for the SARR, the Board observed that:

A core SAC principle is that the SARR must meet the transportation needs of the traffic it would serve. Thus, as discussed in prior cases, the proponent of a SARR may not assume a changed level of service to suit its proposed configuration unless it also presents evidence showing that the affected shippers, connecting carriers, and receivers would not object.³

The Board rejected the complainant's operating plan in favor of the defendant's plan because the complainant's plan violated the foregoing principle,⁴ whereas the defendant's plan "would provide the same service to all of the shippers and mines as they currently receive from NS."⁵

Similarly, in *FMC*, the Board rejected the complainant's operating plan in favor of the defendant's plan because "UP's operating plan . . . is based on actual customer service requirements and supportable operating assumptions—actual number of trains, locomotives and car consists reflecting customer requirements and peak period demands and car requirements based on actual historical cycle times—that appear to cover all aspects of estimating the equipment and personnel requirements to move the ORR traffic group."⁶ The Board criticized FMC for developing its grain-train requirements by consolidating its multiple-car shipments into

³ See *Duke/NS* at 117.

⁴ *Id.* at 118.

⁵ *Id.* at 121. See also, *CP&L* at 259 (same); *Duke/CSXT* at 426-27; *PSCo/Xcel* at 610 ("Thus, as a general matter, the proponent of a SARR may not assume changed levels of service from those currently offered merely to minimize the costs of the SARR's physical plant and operations, unless it presents evidence showing that the affected shippers, connecting carriers, and receivers would not object."); *McCarty Farms* at 478 ("we use BN's operating plan, which is based on BN's own experience handling the traffic that would move over the FRR line segments, as the best evidence of record."); *West Texas* at 665 (adopting defendant's operating plan which "uses BN's actual or planned cycle time and BN's actual, shipper-specific train sizes").

⁶ See *FMC* at 738.

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unit-train shipments, while ignoring the actual number of cars on the trains operated by UP.⁷ The Board rejected FMC's operating plan because it did not reflect the actual number of trains UP operated nor did it reflect the actual number of cars UP operated on those trains.⁸

The Board rejected the shipper's operating plan in the *Duke/CSXT* decision as well for failing to conduct operations in a similar fashion to the defendant. As stated by the Board:

To limit operating expenses, Duke selected an operating plan for the ACW [the SARR in the case] that is different from how CSXT conducts its coal-hauling operations in the Central Appalachian Region.⁹

As with the operating plan presented by the shipper in *FMC*, the STB rejected Duke's operating plan because it would not provide the same level of service as that provided by the incumbent railroad.¹⁰

Based on the Board's decisions in each of the foregoing proceedings, shippers in more recent SAC cases have developed their operating plans to mimic the operations of the incumbent railroad. This has taken the form of operating the SARR trains in a similar manner as the incumbent, including using train consist sizes consistent with the incumbent's operations, and using virtually the same main-line track infrastructure. In this way, shippers in SAC cases can best ensure that their operating plans meet the needs of the incumbent's customers. This is the approach taken by the shipper in *AEPCO*, the most recent SAC case decided by the Board, and one in which the Board found the shipper's SARR operating plan feasible. As stated by *AEPCO*:

The ANR's train sizes are the same as those for comparable BNSF and UP trains operated in the most recent twelve-month period (2Q08 through 1Q09, also referred to as the "Base Year") for which the defendants produced usable train and car movement data. Non-coal trains move exclusively in overhead service so they use the same cars (or mix of cars)

⁷ *Id.* at 737.

⁸ *Id.*

⁹ *See Duke/CSXT* at 426

¹⁰ *Id.* at 430.

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as the comparable BNSF and UP trains that moved between the same points in the base year.¹¹

This also is the approach TPI used in developing its operating plan. Mr. McDonald developed the TPIRR configuration based on CSXT's present main-track/passing-siding configuration for all the CSXT lines being replicated by the TPIRR. In a similar fashion, Messrs. Mulholland and Crowley identified the trains operating over the TPIRR system based on the trains operated by the CSXT in the base year (July 2012 through June 2013). This includes identifying the number of loaded and empty railcars moving on these trains, the route of movement, and the pickup and setout locations. Mr. McDonald then used the list of real-world CSXT trains to develop the specific parameters of the TPIRR operating plan.

Unlike the shippers in the *FMC* and *Duke/CSXT* cases, TPI's operating plan does not attempt to stray too far from CSXT's own operations by developing train sizes and consists different from those used by the incumbent carrier. Instead, TPI used train sizes and consists comparable to those used by CSXT as identified in CSXT supplied data. CSXT cannot realistically claim that TPI's operating plan is not feasible, because in many important ways, it is CSXT's own real-world operating plan.

As noted above, base year TPIRR trains and cars essentially mirror the movement of the corresponding CSXT traffic for that time period. Peak-period trains and cars also reflect the real-world CSXT base-year operations. Although certain peak-period trains are longer and heavier than their base-year counterparts on specific dates, peak-period train sizes were limited based on commodity group and lane-specific analysis of base-year trains. For example, unit coal trains moving between a specific mine and plant were not allowed to grow beyond the maximum

¹¹ See Opening Evidence of Complainant Arizona Electric Power Cooperative, Inc. (Public Version) filed January 25, 2010, at III-C-7-8.

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train size reported for that origin-destination combination in the base year (and were often held well below the maximum train size).¹²

In addition, the base-year traffic mix for individual trains was retained in the peak year to ensure adequate equipment repositioning and seasonal traffic flows. For example, if a given manifest train moved with 60 percent loaded cars and 40 percent empty cars in the base year, the corresponding train moving on that date in the peak year also moved with 60 percent loaded and 40 percent empty cars. Exhibit III-C-1 documents those procedures in detail.

The TPIRR operating plan was developed to accommodate the railroad’s peak-year traffic group including all car-classification and blocking requirements. As indicated in Part III-A, the TPIRR’s peak traffic year is 3Q19 to 2Q20, which is also the final twelve months in the 10-year DCF. As described in Part III-A-1, the TPIRR’s traffic group consists of general freight, coal, and intermodal traffic. The traffic moves in various flows over different parts of the system. The TPIRR peak-year total traffic volumes are shown in Table III-C-1 below.

Table III-C-1 <u>TPIRR Peak Year Traffic Volume – 3Q19-2Q20</u>		
Train Type	Cars/ Containers	Tons
(1)	(2)	(3)
1. General Freight	2,850,685	316,053,736
2. Coal	853,994	111,548,945
3. Intermodal	<u>3,801,157</u>	<u>106,197,049</u>
4. Total	7,505,836	533,799,730
Source: “Revenue Summary Final.xlsx.”		

¹² By way of example, if a coal train moved 100 cars of coal from Dotiki, KY to Big Bend, FL on December 15, 2012, and another coal train moved 110 cars of coal from Dotiki, KY to Big Bend, FL on December 30, 2012, TPI may have elected to move a 110-car coal train from Dotiki, KY to Big Bend, FL on December 15, 2019. In keeping with the purpose of a SAC analysis—to develop a least-cost, most-efficient railroad—peak period trains were developed based on overall base-year operations, not based on date-specific base-year operations.

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The TPIRR's operating plan reflects the different commodities it handles and the types of service they require. The TPIRR serves various local origins and destinations, including industrial facilities, coal mines, power plants, intermodal ramps, and water/rail transfer terminals. The TPIRR also serves interchange points with other railroads including BNSF, CSXT, CN, CP, NS, and UP and more than 75 regional and short line railroads. The TPIRR operating plan includes requirements associated with all reciprocal agreements, e.g., reciprocal blocking.

As described in Part III-B, the TPIRR has been divided into 20 main-line segments¹³ and 50 branch lines. A schematic of the TPIRR's route is included as Exhibit III-A-1.

a. Traffic Flow and Interchange Points

As shown in Table III-C-1 above, the TPIRR's peak-year (3Q19-2Q20) traffic volume consists of 316 million tons of general freight traffic, 112 million tons of coal traffic, and 106 million tons of intermodal traffic.

The TPIRR handles general freight and intermodal traffic in interline and local service. Significant ports and intermodal facilities served by the TPIRR include Baltimore, Mobile, Atlanta, Jacksonville, Memphis, and Chicago, among others. The TPIRR also directly serves six (6) coal-mine origins or coal loadout facilities in Indiana, Kentucky, West Virginia, and Pennsylvania, and 18 coal destinations (15 power plants and three rail/water transload facilities). The TPIRR also handles coal originated and terminated by other railroads. The TPIRR's operating plan takes into account its total traffic volume and the traffic flows described in Part III-A and summarized above.

In addition, the operating plan reflects the TPIRR's interchange relationships with the other Class I carriers and various regional and short-line railroads. This includes pre-blocking cars forwarded to connecting carriers, handling run-through power with other railroads, fueling

¹³ See Table III-B-1.

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and inspecting locomotives interchanged with other carriers, and running repairs for foreign railcars in its system in the Base Year.

TPI has included in its operating plan the facilities and equipment necessary to account for required classification switching in yards. TPI did this by developing classification car counts from the car-event data provided by CSXT in discovery and identifying the cars originating (either from industry or in interchange from other carriers) and moving through yards requiring classification.¹⁴ In this way, the loaded and empty cars included in TPI's classification car counts correspond to CSXT's *actual* trains that move on the lines that comprise the TPIRR system.

TPI also took into consideration the interchanging of locomotives, or run-through power, with other railroads. It has become a common industry practice to run through power when interchanging trains between railroads as it eliminates inefficiencies between the forwarding and receiving carrier. TPI uses run-through power, when possible, in its operations. However, TPI has identified numerous agreements with connecting railroads that do not allow for run-through power.¹⁵ TPI has adjusted its operating plan and RTC model to reflect the removal of TPIRR locomotives from trains interchanged to the specified connecting carriers at these locations and the adding of TPIRR locomotives to trains received from the specified connecting carriers at these locations.

TPI has also taken into consideration the need to inspect and fuel locomotives used in interline service to fulfill the common reciprocity with connecting carriers. TPI ensures all TPIRR's locomotives on originating trains are fully fueled and serviced prior to departure from the originating yard. Further, because the ES44AC locomotives used by the TPIRR have a

¹⁴ See e-workpaper "Base Year Car Class L and E w O-IR Class Sw V5.xlsx".

¹⁵ A summary of the locations and connecting carriers that do not allow run-through power is included in e-workpaper "Run Through Power.xlsx".

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fueling capacity of 5,000 gallons and the average fuel consumption on the TPIRR is {{[REDACTED]}} gallons per mile, a fully fueled locomotive has a range of approximately {{[REDACTED]}}. This, combined with the fact that the average TPIRR length of haul is 359.4 miles and that TPIRR trains are fully fueled and serviced before departing an origin, means that virtually every train that the TPIRR provides in interchange will have a minimum range of {{[REDACTED]}} miles before it must be refueled ({{[REDACTED]}} less 359.4 miles). Further, TPIRR trains that are to be interchanged to connecting carriers and move a long distance on the TPIRR network are re-inspected and fueled at an intermediate point prior to being delivered to the connecting carrier.

Finally, TPI has incorporated the need to make running repairs to foreign cars operating on its rail lines. AAR Interchange Rules require participating carriers to make minor or running repairs to foreign equipment operating over their rail lines. TPI has provided 281 railcar-equipment inspectors, part of whose task is to make minor (running) repairs to railcars during the inspection process.

b. Joint Use and Interchange Agreements

The TPIRR steps into the shoes of CSXT and utilizes existing joint-use and trackage agreements at 21 locations.¹⁶

c. Track and Yard Facilities

The TPIRR's track and yard facilities are described in Part III-B.¹⁷ The TPIRR's main lines consist of single track with appropriately-spaced sections of second main track (essentially signaled passing sidings with power switches). The branch lines consist of a single main track, with passing sidings as needed to efficiently move the traffic. The siding configuration and

¹⁶ See e-workpaper "JF Descriptions.doc" for a brief description of each of these agreements.

¹⁷ See e-workpapers "TPIRR Route Miles Opening Grading.xlsx" and "TPIRR Yard Matrix Opening Grading.xlsx".

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spacing were developed by TPI Witness McDonald with assistance from Witnesses Fapp, Crowley, and Humphrey's RTC Model simulation of the TPIRR's peak-period operations.

All of the TPIRR's main tracks are constructed to a standard that allows for maximum train speeds of 70 mph,¹⁸ conditions (including gradient and curvature) permitting. As discussed in greater detail below, the TPIRR restricts the speeds of TIH and other key trains to 50 mph. Trains on all branch lines are limited to a maximum speed of 40 mph, except where existing CSXT speed limits are higher. All tracks are being constructed to permit a maximum GWR of 286,000 pounds per car.

All of the TPIRR's main lines are equipped with PTC and main-track power switches.

Wood crossties are being used on all TPIRR tracks. The tie and other track and subgrade specifications (including rail section, turnouts, other track material, ballast, and side slopes) are described in Part III-F and the associated e-workpapers. The track and subgrade specifications enable the TPIRR to handle its expected peak-period traffic volume efficiently, consistent with the lowest feasible cost, while enabling all customer-service requirements to be met.

d. Crew-Change Locations

i. Road Crews

Many of the TPIRR's crew changes take place at origins, yards, interchange points, or destinations. The TPIRR follows the efficient modern railroad practice of calling train crews sufficiently in advance of a train's arrival at the designated crew-change point so that the crew is ready to board the train when it arrives and the in-coming crew has de-trained. The crews in each district are qualified to operate to and from other intermediate origins, destinations, and interchange points within the district.

¹⁸ The maximum train speed of 70 mph is used only by intermodal trains. The maximum speed for non-intermodal trains is 60 mph.

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Mr. McDonald's operating plan for the TPIRR provides for straight-away and turn-crew assignments at 111 crew-district home-terminal locations.¹⁹ Based on a review of materials provided by CSXT in discovery, many of the TPIRR crew assignments mirror those currently used by CSXT.

These crew districts and assignments reflect a least-cost SARR's flexibility to maximize the efficiency of its crew assignments within the constraints of the federal "12-hour" (hours of service) law, including the amendments thereto made by the Rail Safety Improvement Act of 2008 ("RSIA") (Public Law No. 110-432). Since the TPIRR is a new, start-up, non-unionized operation, its crew districts can be, and have been, designed for maximum efficiency. TPIRR road crews are not limited to operating over a single route, but instead are flexible enough to operate over several different routes on which they are certified. For example, crews stationed in Waycross, GA area can operate trains over all routes between Waycross, GA and Tampa and Taft, FL as well as to Manchester, GA, as necessary. This facilitates flexibility in assigning crews to work where necessary and minimizes the need for deadheading crews to resolve train-flow imbalances. For example, a crew that regularly operates the line from Waycross, GA to Lakeland, FL, can also operate over the line from Waycross, GA to Taft, FL and Waycross, GA to Fitzgerald, GA or Manchester, GA.

ii. Helper crews

The helper crews are engineer-only crews. Helper service is provided at twelve (12) locations on the TPIRR. The helper service duplicates that provided by CSXT on each of the rail lines included in the TPIRR system. A total of 65 employees are needed to staff the helper service.²⁰

¹⁹ The TPIRR crew districts and assignments are listed in e-workpaper "Crew District Assignments.xlsx".

²⁰ A detailed description of the TPIRR helper service is include in e-workpaper "Helper Crews per Day.xlsx".

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e. Switching and Yard Activity

i. Car Classification and Blocking

TPI has designed its operating plan to meet the transportation needs of the TPIRR traffic group by operating the same trains with the same mix of traffic as CSXT. This includes stopping trains en route for spotting and pulling cars from trains and blocking cars in yards in the same manner as CSXT.

Because TPI has mirrored the critical aspects of CSXT's current train operations, there is no need to develop new individual-shipment plans or blocking plans for traffic moving over the TPIRR system under the assumption that CSXT's train and yard operations are operated in the most efficient way possible, given real-world constraints. The Board and its predecessor, the ICC, have long recognized that using the base operating characteristics of the incumbent railroad provides proof of the feasibility of a SARR system:

Indicia of the required rail assets [of a SARR system] are given by the existing facilities. Furthermore, potential users of a stand-alone facility can be identified by referring to the railroad's existing customer list, and the feasibility of providing a service which meets the shipper's requirements is proven.²¹

Given TPI's modeling and use of blocks and trains consistent with CSXT's real-world blocks and trains, there is no need to develop new train-, shipment-, or yard-blocking plans as part of TPI's SAC presentation.

To that end, the TPIRR incorporates the same blocking plans that CSXT currently uses in its operations. Exhibit III-C-1 specifies the manner in which the current blocking and switching activities conducted by CSXT are reflected in the TPIRR blocking, switching, and train operations.

²¹ See *Coal Rate Guidelines* at 543.

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Because TPIRR operates a subset of the same trains as CSXT and with the same mix of traffic CSXT moves on these trains and because TPIRR constructs yards in the same locations as CSXT, it also adopts CSXT's car classifications for cars included on the TPIRR system. The classification car counts at TPIRR yards include the following traffic: 1) all cars identified in the car-event data as having changed trains in a TPIRR yard and having a classification flag; 2) cars originating at yard locations; and 3) cars interchange received at yard locations.²²

ii. Locomotive Inspections And Fueling

FRA-required 92-day locomotive inspections are performed at TPIRR's locomotive shops and TPIRR yards during the car-inspection process for all trains receiving a 1500-mile or 1,000-mile car inspection.²³ TPIRR locomotive shops are located at Willard, OH, Selkirk, NY, Nashville, TN, and Waycross, GA. Road locomotive(s) requiring inspection are removed from the train and moved to the locomotive shops. If a locomotive requires fueling, but not a scheduled inspection, it is fueled during the dwell time of the car inspection process. Fueling is accomplished at stanchions provided in yards where shops are located and at other points where traffic warrants. All other fueling is performed by tanker truck. If a locomotive requires fueling but not a 92-day inspection, it is fueled during the dwell time allotted for car inspections.

iii. Railcar Inspections

(1) Inspection Procedures

The TPIRR conducts 1,500-mile inspections of unit trains and 1,000-mile inspections of non-unit trains using state-of-the-art procedures, while complying at all times with FRA-

²² See e-workpaper "Base Year Car Class L and E w)-IR Class Sw V5.xlsx" for a summary of cars requiring classification at each yard location. Based on interchange agreements, cars interchange received at Chicago, Saint Louis, New Orleans, and Buffalo are assumed to be pre-blocked. Mr. McDonald estimates that 25 percent of cars interchange received in Chicago and 10 percent of cars interchange received in Saint Louis, New Orleans, and Buffalo require classification at those locations, and the remaining cars received at these locations are pre-blocked.

²³ Inspection procedures are further detailed below.

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mandated safety and inspection rules. TPIRR performs 1,500-mile and 1,000-mile inspections on through trains at Willard, OH, Nashville, TN, Atlanta, GA, Cincinnati, OH, and Buffalo, NY. TPIRR also performs inspections on originating trains by car-inspection crews at 26 yard locations. Road-train crews perform inspection functions at other yards as necessary.

TPIRR uses one, two, three, and four-person inspection crews, with one crew member on each crew serving as foreman. A summary of the car-inspection crews on duty at each of the 26 yards is included in TPI's workpapers.²⁴ Car inspections are also performed by two-man teams of "line of road" inspectors which are assigned to 13 of TPIRR's yards.

Roadways are provided between each of the yard relay tracks where inspections are performed. Each inspection crew stationed at a yard is equipped with a low-slung, four-wheel ATV-type vehicle. The vehicles carry spare parts, such as brake shoes and air hoses. Some parts are also placed periodically adjacent to the rails on the inspection tracks for ready availability. Coupler knuckles are rarely replaced during 1,500- or 1,000-mile inspections and can be transported to a specific car needing a knuckle by a company pick-up truck as needed. Two (2) trains are inspected simultaneously by a four-person crew.

(2) Trains Requiring Inspection

Each of the TPIRR's yards where trains originate is an inspection point and all trains are inspected either by a car inspection crew or by the train crew. In addition, trains that travel extended distances on the TPIRR and are being interchanged to a connecting carrier also receive an intermediate inspection at one of the through train inspection locations listed previously, in order to ensure that the train complies with the interchange and run-through agreements.

²⁴ See e-workpaper "Trains to be Inspected.xlsx".

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f. Trains and Equipment

i. Train Sizes

The TPIRR operates complete trains, including general-freight, coal, and intermodal trains, in local and interline (including overhead) service. The TPIRR's train sizes are no larger than those for the comparable CSXT trains operated between 3Q12 and 2Q13 for which CSXT produced car- and train-movement data. Non-unit trains that are interchanged with CSXT have the same mix of traffic as the comparable CSXT trains that moved between the same points in the Base Year.

All trains have sufficient locomotives to provide a horsepower to trailing-ton ratio that assures they are adequately powered to meet present contractual transit-time commitments and service requirements. This was confirmed by the RTC simulation.

The TPIRR operating plan assumes that the maximum train sizes (for a given train type within a specific lane) and locomotive consists will remain the same throughout the 10-year DCF period. Increased volumes are accounted for by adding cars to existing trains consistent with the TPIRR's (and CSXT's) ability to handle them with the same locomotive consist and track configuration (yards/sidings). If a train would be too long using this procedure, "growth" trains are added that are equivalent in size to the comparable trains CSXT operated between 3Q12 and 2Q13, as shown in the car event and train movement data it produced in discovery. All growth trains are limited based on the size and weight of comparable trains actually moved by CSXT in the base year. The specific procedures used to develop peak period trains are documented in Exhibit III-C-1, including workpaper references.

ii. Locomotives

The TPIRR requires a total of 1,057 locomotives to handle its First Year traffic volume. The railroad has three types of locomotives: GE ES44AC locomotives for road and helper

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service, SD40-2 locomotives for local train and work train service, and SD40-2 and EMD SW1500 locomotives for yard-switching service. SD40-2 locomotives are used in switching service to perform hump operations and SW1500 locomotives are used in flat-switching service. The number of locomotives required for each kind of service is shown in Table III-C-2 below. The TPIRR's road locomotive requirements take into account the need to equalize the locomotive power used in run-through service for the CSXT and other interchange trains, any intermediate setting out or picking up of blocks of cars, and a spare margin which is described below.

Table III-C-2
TPIRR First Year Locomotive Requirements

Type of Service	Quantity
(1)	(2)
1. Road – ES44AC	709
2. Local/Work Train– SD40-2	167
3. Switch – SW1500 and SD40-2	181
4. Total	1,057

Source: e-workpaper "TPIRR Operating Statistics Open.xlsx".

(1) Road Locomotives

The TPIRR's "standard" road locomotive consist for all trains is two locomotives in a 1/1 distributed power ("DP") configuration, although some heavy-coal, general-freight, and intermodal trains require three or more road locomotives for all or part of their runs on the TPIRR system (not including helpers at certain locations). Where additional units are needed, they are placed at the front of the train. For example, all trains moving between Etowah, TN and Cincinnati, OH require an additional locomotive unit to traverse the grades in this area in both directions. This unit is in addition to the helper service used in this region. As both Etowah and

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Cincinnati are crew change points for these trains, the additional locomotives are added and removed at these locations when the crews are changed.

The DP configuration involves positioning one locomotive on the front of the train and one locomotive on the rear of the train (hence the “1/1” designation). The rear (DP) locomotive has no engineer and is remotely controlled by radio signals from the lead locomotive. The use of a DP locomotive configuration reduces the drawbar tension between cars and enables the same number of locomotives to haul heavier trains or the same size trains at higher speeds. It also facilitates reversal of direction by a train, as locomotives do not have to be repositioned from one end of the train to the other. DP locomotive configurations are standard practice on the western Class I railroads, and DP is also being used by CSXT.²⁵

As stated previously, local trains and work trains are powered by SD40-2 locomotives, using one locomotive per train where possible. When this is not possible due to train size or topography, the TPIRR adds a second SD40-2 locomotive, or in some instances uses an ES44AC locomotive on local trains. The count of road locomotives for the peak year includes a spare margin and a peaking factor, consistent with prior STB decisions.²⁶

Spare Margin. The total number of road locomotives required includes a spare margin of {{█}} percent for ES44AC locomotives and {{█}} percent for SD40-2 locomotives. These spare margins are based on information provided by CSXT in response to TPI’s discovery requests. The information provided includes locomotive bad-order time, transit time, and total equivalent units in service by locomotive type for the years 2007 through 2013. From this information, TPI developed the amount of time locomotive units were unavailable for service on

²⁵ See, e.g., <http://www.progressiverailroading.com/pr/article/mechanical/article/Class-Is-employ-fuelsaving-practices-that-promise-stingier-diesel-usage--22736> and discovery e-workpaper “Helper Service Detail Update.xls”.

²⁶ See *WFA/Basin I* at 33-34.

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a weighted average basis to yield the locomotive spare margin for both ES44AC locomotives and SD40-2 locomotives, respectively.²⁷

Peaking Factor. In addition to using the spare margin, TPI's experts determined the TPIRR's locomotive peaking factor by dividing the average number of train starts per day in the peak week of the Peak Year by the average number of train starts per day moving in the Peak Year. This is the same process as that approved by the Board²⁸ and results in a peaking factor of 5.3 percent.²⁹

(2) Helper Locomotives

The TPIRR uses ES44AC road locomotives for helper service to minimize the diversity of road locomotive types in TPIRR service. Where necessary, the TPIRR uses one or more units in helper service, with the locomotives coupled back-to-back. This enables the helper consist to operate in either direction with the cab end forward on the lead locomotive. The TPIRR has twelve (12) helper districts.³⁰

The RTC Model simulation indicates that a total of 811 trains moving during the ten-day simulation period require helper assistance. The breakdown of these trains for the entire simulation period and for the peak day for each district, used to confirm the TPIRR's helper locomotive needs, is shown in Table III-C-3 below.

²⁷ See e-workpapers "TPIRR Operating Statistics_Open.xlsx" and "Loco Stats Update_Spare Margin.xlsx".

²⁸ See *PSCO/Xcel II* at 13.

²⁹ Peak year trains = 192,425 ($365=527$ trains per day). Peak week trains = 3,882 ($7=555$ trains per day). Ratio = $555/527 = 1.053$. See e-workpaper "Train List Unit V09 12162013 With Peak Calc v2.xlsx", level "BsYrPeakAll".

³⁰ The location of each helper district, distance trains helped, direction of helper service, and the number of units per consist at each location are shown in e-workpaper "Helper Crews per Day.xlsx".

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Table III-C-3
TPIRR Peak Trains Requiring Helper Assistance

Helper District	Number of Trains	
	Helper Service Miles	Peak Period Trains per Day
(1)	(2)	(3)
1. Hancock-Shenandoah	34	13
2. Hyndman-Sand Patch	18	12
3. Connellsville-Sand Patch	59	12
4. Grafton-Bridgeport	19	1
5. Smithfield-Grafton	23	1
6. Livingston-No. Bourne	8	1
7. Livingston-Killsyth	73	6
8. Ford-No. Fort Estill	14	5
9. Ford-Sanderson	9	6
10. No. Holmes Gap-Middle Homes Gap	7	15
11. Cowan-Tandallon	8	12
12. Sherwood-So. Cowan	10	9

Source: e-workpaper "Helper Crews per Day.xlsx" and "TPI Open RTC Train Inputs.xlsx".

(3) Switch/Work Train Locomotives

The TPIRR uses EMD SW1500 and SD40-2 locomotives for switch service. SW1500 locomotives are used in flat switching service in both hump yards and flat yards. Switch locomotives are relatively low horsepower locomotives with high torque and typically four-axle locomotives which are specifically designed to be used in switching service. This type of locomotive is commonly used by Class I and other railroads (including CSXT) for such service. Switch locomotives are chiefly used to classify and block cars and move cars in yards. Two (2) SD40-2 locomotives are used by the TPIRR in all hump yards to push cuts of cars over the hump facility. SD40-2 locomotives are used for this service as they have greater horsepower than SW1500 locomotives and the higher horsepower requirement is needed to push cars over the hump. According to Mr. McDonald, this practice is consistent with that historically used on C&NW.

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The TPIRR requires a total of 203 SW1500 locomotives and 22 SD40-2 locomotives for use in switch service. The number of locomotives assigned to each yard is dependent on the number of switch assignments, car classifications, and blocking requirements in each yard.

iii. Railcars

Car ownership for the TPIRR traffic group was determined from data produced by CSXT in discovery. This data shows that most of the TPIRR’s general freight and coal traffic moves in shipper-provided equipment and that nearly all of its intermodal traffic moves in shipper-provided containers and trailers. TPI assumed that {{█}} percent of flatcars used to transport intermodal containers and trailers are system cars and {{█}} percent are foreign cars based on car event data provided by CSXT in discovery. Table III-C-4 below summarizes the ownership of railcars and intermodal units for each traffic type.

Table III-C-4
Percent Of Car Ownership By Traffic Type

<u>Traffic Type</u>	<u>System</u>	<u>Foreign</u>	<u>Private</u>
(1)	(2)	(3)	(4)
1. General Freight	{{█}}	{{█}}	{{█}}
2. Coal	{{█}}	{{█}}	{{█}}
3. Containers & Trailers	{{█}}	---	{{█}}
4. Intermodal Flats	{{█}}	---	{{█}}

Source: e-workpaper “TPIRR Car Costs Open.xlsx”.

The TPIRR car requirements for all of the movements in its traffic group were developed based on the Base Year traffic and the simulated transit time output from the RTC Model. The resulting TPIRR car requirements were increased by a {{█}} percent spare margin³¹ and the

³¹ {{█}}

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5.3 percent peaking factor described earlier. A complete description of the development of car-ownership costs for system, foreign, and private cars is set forth in Part III-D-2.

g. RTC Model Procedures And Results

The essential elements of the operating plan (described above), the main-track configuration, and the yard and interchange locations were provided to Messrs. Fapp, Crowley, and Humphrey for input into the RTC Model. Messrs. Fapp, Crowley, and Humphrey also input various physical characteristics for these lines, which were obtained from CSXT track charts, operating timetables, and other documents produced in discovery. These included train speed restrictions at various locations, grades, curves, topography, and turnouts (switches). The final steps were to populate the RTC Model with the TPIRR's trains during the simulation period, which includes the peak traffic week (in terms of train movements) in the TPIRR's 10-year DCF existence, and input random "outage" and maintenance events.

TPI Witnesses Mulholland and Crowley provided TPI Witnesses Fapp, Crowley, and Humphrey with the TPIRR's trains moving during the peak ten-day simulation period in the TPIRR's 10-year DCF life. These trains were based on the CSXT trains carrying traffic in the TPIRR's traffic group that moved during the peak simulation period in the 3Q12 to 2Q13 Base Year, forecast to the same period in the 3Q19 to 2Q20 Peak Year.

All TPIRR road trains and local trains moving on the TPIRR network were included in the RTC simulation. The simulation includes stops en route for crew changes, inspections, fueling, helper service, and spotting and pulling cars at customer locations for all road trains and local trains operating in straight-away service between two locations. Local trains in turn service, i.e., trains identified in CSXT's traffic data designated as local trains which originate and

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terminate at the same location, are also included in the RTC simulation. The procedures used to develop the list of peak period trains included in the RTC simulation are discussed in detail in Exhibit III-C-1.

The RTC simulation runs began after inputting the TPIRR's track and other relevant facilities, peak-period trains, and operating parameters (including random outages and maintenance outages). Changes were made on an iterative basis until the RTC Model ran to a successful conclusion. These changes included the relocation, addition or deletion of certain passing sidings and segments of second main track, refinement of the locations and configuration of yards and interchange tracks, and the addition of locomotives to certain trains.³² A detailed description of the TPIRR modeling procedures and results is included in Exhibit III-C-6.

2. Transit Times

A SARR's operating plan must enable it "to meet the transportation needs of the traffic the SARR proposes to serve."³³ As the Board noted in *WFA/Basin I*, a SARR:

[N]eed not match existing practices of the defendant railroad, as the objective of the SAC test is to determine what it would cost to provide the service with optimal efficiency. However, the assumptions used in the SAC analysis, including the operating plan, must be realistic, i.e., consistent with the underlying realities of real-world railroading.³⁴

This means that the complainant shipper must demonstrate that its SARR can provide service to its customers (i.e., traffic group members) that meets their requirements. TPI has accomplished this by showing that the train transit times during the peak period in the Peak Year are similar to or lower than the CSXT's actual transit times during the comparable period of the most recent year for which data is available. The starting point for the analysis in this case is the

³² Track that remained unused or unoccupied throughout the peak period can be seen in the RTC model by loading the .HISTORY file and selecting Link Color Mode "train traversals – run time trains."

³³ See *WFA/Basin I* at 15 "the operating plan must be able to meet the transportation needs of the traffic the SARR proposes to serve."

³⁴ *Id.*

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TPIRR's Peak Year traffic volume and its peak-period train counts, which were developed from CSXT's traffic data for the trains moving the TPIRR's traffic group between July 1, 2012 and June 30, 2013. The peak trains, TPIRR system configuration, and relevant aspects of the operating plan were then input into the RTC Model to verify that the configuration and operating plan are realistic and adequate to enable the TPIRR to operate its peak-period trains efficiently and in accordance with its customers' requirements as measured by train cycle/transit times.

The key outputs generated by the RTC Model for the transit-time analysis were elapsed train running times over each of the TPIRR's line segments, and train transit times (used to develop locomotive and car hours and train-crew counts) over the portion of the TPIRR system used by each train during the peak seven days of the ten-day period modeled by TPI's operating experts. The electronic files containing the RTC Model runs, output, and case files are included in TPI's Part III-C e-workpaper folder "RTC."³⁵

As the Board has acknowledged, the SAC test must be equally workable in the eastern and western contexts.³⁶ The same holds true with regard to variances in the amount and usability of railroad traffic and operating data in a given proceeding. Accommodating both the nature of Class I rail operations in the east generally, and the CSXT traffic data produced in discovery in particular, the RTC simulation of the TPIRR's operations in the peak week of its peak traffic year confirm that the TPIRR's configuration and facilities can accommodate the peak-period volumes and that the TPIRR's operations in the peak period of the Peak Year meet its customers' requirements. Specifically, the average train transit times produced by the RTC simulation (including dwell time at the interchange yards, where appropriate) have been compared with

³⁵ TPI understands that the Board's staff is a licensee of, and has, the RTC Model, so the RTC Model itself is not being provided to the Board. Messrs. Fapp, Crowley and Humphrey used Version 69E of the RTC Model for the simulation of the TPIRR's peak-period operations presented in e-workpaper folder "RTC."

³⁶ See *CP&L* at 250.

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CSXT's average train transit times (including dwell times) for the TPIRR's principal traffic flows during the First Year equivalent to the TPIRR's peak week, based on train-movement data produced in discovery. The CSXT and TPIRR transit-time comparisons for the TPIRR's principal traffic flows are shown in TPI's work papers.³⁷

TPIRR's 2019 peak-week train transit times (and cycle times where available) for train movements over the various TPIRR line segments are equivalent to or faster than the real-world CSXT transit times for the comparable trains moved during the 2012 peak week.³⁸ This is a higher standard than that used by railroads in the real-world. In any event, the transit time comparisons demonstrate that the TPIRR can provide service commensurate with its customers' requirements.

3. Other

a. Rerouted Traffic

It is well established that, in stand-alone cost proceedings, Complainants are permitted the flexibility to design and route traffic differently than the actual operations of the defendant railroad.³⁹ In this proceeding, to rationalize CSXT's system and to create a more efficient railroad, TPI's experts have not constructed all of CSXT's parallel routes and instead have decided to include existing rail lines which best serve the TPIRR's customers while minimizing, if not eliminating, duplicate routes. As a result, some traffic is rerouted over a different route than used by CSXT for moving the traffic. The STB has categorized rerouted traffic as either an "internal reroute" or an "external reroute."

An internal reroute is where the movement is originated by the SARR (or interline received by the SARR) at a location on the actual route of movement and then terminated by the

³⁷ See e-workpaper "TPIRR Peak Week Transit Time Comparison.xlsx".

³⁸ *Id.*

³⁹ See, e.g., *AEPCO* at 15.

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SARR (or interline forwarded back to the incumbent carrier) at a location on the actual route of movement. The SARR is free to move the traffic in any way it deems efficient between the two points on the actual route. Note, however, that, if the SARR moves the traffic over track that is not on the actual route of movement, the SARR must meet or exceed the service criteria (e.g., transit time) currently realized by the incumbent carrier between the two points on the actual route. Additionally, if the modeled interchange location is different than the actual interchange location, additional costs are included to compensate the receiving carrier for all costs associated with the new interchange location.

An external reroute is a reroute where the movement is originated by the SARR (or interline received by the SARR) at a location on the actual route of movement and then interline forwarded back to the incumbent carrier by the SARR at a location NOT on the actual route of movement. For an external reroute, the SARR is responsible for any costs incurred by the incumbent carrier as a result of having to move the rerouted traffic over track not normally used to handle the traffic. Examples of such costs would be capacity enhancements, e.g., passing sidings and enhanced signaling systems.

Although long-standing STB precedent allows a shipper to reroute issue and non-issue traffic (consistent with meeting real world service standards), TPI has elected to reroute only a limited amount of TPI issue and non-issue traffic in its SAC presentation. TPI does this in two ways.

First, as in prior SAC cases, TPI has occasionally rerouted entire trains over parallel or adjacent track in certain (generally urban) areas over very limited geographic scope. For example, TPIRR's network configuration around Atlanta requires it to route certain through trains over short segments of slightly different track than the corresponding real-world CSXT

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through trains.⁴⁰ These reroutes eliminate the need to introduce inefficient TPIRR-CSXT interchanges that would congest all yards in the Atlanta vicinity (and other similar places).

Second, TPI reroutes certain issue traffic movements by rerouting specific cars from the real-world CSXT trains on which they move to alternate TPIRR trains traversing alternative routes. Specifically, TPI rerouted TPI issue traffic moving between the following three areas in the base year:⁴¹

1. Florida Panhandle. Historically CSXT routed issue traffic moving between New Orleans and Florida destinations via { [REDACTED] }. The TPIRR does not include the segment between { [REDACTED] } over which this traffic moved in the real-world. Therefore, TPIRR will reroute this traffic in alternative manifest trains via Montgomery, AL, Atlanta, GA, and Waycross, GA.
2. Ohio to West Virginia. Historically CSXT routed issue traffic moving between Chicago and Clarksburg, WV via { [REDACTED] }. The TPIRR does not include the segment between { [REDACTED] } over which this traffic moved in the real-world. Therefore, TPIRR will reroute this traffic in alternative trains via Connellsville, PA, Newell, PA, and Grafton, WV.
3. Central Indiana. Historically CSXT routed issue traffic moving between Chicago and Ohio destinations via { [REDACTED] }. The TPIRR does not include the segment between { [REDACTED] } over which this traffic moved in the real-world. Therefore, TPIRR will reroute this traffic in alternative manifest trains via Deshler, OH or Fostoria, OH and Lima, OH.

Rerouting the issue traffic allows the TPIRR to operate more efficiently than CSXT because elimination of the alternative routes reduces the TPIRR network by a total of approximately 915 route miles⁴² or approximately \$3.84 billion⁴³ in road property assets, without

⁴⁰ More specifically, there are two CSXT rail lines running between Atlanta and Vaughn Connection, GA (near Union City). The TPIRR includes only one of the two parallel lines, and routes through trains over the segment it constructed.

⁴¹ A more detailed description of these three areas and their operations can be found in Exhibit III-C-1.

⁴² { [REDACTED] }: 393 miles, { [REDACTED] }: 420 miles and { [REDACTED] }: 102 miles.

⁴³ 915 miles x \$4.2 million per route mile. See e-workpaper "III-F Total.xlsx".

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any substantial change in service to the TPIRR's customers from that currently provided by CSXT.

b. Train Control And Communications

The TPIRR network employs a Positive Train Control ("PTC") system for all train control and communications. The Rail Safety Improvement Act of 2008 ("RSIA") (signed by the President on October 16, 2008, as Public Law 110-432) has mandated the widespread installation of PTC systems by December 2015.

As stated by the Federal Railroad Administration,

PTC systems are integrated command, control, communications, and information systems for controlling train movements with safety, security, precision, and efficiency. PTC systems will improve railroad safety by significantly reducing the probability of collisions between trains, casualties to roadway workers and damage to their equipment, and over speed accidents.... PTC systems are comprised of digital data link communications networks, continuous and accurate positioning systems such as NDGPS, on-board computers with digitized maps on locomotives and maintenance-of-way equipment, in-cab displays, throttle-brake interfaces on locomotives, wayside interface units at switches and wayside detectors, and control center computers and displays.... PTC systems issue movement authorities to train and maintenance-of-way crews, track the location of the trains and maintenance-of-way vehicles, have the ability to automatically enforce movement authorities, and continually update operating data systems with information on the location of trains, locomotives, cars, and crews. The remote intervention capability of PTC will permit the control center to stop a train should the locomotive crew be incapacitated. In addition to providing a greater level of safety and security, PTC systems also enable a railroad to run scheduled operations and provide improved running time, greater running time reliability, higher asset utilization, and greater track capacity. They will assist railroads in measuring and managing costs and in improving energy efficiency.⁴⁴

As discussed in Section III-F, unlike existing Class I carriers, the TPIRR is installing a PTC system from the outset of its construction and investment, rather than converting an existing train communications and control system to a PTC system. As a result, the investment

⁴⁴ See <http://www.fra.dot.gov/pages/PO152>.

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expenditures by the TPIRR are less than what an existing Class I carrier will incur to achieve the same level of infrastructure.

Moreover, based on discussions with the designer and developer of the RTC simulation model, the dispatch logic of the RTC most closely simulates the communications of a PTC system where there are no active signals within the model. Therefore, in all locations where PTC will be present on the TPIRR, TPI has disabled any signal logic.⁴⁵

⁴⁵ The developer of the RTC model has indicated that operating the model with the signal logic turned off closely mimics the expected operations assuming PTC system communications are employed.

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III. STAND-ALONE COST

D. OPERATING EXPENSES

This Part of TPI's Opening Narrative summarizes the TPIRR's annual operating expenses for equipment, personnel, general and administrative ("G&A"), information technology ("IT"), and maintenance-of-way ("MOW") requirements, and the development of the related service units and costs. The expert witnesses responsible for the evidence in this Part include Richard H. McDonald (locomotive requirements and operating personnel and equipment); Gary V. Hunter (general and administrative personnel); Joseph A. Kruzich (information technology costs); Philip H. Burris (operating statistics, crew requirements, locomotive and freight car requirements, fuel costs, personnel compensation, equipment lease/maintenance costs, and operating units cost); and Harvey A. Crouch, P.E. (maintenance-of-way costs). Their detailed qualifications are included in Part IV.

TPI witnesses Fapp, Crowley, and Humphrey developed train transit/cycle times from the RTC Model simulation of the TPIRR's operations. The RTC Model output was used to calculate the TPIRR's transit times and locomotive requirements for the peak week of the Peak Year (3Q19-2Q20). Mr. Burris used this information to calculate locomotive hours and car hours for all trains moving in the Base Year (July 1, 2012 through June 30, 2013). Locomotive unit miles and car miles were also calculated for trains moving in the Base Year. The Base Year statistics were then indexed to the First Year (July 1, 2010 to June 30, 2011) in the DCF model.¹ The First Year statistics were utilized to determine overall locomotive requirements and car-ownership

¹ Development of the locomotive miles, car miles, locomotive hours, car hours, and train and enginemen ("T&E") requirements is shown in e-workpaper "TPIRR Operating Statistics_Open.xlsx."

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requirements. T&E (train crew) personnel requirements were determined for all trains moving in the Base Year and indexed to First Year levels, as shown in the accompanying workpapers.²

The actual locomotive and car hours and associated expenses derived from train transit/cycle times for the First Year would be lower than those presented here because the average number of daily trains containing TPIRR traffic moved during the First Year is less than the daily trains moved by the TPIRR during the peak one-week period of the Peak Year. Thus, the TPIRR's transit/cycle times should be faster on a daily-average basis when compared to the peak week.

The TPIRR's First Year annual operating expenses developed using the statistics derived above are shown in Table III-D-1 below.³

Table III-D-1	
<u>TPIRR First Year Operating Expenses – (3Q10-2Q11)</u>	
Expense Component	Cost
(1)	(in Millions)
(1)	(2)
1. Locomotive Ownership	82.8
2. Locomotive Maintenance	113.2
3. Locomotive Operations	860.6
4. Railcar Lease	217.4
5. Materials & Supply Operating	4.8
6. Train and Engine Personnel	394.9
7. Operating Managers	96.0
8. General & Administrative	91.6
9. Loss & Damage	8.8
10. Ad Valorem Tax	41.3
11. Maintenance-of-Way	209.8
12. Trackage Rights	23.6
13. Intermodal Lift and Ramp	67.2
14. Auto Handling	22.8
15. Insurance	31.5
16. Startup and Training	78.0
17. Total ^{1/}	\$2,344.4

² *Id.*

³ Operating expenses for the TPIRR's First Year of operations are calculated at 3Q10 wage and price levels. The DCF model uses these expenses and indexes them to the appropriate time periods.

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^{1/} Total may differ slightly from the sum of the individual items due to rounding.

1. Locomotives

The TPIRR's First Year locomotive requirements are summarized in Table III-C-3 in Part III-C. The TPIRR uses three types of locomotives: GE ES44AC locomotives for road service (including helper service); SD40-2 locomotives for local train service and work trains; and SD40-2 and EMD SW1500 locomotives for yard switching. The TPIRR needs a total of 709 ES44AC locomotives and 145 SD40-2 locomotives to transport its First Year trains (including spares), and a total of 22 SD40-2 locomotives and 181 SW1500 locomotives for switch service.

a. Acquisition

TPI developed 2010 locomotive lease costs for ES44AC locomotives from information contained in the STB's decision in *AEPCO*⁴ and the public version of defendants' reply statement in that proceeding. The annual lease expense developed from this data equals \$97,881 per unit.⁵ This amount is also supported by the public version of UP's Reply evidence in *IPA* which shows that UP's 2011 annual cost to lease ES44AC locomotives equals \$95,851.⁶ The total TPIRR lease cost in the First Year for ES44AC locomotives equals \$69.4 million.⁷

⁴ See *AEPCO* at 40-41.

⁵ The STB's decision in *AEPCO* provides total investment in locomotives at page 40, and the number of units by type of unit at page 41. Defendants' Reply statement (public version) provides the lease price for switch locomotives at page III.D-3, thereby providing the information necessary to determine UP's average annual lease price for ES44-AC locomotive in 2009. See e-workpaper "III-D-1 Loco Cost.pdf."

⁶ See e-workpaper "III-D-1 Loco Cost.pdf."

⁷ In addition, to these locomotive lease amounts, capital costs to install required PTC equipment on all ES44AC and SD40-2 locomotives are included with the signals & communications investment expense in the DCF model. The amount included per locomotive is developed from information provided by CSXT in discovery.

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The TPIRR also leases its SD40-2 locomotives at an annual lease price of \${{█}} per unit. This lease price is developed from information provided by CSXT in discovery.⁸ The total TPIRR lease cost in the First Year for SD40-2 locomotives equals \${{█}} million.

The TPIRR also leases its SW1500 locomotives at an annual lease price of \$36,970 per unit. This lease price is developed from an article in the June 2008 issue of *Railway Age* titled “2008 Guide to Equipment Leasing.”⁹ Application of this annual lease payment to the 181 SW1500 locomotives results in an annual lease payment of \$6.7 million.

As explained in Part III-C-1, TPI used a road locomotive spare margin of {{█}} percent and {{█}} percent for ES44AC and SD40-2 locomotives, respectively, based on CSXT’s actual experience as shown in materials it produced in discovery. TPI also applied a peaking factor, as mandated by the Board in *WFA/Basin*, to identify TPIRR’s total annual road locomotive requirements. The peaking factor equals 5.3 percent and is equal to the average number of train starts per day in the peak week of the Peak Year divided by the average number of train starts per day in the Peak Year.¹⁰ This is the same procedure as that used by the STB to calculate the peaking factor in *PSCo/Xcel II*.¹¹

b. Maintenance

The TPIRR’s locomotives undergo FRA-required 92-day inspections and minor repairs at each designated TPIRR yard. The locomotives are maintained primarily at Willard, Cumberland, Nashville, and Waycross yards, where the TPIRR has provided locomotive-maintenance

⁸ The lease price for SD40-2 locomotives ranges from {{█}} per day, indexed to 3Q10 using the AAR equipment rents index produces an annual lease rate of \${{█}}.

⁹ See e-workpaper “III-D-1 Loco Cost.pdf.” The lease price for SW1500 locomotives ranges from \$75 to \$125 per day. Using the average price of \$100 per day, indexed to 3Q10 using the AAR equipment rents index, produces an annual lease payment of \$36,970 per unit.

¹⁰ Peak year trains = $(192,425 \div 365 = 527$ trains per day). Peak week trains = $(3,882 \div 7 = 555$ trains per day). Ratio = $555 \div 527 = 1.053$. See e-workpaper “Train List Unit V09 12162013 With Peak Calc v2.xlsx,” level “BsYrPeakAll.”

¹¹ See *PSCo/Xcel II* at 13.

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facilities to be used by its locomotive-maintenance contractor. Locomotives used for trains that do not operate through one of these locations or any other locomotive-inspection/maintenance point on CSXT (in the case of cross-over traffic) are routed on trains that do operate through one of the yards with a locomotive-maintenance facility, as necessary, to enable them to receive required maintenance, including periodic overhauls.

The locomotive-maintenance costs for ES44AC and SD40-2 locomotives are based on a locomotive-maintenance agreement between CSXT and {{[REDACTED]}} that CSXT provided in discovery. The locomotive costs per day that are used for ES44AC locomotives are specific for that locomotive. Because the agreement does not specify SD40-2 locomotive costs, the maintenance costs included in the agreement for other units similar to SD40s are used.¹² {{[REDACTED]}}

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] }} no cost for overhauls of road locomotives is included in TPI's calculations.

CSXT's 2010 average locomotive-maintenance cost per locomotive unit mile is used for SW1500 locomotives. The CSXT cost per locomotive unit mile of \$1.849 per locomotive unit mile was developed from CSXT's 2010 Annual Report Form R-1 filed with the STB.¹³ The total locomotive-maintenance cost for the TPIRR equals \$113.2 million in the First Year.¹⁴

The TPIRR also provides an End-of-Train Device ("EOTD") for each of its road locomotives.¹⁵

¹² See e-workpaper "III-D-1 Loco Cost.pdf."

¹³ *Id.*

¹⁴ See e-workpaper "TPIRR Operating Expense_Open.xlsx."

¹⁵ *Id.*

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c. Servicing (Fuel, Sand and Lubrication)

Contractors based at the TPIRR's yards fuel, sand, and lubricate locomotives. Locomotives are fueled and serviced using two different procedures. First, inspections of through trains moving extended distances on the TPIRR occur at Willard, Buffalo, Nashville, Cincinnati, Birmingham, and Atlanta. Fixed fueling platforms are located at each of TPIRR's major yards for fueling and servicing locomotives. Locomotives on through trains that are being inspected are removed and replaced with freshly fueled and serviced locomotives. Locomotives on trains originating at these locations are also fueled and serviced at the fueling platforms. Locomotives originating at locations other than those listed above are fueled by contractors using tanker trucks (known as direct-to-locomotive or "DTL" fueling).

i. Fuel Cost

The TPIRR's fuel cost is based on the price CSXT paid for fuel in 3Q10 of \$2.17 per gallon as reported in CSXT's Quarterly Report to the Securities and Exchange Commission for Third Quarter 2010.¹⁶

ii. Fuel Consumption

The average fuel-consumption rate for the ES44AC locomotives was developed from fuel-consumption data provided by CSXT in discovery for 2010 through 2Q13 for ES44AC locomotives. TPI used CSXT's system average fuel consumption, which it developed from CSXT's 2010 R-1 Annual Report, for SD40-2 and switch locomotives, because the fuel-consumption data for SD40-2 locomotives provided by CSXT in discovery was unrealistically

¹⁶ See e-workpaper "III-D-1 Loco Cost.pdf."

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low. The CSXT system average fuel consumption for road and switch locomotives equals 2.40 and 3.58 gallons per locomotive unit mile, respectively.¹⁷

iii. Locomotive Servicing

Other TPIRR locomotive-servicing costs (primarily sand, lubrication, and lube oil) are based on a cost of \$0.3263 per diesel unit-mile for ES44AC and SD40-2 locomotives and \$0.2295 for SW1500 locomotives. The amounts for sand and lubrication are calculated using CSXT’s 2010 R-1, and the amount for lube oil is developed from information provided in discovery.¹⁸

2. Railcars

a. Acquisition

The TPIRR uses a mixture of railroad-provided cars and private cars. For railroad-provided cars, TPI developed car costs using three different approaches. First, for non-coal traffic moving in cars owned by foreign roads, TPI based the car costs on time and mileage by car type, which it developed from CSXT’s 2010 R-1.

Second, for non-coal traffic moving in CSXT equipment, TPI developed annual full-service lease costs for each car type from information CSXT provided in discovery or from publicly-available sources.¹⁹

The cars provided by the TPIRR for non-coal traffic include boxcars, covered hoppers, gondolas, open-top hoppers, and flat cars. The annual full-service lease cost per car for each car type is as follows:

Boxcars	\$3,039
Covered Hoppers	\$3,593

¹⁷ *Id.*

¹⁸ See e-workpaper “Loco Servicing Cost.xls.”

¹⁹ See e-workpapers “TPIRR Car Costs_Open.xlsx” and “III-D-2 Car Costs.pdf.”

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Gondolas	\$5,267
Open-top Hoppers	\$5,267
Flat Cars	\$5,368

The car-hour requirements for TPIRR provided cars are based on RTC transit times, plus free time at shipper origin and destination and dwell times in TPIRR yards. The free time included is based on CSXT Tariff 8100.²⁰ This tariff specifies that CSXT demurrage charges are \$105 per car per day, or fraction thereof, and provides for a one-day credit (free day) for loading and a two-day credit (free days) for unloading. These credit days are included in the calculation of car days for the purpose of determining TPIRR system car requirements. Time beyond the credit days at origin and destination are not included because CSXT collects \$105 per car per day for that time. Given that the typical car lease cost is between \$8.00 and \$36.00 per day,²¹ the \$105 charge per day received by CSXT, and which would be received by TPIRR, more than offsets any additional car costs the TPIRR would incur for system cars at origin or destination.

Dwell time in yards of 15.9 hours per car is included based on the average dwell time experienced by the most efficient Class I carriers as reported by the AAR and summarized by Oliver Wyman for each quarter from 1Q10 through 3Q13.²²

Third, for TPIRR-provided coal cars, car lease payments are based on annual full-service lease costs developed from information provided by CSXT in discovery or the *Railway Age* Article. The annual full-service lease for coal cars is \$2,940 for gondolas and \$3,000 for hoppers.²³

²⁰ A copy of CSXT Tariff 8100 is included as e-workpaper "CSX Demurrage.pdf."

²¹ Annual lease cost of \$2,940 and \$13,200 divided by 365 days, respectively.

²² See e-workpaper "Most Efficient Dwell Times.xlsx."

²³ See e-workpaper "TPIRR Car Costs_Open.xls."

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The TPIRR's freight-car requirements include a spare margin of {{[REDACTED]}} percent. This spare margin is based on a review of 22 transportation contracts provided by CSXT in discovery, which specify spare margins for shipper-provided cars and show spare margins that range from {{[REDACTED]}} percent. Of the 22 contracts, 11 provide for spare margins of {{[REDACTED]}}.{{[REDACTED]}}.{{[REDACTED]}}

b. Maintenance

As described above, the TPIRR uses full-service car leases for the railcars it provides. Because full-service lease payments include maintenance costs, no other maintenance costs are included.

Shippers who supply railcars for their TPIRR movements make their own separate arrangements for maintenance of their cars at existing car-repair facilities on or near the route of movement. Minor repairs are made to all cars on the TPIRR as necessary and required by AAR interchange rules. No expense is included for repairs made to shipper or foreign-carrier equipment as shippers and foreign carriers would be billed for any such repairs and the revenue from these services are assumed to more than offset the cost of the repairs.

c. Private Car Allowances

For private cars used for non-coal traffic, TPI's experts have included a private-car charge per car-mile by car type, which is applied to all private car-miles on the TPIRR. The private-car mileage charge by car type was developed from data contained in CSXT's 2010 Annual Report Form R-1.²⁵

²⁴ {{[REDACTED]}}.

²⁵ See e-workpapers "TPIRR Car Costs_Open.xlsx" and "III-D-2 Car Costs.pdf."

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For TPIRR coal movements that occur in private cars, the cars are provided per diem and mileage free under the terms of the relevant CSXT transportation contracts and other pricing authorities (that is, the cars are provided free of charge to CSXT and the freight rates reflect the fact that CSXT is not incurring car costs). Because the TPIRR is replacing CSXT with respect to its coal traffic, the TPIRR also pays no per diem or mileage allowances for coal movements in private cars.

For flat cars used in intermodal shipments, {█} percent will be railroad-provided equipment and {█} percent will be shipper equipment, based on data developed from data provided by CSXT in discovery.²⁶

3. Operating Personnel

Consistent with the stand-alone concept of identifying the least-cost, most-efficient, feasible hypothetical alternative to the incumbent, the TPIRR is a non-union railroad that is built from the ground up to handle a defined traffic group.²⁷

TPI has developed a staffing plan and associated personnel for the TPIRR to handle its projected peak traffic volume safely and efficiently by taking full advantage of modern technology. This staffing plan also permits the railroad to maintain its facilities in good condition while minimizing cost.

The TPIRR's operating personnel include train-crew, line-supervisory, and field employees in Transportation, Engineering/Maintenance-of-Way, and Mechanical departments. The senior Operations staff (headquartered at Atlanta, GA) report directly to the Vice Presidents of Transportation, Engineering, and Mechanical, who report to the Vice President—Operations.

²⁶ See e-workpapers "TPIRR Car Costs_Open.xlsx" and "TPI ATC URCS Inputs_Containers V42.1.xlsx."

²⁷ The Board has accepted the concept of a non-unionized SARR. See *PSCO/Xcel I* at 651; *TMPA* at 687.

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The TPIRR's operating-personnel requirements are summarized below and fully discussed in Exhibit III-D-1.

a. Train/Switch Crew Personnel

The TPIRR requires a total of 3,108 Train & Engine ("T&E") crew members to transport its First Year trains. This count, which includes helper crews and switch crews based at the TPIRR's yards, is based on the number of trains moving over the various parts of the TPIRR system during the first 12 months of operation, the crew assignments developed by Mr. McDonald (as described in Part III-C), and the switch assignments (including classification and blocking) at the TPIRR's yards. The RTC Model simulation performed by Messrs. Fapp, Crowley, and Humphrey was used to confirm that train crews operating in these crew districts generally could complete each tour of duty within 12 hours and otherwise comply with the federal Hours of Service law, as amended.²⁸

Consistent with Board precedent, T&E crews were developed using the total number of crew starts as determined by the actual train counts over an entire year.²⁹ In this instance, crews were determined for all trains moving in the First Year. The total crew starts were then increased to reflect the 0.68 percent re-crewing requirements based on the results of the RTC simulation indicating the number of crews whose on-duty time expired under the Hours-of-Service law. As discussed in Exhibit III-D-1, the number of road crews was also adjusted to reflect crew deadheading that results from train-flow imbalances. The adjusted crew count was then used to determine the total number of T&E crews required using the standard formula employed by the

²⁸ See e-workpaper "TPI Open.DELAY."

²⁹ See *PSCo/Xcel I* at 645.

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Board to determine how many crews are required to cover the number of crew starts, assuming that each crew member is available 270 days a year.³⁰

b. Non-Train Operating Personnel

The TPIRR's staffing requirements for operating personnel other than train and switch crews and MOW personnel are organized into two departments, all reporting to the Vice President–Operations.³¹ The 874 non-train operating TPIRR personnel are summarized by department in Table III-D-2 below and fully discussed in Exhibit III-D-1. MOW personnel are discussed separately in Part III-D-5 and Exhibit III-D-3.

<u>Operations Department Position</u> (1)	<u>No. of Employees</u> (2)
1. Vice President Operations Office	36
a. Transportation Department	529
b. Mechanical Department	309
2. Total Non-Train Operating Personnel	874

Source: Exhibit III-D-1

c. Compensation

Compensation for the T&E personnel and other non-train operating personnel is derived from CSXT's 2010 Wage Forms A&B and is established at the same levels as those paid by CSXT for comparable positions.

As stated previously, T&E personnel are assumed to work 270 shifts per year. Based on information provided by CSXT in discovery, T&E wages are determined using wages paid to

³⁰ *Id.* This number is not affected by the hours-of-service provisions of RSIA.

³¹ Engineering Department staff also report to the Vice President – Operations. The staffing of the Engineering Department is discussed in Exhibit III-D-3, Maintenance of Way.

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T&E personnel who worked 270 or more shifts per year in 2010.³² The T&E wages include all constructive allowances paid by CSXT to its train and enginemen. The total compensation for T&E personnel equals \${{[REDACTED]}}. Total compensation (including fringe benefits) for TPIRR's non-train operating personnel equals \$96.0 million. Salaries and total compensation for the TPIRR's T&E personnel and for the non-train operating personnel are detailed in Exhibit III-D-1.

Fringe benefits for all TPIRR employees are based on 43.5 percent of wages. This number is based on the average ratio of fringe benefits to total wages paid in 2010 to employees of all Class I carriers, as reported by the Association of American Railroads. This method of determining the fringe benefit ratio has been approved by the Board.³³ In addition, it is the same method used by Complainants and accepted by both Defendants and the Board in *AEPCO*.³⁴

d. Taxi and Hotel Expense

The TPIRR also incurs taxi and overnight expenses for train crews. The number of taxi trips required, the cost per trip, the number of overnight stays and the cost per stay were identified for each crew.³⁵ The cost of hotels is based on "rack rates" identified through a review of available hotel rates at specific locations near the TPIRR on the internet. As with any Class I railroad the TPIRR would be able to negotiate hotel rates lower than rack rates based on the high volume of overnight stays its T&E employees would require. It is assumed that the difference between the rack rate included in TPI's analysis and the hotel rates the TPIRR would be able to

³² See e-workpaper "T&E Salary Roster Update_Revised.xlsx."

³³ See *WFA/Basin I* at 66.

³⁴ The Public Version of *AEPCO*'s Opening Evidence shows the derivation of the fringe benefit ratio in that proceeding. See *AEPCO*'s January 25, 2010 Opening Evidence, Public Version, page III-D-25. Review of Defendants Reply evidence shows that they did not object to this fringe benefit ratio. See Defendants Reply Evidence dated May 7, 2010, pp. III.D-29 to 30. Moreover the STB accepted this evidence without comment in *AEPCO*.

³⁵ See e-workpaper "TPIRR Hotels Taxis_Open.xlsx."

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negotiate would be more than sufficient to pay for meals for T&E employees in overnight service.

Consistent with Board precedent, taxi trips and overnight stays were developed using the actual train counts (and the crews' related taxi and hotel requirements) over an entire year.³⁶

The TPIRR's unit cost for taxi trips is estimated based on current rates for taxi service at each location where available. Where specific taxi rates were not developed, the average taxi rate by state was used. The cost per overnight stay ranges from \$30 to \$95 and is based on hotel-room rates throughout the TPIRR system.³⁷

e. Materials, Supplies and Equipment

Materials, supplies, and equipment for operating personnel (other than MOW personnel) include office furniture and equipment, office supplies, safety equipment, EOTDs, motor vehicles (including railcar inspection vehicles), and tools and supplies. The total annual operating expense for these items equals \$4.8 million in the First Year.³⁸

4. G&A Expense

The TPIRR personnel have all been designated as operating personnel or as G&A personnel. Those employees who might be considered non-operating personnel on a Class I railroad are all included in the TPIRR G&A staff discussed below.

The G&A expenses for the TPIRR include its headquarters (corporate), management and administrative staff, buildings and equipment, and other expenses, including IT requirements. These expenses have been developed on the basis of the experience of TPI's Witnesses Hunter, McDonald, Burris, and Kruzich. Mr. Hunter and Mr. McDonald, in particular, have held a

³⁶ See *WFA/Basin I* at 48; *PSCo/Xcel I* at 651-652.

³⁷ See e-workpaper "TPIRR Hotels Taxis_Open.xlsx."

³⁸ See e-workpapers "TPIRR Operating Expense_Open.xlsx" and "III-D-3 Material and Supplies.pdf."

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number of senior management positions at Class I railroads. Mr. Burris developed G&A personnel salaries based on salaries paid to comparable CSXT or (where appropriate) other railroad personnel. TPI's IT expert, Joseph Kruzich, developed the TPIRR's IT requirements and costs, including computer hardware, systems, software, support personnel, and outsourcing needs.

The TPIRR's engineering staff was developed by TPI's engineering witness, Harvey Crouch, in consultation with Mr. McDonald. Because the engineering function principally involves MOW, the TPIRR's engineering personnel are discussed below in Part III-D-5.

a. Staffing Requirements

TPI used the following methodology to develop the G&A staff needed for the TPIRR. First, TPI considered the needs of the TPIRR traffic base, the size and scope of the TPIRR design, and the commodities handled by the TPIRR. TPI also utilized its witnesses' many years of experience in the rail industry, public information about other railroads, and information obtained from CSXT in discovery. Finally, TPI evaluated Board precedent. Based on all these sources of information, TPI determined the most efficient way for the G&A needs of the TPIRR to be fulfilled.

TPI designed its G&A department from the ground up so that the TPIRR could operate in the most efficient manner possible. For example, where a necessary task is sporadic or could be more appropriately completed by a third-party contractor, TPI included funds for such contracting rather than designating additional TPIRR employees to handle the task. The TPIRR is one of the largest SARRs considered by the Board. Where possible, the G&A staffing of the TPIRR was designed to take advantage of these economies of scale because many G&A functions do not vary with the number of route miles or the traffic volume. The nature of most

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G&A functions means that a railroad the size of the TPIRR can achieve greater staffing economies of scale than a small railroad.

The G&A staff are based at Atlanta, GA, where the TPIRR's corporate headquarters building is located. This staff covers all executive and administrative functions, including sales and marketing, legal services, accounting, financial reporting, payroll, information systems, human resources, administrative and clerical services, and supervising contractors in the performance of some outsourced functions.

The TPIRR's G&A staff is summarized in Table III-D-3 below by department. This table does not include the operating and MOW employees located at the Atlanta, GA headquarters, who are discussed elsewhere in this Part. The G&A personnel requirements by department are fully discussed in Exhibit III-D-2.

Table III-D-3
TPIRR G&A Personnel Requirements

Position	No. of Employees
(1)	(2)
1. Executive Department Total	30
2. Sales and Marketing Department Total	56
3. Finance and Accounting Department Total	100
4. Law Total	45
5. Information Technology Department	73
6. Total General & Administrative Personnel	304

Source: Exhibit III-D-2

From a staffing perspective, TPIRR is unique because it is a startup railroad and has the benefit of designing the personnel structure to match its specific needs with current technology. Most railroads today are well established and the products of several consolidations and mergers. Today's real-world railroads tend to have layers of personnel from previous structures, carried over due to contracts, convenience, and labor liabilities, rather than the minimum necessary

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under newer, more efficient structures. Because of this fact, there are no existing railroads today from which to make a reasonable comparison to TPIRR from a staffing standpoint, especially when size, miles, and revenues are also considered. Nevertheless, TPI was able to compare the TPIRR to a previously-existing railroad, the Chicago and North Western Railway (“C&NW”), of similar route mileage. For this comparison, we used the C&NW as it existed in 1994 due to its similar size to TPIRR and because TPI’s witness McDonald has intimate insights on the C&NW’s staffing, having served as its VP of Operations in 1994. Table III-D-4 below compares non-train and engineering staffing (i.e., G&A personnel as well as Operations-management personnel) for TPIRR to C&NW from 1994.

Table III-D-4
Comparison of TPIRR Non-T&E Staffing To CNW 1994 Staffing

<u>Organization</u> (1)	<u>TPI Opening</u> (2)	<u>1994 C&NW</u> (3)
1. Non-road Operations 1/	593	450
2. General & Administrative	304	533
3. Total	897	983
4. Route Miles	7,357	5,211
5. Employees / Route mile	0.122	0.189

1/ Excludes Car Inspectors.
Source: Exhibits III-D-1 and III-D-2.

As can be seen in Table III-D-4 above, the TPIRR compares reasonably with the 1994 C&NW, especially when the startup nature of the TPIRR and technology improvements since 1994 are considered.³⁹ --This comparison of staffing is even more compelling when one considers that the configuration of C&NW was exceptionally different than that of the TPIRR in

³⁹ Examples of technology improvements that have occurred since 1994 include processing capability and speed, information-storage and retrieval capabilities, information sharing capabilities, interface and automation improvements, communications, and computer-based training.

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that C&NW had many more branch lines than the TPIRR. Each branch line in a rail system requires a separate operation with its own associated costs, carries different traffic and resulting gross ton miles, and has its own maintenance requirements separate from the main line. Each branch line is continuously rationalized based on these costs and traffic to ensure the significant costs are justified by the traffic. Every branch line on a rail system adds to this complexity, affecting maintenance, equipment, labor, and liability costs. The same amount of traffic handled on a single main line requires more attention, planning, and resource allocation when it is divided onto several branch lines. Therefore, a railroad with fewer branch lines is less complex than a railroad with more branch lines, even if handling overall similar traffic volumes. This results in fewer personnel needed for operations, maintenance, and capital planning.

Summary descriptions of each of the TPIRR's major G&A components are provided below. More specific descriptions of G&A components can be found in Exhibit III-D-2.

i. Executive Department

The TPIRR's Executive Department consists of the President's Office and the TPIRR's Board of Directors. The President's office consists of 30 people including the President, the Board of Directors, a Corporate Secretary, Corporate Communications and Government Affairs staff, Human Resources staff, Corporate Quality Improvement/Assurance staff, and a Manager-Planning.

ii. Marketing Department

The TPIRR Marketing Department consists of 56 people and is headed by the VP-Sales and Marketing, who is assisted by eight (8) Assistant VP's ("AVP"). The Sales and Marketing Department is responsible for managing sales to TPIRR's existing customers and marketing transportation services to potential customers.

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iii. Finance and Accounting Department

The Finance and Accounting Department is responsible for the TPIRR's basic financial and accounting functions, including treasury, taxation, revenue collection, disbursements for accounts payable, financial reporting, and budgeting and analysis. It comprises 100 employees and is headed by the VP-Finance and Accounting who has an Administrative Assistant (like the other vice presidents). The department has AVP's for Finance, Accounting, and Tax and Directors for Planning and Analysis and Internal Auditing. The VP-Finance and Accounting is also the TPIRR's Chief Financial Officer.

iv. Law Department

The Law Department comprises 45 employees. It is headed by the VP-Law (with assistance from an Administrative Assistant) who is responsible for the TPIRR's legal affairs as well as real estate, claims, and security.

v. Information Technology Department

The TPIRR's IT systems and associated personnel were developed by TPI Witness Kruzich, who has considerable experience with the IT function at Class I and other railroads. The IT system (described in Section III-D-4-d below) is administered by a staff consisting of a VP-Information Technology, three (3) Directors-Information Technology, 68 IT Specialists, and an Administrative Assistant. As discussed in more detail in Exhibit III-D-2, the TPIRR does not have a main-frame environment, but rather an NT/PC-based system. This means far less IT effort is required than a typical Class I railroad due to the relative simplicity of an NT/PC-based system and the fact that many of the IT requirements are outsourced to RMI (i.e., Transportation, Revenue, Intermodal, and Car Hire functions).

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b. Compensation

The salaries and benefits for the TPIRR's G&A personnel described above and detailed in Exhibit III-D-2 are based on comparable and competitive compensation packages presently available in the railroad industry (and in other service industries).

Specifically, annual salaries for the G&A personnel are based on data contained in CSXT's Wage Forms A and B, with several exceptions. Salaries for the President and the Vice Presidents included in the G&A staff are based on the salaries, including bonuses and Non-Equity Incentive Plan compensation, paid for similar positions by the Kansas City Southern Lines ("KCS"), a holding company that owns and operates the Kansas City Southern Railway, the Kansas City Southern de Mexico, and the Texas Mexican Railway Company. According to the KCS's website, the three major lines comprising the KCS operate 7,075 route miles of railroad, which is similar to the 7,357 route miles operated by the TPIRR. This is far smaller than CSXT which operates nearly 21,000 route miles and substantially smaller than the other Class I railroads.

As stated previously in the discussion of Train and Engine Crew compensation, fringe benefits for all employees are 43.5 percent of wages based on information available from the AAR. The fringe benefit ratio includes expenses related to health and welfare benefits, railroad retirement, supplemental annuities, unemployment insurance, and other programs.

The total compensation for the TPIRR G&A employees in the First Year is \$27.0 million. This compensation by employee is addressed in Exhibit III-D-2.

c. Materials, Supplies and Equipment

Consistent with the stand-alone principles of unlimited resources and barrier-free entry, the ready availability of materials and equipment is assumed.

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The TPIRR owns or leases various types of vehicles and equipment used by its Operating and G&A staffs as discussed in Exhibits III-D-1 and III-D-2. TPI has also included costs for miscellaneous office equipment, office supplies, desks, tools, safety equipment, and other items.⁴⁰ The cost for this equipment is \$653,786 in the First Year and is included in the calculation of the TPIRR's annual operating expenses.⁴¹

d. Other G&A Expense

i. IT Systems

The TPIRR's information-technology systems have been developed by TPI Witness Joseph Kruzich, an experienced railroad IT expert. Mr. Kruzich has worked for Class I railroads reviewing various work procedures and providing recommendations on how the work processes could be improved to achieve a high degree of efficiency. This position provided him an opportunity to become very familiar with various work processes involved in running a railroad. Mr. Kruzich also served as IT Vice President of the Kansas City Southern Railroad and was instrumental in directing the development of new KCS computer systems in the late 1990's. A more detailed description of Mr. Kruzich's qualifications is contained in Part IV.

Mr. Kruzich reviewed the TPIRR's operating plan and G&A requirements to determine the railroad's basic computer and communications needs and the kind of support needed by its staff. The IT systems described below and detailed in Exhibit III-D-2 enable the TPIRR to operate safely and efficiently and to perform all administrative functions.

The TPIRR has an average of 555 train movements per day in the peak week. Whenever possible the TPIRR has multiple-car billing (using the RMI Revenue System to allocate revenues), rather than billing for individual railcars. This reduces the complexity of the

⁴⁰ See e-workpaper "TPIRR Operating Expense_Open.xlsx."

⁴¹ See e-workpapers "TPIRR Operating Expense_Open.xlsx" and "III-D-3 Material and Supplies.pdf."

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computer and communication systems required to support operations, rendering the expensive mainframe systems used by large carriers unnecessary. Based on the TPIRR operating plan and G&A staff departments, the capital requirements for IT and communications systems are \$29.0 million.⁴² The annual operating cost for IT and related communications equals \$33.8 million at 3Q10 price levels.⁴³ Table III-D-5 below shows the capital and annual operating expenses separately for information technology and related communications systems.

Table III-D-5 Capital And Operating Costs For TPIRR IT And Communications Systems		
Item (1)	Capital Cost (2)	Operating Expense (3)
1. Information Technology	\$28,736,110	\$32,628,553
2. Communications	280,111	1,189,927
3. Total	\$29,016,221	\$33,818,480
Source: e-workpapers "TPIRR - Capital Budget.xls" and "TPIRR - Operating Budget.xls."		

The TPIRR’s computer and IT communications systems have been designed to meet the company’s mission-critical technology needs to achieve operating efficiencies, customer satisfaction, optimum staffing,⁴⁴ maximum productivity, and safe train operations. The costs shown in the workpapers are based on the TPIRR’s highest daily train counts and number of annual carload transactions.

In addition to the amounts shown above for IT capital, costs for IT hardware and software are included in the signals and communications investment account that are required for the TPIRR’s PTC signaling system. The amount included is based on values provided by CSXT in

⁴² See e-workpaper "TPIRR - Capital Budget.xls."

⁴³ See e-workpaper "TPIRR - Operating Budget.xls."

⁴⁴ The TPIRR’s IT personnel requirements are described in the discussion of G&A personnel in Exhibit III-D-2. The IT staff size is largely a function of the systems described in this section.

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discovery for additional IT systems and prorated to the TPIRR based on a route mile basis. The amount provided was reduced to eliminate duplication of the dispatching system already included in the IT capital cost reflected above.

ii. Other Outsourced Functions

As described earlier, several functions customarily provided in-house by large Class I railroads can be efficiently outsourced by the TPIRR. Consistent with the stand-alone concept of an efficient, least-cost railroad, outsourcing is used wherever the economics so justify without sacrificing the SARR's feasibility or service quality.

Outsourced functions include several finance and accounting functions, including payroll processing, financial/account auditing, and certain legal services.⁴⁵

A number of independent-accounting, payroll-service, and other firms have the experience and systems to perform these functions. For example, the payroll service firm Paychex has experience in complying with Railroad Retirement and other railroad-specific tax and regulatory reporting requirements. Other outsourced G&A functions are described in Exhibit III-D-2.

Estimated annual costs of \$11.7 million have been developed for outsourcing all of the functions described above.⁴⁶

iii. Start-Up and Training Costs

The TPIRR's start-up and training costs have been calculated based on information provided by CSXT in discovery at a cost of \$78.0 million. Consistent with *WFA/Basin I*, start-

⁴⁵ See e-workpaper "TPIRR G&A Outsourcing_Opening.xlsx."

⁴⁶ *Id.*

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up training and recruitment costs are treated as an operating expense in the TPIRR's First Year of operations.⁴⁷ Training and recruiting costs are fully discussed, by position, in Exhibit III-D-2.

iv. Travel Expense

Travel expenses have been included for all TPIRR employees at the Director level and higher (except for the Assistant Controllers, as these positions do not require travel) and for the five (5) outside members of the Board of Directors. Annual travel expenses of \$10,475 per employee are included. This amount is based on the 2010 annual survey of corporate travel managers performed by Runzheimer International, which estimates the annual cost of corporate business travel.⁴⁸

5. Maintenance-of-Way

The MOW plan for the TPIRR was developed by TPI's expert railroad engineering witness, Harvey Crouch.⁴⁹ It was also reviewed and approved by Richard McDonald, TPI's rail operations expert, who has engineering and operating experience.

Mr. Crouch served in the Southern Railway's and then NS's Engineering Department from 1977 to 1987, including service as a Project Engineer and Track Supervisor in the Maintenance of Way & Structures Department. His experience is fully detailed in his Statement of Qualifications in Part IV.

Mr. Crouch considered the kinds of terrain and climate in which the various portions of the TPIRR are located in developing the TPIRR's MOW plan and incorporated the significant aspects of the variations in terrain and climate into the MOW plan and staffing.

⁴⁷ See *WFA/Basin I* at 51-54.

⁴⁸ See e-workpaper "III-D-3 Travel.pdf."

⁴⁹ Mr. Crouch is also sponsoring TPI's evidence on the TPIRR's construction costs in Part III-F below. The staffing for the TPIRR's MOW Communications & Signals Department is also sponsored by TPI's communications and signals experts, Victor Grappone, PE and James Hoelscher.

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Consistent with *WFA/Basin I*, Mr. Crouch's MOW plan has a substantial field staff to perform day-to-day inspection and maintenance activities, supported by a managerial/office engineering and support staff that reports to the TPIRR's VP-Engineering and Mechanical. The plan also includes capital-maintenance programs during the 10-year DCF period to renew/replace the fixed facilities and, in particular, the principal elements of the track structure. The TPIRR's MOW staff has been structured to include planning, budgeting, and contracting related to annual capital programs.

As fully described in Exhibit III-D-3, when developing the TPIRR's MOW plan, Mr. Crouch started by considering the maintenance functions that need to be performed, and then developed an appropriate field organization and supervisory/support staff for each function, given the railroad's geographic scope, terrain, number of trains, and gross tonnages. The basic functions include track inspection and routine maintenance, communication and signal inspections, testing and maintenance, bridge inspection, minor building maintenance, and budgeting and administrative support. Mr. Crouch also considered the equipment needs for each function, as well as the maintenance work (other than capital program maintenance) that appropriately could be contracted out. The total MOW expense in the First Year equals \$209.8 million.

Each of the categories of MOW expense is discussed at length in Exhibit III-D-3. This Exhibit also addresses program maintenance and maintenance scheduling. Detailed calculations of the costs are provided in Mr. Crouch's supporting e-workpapers.

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6. Leased Facilities

The TPIRR's 21 joint-facility and trackage-rights agreements cover 491 route miles throughout its system. The development of the annual payments to CSXT and other carriers for use of these trackage rights is shown in the workpapers included with this opening evidence.⁵⁰

7. Loss and Damage

The TPIRR's annual loss and damage cost equals \$8.8 million. This cost was developed by multiplying CSXT's actual 2010 loss and damage per ton for the commodities moving on the TPIRR by the number of tons of each commodity moved on the TPIRR in 2010.⁵¹ In other SAC proceedings, complainants and defendants have used, and the Board has accepted, this same methodology to calculate loss and damage costs.⁵²

8. Insurance

The standard practice of large railroads is to self-insure against potential liability, except for catastrophic risks. The TPIRR also self-insures for most types of claims and obtains insurance at competitive rates to cover catastrophic loss and Federal Employers Liability Act exposure.

Insurance expenses for the TPIRR were calculated using CSXT's average insurance ratio of 1.35 percent of operating expenses for the period 2010 through 2012.⁵³ NS advocated using this methodology in a recent case of similar scope.⁵⁴

⁵⁰ A summary of the Joint Use and Trackage Rights agreements utilized by the TPIRR is included in e-workpaper "Open TPI Joint Facility charges 2010.xlsx."

⁵¹ For cross-over traffic, TPI calculated the TPIRR's share of the loss and damage payments on the percentage of the TPIRR's car-miles to CSXT's total car-miles by two-digit STCC code. See e-workpaper "TPIRR FDCI by STCC-2010.xls."

⁵² Review of the public record shows that most recently, the Complainant used this method in the *AEPCO* proceeding and it was accepted by Defendants in that proceeding, without comment by the Board.

⁵³ See e-workpaper "TPIRR Ad Valorem 2010_Open.xls."

⁵⁴ See NS Reply at III-D-278, *DuPont* (filed Nov. 30, 2012).

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9. Ad Valorem Taxes

The TPIRR operates in the states of Alabama, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia as well as the District of Columbia. To develop ad valorem taxes, the amount of tax that CSXT paid per route mile was calculated for CSXT's route miles in each state. These amounts were then applied to the TPIRR's route miles in each state and summed to arrive at TPIRR's total Ad Valorem Tax burden of \$41.3 million in the First Year. This approach for developing ad valorem taxes allows for the consideration of the differences between how each state actually determines final assessed values. These differences can occur between valuation approach weightings, allocation factors, exemptions, assessment percentages as well as opportunities for appeals, litigation, or settlements.

10. Other

a. Intermodal Lift and Ramp Cost

In addition to the line-haul costs associated with intermodal traffic related to locomotives, fuel, crews, and maintenance-of-way, the TPIRR incurs lift and ramp costs. These costs have been included for all containers and trailers originating or terminating on the TPIRR based on the amount CSXT incurs for providing lift and ramp services at intermodal terminals located on the CSXT lines included in the TPIRR network.⁵⁵ The costs were calculated at each CSXT facility and applied on a facility-by-facility basis to the containers and trailers handled at each facility by the TPIRR.

⁵⁵ See e-workpaper "Intermodal Terminal Cost and Volume Update lift 2010.xlsx."

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The lift and ramp services include costs for contract services, equipment repair, rail operations, government fees, terminal security, and other items. The total intermodal-lift and ramp expenses incurred by the TPIRR equal \$67.2 million in the First Year.⁵⁶

b. Automotive Handling Cost

Automotive handling costs are included for loading and unloading automobiles to and from railcars. The costs were calculated based on information provided by CSXT in discovery for automobile handling at each CSXT facility and applied on a location-specific basis to the number of vehicles being loaded or unloaded. The total cost of automobile handling for the TPIRR equals \${{ [REDACTED] }}.⁵⁷

c. Calculation of Annual Operating Expenses

As noted at the beginning of this Part, the statistical inputs used to develop the TPIRR's annual operating expenses (equipment and operating-personnel needs, locomotive unit miles, crew starts, etc.) were developed by TPI's expert operating, IT, and engineering/MOW witnesses, with assistance from TPI's witness Burris. Mr. Burris also developed the annual salaries, equipment, and operating unit costs. Mr. Burris used all of these inputs to develop the TPIRR's First Year operating expenses.⁵⁸

The procedures used to develop the TPIRR's annual operating expenses for the First Year—applying transit times calculated for the peak period of the Peak Year to a full year of train data to calculate operating statistics, rather than calculate statistics for the peak week and

⁵⁶ See e-workpapers "SARR Containers Orig Term Locations V42 07 03 02082014.xlsx" and "Intermodal Terminal Cost and Volume Update lift 2010.xlsx."

⁵⁷ See e-workpapers "SARR Car Type 12 Orig Term Locations V42 07 01 02072014(2).xlsx" and "Automobile full year 2010 TPI.xlsx."

⁵⁸ See e-workpaper "TPIRR Operating Expense_Open.xlsx."

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expanding those statistics to reflect a full year of data—were approved by the Board in *WFA/Basin I*.⁵⁹

The First Year operating expenses were then provided to Messrs. Crowley and Fapp who developed operating expenses for each period in the DCF model.

⁵⁹ See *WFA/Basin I* at 33.

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- E. NON-ROAD PROPERTY INVESTMENT III-E-1
 - 1. Locomotives..... III-E-1
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III. STAND-ALONE COST

E. NON-ROAD PROPERTY INVESTMENT

The testimony in this Part is being sponsored by Timothy D. Crowley, a Vice President of L.E. Peabody & Associates, Inc. His credentials are detailed in Part IV.

1. Locomotives

As previously described, the TPIRR leases ES44AC and SD40-2 road locomotives and SW1500 switching/work-train locomotives. The annual lease cost is included as an operating expense. The acquisition of all locomotives is described in Part III-D-1.

2. Railcars

The TPIRR also leases all of the railcars needed to serve the traffic group that are not supplied by shippers or foreign railroads. The annual lease cost is also included as an operating expense and is described in Part III-D-2.

3. Other

As explained in Part III-D, most of TPIRR's other equipment, including company vehicles, maintenance-of-way equipment (e.g. hi-rail trucks), radios, and telephones will be leased or purchased. The annual lease cost for this equipment is included as an operating expense. To the extent any of this equipment is purchased, the purchase price is annuitized and included with operating expenses.

Some items of equipment will be purchased, in particular computers and related hardware. The TPIRR's computer system needs, and the associated capital investment, are described in Part III-D(4)(d).

The TPIRR operates over 491 miles of track through trackage-rights or joint-facilities agreements in the same capacity as CSXT does today. The TPIRR steps into the shoes of CSXT and utilizes existing joint-use and trackage agreements at 21 locations. These agreements and

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their locations are discussed in Part III-C(1)(b). Payments to these carriers for the operating rights are on a usage basis and are included in the TPIRR's operating expenses, as explained in Part III-D(6).

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III. STAND-ALONE COST

F. ROAD PROPERTY INVESTMENT

The TPIRR replicates approximately 6,866 route miles of existing CSXT-owned track in 17 states (Alabama, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia) as well as the District of Columbia.¹ The areas through which the track runs include rural undeveloped areas as well as major metropolitan areas.

The TPIRR's road property investment costs are summarized in Table III-F-1 below and in Exhibit III-F-1.

Item (1)	Investment (2)
1. Land	\$3,956
2. Roadbed Preparation	3,746
3. Track Construction	8,494
4. Tunnels	1,596
5. Bridges	3,438
6. Signals & Communications	1,554
7. Buildings & Facilities	985
8. Public Improvements	226
9. Subtotal	\$23,996
10. Mobilization	541
11. Engineering	2,004
12. Contingencies	2,258
13. Total Road Property Investment Costs	\$28,799

Source: Exhibit III-F-1.

This evidence is sponsored by Richard R. Harps, MAI, CRE, John G. Pinto, CRE, Elizabeth W. Vandermause, MAI, and Daniel C. Vandermause (land acquisition costs); Philip H.

¹ The TPIRR also runs over 491 miles of trackage rights for a total of 7,357 miles of operations.

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Burris (easements); Harvey A. Crouch (construction costs and bridge designs and costs); Kevin N. Lindsey (bridge designs and costs); Jerry H. Harris, Jr. (track construction costs); Charles A. Stedman (grading/roadbed preparation costs); and Victor F. Grappone and James Hoelscher (signals and communications system costs). These Witnesses' qualifications are included in Part IV.

1. Land

Land acquisition costs for the TPIRR were developed by Richard R. Harps, MAI, CRE, John G. Pinto, CRE, Elizabeth W. Vandermause, MAI, Daniel C. Vandermause, and their project team. Mr. Harps has over 35 years of experience as an appraiser and consultant. He holds the Member of the Appraisal Institute ("MAI") designation from the Counselors of Real Estate. In addition, he was President of the Washington, D.C. Association of Realtors in 1985. The team he has put together for this assignment brings an extensive background in real estate appraisal and experience in appraisal of transportation rights of way including valuation of rail properties throughout the United States and Canada.

In this appraisal, the Across-the-Fence ("ATF") methodology was used. This method estimates the value of the right-of-way ("ROW") by establishing the value of adjacent lands and parcels of land in proximity to the ROW with the same zoning as lands abutting the ROW.

A summary of the results of Mr. Harps' analysis (as of July 1, 2010) is shown in Table III-F-2 below.

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Property Type	Acreage	Cost (in millions)
(1)	(2)	(3)
1. ROW		
a. Fee-Simple	73,030.6	\$3,019.3
b. Easement	8,113.1	\$0.1
2. Yard	7,328.8	\$905.1
3. Other		
a. Microwave Towers	568.0	\$31.9
4. Total	89,040.5	\$3,956.4

Sources: Exhibit III-F-2, and e-workpapers “TPIRR Easements_Open.xlsx” and “TPIRR Easement Fees_Open.xlsx.”

Detailed discussions of each of these property types follow.

a. Right-of-Way Acreage

The majority of the ROW is based upon an average width of 100 feet.² In urban locations an average width of 75 feet was used.³ In each location where additional trackage or space is required, acreage has been added.

The TPIRR will acquire 73,030.6 acres in fee simple and 8,113.1 acres via easement for its right-of-way.⁴

b. Yard Acreage

The TPIRR has twelve (12) major yards (eleven (11) of which are hump yards) and several other yards whose locations are fully discussed in Parts III-B and III-C. The TPIRR headquarters building is located at Tilford Yard in Atlanta, GA. Locomotive shops are located at Willard Yard (Willard, OH), Cumberland Yard (Cumberland, MD), Radnor Yard (Nashville, TN), and Rice Yard (Waycross, GA). Yards throughout the TPIRR system are primarily used

² The 100 foot right-of-way has been utilized consistently by both parties in prior SAC cases and accepted by the Board. *See, e.g., PSCo/Xcel I* at 667.

³ *See, e.g., Duke/CSXT* at 472-473; *Wisconsin P&L* at 1018; *West Texas Utilities* at 702.

⁴ *See* Exhibit III-F-2 and e-workpaper “TPIRR Easement_Open.xlsx.”

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for interchange, classification, fueling, and car and locomotive inspections. TPIRR will acquire 7,328.8 acres for its yards.⁵

c. Other Acreage

The TPIRR will place 284 microwave towers along its right-of-way. The TPIRR will acquire two acres per microwave tower site for a total of 568 acres for microwave towers.⁶

d. Property Values

Based on the inspections and analyses undertaken by Mr. Harps and his team, and the easement costs developed by Mr. Burris, TPI has determined that the total cost for the land (including yards and acreage required for microwave towers) needed for the TPIRR's lines as of July 1, 2010 is \$3,956.4 million as summarized in Table III-F-2 above. A detailed description of Mr. Harps' approach to developing these land acquisition costs is included in Exhibit III-F-2.

Property values were determined by evaluating the value of land adjacent to or in the proximity of the ROW consistent with recent Board decisions.⁷ The acquisition price for land is assumed to be equal to the market value of the ATF properties.

Mr. Harps and his team utilized aerial imagery from Google Earth Pro to trace the path of the TPIRR. Adjacent land uses were noted along the way and used to define the land use type on both sides of the ROW. The ROW is split down the centerline with the adjacent land use defined for half of the ROW width on each side of the centerline. A new segment was defined when the ATF land use changed on either side of the ROW. Using this approach, 5,394 line segments were created.

⁵ See Exhibit III-F-2.

⁶ *Id.*

⁷ See *Duke/CSXT* at 473 (“The land along the ROW is a prime indicator of a ROW’s value and has been used in all prior SAC cases.”).

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The size of the TPIRR made a detailed physical inspection of the entire ROW impractical. However, Mr. Harps and his team did perform detailed physical inspections of the ROW in seventeen (17) urban areas, covering 474 miles of ROW to determine the Highest and Best use and Classification. These inspections took place between September 2010 and June 2011 and were utilized, in conjunction with review of aerial imagery, to determine the relevant land use along the ROW. Mr. Harps and his team relied upon their review of the aerial imagery for land classification and identification of valuation units for the remainder of the TPIRR system.

This process identified six types of land use along the ROW that were used to determine comparable sales. Table III-F-3 below summarizes the percent and acres of each type of land use along the TPIRR ROW.

Table III-F-3
TPIRR Distribution Of Land Use

Land Use Type	Percent of Total	Acreage 1/
(1)	(2)	(3)
1. Agriculture	56%	45,216
2. Residential	14%	11,724
3. Industrial	14%	11,008
4. Restricted	7%	5,634
5. Rural	7%	5,531
6. Commercial	3%	2,091
7. Total Acreage	100%	81,204

1/ Before system mileage adjustment of 60 acres and includes easement acreage.
Source: Exhibit III-F-2.

The most appropriate method of estimating the value of the land for this purpose is the sales comparison approach. Land is valued as if vacant and unimproved regardless of its current state. Because there were only a limited number of sales in the recent past from which to

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determine values, Mr. Harps expanded the timeframe for comparable sales and broadened the area of proximity to encompass a greater number of sales. Mr. Harps details his valuation approach in his Report.⁸

Finally, and consistent with the principle that a SARR is not required to purchase a greater interest than the incumbent railroad possesses,⁹ TPI's Witness Burris conducted an extensive review of CSXT valuation maps and easement documents provided in discovery. This review identified many easements and other transfers of property ownership along the TPIRR ROW. The TPIRR easement acreage was developed by multiplying the length of the easement along the ROW times the width of the ROW at each location. The average cost per easement acre for each state was then applied to the acreage for each easement in the individual state. The total cost for TPIRR acreage acquired through easements is \$99,437.¹⁰

The total land acquisition costs for the TPIRR are \$3,956.4 million; comprised of \$3,956.3 million for fee simple acquisitions and \$99,437 for easements.

2. Roadbed Preparation

TPI's roadbed preparation evidence is sponsored by Witnesses Harvey Crouch and Charles Stedman. Their qualifications are detailed in Part IV. Mr. Crouch served in the Engineering Departments of Southern Railway and Norfolk Southern (after the merger) from 1977 to 1987, including service as an Industrial Development designer, a Project Engineer, and a Track Supervisor in the Maintenance of Way & Structures Department. He has worked on many railroad design and construction projects in the eastern U.S., and has been involved with track and bridge inspection and maintenance programs over the past 22 years. His experience with

⁸ See Exhibit III-F-2.

⁹ See *CP&L* at 308 and *Duke/CSXT* at 474.

¹⁰ See e-workpaper "TPIRR Easement Fees_Open.xlsx."

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Norfolk Southern included supervision of the construction of numerous track construction projects, various railroad facilities, and railroad buildings.

Mr. Stedman has over 30 years of experience with L. E. Peabody & Associates, Inc. He has developed and presented evidence pertaining to roadbed preparation in numerous proceedings before the ICC and the Board. Mr. Stedman has also researched ICC records including the ICC's Engineering Reports.¹¹

In this evidence, the ICC Engineering Reports were used to develop the TPIRR quantities for clearing, grubbing, earthwork, rip rap, retaining walls, and lateral drainage. As noted below, the information extracted from the ICC Engineering Reports was adjusted to reflect current engineering and design specifications.

The roadbed preparation unit costs utilized herein are a combination of actual costs and Means Handbook¹² costs. The Means Handbook costs are very conservative for this application because the prices are based on an average of costs for projects of all sizes from around the country and assume a unionized workforce. There is no way to adjust the Means Handbook unit costs to reflect the economies of scale inherent in a project with the vast size of the TPIRR or to accurately estimate the impact of using non-union labor.

A summary of the TPIRR's roadbed preparation quantities and costs are summarized in Table III-F-4 below.

¹¹ ICC Bureau of Valuation B.V. Form No. 561.

¹² RS Means 2010 Site Work & Landscape Cost Data ("Means Handbook").

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Table III-F-4 <u>TPIRR Roadbed Preparation Costs</u>	
Item (1)	Cost (in thousands) (2)
1. Clearing and Grubbing	\$97,568
2. Earthwork	
a. Common	679,312
b. Loose Rock	405,257
c. Solid Rock	1,053,457
d. Borrow	792,769
e. Land for Waste Excavation	215,642
3. Drainage 1/	
a. Lateral Drainage	69,355
4. Culverts 2/	124,892
5. Retaining Walls	223,901
6. Rip Rap	76,796
7. Relocation of Utilities	738
8. Topsoil Placement / Seeding	1,476
9. Surfacing for Detour Roads	4,333
10. Environmental Compliance	890
11. Total	\$3,746,386

Source: See e-workpaper "TPIRR Open Grading.xlsx."
 1/ Yard drainage is included in building site development costs.
 2/ See e-workpaper "TPIRR Culvert Construction.xlsx."

a. Clearing and Grubbing

TPI reviewed the valuation section index maps accompanying the ICC Engineering Reports for the railroads traversed by the TPIRR¹³ and identified the valuation sections applicable to the TPIRR. A listing of the valuation sections used in the development of the roadbed preparation construction costs for the TPIRR is included in TPI's workpapers.¹⁴

¹³ The ICC Engineering Reports were compiled in the first quarter of the 20th century. At that time, the current lines of CSXT were owned by many different railroads.

¹⁴ See e-workpaper "TPIRR Open Grading.xlsx," tab "Eng Reports."

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Based on this selection of valuation sections, the clearing and grubbing quantities required for the original construction of the TPIRR lines were taken from the ICC Engineering Reports. These quantities were then modified to reflect current construction specifications.¹⁵

Historically, clearing and grubbing costs have been developed and applied separately depending on the acreage requiring the grubbing of tree stumps. In this case, however, TPI's engineers based the clearing and grubbing costs on a recent railroad realignment project in Tennessee, the Trestle Hollow Project, and applied this cost to all TPIRR acreage to be cleared. The project took place in 2007 and involved re-routing and building a new rail line near Centerville, TN, an area close to the TPIRR route of movement.¹⁶ The cost for clearing and grubbing was \$2,000 per acre and included "clearing and grubbing of all trees, stumps, undergrowth, brush, trash, grass, weeds, roots, debris, or other deleterious or objectionable materials...."¹⁷ Stumps, roots and other debris were to be removed to a minimum depth of 18 inches below the surface and/or subgrade, whichever was lower and also included removal and stockpile of topsoil. TPI indexed the 2007 unit costs to 3Q10, the start date of the TPIRR. The indexed unit cost for clearing and grubbing is \$2,155.46 per acre.

Applying this combined unit cost to the total acres requiring clearing conservatively overstates the total costs as not all acres have trees or require grubbing. 45,035 acres will be

¹⁵ The clearing and grubbing quantities (acres per track mile) were increased by the ratio of the current roadbed specifications to the original roadbed specifications and applied to the track miles (including yards and sidings) of the TPIRR's line segments to develop current clearing and grubbing quantities. See e-workpaper "TPIRR Open Grading.xlsx," tab "Other Items."

¹⁶ See the pictures of the Trestle Hollow Project included in the sub-directory "Trestle Hollow Pictures" in TPI's electronic workpapers. These pictures show the significant density of vegetation growth in the area where the Trestle Hollow Project took place. Additional description of the Trestle Hollow Project is provided in the Common Earthwork sub-section of this Part III-F.

¹⁷ See e-workpaper "Trestle Hollow Specifications.pdf," Section 3.2.1, page 147.

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cleared and grubbed for the construction of the TPIRR at a total cost of \$97.6 million at 3Q10 levels.¹⁸

TPI has not included any additional costs for stripping or undercutting as these are included in the Trestle Hollow unit costs.¹⁹

b. Earthwork

The ICC Engineering Reports were utilized to develop the earthwork quantities for each valuation section covering the line segments of the TPIRR. These quantities were adjusted to reflect current roadbed specifications. The adjusted earthwork quantities were then used to develop the earthwork requirements and costs for the TPIRR. As described below, a combination of actual unit costs from the Trestle Hollow Project (indexed to 3Q10) and the Means Handbook average costs were used to develop the earthwork costs.

Table III-F-5 summarizes the earthwork quantities and costs associated with construction of the TPIRR.

¹⁸ TPI notes that, in recent stand-alone cost proceedings, complainants have used two different costs for clearing and one cost for grubbing, all from the Means Handbook. For the acres that were grubbed (according to the ICC Engineering Reports), complainants assumed that trees were also cleared and applied both the cost per acre for clearing and the cost per acre for grubbing from the Means Handbook. For the remaining acres of clearing (i.e., those acres not requiring grubbing), complainants applied a cost for brush clearing. This approach has been accepted by the STB. *See AEP Texas II* at 78-79, *AEPCO* at 83-84. While TPI believes the use of actual clearing costs (as shown in the Trestle Hollow Project) is superior to the costs from the Means Handbook, TPI has included these alternate calculations in its workpapers. *See* e-workpaper “TPIRR Open Grading.xlsx,” tab “Other Items.”

¹⁹ *See* e-workpaper “Trestle Hollow Specifications.pdf,” pages 147 and 156. Additionally, prior decisions from the Board support exclusion of these costs. *See PSCO/Xcel I* at 671, *WFA/Basin I* at 83, *AEP Texas II* at 79, *Duke/CSXT* at 479-480, *AEPCO* at 84.

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Table III-F-5
TPIRR Earthwork Quantities And Costs

Item (1)	Cubic Yards (000) (2)	Cost (000) (3)
1. Common Excavation	362,495	\$679,312
2. Loose Rock Excavation	34,177	405,257
3. Solid Rock Excavation	68,206	1,053,457
4. Borrow	47,132	792,769
5. Total	512,010	\$2,930,795

Source: See e-workpaper "TPIRR Open Grading.xlsx," tab "EW Cost."

i. ROW Quantities

TPI engineers pulled the miles of main-line track, other main track, and all other track from the applicable ICC Engineering Reports. They also extracted the cubic yards ("CY") of excavation and embankment material by type – common, loose rock, solid rock, and embankment (borrow) from the ICC Engineering Reports.²⁰ The grading quantities from the ICC Engineering Reports were then used to develop distribution percentages for the four types.²¹ Based on a review of railroad construction literature prevailing at the time the ICC Engineering Reports were compiled, TPI's engineers estimated that the ICC Engineering Report quantities for the rail lines comprising the TPIRR reflect average roadbed widths of 19 feet for fills and 22 feet for cuts (including ditches).²² The earthwork quantities obtained from the ICC Engineering Reports were adjusted to reflect the roadbed widths required for today's heavier trains. Table III-F-6 shows the more modern roadbed widths utilized in the construction of the TPIRR.

²⁰ See e-workpaper "TPIRR Open Grading.xlsx," tab "Eng Rep Input."

²¹ See e-workpaper "TPIRR Open Grading.xlsx," tab "Distribution."

²² See William C. Willard, *Maintenance of Way & Structures*, McGraw-Hill Book Company, 1915, pp. 29-31 included in e-workpaper "Original Roadbed Widths.pdf."

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Table III-F-6
Roadbed Widths For Construction Of The TPIRR

Track Type	Roadbed Width 1/	
	Fills	Cuts
(1)	(2)	(3)
1. Single Track	24 feet	40 feet
2. Double Track	39 feet	55 feet

1/ Based upon 15 foot track centers and a side slope of 1.5 to 1.

TPI’s engineers used the specifications in Table III-F-6 to adjust the earthwork quantities from the ICC Engineering Reports for the valuation sections covering the TPIRR.²³ Relying on these adjusted quantities, TPI’s engineers then calculated the earthwork quantities for the TPIRR’s line segments.²⁴ In particular, TPI first matched the TPIRR line segments with the applicable valuation section. Next, the track miles for each segment were categorized as first main (route miles), other main (multiple track and passing sidings), and other track (such as set out tracks) based on the TPIRR’s track configuration shown in the TPIRR stick diagrams. Finally, the number of track miles was multiplied by the applicable cubic yards per mile for the appropriate valuation section.

ii. Yard Quantities

As discussed in Part III-B, the TPIRR has twelve (12) major yards (including eleven (11) hump yards) and numerous lesser yards (including interchange yards).²⁵ For each yard, TPI calculated the grading requirements based on an assumed average fill height of one foot and 25 foot track centers.²⁶

²³ See e-workpaper “TPIRR Open Grading.xlsx,” tab “Earthwork by val sec.”

²⁴ See e-workpaper “TPIRR Open Grading.xlsx,” tab “CY Grad by seg.”

²⁵ See e-workpaper “TPIRR Yard Matrix Opening Grading.xlsx.”

²⁶ The one-foot fill height was used for the TPIRR yards because an assumed fill height of one foot is used to allocate earthwork quantities to the yard tracks involved in the original construction and reflected in the ICC Engineering Reports. This methodology has been applied repeatedly, and accepted by the STB, to develop

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Yard earthwork is classified as excavation because the estimated yard track quantities removed from the ICC Engineering Report total quantities were removed from the excavation quantities for each valuation section.

iii. Earthwork Unit Costs

Harvey Crouch and his associates are familiar with much of the route of the TPIRR and knowledgeable about the appropriate earthwork and equipment required for excavation. Rail lines, including the lines comprising the TPIRR, are generally laid out to follow the natural ground as much as possible, minimizing grade changes and avoiding difficult terrain whenever possible. The TPIRR relies upon the same least-cost-but-feasible grading approach.²⁷

(a) Common Earthwork

In many previous stand-alone proceedings, earthwork excavation unit costs have been based on the Means Handbook.²⁸ The costs in the Means Handbook, however, are conservatively high because they are based on an average of costs for projects of all sizes from around the country, without specific consideration for the economies of scale that would benefit the TPIRR due to the much larger project size involved. But, in the two most recent stand-alone decisions, *WFA/Basin I* and *AEPCO*, complainants have proposed, and the STB has accepted, common earthwork unit costs based on actual projects instead of the Means Handbook. TPI has continued that trend.

SARR yard earthwork quantities. See *Wisconsin P&L* at 1022, *PSCo/Xcel I* at 675, *AEP Texas II* at 81, *Otter Tail* at D-10, *Duke/NS* at 172, *CP&L* at 310-311, *Duke/CSXT* at 477 and *AEPCO* at 90. See e-workpaper "TPIRR Open Grading.xlsx," tab "Yards."

²⁷ See *FMC* at 800 ("UP has not shown that it would be infeasible to use the equipment selected by FMC... FMC is entitled to have the equipment that results in the overall lowest cost used. Therefore, we use FMC's unit costs for grading to determine earthwork costs."). See also *Duke/CSXT* at 478-480; *PSCo/Xcel I* at 676-678.

²⁸ See *PSCo/Xcel I* at 677-678, *AEP Texas II* at 81-82, *Otter Tail* at D-11-12, *Duke/CSXT* at 478-479, *Duke/NS* at 174-176, and *CP&L* at 313.

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Beginning with *WFA/Basin I*, complainants used costs from actual railroad construction projects. In that case, both BNSF and the Board accepted the common excavation cost per CY based on an actual BNSF track construction project.²⁹ This trend continued in *AEPCO*, where the complainant relied on costs from five BNSF railroad projects and these costs were similarly accepted by the Board.³⁰

In this proceeding, CSXT provided a limited number of documents containing earthwork cost information in response to TPI's discovery requests. These documents included projects involving additions or modifications to existing track and right of way, such as new sidings or second main constructed adjacent to active tracks. But, performing projects under traffic or adjacent to active tracks increases the cost of the project because site access is limited, work has to be conducted in limited work windows, and work has to be performed in a manner that is safe with respect to the railroad and its contractor and the contractor's activities. The earthwork quantities for many of these CSXT projects also were less than 60,000 CY with several less than 20,000 CY. Nor were any costs provided for "common excavation." In addition, none of these projects were for new line construction such as the TPIRR. In short, none of the CSXT projects are remotely akin to new rail line construction like the TPIRR.

As discussed in the previous section on clearing and grubbing, TPI's Witness Crouch was involved with the Trestle Hollow Project, a railroad realignment project in Tennessee that required the construction of a new railroad line. While this project is short in length, it differs from the projects covered by CSXT's discovery responses in at least two important ways. First,

²⁹ See *WFA/Basin I* at 86 ("the parties agreed on the unit costs for common excavation"); *WFA/Basin Opening Evidence (Public Version)* at III-F-36-37 (filed April 19, 2005) (describing the source of the common excavation unit cost); and *WFA/Basin Rebuttal Evidence (Public Version)* at III-F-56 (filed September 30, 2005) (stating that BNSF accepted *WFA/Basin*'s common excavation unit cost).

³⁰ See *AEPCO* at 86-88.

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the Trestle Hollow Project reflects new rail line construction. Second, there were considerable amounts of earthwork moved.³¹

The Trestle Hollow Project involved construction of a particularly challenging and complicated new alignment for the South Central Tennessee Railroad west of Nashville. This project was challenging for several reasons. The purpose of the project was to bypass several large timber bridges approximately 100 years old. The alignment was designed to improve the vertical grade and reduce curvature. The new design was difficult due to the hilly terrain and included several tall embankments and deep cuts all on an average 2.4% grade. Clearing was difficult due to the hilly nature of the land and the size of the trees. The material excavated was a combination of common earth and loose rock. Indeed, due to the presence of loose rock, TPI's engineers are being conservative by using the Trestle Hollow costs only for common excavation. The challenges associated with the Trestle Hollow project demonstrate that even its costs may overstate the actual common excavation costs for most of the TPIRR, which would not face comparable challenges over much of its network.

Common earthwork excavation costs for the TPIRR are based on the actual unit cost from the 2007 Trestle Hollow project of \$1.65 per CY indexed to 3Q10. This unit cost includes all necessary work to prepare the roadbed for the placement of subballast (finish grading), the handling of waste and hauling it to off-site locations as needed, as well as costs associated with any subgrade preparation (water for compaction or drying of the soil) that might be necessary.³²

³¹ See e-workpapers "Trestle Hollow Specifications.pdf," "Trestle Hollow Project Cost Sheet.pdf," "5070 SCTRA Trestle Hollow Phase I Contractor Invoices.pdf," and "5070 Full Set.pdf". Further information is provided in the sub-directory "Trestle Hollow Pictures" included in TPI's workpapers.

³² See the construction specifications contained in e-workpaper "Trestle Hollow Specifications.pdf," Section 3, pages 152-153, 160-161, and 164.

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The TPIRR also traverses some areas that TPI classified as adverse, i.e., the territory is more difficult and access is limited due to the terrain. These areas are identified in TPIRR's workpapers based on a review of topographical maps to identify the portions of the TPIRR that traverse areas with steep slopes alongside or surrounding the rail line.³³ Using the Means Handbook, TPI's engineers calculated a common excavation unit cost³⁴ and a cost for common excavation in adverse areas.³⁵ For the TPIRR line segments that were designated as adverse, the ratio between Means Handbook costs under ideal conditions and costs under adverse conditions was used to adjust the Trestle Hollow Project unit cost.

The cost for common excavation at 3Q10 levels is \$1.79 per CY with \$2.30 per CY used in areas with adverse conditions.³⁶

(b) Loose Rock Excavation

Loose rock excavation is a category shown on the ICC Engineering Reports that does not have a counterpart in today's railroad construction environment. Railroads today use the categories of common (or unclassified) and solid rock. Thus, TPI is being extremely conservative by applying a separate loose rock cost to such excavation rather than including it with the common excavation quantities. Loose rock excavation costs are based on the combination of one 300 HP dozer and one 410 HP dozer for ripping the loose rock in ideal conditions and pushing it into piles, a three CY power shovel for placing the ripped and dozed rock into the truck (including the Means 15% additive), a combination of a 42-CY off-highway truck (48%) and a 22-CY off-highway truck (52%) to haul the material to the fill or disposal

³³ See e-workpapers "TPIRR Adverse Territory.xlsx," and "TPIRR Open Grading.xlsx," tab "EW Cost."

³⁴ See e-workpaper "TPIRR Open Grading.xlsx," tab "Unit Costs."

³⁵ *Id.*

³⁶ *Id.*

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site,³⁷ and a dozer to spread the material after it is dumped. Both of the dozers are equipped with rock rippers at the rear and large push blades in front. The cost for loose rock excavation in adverse areas is based on the same Means Handbook components except that the unit costs for ripping the loose rock are for adverse conditions.

The cost for loose rock excavation is \$11.81 per CY with \$11.94 per CY used in areas with adverse conditions.³⁸

(c) Solid Rock Excavation

TPI's solid rock excavation unit cost development is consistent with recent Board decisions.³⁹ The unit cost for solid rock blasting is based on an average of the Means Handbook cost for blasting rock over 1,500 cubic yards and the cost for bulk drilling and blasting. TPI has added the costs to excavate the blasted rock, load it into trucks, haul it away, and dump it. In addition, the cost to spread the material and the average compaction cost for embankment that was used for the other earthwork categories were also applied.

TPI's engineers used a 50/50 combination unit cost made up of the solid rock unit cost (\$19.00 per cubic yard in all conditions) and the loose rock unit cost (\$11.81 per CY and \$11.94 per CY in adverse conditions) based on their expert opinion that at least half of the quantities classified by the ICC as solid rock would be rippable (and therefore classified as loose rock or common excavation) using modern equipment.⁴⁰ This 50/50 combination results in a cost per

³⁷ This percentage split was used by the parties in *DuPont*. See NS's Reply Evidence (Public Version) at III-F-69-70 (filed November 30, 2012) and DuPont's Rebuttal Evidence (Public Version) at III-F-38 (n. 74) (filed April 15, 2013).

³⁸ The unit costs from the 2010 Means Handbook are indexed to 3Q10 levels and adjusted by the Means Handbook location factors. See e-workpaper "TPIRR Open Grading.xlsx," tab "Unit Costs."

³⁹ See *WFA/Basin I* at 86-87, *AEP Texas II* at 82-83, *PSCo/Xcel I* at 677-678 and *AEPCO* at 89-90.

⁴⁰ This 50/50 combination has been repeatedly accepted by the Board in cases such as *WFA/Basin I*. See BNSF Reply Evidence (Public Version) at III.F-59 (n. 61) and III.F-63 (filed July 20, 2005) in STB Docket No. 42088. The 50/50 combination was also used in *AEP Texas II*. See BNSF Reply Evidence (Public Version) at III.F-45 (n. 52) and III.F-49 (filed May 25, 2004) in STB Docket No. 41191 (Sub-No. 1). See also *Otter Tail* at D-12;

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CY of \$15.41 for solid rock excavation with \$15.47 per CY used in areas with adverse conditions.⁴¹

(d) Embankment/Borrow

The Means Handbook-based unit cost for borrow utilized by the TPI engineers is based on a five cubic yard wheel-mounted front end loader, 20-CY capacity dump trucks to haul material to the construction site, a dozer to spread the material, and the average compaction cost for embankment that was used for the other earthwork categories.⁴² Borrow unit cost equals \$16.82 per CY at 3Q10 levels.⁴³

(e) Land for Waste Excavation

Not all of the excavated material for the TPIRR is re-used as fill. Consistent with the procedures used in other SAC cases, TPI's earthwork calculations assume a 30% waste ratio.⁴⁴ The 30% waste ratio is an average for the entire TPIRR. Some sections of the TPIRR may have no waste excavation as all of the excavated material is suitable and needed for reuse as embankment. Some sections may have more than 30% waste due to lesser embankment needs or the disposal of material unsuitable for reuse as embankment. The actual locations where waste dump sites will be needed during the construction of the TPIRR, and their corresponding size, cannot be specifically identified because there is no way to determine the actual quantities of waste material generated at specific locations along the TPIRR construction route. The ICC Engineering Reports contain only excavation quantities with no information regarding how much

PSCo/Xcel I at 677 (where BNSF also agreed on this split); *Duke/NS* at 174; *CP&L* at 312; *Duke/CSXT* at 478; *AEPCO* at 89-90.

⁴¹ See e-workpaper "TPIRR Open Grading.xlsx," tab "Unit Costs."

⁴² This is consistent with prior SAC proceedings. See *AEP Texas II* at 81 and *Otter Tail* at D-13.

⁴³ See e-workpaper "TPIRR Open Grading.xlsx," tab "Unit Costs."

⁴⁴ See, e.g., *AEP Texas II* at 86.

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material was reused as embankment and how much was wasted. For this reason, the average 30% waste ratio has been in use and accepted for over two decades.⁴⁵

Because this waste material needs to be placed somewhere, the TPIRR is acquiring additional land along the right-of-way to accommodate the dumping of the waste material. Waste dump sites are only needed near locations on the TPIRR where there is waste material. These waste sites will be located alongside the TPIRR right-of-way in close proximity to where the waste material is generated. TPI's decision to purchase land for waste quantities is conservative because, based on Mr. Crouch's experience, grading contractors typically make arrangements with landowners adjoining the railroad right-of-way for the placement of waste quantities rather than purchasing land.⁴⁶ The waste material could be sold from the waste site as fill dirt or the land could be re-sold after construction of the TPIRR is completed. TPI has not factored this stream of revenue into its development of stand-alone costs.

In calculating the number of acres needed for waste quantities, TPI's engineers have assumed an average 15-foot depth for wasted materials, or 24,200 CY per acre. TPI has increased the size of the waste site to accommodate a 1:1 side slope of the material and a 20-foot perimeter to accommodate work equipment. This results in acquiring 1.69 acres for every acre needed.⁴⁷

TPI has included an additional 11,687 acres of rural land for this purpose at an estimated \$18,451 per acre for a total cost of \$215.6 million.⁴⁸

⁴⁵ The thirty (30) percent waste excavation ratio dates back to the early SAC proceedings when the ICC Engineering Report earthwork data was first used and thirty (30) percent has been used ever since.

⁴⁶ According to Mr. Crouch, this was how waste quantities were handled for the Trestle Hollow Project. The grading contractor made such arrangements with adjoining landowners and any cost to the contractor was included in his bid for the project as there was no separate payout identified with land for waste quantities.

⁴⁷ See e-workpapers "TPIRR Open Grading.xlsx," tab "Other Costs" and "Land for waste quantities.pdf."

⁴⁸ See e-workpaper "TPIRR Open Grading.xlsx," tab "Other Costs."

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(f) Total Earthwork Cost

The total earthwork cost associated with constructing the TPIRR (including the cost of land for waste excavation) is \$3,146.4 million.⁴⁹

c. Drainage

i. Lateral Drainage

The linear feet of pipe per route mile for lateral drainage was obtained from the ICC Engineering Reports and applied to the TPIRR's line segments. The cost per linear foot for installed drainage pipe, including backfill and compaction, was taken from the 2010 Means Handbook indexed to 3Q10 and adjusted by the Means Handbook location factors. Based on the ICC Engineering Reports, the TPIRR requires 2,243,035 linear feet of lateral drainage pipe. The TPIRR's total investment in lateral drainage equals \$69.4 million at 3Q10.⁵⁰

ii. Yard Drainage

Yard drainage costs for the TPIRR's yards are included in the yard site development costs discussed in Part III-F-7.

d. Culverts

Culverts are devices placed in the roadbed to facilitate the movement of water from one side of the track to the other where large drainage areas, typical of bridges, are not required. The culverts specified by TPI's engineers are aluminized steel corrugated metal pipe. All culverts used by the TPIRR are adequate to withstand railroad loadings to a gross weight on rail of 286,000 pounds per car (Cooper E-80 standards). Existing culvert flow rates were calculated and compared to the flow rate of the installed corrugated metal pipe to ensure that the pipe(s) were adequately sized. Existing culvert height was used to determine the maximum size circular pipe

⁴⁹ See e-workpaper "TPIRR Open Grading.xlsx," tab "Summary."

⁵⁰ See e-workpaper "TPIRR Open Grading.xlsx," tab "Other Items."

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that could be installed. If the existing flow could not be carried by installing corrugated metal pipe, the culvert is replaced with a Type I bridge.⁵¹

i. Culvert Unit Costs

Unit costs were developed from costs provided in quotes from a metal pipe manufacturer and the Means Handbook. Unit costs for corrugated metal pipe (“cmp”) are driven by the linear feet (“LF”) of length of each culvert required in a particular location as well as the diameter of the pipe.⁵² Additional unit costs were developed for excavation, furnishing and placing crushed stone for bedding material, and backfill.⁵³ Transportation costs were added at \$0.035 per ton-mile.⁵⁴

ii. Culvert Installation

All culverts are installed during the early stages of preparation of the subgrade for the railroad. The sites are easily accessible, in part through the ongoing preparation of the roadbed and in part because much of the TPIRR’s ROW is near public roads. Moreover, the culverts can be installed with a minimum of excavation using the open trench method of installation.

Specifically, once the base layer of the roadbed is in place, the trench for the culvert is excavated one foot wider on each side than the culvert width. The bottom of the excavation is covered with an average depth of 12" of crushed stone bedding material. The culvert is then placed in the trench and crushed stone bedding material is placed and compacted around the culvert in small, uniform compacted lifts, to approximately half the culvert’s diameter. The

⁵¹ See e-workpaper “TPI Bridge Construction costs.xlsx” for costs associated with culverts replaced by a Type I bridge.

⁵² See e-workpaper “Contech Pricing.pdf.”

⁵³ The price of bedding material is from the Trestle Hollow Project. All other unit costs are from the Means Handbook. See e-workpaper “TPIRR Culvert Construction.xlsx.”

⁵⁴ This transportation cost was used by both parties for culverts in the recent *DuPont v. Norfolk Southern* proceeding. See *DuPont Rebuttal Evidence (Public Version)* at III-F-58 (filed April 15, 2013) in STB Docket No. 42125.

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bedding material acts 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. The first culvert section is placed on the prepared bedding material. The next section is placed adjacent to the first and a connecting band is installed to connect the two sections. This continues until all sections have been set in place. The culvert is then backfilled uniformly using small compacted lifts of backfill material. After the sub-base has been prepared, most culverts can be installed in less than one day.

Work production of the crews is consistent with TPI's proposed construction schedule because there are no deep trenches to excavate or work in, and by installing the culverts at this stage of the project, no waterway diversions are required. Moreover, in the few instances where water is flowing immediately adjacent to the culvert, the culvert can be installed while the water is flowing.

iii. Culvert Quantities

TPI's engineers used the culvert inventories provided by CSXT in discovery to form an initial culvert list. However, upon review, TPI's engineers determined that CSXT's culvert data was not complete. The culvert list provided by CSXT was missing height data for multiple culverts being duplicated by the TPIRR. For these culverts, assumptions were made for sizes of these pipes. For culverts where no height information was given, an average culvert size was developed and used for cost calculations. For box culverts where only the width or height was provided, TPI assumed the height and width to be equal. CSXT provided existing box culvert dimensions in units of feet, but in a few cases TPI determined the dimensions were input as inches.

In some instances, the culvert inventories provided by CSXT did not include any culvert length data. TPI's engineers developed an average length and used this length where lengths

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were not provided. In order to ensure that the TPIRR's culverts could meet the loading requirements of the TPIRR, TPI's engineers elected to use aluminized cmp for all replicated culvert installations. For culverts that could not be replicated using circular aluminized cmp, the culvert was replaced by a Type I bridge.

iv. Total Culvert Costs

The total cost of the TPIRR's culverts is \$124.9 million.⁵⁵

e. Other

i. Ditches

In cuts, the TPIRR has side ditches that are two feet wide and two feet deep and that are trapezoidal in section. Two-foot ditches are commonly used by Class I railroads such as CSXT for new construction projects and have repeatedly been accepted by the Board.⁵⁶

ii. Retaining Walls

Retaining wall quantities for the TPIRR are also extracted from the ICC Engineering Reports. The Engineering Report data includes cubic yards of masonry, timber walls, and walls made from timber ties and pilings under the category "Protection of Roadway" included in Account 3, Grading. TPI has assigned all of the ICC Engineering Report retaining wall quantities to the main line miles (route miles) of each valuation section. The resulting average quantity per main line mile for each valuation section is then applied to the route miles of the TPIRR corresponding to each valuation section to calculate the retaining wall quantities for the TPIRR line segments.

⁵⁵ See e-workpaper "TPIRR Culvert Construction.xlsx."

⁵⁶ See *Duke/NS* at 171, *CP&L* at 310, *Duke/CSXT* at 476, *TMPA* at 701 (n.183), *Wisconsin P&L* at 1023.

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Rather than construct masonry or timber retaining walls, the TPIRR uses gabions (galvanized steel mesh boxes filled with rock) for all of its retaining walls. Gabions are suitable because they can be assembled on site and bent to fit the existing terrain.

TPI has used the cost for retaining wall gabions (including the rock) and the cost for timber pilings from the 2010 Means Handbook. Total retaining wall investment for the TPIRR equals \$223.9 million at 3Q10 levels.⁵⁷

iii. Rip Rap

TPI's engineers developed rip rap quantities from the ICC Engineering Reports, and applied the unit cost from the Means Handbook to machine-place the rip rap. The material portion (rock) of the unit cost is included because the material is not readily available from the excavated rock that is wasted. TPI has included \$76.8 million for rip rap investment at 3Q10 levels.⁵⁸

iv. Relocating and Protecting Utilities

The vast majority of the lines being replicated by the TPIRR were constructed by CSXT's predecessors in the 19th and early 20th centuries. Few, if any, utility lines existed at that time and would have had to be relocated. These costs were not incurred by the incumbent and thus, under the *Coal Rate Guidelines*, would constitute a barrier to entry if imposed on the TPIRR.⁵⁹

However, TPI's engineers identified five TPIRR branch lines, totaling 47.3 route miles, which could not be found on the ICC valuation maps accompanying the ICC Engineering Reports. Therefore, TPI's engineers assumed that these rail lines were constructed in the second

⁵⁷ See e-workpaper "TPIRR Open Grading.xlsx," tab "Other Items."

⁵⁸ This rip rap investment does not include the rip rap used on culvert faces and for bridge pier and abutment protection. Those costs are included, where needed, in the appropriate investment category. Details on rip rap investment for roadbed preparation are provided in e-workpaper "TPIRR Open Grading.xlsx," tab "Other Items."

⁵⁹ See *AEP Texas II* at 84; *PSCo/Xcel I* at 680; *Duke/CSXT* at 483.

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half of the 20th century. Consistent with prior STB decisions, TPI included \$0.7 million, based on the cost per mile in *WFA/Basin I* indexed to 3Q10, for costs to relocate and protect utilities on these lines.⁶⁰

v. Seeding/Topsoil Placement

Embankment protection quantities for all lines other than the recently-constructed branch lines were derived from the ICC Engineering Reports. Based on the ICC Engineering Report data, only 0.44 percent of the lines being replicated by the TPIRR had embankment protection quantities. For the recently-constructed branch lines, TPI's engineers estimated the acres per mile for seeding/topsoil placement based on the average acres per mile for the 79-mile Orin Line, constructed by the BNSF Railway in Wyoming during the 1970's.

For seeding and topsoil placement costs, TPI's engineers relied upon the unit cost of \$1,600 per acre from the Trestle Hollow Project indexed to \$1,733 per acre at 3Q10 levels.⁶¹ Total TPIRR investment costs for seeding/placing topsoil equal \$1.5 million.

vi. Water for Compaction

In the Eastern coal rate cases, the Board agreed with complainants that water for compaction was not necessary in the areas traversed by the stand-alone railroads because there is sufficient water content in the region to allow for proper compaction.⁶² Consistent with the territory traversed by the stand-alone railroads in the Eastern coal rate cases, the TPIRR rail lines traverse sub-humid, moist sub-humid, and humid areas, not arid or semi-arid areas.⁶³ In any

⁶⁰ See e-workpaper "TPIRR Open Grading.xlsx," tabs "Other Costs" and "Utilities." See also *WFA/Basin Rebuttal Evidence (Public Version)* at III-F-78 (filed Sept. 30, 2005) in STB Docket No. 42088.

⁶¹ See e-workpapers "Trestle Hollow Project Cost Sheet.pdf," and "TPIRR Open Grading.xlsx," tab "Other Costs."

⁶² See *Duke/CSXT* at 483, *Duke/NS* at 179-180, and *CP&L* at 317.

⁶³ See e-workpaper "TPIRR Route avg rainfall.pdf."

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event, even if water for compaction was necessary in a certain area, the common earthwork unit costs relied on by TPI include any incidental items such as water.⁶⁴

vii. Surfacing for Detour Roads

TPI's engineers did not include costs for any road detours for the TPIRR's lines that are covered by ICC Engineering Reports, as it is unlikely that CSXT incurred any costs for this item when the lines were originally built, and CSXT did not provide any information in discovery indicating that it incurred such costs. This is consistent with the approach approved by the Board in other SAC cases.⁶⁵

For the TPIRR's recently-constructed branch lines, TPI's engineers included an estimate of \$4.3 million for the cost to provide road detours during construction.⁶⁶

viii. Construction Site Access Roads

In general, the TPIRR's track subgrade is used for its site construction roads. In addition, most of the TPIRR right-of-way is accessible from public roads and highways, thereby permitting construction access without building separate access roads. Further, the initial construction activity includes clearing the TPIRR right-of-way and creating initial site access with the heavy construction equipment. As the site is leveled by either cutting or filling the right-of-way, access roads are created for moving earth, rock, and other materials to and from the construction sites. In any event, no additional costs should be incurred for site construction access roads because, according to Mr. Crouch, the Trestle Hollow Project, used for common

⁶⁴ See e-workpaper "Trestle Hollow Specifications.pdf," pages 160, 161, and 164.

⁶⁵ See *PSCo/Xcel I* at 681-682; *Duke/NS* at 180; *CP&L* at 317; *Duke/CSXT* at 484; *TMPA* at 707-708; *Wisconsin P&L* at 1024-1025; *FMC* at 802.

⁶⁶ See e-workpaper "TPIRR Open Grading.xlsx," tab "Other Costs."

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excavation costs, required the contractor to provide its own, uncompensated, access to the site. TPI's position on this issue is consistent with several prior SAC decisions.⁶⁷

ix. Environmental Compliance

TPI included environmental compliance costs only for the five recently constructed branch lines. Inclusion of these costs on the lines originally constructed in the 19th and early 20th centuries by CSXT or its predecessors would constitute a barrier to entry.⁶⁸

Total environmental compliance costs for the TPIRR equal \$0.9 million.

3. Track Construction

TPI's track construction evidence is co-sponsored by Witnesses Harvey Crouch and Jerry Harris, Jr. Their qualifications are detailed in Part IV.

Track construction is the work required to lay track once the subgrade has been completed. This includes placing subballast, ballast, ties, rail, and other track components. The total quantities and costs required for construction of the TPIRR are summarized in Table III-F-7 below.

⁶⁷ See *Duke/CSXT* at 476-477; *Duke/NS* at 172; *CP&L* at 317; and *AEP Texas II* at 80.

⁶⁸ See *Wisconsin P&L* at 1025 (the parties agreed that environmental mitigation was only required for the recently constructed segments); *FMC* at 802; *PSCo/Xcel I* at 682 (the parties agreed on the level of such costs); *AEP Texas II* at 86. See also WFA/Basin Rebuttal Evidence (Public Version) at III-F-81-82 (filed Sept. 30, 2005) in STB Docket No. 42088 (environmental compliance costs applied only to recently-constructed lines). Details supporting environmental compliance costs for the TPIRR are provided in e-workpaper "TPIRR Open Grading.xlsx, tabs "Other Costs" and "Environ Comp."

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Table III-F-7 <u>TPIRR Track Construction Costs</u>	
Item (1)	Cost (000) (2)
1. Geotextile Fabric	\$3,506
2. Ballast and Sub-ballast	1,688,413
3. Ties	1,280,443
4. Track (Rail)	
a. Main Line	2,190,548
b. Yard and Other Track	305,463
c. Field Welds	31,311
d. Switches (Turnouts)	710,332
e. RR Crossing Diamonds	24,161
5. Rail Lubricators	13,235
6. Plates, Spikes and Anchors	769,662
7. Derails and Wheel Stops	9,292
8. Switch Heaters	10,328
9. Track Labor and Equipment	1,457,879
10. Total	\$8,494,573
Source: See e-workpaper "Track Construction.xlsx," tab "Summary."	

a. Geotextile Fabric

TPI has placed geotextile fabric under turnouts and at at-grade crossings.⁶⁹ TPI has calculated the number of square feet ("SF") of geotextile fabric needed for at-grade highway crossings and No. 20, No. 14, and No. 10 turnouts.⁷⁰ TPIRR requires a total of 25,618,656 SF of geotextile fabric under turnouts and at-grade highway crossings at a cost of \$3.5 million.⁷¹

b. Ballast and Sub-ballast

TPI's engineers have used 18" of ballast and sub-ballast, consisting of a 6-inch sub-ballast layer and a 12-inch layer of clean rock ballast for all main tracks. Diagrams of the

⁶⁹ This is the practice accepted in prior SAC cases. See, e.g., *WFA/Basin I* at 94-95.

⁷⁰ See e-workpapers "Track Construction.xlsx" and "Turnouts.pdf."

⁷¹ See e-workpaper "Track Construction.xlsx."

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standard TPIRR main track cross sections (single and double) are included in the accompanying workpapers.⁷² This roadbed section conforms to CSXT's standard roadbed section.⁷³

TPI's engineers used 4" of sub-ballast and 6" of ballast under yard tracks and helper pocket and set-out tracks because of the lighter traffic and slower speeds. This is consistent with CSXT's standard roadbed section.⁷⁴ Ballast for the TPIRR would be locally obtained limestone or granite, crushed to meet AREMA No. 4 size requirements and meeting Los Angeles and Mill Abrasion requirements.⁷⁵ Sub-ballast consists of similar parent materials crushed to provide a well-graded, dense layer of crushed rock similar to road base material.⁷⁶

Ballast and sub-ballast quantities were developed for all sections of track based on the lengths of single and multiple track sections, and the roadbed section referenced above. As noted above, the TPI engineers have included cross-sections of the TPIRR track designs. The workpapers include the volume per foot of track for all items, including the volume per foot of track for ballast and sub-ballast.⁷⁷ The quantities were calculated by multiplying the sectional area in square feet by one foot in length and then dividing by 27 to obtain cubic yards. The volume of rock displaced by the volume of the ties being used in particular locations was removed from the total volume calculation.⁷⁸

Ballast and sub-ballast quantities for yards were calculated assuming each track in the yard is a single track and using the 4" sub-ballast and 6" ballast depth. TPI's experts used a

⁷² See e-workpaper "TPIRR Typical Sections.pdf."

⁷³ See e-workpaper "Ballast & Sub-ballast Depth.pdf."

⁷⁴ *Id.*

⁷⁵ See e-workpaper "AREMA Recommended Ballast Gradation.pdf."

⁷⁶ See e-workpaper "AREMA Sub-ballast Specification.pdf."

⁷⁷ See e-workpaper "TPIRR Typical Sections.pdf."

⁷⁸ See e-workpapers "TPIRR Typical Sections.pdf" and "Track Construction.xlsx."

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conversion factor of 1.5 tons/CY for sub-ballast and 1.35 tons/CY for ballast in determining quantities. Support for these conversion factors is contained in TPI's workpapers.⁷⁹

TPI's engineers used prices for ballast from direct quotes obtained from suppliers and historical pricing data provided by CSXT in discovery.⁸⁰ TPI's engineers utilized sub-ballast unit costs obtained for the Trestle Hollow Project, which included delivery costs. Delivered costs for ballast are based on shipping distances from the sources to various locations on the TPIRR system, which were then multiplied by \$0.035 per ton-mile based on a transportation charge from *AEPCO*.⁸¹ Transportation costs on the TPIRR are based on average shipping distances from the various locations where ballast was delivered to the placement location on the TPIRR multiplied by \$0.035 per ton-mile. The supply and shipping costs were then totaled and averaged to develop an average cost per ton delivered for ballast. The total cost of ballast and sub-ballast for the TPIRR is \$1,688 million.⁸²

c. Ties

TPI's engineers selected wood ties with a tie spacing of 20.5 inches for all main track, passing sidings, and branch lines consistent with railroad industry standards for mainline track. The Board has also repeatedly accepted wood tie spacing of 20.5 inches.⁸³ Because of the lighter traffic and slower speeds, TPI's engineers used wood ties with 24 inch spacing in yards, helper tracks, and set-out tracks.⁸⁴

⁷⁹ See e-workpaper "Ballast & Sub-ballast Density.pdf."

⁸⁰ See e-workpaper "Track Construction.xlsx."

⁸¹ See *AEPCO* at 100-101.

⁸² See e-workpaper "Track Construction.xlsx."

⁸³ See, e.g., *WFA/Basin I* at 96; *West Texas Utilities* at 707.

⁸⁴ See *WFA/Basin I* at 96 (accepting this spacing in yards).

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TPI's engineers selected standard Grade 5 treated hardwood railroad ties with dimensions of 7" x 9" x 8'6", for all track. Unit costs for Grade 5 ties were based on CSXT's 2010 cost.⁸⁵ Transportation costs were added based on the miles from the supplier to the TPIRR locations times \$0.035 per ton-mile.

The TPIRR is constructing its bridges with ballast decks, thereby obviating the need for transition ties. In addition, the Board has rejected transition ties at turnouts.⁸⁶ The total cost of ties for the TPIRR is \$1,280 million.

d. Track (Rail)

i. Main Line

As discussed in Part III-B, the TPIRR will use 136-pound CWR for most of the TPIRR's main tracks and passing sidings (20 MGT/year or greater), with premium rail used in curves 3 degrees and greater. For the lighter density portions of the TPIRR (less than 20 MGT/year), new 115-pound rail will be used.⁸⁷ The price per ton for the TPIRR's rail is \$857 based on CSXT's 2010 R-1.⁸⁸ Transportation costs for rail from the manufacturer to the TPIRR railheads were based on the miles times \$0.035 per ton-mile. The delivered cost used for the TPIRR's mainline rail is \$994 per ton.⁸⁹

The rail is welded together into approximately 1,440-foot lengths and then loaded onto a rail train. The cost for moving the rail from the TPIRR railhead to the placement location is

⁸⁵ See e-workpaper "Tie Cost – Page 87 from CSX 2010 R-1 Revised.pdf."

⁸⁶ See *WFA/Basin I* at 97.

⁸⁷ See e-workpaper "Track Construxction.xlsx."

⁸⁸ See e-workpaper "Page 89 from CSX 2010 R-1 Revised PDF (searchable) 2011-07-07.pdf."

⁸⁹ See e-workpaper "Track Construction.xlsx."

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based on the on-line distance times \$0.035 per ton-mile plus costs for rail trains and crews.⁹⁰

The total cost of mainline rail for the TPIRR is \$2,190 million.⁹¹

ii. Yard and Other Tracks

As discussed in Part III-B, the TPIRR is using new 115-pound CWR rail for yard tracks, helper pocket tracks, and set-out tracks. The costs for the rail for yard and other tracks were developed in the same manner discussed above for main line track.⁹² The total cost of rail for yards and other tracks for the TPIRR is \$305 million.⁹³

iii. Field Welds

The cost of labor for field welds is derived from direct quotes and historical prices from projects overseen by Crouch Engineering.⁹⁴ The cost of field weld materials is included in the costs for field welding labor.⁹⁵ Field welds are required to connect the 1,440-foot strings of welded rail produced by the manufacturer as well as to insert insulated joints, turnouts, at-grade road crossings, and diamond crossings. TPI's cost for at-grade road crossings includes the required field welds needed. TPI's cost for turnouts includes the field welds needed to assemble the panelized turnouts. The calculations for the remaining number of field welds as well as the number of compromise welds (where 115-pound and 136-pound rail are joined together) are included in the workpapers accompanying this opening evidence.⁹⁶ The total cost for field welds is \$31 million.⁹⁷

⁹⁰ See e-workpaper "Rail Train Costs.pdf."

⁹¹ See e-workpaper "Track Construction.xlsx."

⁹² *Id.*

⁹³ *Id.*

⁹⁴ See e-workpaper "Bayline Weld Bid.pdf."

⁹⁵ *Id.*

⁹⁶ See e-workpaper "Track Construction.xlsx."

⁹⁷ *Id.*

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iv. Insulated Joints

Insulated joint requirements are included with the signals and communications costs discussed in Section III-F-6 below.

e. Switches (Turnouts)

TPI's engineers included the number and size of turnouts specified in the TPIRR's stick diagrams (as discussed in Section III-B). Turnouts were also included for the TPIRR's yards and connections to customers served by the TPIRR.⁹⁸ Unit costs for turnouts were obtained from quotes from vendors.⁹⁹ The turnout quotations include all materials necessary for construction of complete No. 20 power turnouts, No. 14 power turnouts, and No. 10 hand-thrown turnouts, including, but not limited to rail, switch ties, rail, frogs, guard rails, switch points, base plates and tie plates, switch plates, switch point heel blocks, adjustable wedge brace plates for the switch point section, insulated tie bar rods, connecting rods, the switch machine mechanical switchman), field welds to connect the panels, and all other items incidental to turnout construction. Transportation costs were developed by multiplying the weight of each turnout by the distance from the supplier to the TPIRR location and \$0.035 per ton-mile.¹⁰⁰

Switch heaters were included on power turnouts on the TPIRR lines in NY, PA, OH, WV, MD, IN and IL. Switch heater costs were based on a quote received from CCI Thermal Technologies, Inc.¹⁰¹ plus shipping costs.

The total cost to the TPIRR for turnouts (excluding geotextiles and including switch heaters) is \$721 million.¹⁰²

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ See e-workpaper "Quote E20 N0. 20 Switch.pdf."

¹⁰² See e-workpaper "Track Construction.xlsx."

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f. Other

i. Rail Lubrication

Rail lubricators are used by the TPIRR to distribute grease to the wheel/flangeway interface. CSXT did not provide actual rail lubricator locations in discovery.¹⁰³ TPI calculated the number of rail lubricators on the TPIRR using the formula included in the CSXT Field Manual provided in discovery. These calculations are based on the length and degree of curves in the track, considering all track miles of main line track and sidings.¹⁰⁴ The unit cost for rail lubricators is based on quotes from vendors.¹⁰⁵ TPI has also included the costs for a protective mat, shipping, and installation.¹⁰⁶ The TPIRR's total cost for rail lubricators is \$13 million.¹⁰⁷

ii. Plates, Spikes and Anchors

The TPIRR is using treated hardwood ties with high carbon steel cut track spikes that will be used to hold the rail to the tie plate and the tie plate to the ties, and to provide lateral restraint to hold the rail to gauge (4 feet 8.5 inches inside dimension between the railheads). TPI used 7 ¾" x 14" tie plates for tangent track and curved track up to 6 degrees and 7 ¾" x 18" tie plates for curved track greater than 6 degrees. Two spikes per tie plate (four spikes per tie) are used on all track with timber ties and less than 3-degree curves. This spiking pattern is standard practice for U.S. railroads. AREMA standards also support two spikes per plate.¹⁰⁸

¹⁰³ Rail lubricators are not shown on CSXT's track charts and CSXT did not provide any location or count information in discovery.

¹⁰⁴ See e-workpapers "Lubricator Spacing.pdf" and "TPIRR Curves & Lubricator Spacing.xlsx."

¹⁰⁵ See e-workpaper "LB Foster – Lubricator Price Quote.pdf."

¹⁰⁶ See e-workpaper "Railroad Track Absorbent Matting.pdf."

¹⁰⁷ See e-workpaper "Track Construction.xlsx."

¹⁰⁸ See e-workpaper "TPIRR Spiking Patterns.pdf."

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For curves between 3 and 6 degrees, 4 spikes per plate are used. This pattern is consistent with industry practice and AREMA.¹⁰⁹ For curves greater than 6 degrees, 5 spikes per plate are used.¹¹⁰

Rail anchors are drive-on or spring clip-on devices that clamp under the base of the rail and bear against the sides of the timber ties. Anchoring the rail, combined with the interlocking of the track ballast, prevents the rail from running, buckling, or moving in a longitudinal direction down the track, due to thermal expansion or train acceleration/braking loads. The anchors transmit the longitudinal stress forces in the rail to the ties, which then transmit the forces to the ballast thereby restraining lateral movement of the track structure. Anchors are used on both sides of every other tie on main track, branch lines, yard tracks, set-out tracks, and interchange tracks where the curvature does not exceed 3 degrees. Anchors are used on both sides of every tie for curves 3 degrees or greater and for 200' on each end of grade crossings (those costs are included in the grade crossing and turnout costs). The anchoring pattern being used on the TPIRR is consistent with AREMA standards.¹¹¹

Transportation costs for these items were developed based on the weight of these items, the distance from supplier to TPIRR railhead, and \$0.035 per ton-mile.¹¹²

The total cost for plates, spikes, and anchors is \$770 million.¹¹³

iii. Derails and Wheel Stops

Derails are used to protect main line tracks by preventing cars and on-track work equipment from rolling from a side track through a turnout and onto the main track. Double

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ See e-workpaper "TPI Rail Anchor Pattern Details.pdf."

¹¹² See e-workpaper "Track Construction.xlsx."

¹¹³ *Id.*

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switch point derails are included at 50% of all set-out track turnouts near Failed Equipment Detectors (“FED”) based on the assumption that only 50% of the set-out tracks would be on a descending grade towards the mainline. Retractable derails are necessary at the remaining 50% of the set-out tracks that are on a descending grade away from the mainline and at yard turnouts where cars are set out from trains and stored. Wheel stops are used at the end of single-ended tracks such as set-out tracks to keep the cars from rolling off the end of the track. The cost for derails and wheels stops were developed from Aldon vendor price catalogues.¹¹⁴ The total cost for derails and wheel stops for the TPIRR is \$9 million.¹¹⁵

iv. At-Grade Railroad Crossings

At-grade railroad crossings were identified from the CSXT timetables covering the lines being replicated by the TPIRR.¹¹⁶ Costs for the at-grade railroad crossings were obtained from public evidence in a recent proceeding¹¹⁷ and indexed to 3Q10 levels. TPI has used its turnout installation labor quote for the installation of at-grade railroad crossings. The total cost for at-grade railroad crossings on the TPIRR equals \$24 million.¹¹⁸

v. Materials Transportation

As described above, specific transportation costs associated with a given item are included in the total costs for that item. Therefore, no additional transportation costs have been added.

Material prices include the costs to deliver the materials to the TPIRR railheads, including, but not limited to, Chicago, IL, Fostoria, OH, Cincinnati, OH, East St. Louis, IL, McKeesport, PA, Syracuse, NY, Richmond, VA, Nashville, TN, Fayetteville, NC, Atlanta, GA,

¹¹⁴ See e-workpaper “WheelStopCost.pdf.”

¹¹⁵ See e-workpaper Track Construction.xlsx.”

¹¹⁶ See e-workpaper “TPIRR At-Grade Railroad Crossings.xlsx.”

¹¹⁷ See Norfolk Southern Reply Evidence (Public Version) at III-F-155 (filed November 30, 2012) in *DuPont*.

¹¹⁸ See e-workpaper “Track Construction.xlsx.”

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Montgomery, AL, and Jacksonville, FL. Because of the numerous road access points along the TPIRR, the fairly uniform topography for most of the railroad, and interstate roads paralleling many line segments, materials that cannot be shipped by rail have been priced with shipping by truck to one or more of the road access points along the TPIRR's lines. The track construction costs include moving those materials from the various railheads to where they are required along the TPIRR right-of-way.

vi. Track Labor and Equipment

The TPIRR's track laying and related costs are derived from direct quotes and bids obtained from contractors on projects where Crouch Engineering bid and oversaw rail construction, and from recent quotes solicited from contractors for similar projects. A quote for track construction labor was obtained from Queen City Railroad Construction. The lowest quote/bid has been used for track construction and includes the following:

- Provide labor to unload all track material including 136 RE CWR or 115 RE CWR from rail train, timber cross ties, tie plates, rail anchors, spikes, and ballast
- Construct track complete using CWR, cross ties on 21" centers, box anchoring every other tie, box anchor every tie within 200' of grade crossings
- Distribute ballast from hoppers or ballast cars
- Surface and line track, regulate ballast, 12" of ballast under center of ties

The total cost of track labor for the TPIRR is \$1,458 million.¹¹⁹

The total cost of track construction for the TPIRR is \$8,495 million.¹²⁰

¹¹⁹ *Id.*

¹²⁰ *Id.*

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4. Tunnels

Tunnel inventory and tunnel lengths were provided by CSXT in discovery. The CSXT tunnel inventory did not specify which tunnels were lined and which were not lined, but it did classify the tunnels into the categories of timber, steel, rock, brick, and concrete.¹²¹ TPI assumed that all categories except rock are lined. TPI pared the CSXT listing down to only those tunnels located on the TPIRR.¹²²

Unit costs per foot for tunnels were obtained from public evidence in a recent proceeding¹²³ and indexed to 3Q10 levels. The costs per foot vary by the number of tracks in the tunnel, the length of the tunnel, and whether or not the tunnel is lined. Each tunnel on the TPIRR was matched to the appropriate cost per foot to determine the cost for each tunnel.¹²⁴

Total tunnel costs for the TPIRR equal \$1,596 million.¹²⁵

5. Bridges

TPI's bridge evidence is co-sponsored by Witnesses Harvey Crouch and Kevin Lindsey. Their qualifications are detailed in Part IV. TPI's engineers have observed bridges on some of the lines being replicated by the TPIRR and reviewed the specific information contained in CSXT's bridge inventory. Bridge quantities for the TPIRR were developed from CSXT bridge inventory information provided in discovery. Bridge designs were developed by TPI's engineers and unit costs are derived from various real-world sources as described below.

a. Bridge Inventory

Mr. Crouch prepared the bridge inventory for the TPIRR based on a review of the bridge information provided by CSXT in discovery. The bridge inventory furnished by CSXT in

¹²¹ See e-workpaper "2010 Active Tunnels.xlsx."

¹²² See e-workpaper "TPIRR Tunnel Construction.xlsx."

¹²³ See Norfolk Southern Reply Evidence (Public Version) at III-F-166 (filed November 30, 2012) in *DuPont*.

¹²⁴ See e-workpaper "TPIRR Tunnel Construction.xlsx."

¹²⁵ *Id.*

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discovery and utilized by TPI's engineers includes milepost, feature crossed (for some bridges), number of spans, structure type, bridge clearance (for approximately 55% of bridges) and total length.¹²⁶

b. Bridge Design and Cost Overview

When the CSXT lines replicated by the TPIRR were constructed, a variety of bridge types were used. This was due to the different technologies that were available at the time of original bridge construction, the proclivities of the particular railroad company that constructed the bridge, the desired load rating, and the available materials. Many existing CSXT bridges include masonry and timber structural components. As technology has become more sophisticated, so has bridge design and implementation.

The TPIRR's bridges have the same lengths as those being replicated, but TPI's engineers have designed those bridges using more efficient spans where possible and several standard bridge designs (*e.g.*, Type I, II, III, and IV bridges) based on the diverse bridge lengths and heights that are required.¹²⁷ First, the bridge inventory provided by CSXT did not include bridge height data; however, CSXT did provide bridge under clearance data for approximately 55% of the bridges in its system. Using this data, TPI's engineers were able to utilize concrete piers, concrete abutments and steel viaducts to handle the varying clearances and span lengths. The bridge clearances for the remaining 45% of the bridges were developed by CSXT division. The average bridge clearance was calculated for each CSXT division, rather than the CSXT system as a whole, by summing the provided bridge clearances and dividing by the number of

¹²⁶ See e-workpaper "TPI Bridge Construction Costs.xlsx."

¹²⁷ This is standard practice in prior SAC rate cases. See *Duke/NS* at 190-191, *CP&L* at 327, *Duke/CSXT* at 496 and *WFA/Basin I* at 110-112.

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bridges for which a clearance was provided. These averages by division were then applied to those bridges in each division for which a clearance was not provided.

Bridge height/clearance is an important component in developing the cost of a bridge. The higher the bridge, the more bracing will be required for stability, the more materials will be used to construct the substructure, and the higher the construction cost will be due to the difficulty in forming concrete, driving longer steel piles, and lap-splicing rebar.

No information was provided in discovery on the hydraulic opening area of the bridges. However, water flow increase/decrease is negligible due to the fact that, for each bridge, TPI's engineers either maintained the same number of spans and piers, or decreased the number of spans and piers, while keeping the length the same as the existing bridge. In this manner, the hydraulic opening of many bridges has been increased and improved by reducing the number of spans and bridge bents/piers.

Next, TPI's engineers developed a cost formula for each of the bridge types using a composite of costs from Crouch Engineering's historical data of successful bidders on similar-scale railroad bridge construction. The historical data includes the cost quotes from successful bidders for bridges built in rural Tennessee and rural Alabama with terrain very similar to that of the lines being replicated by the TPIRR. This project data focused on bridges that were not being built under traffic conditions or limited work windows, i.e., the bridges were built under working conditions similar to those assumed to exist when building the TPIRR. Once a standard cost formula was developed, it was applied to every bridge within the relevant category in the inventory. The cost of each bridge is developed separately. The primary formula applied for each bridge, but separately by Type as needed is: $\text{Bridge Cost} = [(\text{Abutment cost} \times \text{number of Abutments}) + (\text{Pier Cost} \times \text{number of Piers}) + (\text{Per Linear Foot Cost} \times \text{Length of Bridge})]$.

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Other components such as piling, handrail, elastomeric pads, base plates, and PVC deck drains are also reflected in the costs.¹²⁸ From a design standpoint, using Crouch Engineering's historical costs for building bridges ensures that all items necessary for building the bridges are included, especially since these historical costs are actual costs from real world applications thereby demonstrating the feasibility of the methodology. These bridges are adequate in design and have a minimum rating of 286,000 pounds and a life cycle of 100 years (meaning that no major repairs will be required for 100 years).

The total investment cost for the TPIRR's bridges is \$3,438 million.¹²⁹

i. Type I Bridges

Type I bridges have varying spans of up to 32'-0". These bridges are typically one span unless they are incorporated in the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. The same precast deck, column caps, abutment caps, and wing-walls are used for all of these bridges. The typical column uses 8 to 12-HP14x89 piles as the foundation depending on the clearance requirements and each abutment uses 4-HP14x73 piles as the foundation.¹³⁰ Type I bridges less than 32' in length are single span structures; structures that are 32-55' are two spans. In addition, Type I spans were often used when approach spans were necessary due to the inconsistent span lengths on the bridge inventory list.¹³¹

¹²⁸ See e-workpaper "TPI Bridge Construction Costs.xlsx."

¹²⁹ *Id.*

¹³⁰ See e-workpapers "TPI Bridge Construction Costs.xlsx," "Type I_Photos and Plans.pdf," "CSXT Standard Stub Abutment.pdf," "BR09-Type I & II Pier-1.pdf," "BR09-Type I & II Pier-2.pdf," and "TPI Pier & Pile Design.pdf."

¹³¹ See e-workpaper "TPI Bridge Construction Costs.xlsx."

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ii. Type II Bridges

Type II bridges have spans of 32'-0" to 45'-0". These bridges are typically one span unless they are incorporated into the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. These intermediate spans are achieved by placing rolled beam sections next to each other. The same columns, abutments, caps, and wing-walls are used for all of these bridges. The typical column uses 8 to 12-HP14x89 piles as the foundation depending on the clearance requirements and each abutment uses 4-HP14x73 piles as the foundation.¹³² The Type II Bridge classification on the TPIRR is reserved for single-span bridges between 32'-0" and 45'-0" in length and an occasional multi-span bridge requiring a shorter span.

iii. Type III Bridges

Type III bridges have spans of 60'-0" to 92'-6". These bridges are typically one span unless they are incorporated in the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. These intermediate spans are achieved by placing four pre-stressed concrete Bulb-T beams side-by-side. A cast-in-place deck is installed over the pre-stressed Bulb-T beams. The same columns, abutments, caps, and wing-walls are used for all of these bridges. The typical column uses 8 to 12-HP14x89 piles as the foundation depending on the clearance requirements and each abutment uses 9-HP14x73 piles as the foundation.¹³³ The Type III Bridge classification on the TPIRR is reserved for single-span

¹³² See e-workpapers "TPI Bridge Construction Costs.xlsx," "Type II_Photos and Plans.pdf," "BR04-Type II-1.pdf," "BR04-Type II-2.pdf," "BR04-Type II-3.pdf," "BR04-Type II-4.pdf," "BR04-Type II-5.pdf," "BR04-Type II-6.pdf," "BR04-Type II-7.pdf," "CSXT Standard Abutment.pdf," "BR09-Footing.pdf," "BR09-Type I & II Pier-1.pdf," "BR09-Type I & II Pier-2.pdf," and "TPI Pier & Pile Design.pdf."

¹³³ See e-workpapers "TPI Bridge Construction Costs.xlsx," "Type III_Photos and Plans.pdf," "BR05-Type III-1.pdf," "BR05-Type III-2.pdf," "BR05-Type III-3.pdf," "BR05-Type III-4.pdf," "BR05-Type III-5.pdf," "BR05-Type III-6.pdf," "BR05-Type III-7.pdf," "TPI Type III Abutment.pdf," "BR09-Footing.pdf," "BR09-Type III Pier-1.pdf," "BR09-Type III Pier-2.pdf," and "TPI Pier & Pile Design.pdf."

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bridges between 60'-0"- 92'-6" in length and an occasional multi-span bridge requiring a longer span. Type III Bridges are the most economical span, and therefore, this is the span that was chosen for single-span bridges between 60'-0" and 92'-6" in length and for multi-span bridges longer than 92'-6" (unless USCG restrictions are in-place).

iv. Type IV Bridges

Type IV bridges have spans of 150'-0", consist of a Steel Through Plate Girder, and can be comprised of multiple bridge types in order to achieve long multiple span structures. Type IV bridges were selected to cross over large rivers needing to comply with USCG clearance requirements, as well as instances where a longer span would be more cost-effective than multiple shorter span bridges. The same columns, abutments, caps and wingwalls are used for all of these bridges. The typical column uses 12-HP14x89 or HP14x117 piles as the foundation depending on the clearance requirements and each abutment uses 10-HP14x73 piles as the foundation.¹³⁴ The Type IV bridge classification on the TPIRR is reserved for bridges with USCG clearance requirements and for multi-span bridges longer than 150'. If 150' spans were used, it was necessary in some instances to have additional bridge types to extend the structure so as to keep it out of the floodplain. This is consistent with the information provided by CSXT in discovery. TPI's engineers have observed many existing CSXT bridges that include multiple span types.

v. Bridges with Mixed Spans

Bridges with mixed spans on the TPIRR have been removed from the main TPI bridge list and the costs have been calculated separately. The main reason for separating these bridges

¹³⁴ See e-workpapers "TPI Bridge Construction Costs.xlsx," "Type IV_Plans and Photos.pdf," "BR06-Type IV-1.pdf," "BR06-Type IV-2.pdf," "TPI Type IV Abutment.pdf," "BR09-Footing.pdf," "BR09-Type IV Pier-1.pdf," "BR09-Type IV Pier-2.pdf," and "TPI Pier & Pile Design.pdf."

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is simply for ease of calculation. It is often necessary to utilize different span types on a particular bridge. The use of concrete girders with steel girders, etc., happens often in bridge development. TPI has been able to accommodate the different span types by utilizing step caps for the different sized superstructure, using the appropriate abutments for different span types, and using the appropriate piers for the different span types and clearances. For example, although a two-span bridge having a single Type II span and a single Type III span will use the appropriate Type III pier, depending on the clearance requirements, the bridge will use both a Type II and Type III abutment. The costs are then developed similar to the Type I–IV bridges, accounting for the necessary piers, abutments, and spans.¹³⁵

vi. Tall Bridges

Bridges with a clearance of 65 feet or greater were classified as tall bridges. Tall bridges were separated out into a different tab in e-workpaper “TPI Bridge Construction Costs.xlsx” and the costs for these bridges were then calculated based on the clearance and span lengths required. The superstructure was calculated depending on the bridge length requirements, and the substructure utilizes a steel viaduct instead of a concrete pier for both economic and practical purposes. Using plans for the Pitman Creek Bridge, which utilizes steel towers, the weight of one tower was calculated on a pound-per-foot basis.¹³⁶ This weight was then used to calculate the costs of all the tall bridges by multiplying the clearance needed by the weight per foot calculated. This weight was then multiplied by a unit cost of steel, thus giving a cost per steel viaduct dependent upon the clearance provided.¹³⁷

¹³⁵ See e-workpaper “TPI Bridge Construction Costs.xlsx.”

¹³⁶ See e-workpapers “Pitman Creek Bridge MP 163.4.pdf,” “Pitman Creek Bridge Viaduct #2 Steel Weight.pdf” and “Pitman Creek Bridge Viaduct Bearing on Concrete Pedestal.pdf.”

¹³⁷ See e-workpaper “TPI Bridge Construction Costs.xlsx.”

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vii. Movable Bridges

Based on the CSXT bridge inventory, there are 14 swing spans, 8 bascule spans, and 4 vertical lift spans for a total of 26 movable bridges on the lines of the TPIRR. The TPIRR is constructing both vertical lift spans and bascule spans. The TPIRR is substituting bascule spans for swing spans because bascule spans are more economical.

Costs for the TPIRR's movable bridges were developed as follows. Bridges with movable spans were removed from the main TPI bridge inventory list and placed in a separate tab of e-workpaper "TPI Bridge Construction Costs.xlsx." The movable-span length is subtracted out from the total bridge length, and the cost for the movable span is then calculated depending upon the span type. The remainder of the bridge is calculated similar to the Type I–IV bridges, accounting for the necessary piers, abutments, and spans needed.¹³⁸

The TPIRR is responsible for only 10% of the cost of the movable span portion of these bridges. The Truman-Hobbs Act is a Federal government funding mechanism currently in place with the purpose of aiding bridge owners with the costs of movable bridges. Furthermore, in 2009, the year before the TPIRR commences operations, the American Recovery and Reinvestment Act of 2009 became law. This act authorized billions of Federal funding for transportation infrastructure projects, including \$142 million earmarked specifically to fund movable bridge costs under Section 6 of the Truman-Hobbs Act.¹³⁹ The TPIRR would have been ideally suited to take advantage of this Federal funding stream, as did other Class I railroads. Indeed, BNSF issued a press release in 2009 that indicated it was taking advantage of Truman-Hobbs funding: "Work has begun to replace BNSF Railway's 118-year-old swing span over the Mississippi River at Burlington, IA... Construction of the lift span is being financed in

¹³⁸ *Id.*

¹³⁹ *See* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 23 Stat. 115, 162 (2009).

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part through the American Recovery and Reinvestment Act of 2009 and previous year appropriations under the Truman-Hobbs Act.”¹⁴⁰

CSXT is entitled to Truman-Hobbs Act funding for movable bridges so the TPIRR must also be entitled to access these funds. To deny the TPIRR the ability to take advantage of this funding is a barrier to entry.

viii. Highway Overpasses

Grade-separated road crossings, or highway overpasses, are included as part of the TPIRR cost calculations for bridges. The TPIRR is constructing 1,447 such overpasses. As noted previously, the CSXT lines being replicated predate many of the roads in this territory. Consistent with Board precedent, TPI has included 10% of the costs for highway overpasses.¹⁴¹

The unit cost for highway overpass construction was derived from five highway overpass construction projects. The cost per square foot of deck for each of these five projects was calculated and then averaged together to come up with a unit cost per square foot of deck. This cost was then multiplied by the total square footage of highway overpass bridges on the TPIRR times the 10% factor noted above.

The deck areas for each highway overpass on the TPIRR were developed in the following manner. First, TPI obtained the Federal Highway Administration (“FHWA”) database containing the count of highway bridges and total deck area (in square meters) by county by state.¹⁴² Next, TPI used the most current data (2012) and developed the average deck size by county (converted from square meters to square feet¹⁴³) for the states traversed by the TPIRR.¹⁴⁴

¹⁴⁰ See BNSF, *BNSF Burlington Bridge Update Work Begins*, Sept. 21, 2009, available at <http://www.bnsf.com/media/news-releases/2009/september/2009-09-21a.html> (last visited Feb. 8, 2014).

¹⁴¹ See *AEP Texas II* at 103.

¹⁴² See e-workpaper “counties.xlsx.”

¹⁴³ See e-workpaper “Square meters to square feet.pdf.”

¹⁴⁴ See e-workpaper “FHWA highway bridges by state and county TPIRR.xlsx.”

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Then, TPI sorted the highway overpasses on the TPIRR by state and county and assigned the applicable average deck size for the county where the highway overpass is located. This resulted in an average deck size of 8,850 square feet.¹⁴⁵

The total cost for highway overpasses on the TPIRR is \$130 million.¹⁴⁶

6. Signals and Communications

The TPIRR will rely on a standard CTC-based vital signal system with components added to provide Positive Train Control (“PTC”). It will rely on a microwave system for communications. The signal system, including PTC, and communication system costs are sponsored by witnesses Victor Grappone, PE, and James Hoelscher.

a. PTC Signal System

The Rail Safety Improvement Act of 2008 (RSIA) (signed by the President on October 16, 2008, as Public Law 110-432) has mandated the widespread installation of PTC systems by December 2015. The TPIRR network employs a PTC system for all train control communications on the entirety of its constructed track network (i.e., the TPIRR does not include investment cost for signaling and communications system on trackage rights and joint facility tracks owned by other carriers).

Unlike existing Class I carriers, the TPIRR is installing a PTC system from the outset of its construction and investment, rather than converting an existing train communications and control system to a PTC system. As a result, the investment expenditures by the TPIRR are less than what an existing Class I carrier will incur to achieve the same level of infrastructure. To develop the cost of the PTC system, TPI’s experts relied on information provided by CSXT in discovery related to its estimates of the costs of the various components of the PTC system. The

¹⁴⁵ See e-workpaper “TPIRR Highway Overpasses.xlsx.”

¹⁴⁶ See e-workpaper “TPIRR Highway Overpass Construction.xlsx.”

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costs were adjusted, where appropriate, to reflect the cost of a PTC system as an initial installation rather than conversion from an existing CTC or other signaling system.¹⁴⁷

The technology existed in 2008 to implement a PTC-compliant signaling system, including the technology upon which CSXT's PTC system is based. A variety of manufacturers and railroads were using and/or developing PTC technology prior to 2008, as described in the list below:

1. CSXT was testing ETMS version 2 and the FRA approved its Product Safety Plan on December 26, 2006. The FRA approved field testing of ETMS 2 on June 27, 2007.¹⁴⁸
2. On the Northeast Corridor, Amtrak installed a system called Advanced Civil Speed Enforcement System (ACSES) starting in 2000. The final system, known as ACSES II, was completed and in service in April 2009. This system has since been granted type approval by the FRA as a PTC system.¹⁴⁹
3. Starting in 1994, Harmon Industries and Amtrak designed and installed a system known as Incremental Train Control System (ITCS). This system was in service allowing speeds up to 95 MPH on the Michigan Corridor in 2005.¹⁵⁰ This system also meets the PTC requirements of the RSIA.
4. In December 2007, the four major U.S. signaling suppliers (Alstom, Ansaldo, GE Transportation, and Safetran), working under a grant from the FRA, started the development of an Interoperable Communications-Based Train Control System (ICBS). The suppliers based the system on current in-use products, modified to meet the requirements of a PTC system. In parallel with that effort, interface and message standards were developed with AREMA and published in the 2009 AREMA C & S

¹⁴⁷ The cost used for interlocking controllers included the PTC component, i.e., TPI's engineers did not develop a cost for a non-PTC electronic interlocking controller and then add a PTC wayside interface unit ("WIU") for each interlocking controller. Similarly, TPI's engineers did not develop a cost for a non-PTC dispatch system and then add a PTC component to it. Interlocking controllers and dispatch systems have the ability to perform the necessary PTC functions and it is not necessary to install an older style piece of equipment and then add PTC functionality as an add-on piece of equipment. In addition, as TPI's costs are based on the ERTMS II system, no additional costs were included for interoperability as they should already be included in the costs provided by CSXT.

¹⁴⁸ See e-workpapers "US DOT FRA – Letter Approving BNSF's Product Safety Plan Ver 2_1 Dec 26 2006" and "US DOT FRA – Approval with Conditions for Field Testing of ETMS Configuration II Jun 27 2007."

¹⁴⁹ "PTC Commuter Ahead of the Curve: Amtrak's PTC Advantage," Progressive Railroading Webcast, February 23, 2012, moderated by Jeff Stagl. Presented by Keith Holt, Deputy Chief Engineer, Amtrak. See <<http://www.progressiverailroading.com/webcasts/details.asp?id=30073>>.

¹⁵⁰ *Id.* See also "Incremental Train Control System," by Greg Hann, IEEE Vehicular Technology Magazine, December 2010 and "Train Control Incrementally," by Pat Foran, Editor, Progressive Railroading, May 2006. These articles are found at e-workpapers "Incremental Train Control System Dec 2010.pdf" and "Train Control Incrementally May 2006.pdf."

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Manual (distributed fall 2008). A lab demonstration of the system was completed in late 2008 using actual hardware and following the AREMA recommended practices.¹⁵¹

Thus, it is clear that the technology was available in 2008 to install PTC on the TPIRR. Although suppliers may not have had on-the-shelf components available, they were in a position to quickly develop and supply those components if an actual project (such as construction of the TPIRR) requested such components. Accordingly, TPI would not have incurred development costs associated with PTC testing and back office systems development.

TPI included PTC investment costs for three basic components: track (wayside), geographic information systems (“GIS”), and locomotive communications and onboard equipment. Wayside PTC costs are captured for wayside interface units (“WIUs”) and radios. For interlockings, WIUs are considered built in as an inherent part of the vital microprocessor equipment. For electric lock locations, separate stand-alone WIUs are provided. PTC radios are provided at both interlockings and electric lock locations. Information technology costs are included in the form of GIS upgrades. Costs are developed using information supplied by CSXT in discovery.¹⁵² These costs were calculated on an average cost per mile and multiplied by the number of TPI constructed route miles.¹⁵³

Signal system costs, including the costs for the wayside and information technology portions of PTC, are contained in TPI’s workpapers.¹⁵⁴ This file contains a description of the components that comprise the system, plus a count of the components, and assigns unit costs for material and labor. The number and type of components associated with typical installations

¹⁵¹ See e-workpaper “Interoperable Communication-Based Signalling Project Jun 2009.”

¹⁵² See e-workpaper “CSXT PTC Unit Costing Detail.xlsx.”

¹⁵³ See e-workpaper TPI Signals & Communications.xlsx,” tab “PTC.”

¹⁵⁴ See e-workpaper “TPI Signals & Communications.xlsx.”

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along the right of way are defined. The number of each type of installation was identified based on the layout of the TPIRR as manifested in the TPIRR stick diagrams.

TPI defined several types of typical installations, including interlockings, automatic signals, electric locks, FEDs, and AEIs.¹⁵⁵ Interlocking locations are categorized by the number of signals and switches. For example, “I42” represents an interlocking with four signals and two switches. Automatic signal and electric lock locations are categorized by the number of tracks, “AS1” through “AS4” and “EL1” and “EL2”, respectively. FEDs (one per track) and AEIs are accounted for individually.

Based on the TPIRR stick diagrams, TPI included counts for each type of installation. These are referenced by stick diagram page number, line prefix, and milepost. In some cases, particularly for larger interlocking locations, the TPIRR stick diagrams indicate a configuration that does not exactly match the above-mentioned typical installations. In those instances, an equivalent configuration was used, taking the conservative approach of being larger than actually required. The highway crossing locations are categorized by typical installations “X1F” through “X4F” and “X1G” through “X4G,” representing one to four track crossings with flasher signals only or gates and flashers, respectively.¹⁵⁶ To account for the additional complexity of highway crossing approaches that overlap interlockings, an additional typical location “X Adjacent Interlocking” has been provided. These are counted on a per-track and by direction basis.¹⁵⁷ Material and labor costs are projected for each as an incremental 10% based on the costs for a double-track highway crossing predictor hut.

¹⁵⁵ See e-workpaper “TPI Signals & Communications.xlsx,” tab “Page Counts,” top row.

¹⁵⁶ Consistent with the Board’s decision in *Duke/CSXT*, TPI’s engineers have included ten (10) percent of the costs for highway crossing protection signals. See 7 STB at 504.

¹⁵⁷ See e-workpaper “TPI Signals & Communications.xlsx,” tab “Components & Tabulation,” Item “Crossing equipment for adjacent interlocking.”

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The components comprising each typical installation are specifically defined.¹⁵⁸ These include pre-wired interlocking huts, automatic signal and electric lock cases, highway predictor huts, wayside signals, highway crossing gates/signals, switch machines, cables, FED and AEI equipment, and power components. Components are counted and costs are calculated using these counts as well as unit material and labor costs for each component.¹⁵⁹ To account for the complexity of huts for larger interlocking locations, a reasonable and conservative multiplier is applied to three standard hut configurations: three signals / one switch, four signals / one crossover, and four signals / two crossovers.

Movable bridges are accounted for either as stand-alone interlockings of equivalent complexity, or as expansions of co-located interlockings indicated on the stick diagrams. Additionally, circuit controllers required for detection of bridge locks, wedges, and related equipment are included.¹⁶⁰

b. Detectors

Automatic roll-by failed equipment detectors (“FEDs”)¹⁶¹ are included along the TPIRR main lines as required by operations and consistent with the current industry standard.¹⁶² As discussed in Part III-B, these FEDs are located in approximately the same locations as they currently exist along the CSXT lines replicated by the TPIRR (one for each main track in areas with two or more main tracks).¹⁶³ Bad order setout tracks have been sited within two miles of the failed equipment detectors in each direction to provide for train stopping distances and allow removal of bad order cars to the setout tracks. All setout tracks near the detectors are single-

¹⁵⁸ See e-workpaper “TPI Signals & Communications.xlsx,” tab “Typical.”

¹⁵⁹ See e-workpaper “TPI Signals & Communications.xlsx,” tabs “Component Counts” and “Components & Tabulation.”

¹⁶⁰ See e-workpaper “TPI Signals & Communications.xlsx,” tab “Typical,” Item “Movable Bridge per Track.”

¹⁶¹ TPI also includes a Dragging Equipment Detector (“DED”) at each FED location.

¹⁶² See AREMA 2001 Standards, Chapter 16, Section 5.3.1, Items j & k.

¹⁶³ See e-workpaper “FED Locations on the TPIRR.xlsx.”

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ended tracks, 735 feet in length providing 600 feet in the clear past the switch. For interface to the signal and PTC system, each setout track is provided with either a single- or double-track (“EL1” or “EL2”) electric lock manual switch installation. Costs for FED and electric lock locations are contained in TPI’s workpapers.¹⁶⁴

The TPIRR has 105 AEI scanners. Details of the costs and components are shown in TPI’s workpapers.¹⁶⁵

c. Communications System

The TPIRR’s railroad radio system enables locomotive communications, two-way radio communications, general voice communications, general data communications, and FED alerts. Microwave radio technology is used for the radio system backbone and land mobile radio technology is used to facilitate communications between end user applications and the radio system backbone. Land Mobile Radio (“LMR”) technologies provide communication access (via fixed, mobile, and portable radios) to the radio system backbone for operating crews, supervisory and track maintenance personnel that need to communicate with the railroad’s operating headquarters and central dispatching facility at Atlanta, GA. LMR technologies are co-located with microwave radio technologies at network (tower) sites if appropriate. LMR technologies operate in Very High Frequency (“VHF”) mode to accommodate railroad operational frequencies assigned by the AAR.

The backbone of the TPIRR’s railroad radio system includes microwave towers along the TPIRR route.¹⁶⁶ The use of microwave towers for railroad communications is widespread,

¹⁶⁴ See e-workpaper “TPI Signals & Communications.xlsx.”

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

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although fiber optic communications are now also being used. On average, microwave towers are placed at 20 mile intervals along the TPIRR.

Each tower includes a full set of microwave equipment, including two microwave base stations enabling sending and receiving along a straight path, and four microwave antennas. End towers have only one microwave station and two antennas. Where necessary, a tower may have three or four base stations and six or eight antennas. Each microwave tower also includes a LMR base station, with corresponding radio equipment. Finally, each tower includes the necessary communications shed.

The type of multiplexor deployed at each network (tower) site is the Alcatel 1518 Integrated Access Device (“AD”). The 1518 AD is rack-mountable and will convert analog RF signals from/to digital signals. The 1518 AD also interconnects with the MTR2000 LMR base station by standard Plain Old Telephone System (“POTS”) four-wire. The 1518 AD will also interconnect with the Alcatel MDR-8606 microwave base station by standard DS1 cable and shall conform to Telcordia TR-TSY-000499 and ANSI T1.102 standards. The 1518 AD supports up to 24 PCM channels per group that are intermixed at random, providing voice frequency (“VF”) trunking, special service interfaces, synchronous and asynchronous data channels, program/broadcast services, and FCC registered channels in one assembly.

CTC infrastructure components that are radio-enabled (*e.g.*, AEIs and FEDs) are equipped with the Kenwood TK-762GK radio, KAP-1 switching unit, and required cables. For technical descriptions of the Kenwood TK-762GK VHF radio, see TPI’s workpapers.¹⁶⁷ This mobile radio is VHF capable and operates in the 148-174 MHz frequency range.

¹⁶⁷ See e-workpaper “S & C Workpapers.pdf.”

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In addition to the radios handling CTC infrastructure, TPI’s engineering experts have included 1,740 LMR repeating stations positioned along the right-of-way. These LMR repeaters allow for uninterrupted RF communications along the right-of-way because the LMR stations on the microwave tower may or may not be accessible at all points. Many of the LMR repeaters include a 60-foot antenna to extend the range.

The costs for the locomotive communications component of PTC are also included in the TPIRR’s communications system costs.¹⁶⁸ Total investment cost for the TPIRR’s communications system is \$341.5 million.¹⁶⁹

d. Hump Yard Equipment

As discussed in Parts III-B and III-C, the TPIRR has eleven hump yards. Costs for the hump yard equipment were obtained from public evidence in a recent proceeding¹⁷⁰ and indexed to 3Q10 levels. Total costs for hump yard equipment for the TPIRR’s eleven hump yards equal \$301 million¹⁷¹ and are included in the signals system costs.

Total signals and communications system costs are shown in Table III-F-8 below.

Item	Cost
(1)	(2)
1. Signals System	\$1,212.6
2. Communications	341.5
3. Total	\$1,554.1

Source: See e-workpaper “TPI Signals & Communications.xlsx.”

¹⁶⁸ See e-workpaper “TPIRR PTC Locomotive Cost.xlsx.”

¹⁶⁹ See e-workpapers “TPI Signals & Communications.xlsx,” and “TPIRR PTC Locomotive Cost.xlsx.”

¹⁷⁰ See Norfolk Southern Reply Evidence (Public Version) at III-F-253 (filed November 30, 2012) in *DuPont*.

¹⁷¹ See e-workpaper “TPIRR Hump Yard Equipment.pdf.”

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7. Buildings and Facilities

TPI's buildings and facilities evidence is also sponsored by witness Harvey Crouch. The TPIRR's major system facilities are located at its 12 major yards. These facilities include the TPIRR's headquarters building, crew facilities, locomotive repair shops, 1,000- and 1,500-mile inspection facilities, and car and locomotive storage. Additional smaller yards are located throughout the TPIRR system.¹⁷² The total building and facilities costs are summarized in Table III-F-9 below.

¹⁷² See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx."

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Table III-F-9
TPIRR Buildings And Facilities

Facility	Cost (000)
(1)	(2)
1. Headquarters Building	\$16,753
2. Fueling Facilities	33,397
3. Locomotive Shops	90,277
4. Car Repair Shop	0
5. Crew Change Facilities	14,281
6. Yard Offices	17,504
7. Roadway Buildings (MOW)	14,158
8. Guard Booths	856
9. Yardmaster Towers	2,609
10. Other Facilities/Site Costs	795,010
11. Total Buildings and Facilities	<u>\$984,845</u>

Source: See e-workpaper "TPIRR Facilities.xlsx."

a. Headquarters Building

The TPIRR headquarters is located at the TPIRR’s Tilford Yard in Atlanta, GA. The TPI engineers calculated the required square footage using the American Institute of Architects (AIA) standard square footage per employee, which includes additional space for work rooms, IT equipment, hallways, bathrooms, and mechanical services. Executive employees were allotted additional space per the AIA standards. The resulting building is two stories with a total of 112,500 square feet.¹⁷³ The building’s costs were based on the RS Means cost for building structures of this kind. Costs for additional items not included in the RS Means cost have been added.¹⁷⁴ The total cost of the headquarters building is \$16.8 million.

b. Fueling Facilities

Large fixed fueling platforms, consisting of eight fueling stations, are located at each of the 12 major yards. Smaller fixed fueling platforms, consisting of four fixed fueling stations, are

¹⁷³ See e-workpapers "TPIRR Facilities.xlsx," and "Headquarters Building Unit Costs.pdf."

¹⁷⁴ *Id.*

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included at four other yards on the TPIRR.¹⁷⁵ Locomotive servicing (replenishment of lube oil and sand) also takes place at these facilities.

TPI's operating plan has also designated fifteen (15) locations where locomotive fueling facilities are provided for fueling by trucks (i.e., direct-to-locomotive (DTL) fueling) as well as locomotive servicing.¹⁷⁶ In addition, DTL fueling will occur at all other locations where fueling is necessary. All fueling by truck will be performed track-side. The yard tracks where locomotive fueling by truck will occur are built on 25-foot track centers, thereby providing sufficient space for the trucks to operate. The cost for fueling facilities on the TPIRR equals \$33.4 million.¹⁷⁷

c. Locomotive Shop

As discussed in Part III-B, TPI's engineers have included a locomotive shop at Willard, OH, Cumberland, MD, Nashville, TN, and Waycross, GA. Each locomotive shop is designed to handle larger overhaul work as well as 92-day inspections and running repairs. Each shop includes a two-track facility designed to handle 92-day inspections and other minor running repairs as required. Three additional tracks capable of holding up to ten (10) locomotives are included for the larger overhaul work. The heavier work-track design includes overhead and jib cranes, drop tables, and other necessary heavy equipment based on the function of each track. In addition, the shop is equipped with a wheel turning machine and other heavy equipment.¹⁷⁸

Unit costs and designs are based on a cost per square foot developed from bid prices received on previous projects involving Crouch Engineering. Additional items and equipment not included in the cost per square foot were developed from manufacturer quotes and CSXT

¹⁷⁵ See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx."

¹⁷⁶ *Id.*

¹⁷⁷ See e-workpaper "TPIRR Facilities.xlsx."

¹⁷⁸ *Id.*

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discovery material and added to the locomotive shop cost. Details of the shop fixtures and costs are included in TPI's workpapers.¹⁷⁹ The total cost for locomotive shops for the TPIRR is \$90.3 million.¹⁸⁰

d. Car Repair Shop

As noted in Section III-C, the TPIRR acquires its railcars via full service leases and, therefore, the lessor and not the TPIRR is responsible for providing all necessary car repair shops.¹⁸¹ Consequently, TPI's experts have not included costs for any car repair facilities. However, they have provided the necessary space and tracks for such a facility at three yards on the TPIRR.

e. Crew Change Facilities

There are 48 crew change locations on the TPIRR which require a crew change facility.¹⁸² The buildings at locations with an average of twenty (20) or more crew starts per day (14 locations) are sized 35 feet by 64 feet for a total of 2,240 square feet per building. The buildings at the other thirty-four (34) locations are sized 25 feet by 56 feet for a total of 1,400 square feet per building. Based on Mr. Crouch's experience, these buildings generally replicate the buildings used by CSXT for such purposes. Each building includes basic facilities such as locker rooms, a break area, a work room, and other necessities. The costs for the crew change facilities are based on the RS Means cost per square foot for a building of this type. The costs for additional items not included in the square-foot costs, such as HVAC, lockers, and

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

¹⁸¹ See *PSCo/Xcel I* at 693, *CP&L* at 333-334; *Duke/NS* at 196.

¹⁸² Some crew change locations do not require a facility because the crew is away from home and goes directly to a motel upon going off duty.

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furnishings, have been added. The total cost for crew change facilities on the TPIRR is \$14.3 million.¹⁸³

f. Yard Offices

There are 12 large and 50 small yard offices on the TPIRR. Yard offices are included at locations where there are car inspectors, transportation department field personnel, and more than one yard crew.¹⁸⁴ The large buildings are 35' by 64' while the small buildings are 25' by 56'.

Costs for these buildings are based on pricing developed for the large and small crew-change facilities, since the size and construction will be similar.¹⁸⁵

The total cost for yard offices on the TPIRR is \$17.5 million.¹⁸⁶

g. Maintenance of Way Buildings (Roadway Buildings)

The TPIRR has 51 MOW buildings. Each building is similar in office space and design to the crew-change facilities, but the interior is smaller because fewer employees use the space. Additional area is provided for garaging certain vehicles, as necessary, and storing MOW supplies. TPI's engineers developed the space requirements based on the typical MOW crew in each location as well as the need to house signal maintainers. The unit costs and specifications were derived from the cost for a small crew-change facility with additional costs added for site construction since not all MOW buildings are located at yards. The total cost for MOW buildings on the TPIRR is \$14.2 million.¹⁸⁷

¹⁸³ See e-workpapers "TPIRR Facilities.xlsx," and "Crew Change-Yard Building-MOW Building Unit Costs.pdf."

¹⁸⁴ See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx."

¹⁸⁵ See e-workpapers "TPIRR Facilities.xlsx," and "Crew Change-Yard Building-MOW Building Unit Costs.pdf."

¹⁸⁶ *Id.*

¹⁸⁷ *Id.*

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h. Guard Booths

TPI has included one guard booth at each intermodal and automotive facility it is constructing for a total of 34 guard booths. Costs for the guard booths were developed from a quote from a manufacturer plus additional costs for items such as HVAC, concrete pad, and furnishings.¹⁸⁸ The total cost for guard booths on the TPIRR equals \$0.9 million.¹⁸⁹

i. Yardmaster Towers

TPI has included one yardmaster tower at each of the eleven (11) hump yards on the TPIRR. Costs for the yardmaster towers were developed from costs provided by CSXT in discovery¹⁹⁰ and indexed to 3Q10. The total cost for yardmaster towers on the TPIRR equal \$2.6 million.¹⁹¹

j. Wastewater Treatment

The TPIRR building facilities are located near existing towns and cities and are able to be served by a local sewer connection or similar service. TPI's engineers, therefore, included costs for sewer tie-ins in the site costs for each facility. In addition, to handle runoff from various work by-products (*e.g.*, oil) before reaching the public sewer system, TPI's engineers have included oil/water separators. The costs for these items were included in the costs for each facility where they are required.

k. Other Facilities / Site Costs

TPI has also included costs for other facilities and site preparation costs. These costs include costs for lighting, paving, and drainage at intermodal, automotive, and bulk transfer facilities as well as other TPIRR yards, plus other site preparation costs.

¹⁸⁸ See e-workpapers "TPIRR Facilities.xlsx," and "Guard Booth Unit Costs.pdf."

¹⁸⁹ *Id.*

¹⁹⁰ See e-workpaper "Facility Assets Update.xlsx."

¹⁹¹ See e-workpapers "TPIRR Facilities.xlsx," and "Yardmaster Tower Unit Costs.pdf."

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Lighting plans were developed for the intermodal, automotive, and bulk transfer facilities as well as the major and other TPIRR yards. Lighting plans are based on existing CSXT lighting shown on plans provided by CSXT in discovery and Google Earth aerial views. The plans specify lighting types, wattage, heights, spacing, configuration, coverage areas, conduit lengths, and duct banks.¹⁹² Lighting costs are based on quotes from suppliers and RS Means.¹⁹³

Paving plans were developed for the intermodal, automotive, and bulk transfer facilities as well as the TPIRR major and other yards.¹⁹⁴ Paving areas are based on existing CSXT paving.¹⁹⁵ Paved inspection roads are provided between the tracks in the TPIRR's inspection yards. Based on existing CSXT yard plans provided in discovery and review of these locations in Google Earth, TPI determined the paving quantities needed for the TPIRR yards.¹⁹⁶ Paving costs are based on RS Means unit costs for the appropriate pavement section required.¹⁹⁷

Drainage facilities have been provided for the TPIRR major and other yards as well as the automotive, intermodal, and bulk transfer facilities based on plans provided by CSXT in discovery.¹⁹⁸ Prior to the installation of any drainage facilities, the roadbed for yard track construction will be constructed to slope away from the main line. Yard drainage has been included at intermodal, automotive, and bulk transfer yards to account for the runoff due to increased paved areas when compared to other yards. Catch basins, drainage pipes, and

¹⁹² See e-workpapers "TPIRR Facilities.xlsx," "TPIRR Major Yards Workpapers.pdf," "TPIRR Other Yards Workpapers.pdf," "TPIRR Intermodal Terminals Workpapers.pdf," "TPIRR Automotive Terminals Workpapers.pdf," and "TPIRR Bulk Transfer Terminals Workpapers.pdf."

¹⁹³ See e-workpapers "TPIRR Facilities.xlsx" and "Lighting Unit Costs.pdf."

¹⁹⁴ See e-workpaper "TPIRR Facilities.xlsx."

¹⁹⁵ *Id.*

¹⁹⁶ See e-workpapers "TPIRR Facilities.xlsx," "TPIRR Major Yards Workpapers.pdf," "TPIRR Other Yards Workpapers.pdf," "TPIRR Intermodal Terminals Workpapers.pdf," "TPIRR Automotive Terminals Workpapers.pdf," and "TPIRR Bulk Transfer Terminals Workpapers.pdf."

¹⁹⁷ See e-workpapers "TPIRR Facilities.xlsx" and "Yard Pavements, Fencing & Pavement Markings Unit Costs.pdf."

¹⁹⁸ See e-workpaper "TPIRR Facilities.xlsx," "TPIRR Major Yards Workpapers.pdf," "TPIRR Other Yards Workpapers.pdf," "TPIRR Intermodal Terminals Workpapers.pdf," "TPIRR Automotive Terminals Workpapers.pdf," and "TPIRR Bulk Transfer Terminals Workpapers.pdf."

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headwalls have been added to the drainage site costs of each yard based on drainage systems layouts for yards provided in discovery and Google Earth aerial images. Quantities for each component were developed for each yard based on the size of similar yards where drainage system plans were provided. Drainage facilities are not necessary in the TPIRR other yards with no classification tracks or additional interchange yards as they consist of less than ten tracks and will be sufficiently graded to allow for the water to drain naturally, over the crusher run cap and through the track ballast. Based on Mr. Crouch's experience, this is the case in many railroad yards.

Other site preparation costs have been included in the cost for each facility discussed in this section

TPI has included \$795 million for these items.¹⁹⁹

8. Public Improvements

TPI's public improvements evidence is also sponsored by witness Harvey Crouch. While public improvements are discussed in detail below, the costs for some of items were included in other investment categories, such as buildings and facilities and signals.

a. Fences

CSXT did not provide any data concerning the quantities or locations of fencing on any of the lines being replicated by the TPIRR. Consequently, TPI has relied on its experts' experience that the vast majority of the lines being replicated are not fenced. Therefore, TPI has included fences only for its intermodal and automotive yards.²⁰⁰

¹⁹⁹ See e-workpaper "TPIRR Facilities.xlsx."

²⁰⁰ *Id.*

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b. Signs

TPI's operating and engineering experts have included a standard package of railroad signs, including milepost, whistle post, yard limit, and cross-buck signs and posts. TPI has also included Emergency Notification Signs ("ENS") at all highway at-grade crossings, as required by 49 C.F.R. § 234.311. TPI has included \$16.8 million for railroad signs.²⁰¹

c. Highway Crossings and Road Crossing Devices

The TPIRR is building all at-grade highway crossings, and paying 100% of the cost for the crossing materials.²⁰² TPI has included \$78.7 million for at-grade highway crossings. Consistent with *Duke/CSXT* and *AEP Texas II*, TPI has included 10% of the costs associated with crossing protection, such as gates, flashers, and related signal elements like crossing predictor huts.²⁰³ These costs are included with the signals costs described in Part III-F-6 above.²⁰⁴ For grade-separated crossings (highway overpasses), the TPIRR is paying for 10% of the total investment costs in such structures²⁰⁵ resulting in \$130 million. These costs and designs are discussed in Part III-F-5 above.

9. Mobilization

TPI's engineers have added a 2.7% mobilization factor for all items where mobilization is not already included in the contractor's bid.²⁰⁶ The total cost for mobilization on the TPIRR is \$541 million.²⁰⁷

²⁰¹ See e-workpaper "Track Construction.xlsx."

²⁰² See *AEP Texas II* at 102 and *PSCo/Xcel I* at 695-696. See also e-workpaper "Track Construction.xlsx."

²⁰³ See *Duke/CSXT* at 504.

²⁰⁴ See e-workpaper "TPI Signals & Communications.xlsx."

²⁰⁵ See *WFA/Basin I* at 130 and *Duke/CSXT* at 504.

²⁰⁶ See *Duke/CSXT* at 505. The STB accepted 2.6% in *CP&L* (at 338) and 2.5% in *Duke/NS* (at 201). The STB also accepted 2.4% in *AEPCO* (at 132). TPI is being conservative by using 2.7% for mobilization.

²⁰⁷ See e-workpaper "III-F Total.xls."

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10. Engineering

The Board has used a 10% estimate for all engineering cost components.²⁰⁸ Thus, TPI's engineers have used a 10% additive here to cover all engineering, construction management, and resident inspection costs, as well as other items such as soil testing. The total cost for engineering on the TPIRR is \$2,004 million.²⁰⁹

11. Contingencies

Consistent with prior Board decisions in other SAC rate cases,²¹⁰ TPI's engineering experts have used a 10% contingency factor and applied it to the construction subtotal excluding land. Total contingency costs for the TPIRR are \$2,258 million.²¹¹

12. Other

a. Construction Time Period

The construction time period for the TPIRR is controlled by the time it takes to construct the Henderson Bridge over the Ohio River in Henderson, KY.

The work will begin with the start of surveying and aerial mapping operations. A two-month period will be allocated to obtain sufficient information to allow preliminary planning and engineering design to begin. Design of the railroad and appurtenances will require a fourteen-month period including the two-month start-up/surveying period.

Land acquisition will take approximately seven months to complete. It will commence five months after project initiation. Test borings will be timed to coincide with land acquisition so sufficient test borings can be made during the design process.

²⁰⁸ See *PSCo/Xcel I* at 697-698.

²⁰⁹ See e-workpaper "III-F Total.xls."

²¹⁰ See *WFA/Basin I* at 132-133; *AEP Texas II* at 104; *PSCo/Xcel I* at 698 (parties agreed to 10 percent contingency); *TMPA* at 746-747; *West Texas Utilities* at 710; *APS* at 402.

²¹¹ See e-workpaper "III-F Total.xls."

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By the tenth month, at about the 70% design phase, the longest bridge, the Henderson Bridge, will be bid with construction to start by the fourteenth month. The remaining site work bid packages will be ready to bid in the eleventh month, and work on all site work, bridges, and tunnels will be started by the sixteenth month. In the twelfth month, the PTC, signal, communications, and track packages will be bid.

Construction of all bridges and structures other than the Henderson Bridge is anticipated to take a maximum period of 12 months. It is expected that the Henderson Bridge can be constructed in 14 months.

In general, the construction work has been planned by division and subdivision. The work has been structured so that all site work, bridges, and tunnels can be completed prior to installation of track and signals. Total construction time for the Nashville Division, which will take the longest to construct, will be 14 months. Total design and construction time for this project is 24 months, with 6 months (of which 4 months overlap construction) available at the end of construction for final operational testing. Thus a 30-month overall construction period has been provided.

The TPIRR construction project would be divided into 97 track packages, 950 grading packages, 632 bridge packages, 73 tunnel packages, and 11 building packages.²¹² The bridge packages have been set up to include no more than eight bridges in each package, and the bridges in a package are in the same subdivision and in relative proximity to each other.

Track gangs will lay track at an average of one-half mile per day, ballasted and anchored. With crews working 6 days per week, the rate of 1/2 mile per day would enable the project to be completed within the established schedule.

²¹² See e-workpaper "Complete Construction Schedule.xls."

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Finally, material prices have been obtained for most track materials delivered to railheads, including, but not limited to, Chicago, IL, Fostoria, OH, Cincinnati, OH, East St. Louis, IL, McKeesport, PA, Syracuse, NY, Richmond, VA, Nashville, TN, Fayetteville, NC, Atlanta, GA, Montgomery, AL, and Jacksonville, FL. Because of the numerous road access points along the lines (the longest distance between two road-access points is less than 5 miles), the uniform topography for most of the railroad, and interstate roads paralleling many line segments, materials that cannot be shipped by rail have been priced with shipping by truck to one or more of the road-access points along the TPIRR's lines. The track construction costs include moving those materials from the various rail heads to where they are required along the right-of-way.

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III. STAND-ALONE COST

G. DISCOUNTED CASH FLOW ANALYSIS

The expert witnesses responsible for this Part are Thomas D. Crowley and Daniel L. Fapp of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV.

The Board's SAC constraint rests on the premise that a captive shipper should pay no more than the minimum necessary to receive service from a least-cost, presumptively efficient replacement for the incumbent railroad, and that the shipper should not bear the cost of any facilities or services from which it derives no benefit.¹ The SAC constraint is derived from and constitutes an application of the theory of contestable markets.²

In the contestable market structure, the incumbent railroad's rates are deemed constrained by the threat of entry by the hypothetical stand-alone entity.³ If it is shown that the prospective cost of substitute service is less than the rate charged by the incumbent, there is an incentive for the new entity to enter the market. The presence of that incentive, in turn, is evidence that, under the incumbent's rates, the shipper is contributing to (subsidizing) the cost of services that it does not use, and/or is contributing monopoly profits to the incumbent.⁴

SAC provides a regulatory ceiling on rates under conditions of rail market dominance; if the incumbent's rates are higher than those that would be charged by the stand-alone entity (the TPIRR in this case), then the incumbent's rates are unreasonable. As the Board summarized in *CP&L*:

A SAC analysis seeks to determine the lowest cost at which a hypothetical, optimally efficient carrier could provide the service at issue free from any costs associated with inefficiencies or cross-subsidization of

¹ See, e.g., *Coal Rate Guidelines* at 523 and 542; *AEPCO* at 3-4.

² See, e.g., *Coal Rate Guidelines* at 528.

³ *Id.* at 542.

⁴ *Id.* at 528.

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other traffic. A stand-alone railroad is hypothesized that could serve the traffic if the rail industry were free of barriers to entry or exit. (It is such barriers that can make it possible for railroads to engage in monopoly pricing absent regulatory constraint.) Under the SAC constraint, the rate at issue cannot be higher than what the SARR would need to charge to serve the complaining shipper while fully covering all of its costs, including a reasonable return on investment.⁵

Since the function of a SAC analysis is to identify the cost associated with providing the most-efficient, least-cost service to the captive shipper, it follows that application of the SAC standard should be premised on rational economic behavior by the stand-alone entrant. In particular, the stand-alone entrant should pay no more than is necessary for its inputs. Thus, while the TPIRR is considered to be a substitute for CSXT to the extent of the scope of the TPIRR's planned services, SAC does not require that the TPIRR replicate the CSXT system in all respects.⁶ As the Board's predecessor confirmed in *Coal Rate Guidelines*, the design of the stand-alone system and the traffic it carries are chosen to achieve the goals of maximizing revenues and minimizing service costs to the shipper, regardless of the actual circumstances of the incumbent railroad.⁷ This means that the TPIRR must be considered a replacement for the relevant portions of the CSXT system, not a rival, and must be afforded the flexibility to configure its system and service scope in a manner that maximizes efficiency and cost effectiveness.⁸

These core principles guide the traffic group, design, configuration, and planned operation of the TPIRR as detailed in the previous Parts of this Opening Evidence. They also inform the proper treatment of capital cost recovery, inflation, and taxes.

⁵ See *CP&L* at 244-245.

⁶ See, e.g., *AEPSCO* at 10.

⁷ See *Coal Rate Guidelines* at 543-544.

⁸ See, e.g., *Nevada Power II* at 280-281 (Chairman McDonald, commenting).

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1. Cost of Capital

Calculation of the capital recovery charge for the TPIRR necessarily depends on the TPIRR's assumed cost of capital. The Board has consistently accepted the general railroad industry's average costs of common equity, debt, and preferred equity (if any), and their percentage mix within the industry's capital structure⁹ in forming a capital structure for the SARR over the relevant construction period (January 1, 2008 through June 30, 2010 in this case) and operating period (July 1, 2010 through June 30, 2020).¹⁰

The TPIRR's cost of debt and preferred equity¹¹ capital during the 10-year DCF period is assumed to equal the weighted average railroad industry cost of debt or preferred equity over the TPIRR's construction period, weighted by the TPIRR's investment by construction year. The cost of common equity capital is assumed to equal the then-current year railroad industry cost of equity as determined by the Board. If the Board has not calculated the cost of equity capital for such year, the simple average of all prior years' costs of equity capital beginning in the first year of the SARR's construction is used.¹² To project capital costs forward and estimate the value of the TPIRR at the end of the DCF period, the Board relies on an average of available past years' industry capital costs, reaching back to the first construction year.¹³

TPI has followed the Board's approach, as described above, in developing capital costs for the TPIRR.¹⁴ TPI employs the 2008 through 2010 industry average costs of debt as determined by the Board in its annual cost of capital proceedings.¹⁵ For the cost of common

⁹ As determined by the Board in its annual railroad cost of capital proceedings in Ex Parte No. 558.

¹⁰ See, e.g., *WFA/Basin I* at 135; *AEPCO* at 135-137; *Duke/NS* at 123; *CP&L* at 261-262.

¹¹ The STB's annual cost of capital findings since calendar year 2002 have not included preferred equity.

¹² See *AEP Texas II* at 107-108. See also *Otter Tail* at E-2; *WFA/Basin II* at 26.

¹³ See *AEP Texas II* at 108-109.

¹⁴ See e-workpaper "Exhibit III-H-1.xlsx," worksheet "Cost of Capital."

¹⁵ See *Railroad Cost of Capital – 2008*, STB Ex Parte No. 558 (Sub-No. 12) (served Sept. 25, 2009) ("2008 Cost of Capital"); *Railroad Cost of Capital – 2009*, STB Ex Parte No. 558 (Sub-No. 13) (served Oct. 29, 2010) ("2009

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equity, TPI relies on the railroad industry costs of common equity for the years 2008 through 2012.¹⁶ TPI uses the railroad industry cost of capital to calculate the capital recovery charges for all road property investment.

2. Inflation Indices

The prices of goods and services used by the TPIRR undoubtedly will change over the 10-year DCF period. It therefore is necessary to forecast rates of inflation for application to the capital assets and operating expenses over the timeline covered by the SAC analysis, July 1, 2010 through June 30, 2020. The time path of capital recovery charges for the TPIRR likewise must maintain the real purchasing power of those charges. A summary of the indexes applied to the TPIRR's capital assets and operating expenses is shown in Table III-G-1 below.

Cost of Capital"); and *Railroad Cost of Capital – 2010*, STB Ex Parte No. 558 (Sub-No. 14) (served Oct. 3, 2011) ("*2010 Cost of Capital*"). The railroad industry had no preferred equity capital outstanding for these years, and, therefore, the TPIRR incurs no cost of preferred equity.

¹⁶ See *2008 Cost of Capital*, *2009 Cost of Capital*, *2010 Cost of Capital*, *Railroad Cost of Capital – 2011*, STB Ex Parte No. 558 (Sub-No. 15) (served Sept. 13, 2012) ("*2011 Cost of Capital*"), and *Railroad Cost of Capital – 2012*, STB Ex Parte No. 558 (Sub-No. 16) (served Aug. 30, 2012) ("*2012 Cost of Capital*").

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Table III-G-1
Index Values Utilized In The TPIRR DCF Model

<u>Year</u>	<u>Land</u>	<u>Materials and Supplies</u>	<u>Wage Rates and Supplements</u>	<u>Materials, Supplies, Wage Rates and Supplements (Excluding Fuel)</u>	<u>Operating Expenses</u>
(1)	(2)	(3)	(4)	(5)	(6)
2008	100.0	100.0	100.0	100.0	xxx
2009	77.9	106.5	103.9	104.2	xxx
2010	73.8	106.8	111.4	110.7	100.0
2011	78.1	110.4	113.4	113.0	107.7
2012	83.9	117.1	116.6	116.7	108.8
2013	89.3	115.6	117.4	117.1	109.8
2014	93.8	117.8	120.0	119.7	109.3
2015	96.9	121.5	124.9	124.5	111.5
2016	100.0	124.1	128.9	128.2	112.9
2017	103.2	127.3	133.7	132.7	114.9
2018	106.6	130.6	139.0	137.7	118.0
2019	110.1	133.8	144.5	142.8	121.3
2020	112.8	136.5	148.7	146.7	123.6

Sources: e-workpapers “TPIRR Land Appreciation.xls,” and “Exhibit III-H-1.xls.”

The annual inflation forecast that is used to calculate the value of the TPIRR’s road property assets is based on actual railroad chargeout prices and wage rate indexes calculated by the AAR for materials and supplies, wage rates and supplements, and materials prices, wage rates, and supplements combined (excluding fuel) (“MWSExFuel”) for eastern railroads, and the Global Insight’s December 2013 Rail Cost Adjustment Factor Forecast for rail labor and rail materials and supplies.¹⁷

¹⁷ Global Insight (now IHS Economics) does not develop a forecast of the AAR’s MWSExFuel index. TPI therefore uses a proxy that weights Global Insight’s materials and supplies and labor rate index forecasts, which the Board has relied upon for purposes of execution of the DCF model. See *AEP Texas II* at 109; *Otter Tail* at E-2 to E-3; *PSCo/Xcel* at 621; *Duke/NS* at 123; *CP&L* at 261.

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For land assets, the annual forecast inflation rate is based on a weighted combination of indices that reflect rural and urban land prices in proportion to the mix of the land values on the TPIRR system routes.¹⁸

Rural land indexes were developed from historic rural land values reported by the U.S. Department of Agriculture (“USDA”).¹⁹ Use of the historic change in rural land values as a surrogate for a forecast of future changes in land prices is consistent with long-term STB precedent.²⁰ The STB determined in *AEPCO* that it is preferable to use a longer rather than a shorter period of historic data when forecasting future economic trends, such as an inflation rate for land values.²¹ The STB cited its use of historical averages of more than 80-years in developing railroad costs of equity estimates.²² Given the STB’s clear preference for longer historical averages, and the use of averages based on data beginning with 1930 or earlier to calculate the TPIRR’s cost of equity, TPI developed the historic average annual and quarterly percentage change in rural land values between 1933 and 2013 for the TPIRR states, and used these historic averages to forecast future changes in rural land values.²³

¹⁸ Historically, parties in SAC cases weighted the different urban and rural land indexes based upon the percentage of SARR acres which were urban and rural. In *AEPCO*, the STB changed its approach to weight the indexes based on the value of the rural and urban land acquired by the SARR. See *AEPCO* at 139. TPI has applied the STB’s revised approach in its opening DCF model.

¹⁹ USDA values have been used in prior cases such as *Otter Tail*. See OTP Opening at III-G-3 (filed June 13, 2003), BNSF Reply at III-G-3 (filed Oct. 8, 2003), and Board decision at E-2 (served Jan. 27, 2006).

²⁰ Cf. *WFA/Basin II* at 26 (using historic data to develop forecast for cost of equity); *AEPCO* at 139 (using historic data to develop forecast of land values); *Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry’s Cost of Capital*, STB Ex Parte No. 664 (Sub-No. 1), slip op. at 11 (served Jan. 28, 2009) (“long-term trends are informative of future prospects”).

²¹ See *AEPCO* at 139.

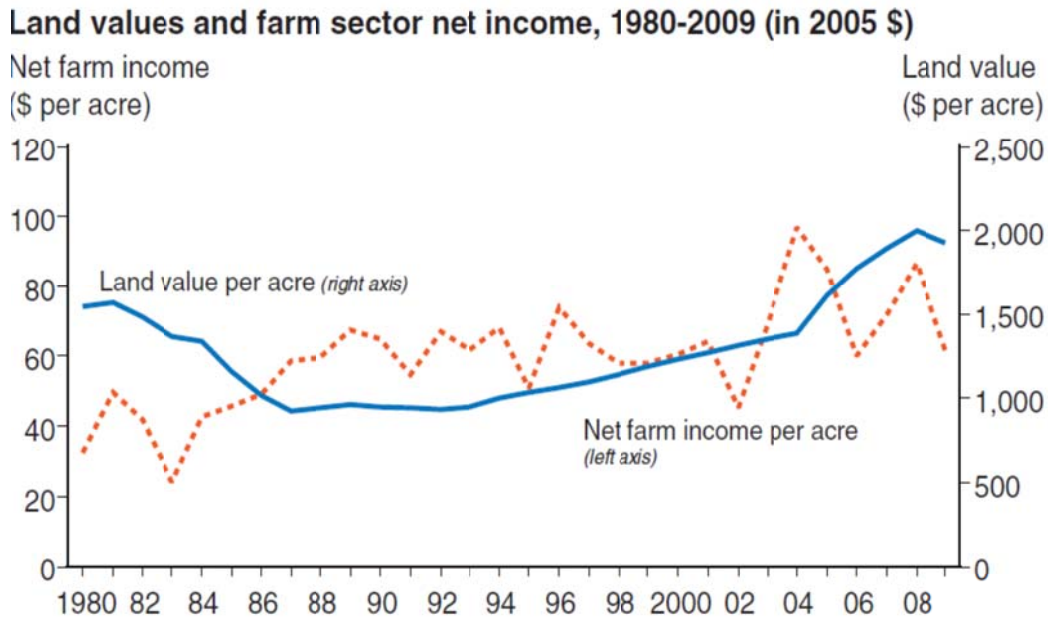
²² See *AEPCO* at 139 (“In measuring the terminal growth rate (from year 11 out) in the cost of equity, the Morningstar/Ibbotson model uses, in part ‘the average annual percentage change in real GDP from 1930 to the year being analyzed’”). Similarly, in developing the Capital Asset Pricing Model (“CAPM”) cost of equity, the STB relies upon the historic average equity risk premium calculated from the year 1926 to the present. See *Railroad Cost of Capital – 2006*, STB Ex Parte No. 558 (Sub-No. 10), slip op. at 1 (served January 17, 2008).

²³ For the years 2008 through 2013, TPI relied upon the actual historic change in rural land values instead of the historic average.

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Use of the historic change in rural land values as a surrogate for a forecast of future changes in land prices is consistent with a new era in farming and farm land values. For the first half of the twentieth century, agricultural economists believed that farm values and farm income were closely linked. This belief extended from the belief that farmland values were derived from the expected stream of returns from the agricultural products produced. However, as numerous studies have recently shown, the links between farm income and land values have dramatically declined. Current USDA research has found little correlation between land values and farm income.²⁴ This lack of correlation is clearly evident in Figure 1 below, which contains a graph of farmland values and farm income produced by the USDA.

Figure 1



Source: USDA, ERS Farm Income Accounts data, available at <http://www.ers.usda.gov/data/FarmIncome/Finfidmuxls.htm>

²⁴ Cynthia Nickerson et al., *Trends in U.S. Farmland Values and Ownership* at 5, EIB-92, U.S. Dept. of Agriculture, Economic Research Service, February 2012. The study is available at <http://www.ers.usda.gov/publications/eib-economic-information-bulletin/eib92.aspx#.UvP8x7QzphQ>.

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As shown in Figure 1 above, in recent years there has been little correlation between land values and farm incomes. Therefore, in times of falling farm income, there should be no assumption of falling farm land values.

This lack of correlation between farm income and land values is being brought about by nonagricultural factors having greater influence on farmland values. Factors such as income from hunting leases and from developers' potential returns from developing the farmland make farmland more valuable even in the wake of declining farm incomes.²⁵ Research has shown that, in certain parts of the nation, including the state of Georgia (which includes significant amounts of TPIRR right of way), nonagricultural factors have a stronger influence on land values than cash rents from agricultural production.²⁶

Overall, the former assumptions regarding farm land values may no longer be valid in this new era of agriculture. As summarized by the USDA:

Yet, several macroeconomic measures indicate that over a longer horizon, farmland values are becoming less correlated with farm-related factors once thought to support those values. Declining rent-to-value ratios indicate cash rents are increasingly smaller relative to farmland values, and the ratio is smallest for cropland close to urban areas. Also, the affordability of farmland has varied over time. While in 2009-2010 average income from farming has been more than sufficient to service farm real estate debt, during 2005-08 and during 1978-1985, this was not the case. A lack of correlation with net farm incomes, declining rent-to-value ratios, and low levels of affordability all suggest that nonagricultural factors are increasingly important in determining farmland values.²⁷

Urban land values, which are assumed to consist of a mix of investment, residential, and commercial properties, were indexed using a combination of indexes published by investment reporting firms Moody's and Standard & Poor's. These indexes are the same ones used by TPI

²⁵ *Trends in U.S. Farmland Values and Ownership* at 5-7.

²⁶ *Id.* at 5.

²⁷ *Id.* at 34.

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land acquisition experts in Section III-F, which maintains consistency between land inflation values used in the land appraisals and in the DCF model.

For residential properties, TPI used a combination of the Moody's/RCA Commercial Property Price Index ("Moody's/RCA CPPI") for Apartment buildings and the Standard & Poor's/Case-Shiller Home Price Index ("S&P/Case-Shiller"), which tracks changes in home prices.²⁸ For commercial properties, Moody's/RCA CPPI for office buildings and retail properties were used to index commercial properties, while Moody's/RCA CPPI for industrial properties was used to index industrial land values. TPI used the actual index values published by Moody's/RCA and by S&P/Case-Shiller for the periods 1Q08 through 3Q13, the last full quarter published for the indexes. For the quarters after 3Q13, TPI relied on the historic change in the Moody's/RCA and by S&P/Case-Shiller between 2001 and 2013.²⁹ As discussed above, the STB decided in *AEPCO* that it is preferable to use a longer rather than a shorter period of historic data when forecasting future economic trends, such as an inflation rate for land values, when unbiased, third-party forecasts are unavailable. In this instance, the Moody's/RCA are relatively new with data going only back to 2001, so the maximum of 12-years of historic data is used to develop the future land inflation values.

For indexing of operating expenses, TPI followed the procedure established by the Board in *Major Issues*. In that proceeding, the Board decided to index SARR operating expenses for the first year based on 100 percent of the change in the RCAF-U; expenses for the second year would adjust based on 95 percent of the change in the RCAF-U and five (5) percent of the change in the RCAF-A; and each succeeding year of the DCF period would use a mix reflecting

²⁸ See e-workpaper "TPIRR Land Appreciation.xlsx."

²⁹ *Id.*

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increasing shares of the RCAF-A in five (5) percent increments.³⁰ TPI applied this method to index operating expenses for the TPIRR.³¹ TPI's model uses actual RCAF-U and RCAF-A indexes through the first quarter of 2014 ("1Q14"), the latest quarter available, and applies Global Insight's December 2013 RCAF-U and RCAF-A forecasted indexes thereafter. The Board has recently used the Global Insight forecasts in this manner.³²

3. Tax Liability

Federal taxes for the TPIRR are calculated on the assumption that it pays taxes at the 35 percent corporate rate, with all payments for debt interest, state income taxes and depreciation expenses treated as reductions in taxable income. As explained in greater detail in Section III-H-1-d, TPIRR interest expense is calculated based on the real-world practice of railroads issuing primarily coupon bonds of different maturities, which pay periodic, even interest payments. Depreciation expenses for tax purposes use accounting lives from the Modified Accelerated Cost Recovery System ("MACRS") with investments placed in service in the second quarter using a mid-quarter convention. In addition, as described in Part III-H-1-f, the TPIRR calculated bonus depreciation available under current tax laws.

The TPIRR also must account for any income tax liability accruing to the 17 states and the District of Columbia in which it operates. Following Board-approved procedures, the taxes applicable to railroads in each state were weighted together based on the TPIRR route-miles located within each state.³³ As summarized in Table III-G-2 below and detailed in Exhibit III-H-

³⁰ Under the Board's hybrid approach, operating expenses for the tenth and final year of the DCF period would be determined using an index comprised of 55 percent of the change in the RCAF-U, and 45 percent of the change in the RCAF-A. *See Major Issues* at 40 and 44.

³¹ *See* e-workpaper "Exhibit III-H-1.xlsx," worksheet "Inputs."

³² *See Otter Tail* at 21-22. The parties in *AEPCO* also agreed to use Global Insight to forecast operating expenses. *See AEPCO Opening* at III-G-17 (filed Jan. 25, 2010) and *BNSF/UP Reply* at III.G-8 (filed May 7, 2010).

³³ *See, e.g., Coal Trading Corp.* at 527.

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1, the weighted average rates for each state produce an effective state tax rate of 6.11 percent for the TPIRR.

Table III-G-2
**State Tax Rates And
Constructed Miles For The TPIRR**

<u>State</u>	<u>Tax Rate</u>	<u>Route Miles</u>
(1)	(2)	(3)
1. AL	6.5%	661.0
2. DC	9.975%	14.7
3. FL	5.5%	487.2
4. GA	6.0%	929.4
5. IL	7.3%	229.4
6. IN	8.5%	690.7
7. KY	6.0%	592.1
8. LA	8.0%	35.1
9. MD	8.25%	114.6
10. MS	5.0%	73.7
11. NC	6.9%	280.0
12. NY	7.1%	518.7
13. OH	0.26%	721.2
14. PA	9.99%	283.4
15. SC	5.0%	163.1
16. TN	6.5%	719.4
17. VA	6.0%	214.4
18. WV	8.5%	146.9
19. Total	6.11%	6,865.9

Source: Exhibit III-H-1

4. Capital Cost Recovery

Under the Board’s DCF methodology, economic depreciation is used to calculate the capital recovery cost of the TPIRR’s property. Economic depreciation effectively represents an asset’s loss of earning power as it approaches the end of its life and/or its replacement date. The changes adopted in *Major Issues* dictate the use of a 10-year analysis period to benchmark the TPIRR’s asset value. However, the TPIRR’s investments would not be retired at the end of the 10-year DCF period; rather, it is assumed that continuing investments will be made in the TPIRR, and that it would operate, hypothetically, in perpetuity. TPI’s calculation of SAC, in Exhibit III-H-1, therefore accounts for the costs associated with the renewed investments in and

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continued operation of the TPIRR after June 30, 2020, using the approach approved by the Board in previous cases.³⁴

Beginning with *FMC* and continuing through subsequent decisions, the Board has utilized a real capital carrying charge that is equal in each year of the DCF period, regardless of changes in volume. Under this assumption, the relationship between stand-alone revenues and SAC (and, thus, the measure of potential rate relief and the maximum reasonable rate) fluctuates with annual changes in volume and associated revenue.³⁵ TPI's computation of the pattern of capital recovery applies this approach.³⁶

³⁴ See, e.g., *AEP Texas II* at 105-106.

³⁵ See *WFA/Basin I* at 134-135; *AEPCO* at 134-135.

³⁶ See Exhibit III-H-1.

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III. STAND-ALONE COST

H. RESULTS OF SAC ANALYSIS

The expert witnesses responsible for this Part are Thomas D. Crowley and Daniel L. Fapp of L. E. Peabody & Associates, Inc. Their credentials are detailed in Part IV.

1. Results of SAC DCF Analysis

The results of the SAC DCF analysis conducted by TPI are shown in Exhibit III-H-1. The calculations shown in each table of that Exhibit are summarized below.¹

a. Cost of Capital

The cost of capital (Table A) for the TPIRR is based upon the Board's annual cost of capital determinations for 2008 through 2012. The TPIRR's cost of debt for years 2008 through 2010, the TPIRR's construction period, is assumed to equal the railroad industry average cost of debt for each specific year in the construction period. For years 2011 through 2020, the TPIRR's cost of debt equals 5.79 percent and reflects the weighted average of the construction years' debt costs used through the remaining years of the DCF model. The TPIRR's cost of common equity for the years 2008 through 2012 is assumed to equal the railroad industry cost of common equity for each specific year. For years 2013 through 2020, the TPIRR's cost of common equity equals 13.1 percent, which, consistent with prior SAC cases, is equal to the simple average of the prior years' costs of common equity, beginning with the first year of TPIRR construction.² The TPIRR has no preferred equity.

b. Road Property Investment Values

The calculation of road property investment costs is summarized in Table C of Exhibit III-H-1. The investment cost also incorporates one-time fees paid for land easements.

¹ The cost of capital (Table A) and inflation indices (Table B) are addressed in more detail in Part III-G.

² See Part III-G-1 for additional explanation and support.

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c. Interest During Construction

Interest During Construction (“IDC”) accrues on the road property assets of the TPIRR. Table D shows the total IDC amount, and the portion that is debt-related. IDC is calculated based on the investment values in Table C, the composite cost of capital by year from Table A, and the assumed length of the finance period for each account. The construction schedule described in Part III-F-12 is used as the basis for the length of the finance period. The portion of IDC that is debt-related is calculated by multiplying the investment by the length of the finance period, the TPIRR’s debt percentage, and the annual cost of debt for the year of investment. Debt-related IDC is shown as an interest deduction for tax purposes during the construction period in Table J.

d. Interest Schedule of Assets Purchased With Debt Capital

Parties in prior SAC proceedings have assumed that the hypothetical SARR’s debt capital would mirror the debt issued by the U.S. Class I railroads included in the Board’s annual cost of capital determination.³ Although these parties incorporated the cost of the railroad industry debt as reflected in the Board’s annual determinations, they implicitly deviated from the type of debt the railroad industry utilized in its capital structure. In prior cases, both shippers and railroads assumed that the SARR would issue debt structured similar to a typical home mortgage loan. In other words, they assumed that the SARR would make quarterly payments that contained a principal repayment component and an interest component. Over time, as the debt was amortized, the interest component portion of the payment declined as larger amounts of the principal were repaid until, after 20 years, the debt was assumed to be completely repaid.

³ See, e.g., *West Texas Utilities* at 712.

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While such a payment stream is consistent with a typical home mortgage, it is contradictory to the payment schemes of the vast majority of railroad industry debt. Railroad companies, like other large corporations, do not customarily make periodic payments that contain constantly changing principal and interest components, but rather make coupon payments on the debt consisting only of fixed interest payments.⁴ As the debt nears maturity, it is simply re-issued as a new debt instrument, thereby requiring new coupon (interest) payments. Therefore, parties in prior SAC cases created an inexplicable mismatch between the debt rate (based on railroad cost of capital determinations by the Board) and the debt type (based on a home mortgage).

The AAR's filing in the 2012 cost of capital determination shows that approximately 93 percent of railroad industry debt consists of corporate bonds, notes and debentures that incorporate such periodic coupon payments.⁵ In fact, the vast majority of CSX Corporation's ("CSX") own debt is held in the form of corporate notes and debentures. According to the CSX's 2012 SEC Report 10-K and the AAR's 2012 cost of capital filing, \$9.713 billion of CSX's \$9.832 billion of long-term debt (after discounts and premiums) is held in notes and debentures paying fixed coupon (interest) payments.⁶ In other words, over 90 percent of CSX's total long-term debt requires CSX to only make interest payments.

⁴ See *Nevada Power II* at 319.

⁵ See the Verified Statement of John T. Gray at page 19, in Ex Parte No. 558 (Sub No. 16), *Railroad Cost of Capital – 2012* (filed April 19, 2013), which discusses the pricing of bonds based in part on their coupon payments and shows the coupon payments for the railroads' long-term notes and debentures. Mr. Gray submitted verified statements in the 2008, 2009, 2010 and 2011 *Railroad Cost of Capital* proceedings that show that the debt issued by the railroads in those years also primarily consisted of notes and debentures with coupon provisions.

⁶ See Comments of the Association of American Railroads and Its Member Railroads in STB Ex Parte No. 558 (Sub-No. 16), *Railroad Cost of Capital - 2012* (filed April 19, 2013) at Appendix A, pages 1 to 3, which shows \$9.727 billion in long-term debt less \$0.014 billion in variable rate debt, and CSX SEC Form 10-K for the Fiscal Year Ended December 28, 2012 at page 94, which shows \$9.832 billion in long-term debt (including current portion).

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If Board 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. Otherwise, a mismatch occurs. To that end, instead of amortizing the debt in a mortgage-style approach over a 20-year schedule, TPI has developed quarterly coupon payments associated with the TPIRR's debt as depicted in Table E of Exhibit III-H-1.⁷ The TPIRR's quarterly interest payments are developed by multiplying the fourth-root of the appropriate Table A cost of debt by the sum of the total investment and IDC for the year.

TPI's approach is consistent with the STB's industry cost of capital calculation, which is composed of a mix of debt with different maturities, and produces a weighted-cost of debt equal to the railroad industry cost of debt for each year. In at least one prior case, the Board expressed concern about the SARR issuing debt obligations of 20 years (or other lengths) that may not match the actual length of debt obligations issued by the railroads in the cost of capital determination group.⁸ The Board's previous concern does not negatively impact TPI's use of a real-world debt structure for its SARR. As explained more fully below, the railroads' level of debt has remained fairly uniform since the last round of mergers in the mid-1990s. This is because the railroads are issuing new debt as debt instruments mature, or as they redeem older debt issuance and replace them with newer issuances. In other words, the railroads are holding their levels of debt fairly constant, and as such, are consistently paying interest on this debt. Between 1998 and 2009, the four main railroads included in the STB's cost of capital calculation incurred aggregate interest expenses ranging in a narrow band between \$3.9 and \$4.3 billion.⁹

⁷ Most railroad companies pay interest semi-annually, but to remain consistent with the structure of the Board's DCF model, TPI has assumed the SARR will make coupon payments on a quarterly basis.

⁸ See *AEP Texas II* at page 107.

⁹ See e-workpaper "Interest Expense by Railroad.xlsx."

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Businesses maintain an ongoing level of debt for many reasons, such as using the power of leverage to manage earnings and cash flexibility. From an earnings perspective, the interest a company pays is a tax deductible expense, and, thus, returns to bondholders escape taxation at the corporate level. Debt confers a tax shield in which the government, in effect, pays a portion of the interest expenses equal to the corporate tax rate. Maintaining certain levels of debt allows a company to exploit these tax shields to maximize the return to shareholders. If the debt portion of the capital structure of a company is held relatively constant over time, the company commits to refinance its present debt obligations when they mature and to keep rolling over its debt obligations indefinitely as is done by real world railroads.¹⁰ The company can then look forward to a permanent increase in earnings and cash flow equal to the interest expenses associated with the debt multiplied by the effective corporate tax rate. Additionally, if the company can earn a higher rate of return than the interest rate paid on long-term debt, then it may be wise for the company to maintain long-term debt to increase earnings.

From a cash flow perspective, maintaining consistent levels of debt can provide financial slack to a company. Financial slack means having cash or marketable securities available to pursue opportunities when they present themselves. A company that is cash poor from unnecessarily paying down debt may miss out on such an opportunity. Additionally, since a company's cash flow is seldom consistent from month-to-month or year-to-year, maintaining certain levels of debt allows the company to manage these peaks and valleys in cash flow. This is one reason why companies do not immediately pay off debt when they are in a long cash position, but instead will maintain the debt to assist with fluctuating cash levels.

¹⁰ See Brealey, R. A., Myers, S. C., and Allen, F., "Principles of Corporate Finance, Eighth Edition," McGraw-Hill Irwin, 2006, at page 469-470 ("Brealey, Myers and Allen").

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For example, CSXT parent company CSX issued \$800 million of notes in 2010, \$1.2 billion of notes in 2011, and \$1.1 billion of notes in 2012.¹¹ The majority of the proceeds from these issuances were used for “general corporate purposes,” which includes “debt payments from time to time.”¹² CSX also recently engaged in a “debt exchange” in which \$660 million of notes were exchanged for longer-term (but lower interest) notes plus a cash payment.¹³

TPI’s approach for calculating debt costs is fully consistent with real-world debt financing, both in terms of utilizing a variety of debt instruments and in terms of relying on coupon payments of interest only, rather than amortizing principal with each payment.

TPI’s approach also implicitly assumes that the future cost of debt will equal the average current cost of debt during the construction period. Such an assumption is consistent with STB precedent regarding the use of historic data when unbiased forecasts are not available, and consistent with STB precedent about future interest rates.¹⁴

As explained in Section III-G-2 above, STB precedent holds where an unbiased, third party forecast of a future value is unavailable, the average historic value is an appropriate surrogate. Since there are no reliable forecasts of interest rates into perpetuity, use of historic average interest rates is a reasonable surrogate. Additionally, the STB’s standard DCF model already uses the historic average cost of debt when developing the replacement costs of future assets, in some cases over 100 years into the future. TPI’s approach simply mirrors the STB’s

¹¹ See 2010 CSX 10-K (fiscal year ending Dec. 31, 2010) at page 102; 2011 CSX 10-K (fiscal year ending Dec. 30, 2011) at page 93; 2012 CSX 10-K (fiscal year ending Dec. 28, 2012) at page 94.

¹² See 2011 CSX 10-K at page 93.

¹³ See 2010 CSX 10-K at page 104.

¹⁴ See *AEPCO* at page 139 (“We reiterate that it is preferable to use a longer rather than a shorter period of historic data when forecasting future economic trends, such as an inflation rate for land values or the cost of equity”). See also *West Texas Utilities* at 712 (“averages, rather than single-year data, are generally used to predict the future”).

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already standard assumption about the future cost of debt, and also eliminates the mis-match between the debt rate used and the type of debt incurred.

e. Present Value of Replacement Cost

Table F shows the additional investment (on a present value basis) that the TPIRR would have to make if each of its assets (excluding land) was replaced indefinitely at the end of its useful life. The 2009-2012 average cost of capital is used to calculate replacement value for road property assets. This calculated investment is added to the initial investment in Table I prior to determining the quarterly cash flows.

f. Tax Depreciation Schedules

Table G displays the tax depreciation percentages currently in effect in the Federal Tax Code.¹⁵ Depreciation was calculated assuming a mid-quarter convention, with assets placed in service in the third quarter. Investments in communications (Account 26), signals and interlockers (Account 27), and the track accounts (Accounts 8-12) were depreciated over seven (7) years employing a 200 percent declining balance methodology, then switching to straight-line depreciation when the straight line percentage exceeds the declining balance percentage. Investments in bridges and culverts (Account 6), public improvements (Account 39), fences and roadway signs (Account 13), station and office buildings (Account 16), roadway buildings (Account 17), and shops and engine houses (Account 20) were depreciated over 15 years using a 150 percent declining balance method, and then switching to straight-line depreciation at the same point consistent with Board precedent. Investments in grading (Account 3) and tunnels (Account 5) were amortized over 50 years using straight-line amortization. Investments in

¹⁵ The mandatory method for depreciating most tangible property placed in service after December 31, 1986 is MACRS. In addition, engineering costs have been amortized over a 60 month period, starting with the month in which the business begins.

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engineering (Account 1) were amortized over five (5) years using straight-line amortization. This approach is consistent with the depreciation methodologies used by the STB in prior decisions, including *WFA/Basin*, *AEP Texas*, and *Otter Tail*.

The TPIRR will take advantage of additional or “bonus” depreciation provisions enacted in 2008, 2009, and 2010. These provisions were part of the Economic Stimulus Act of 2008 (“Stimulus Act”), the American Reinvestment and Recovery Act (“ARRA”) of 2009, and the Small Business Jobs Act of 2010 (“2010 Jobs Act”). These acts provided bonus depreciation on capital investments with MACRS recovery periods of 20 years or less.¹⁶ Qualifying investments made between January 1, 2008 and June 30, 2010 are allowed a 50 percent depreciation bonus in the year that they are placed into service. Tax depreciation for the remaining 50 percent of the cost, or the remaining cost basis, is calculated using the standard MACRS schedules.¹⁷ Because the DCF model assumes that all assets are placed into service in the first year of the 10-year DCF period, which in this case is the twelve-month period ending June 30, 2011, the majority of the TPIRR’s investment qualifies for bonus depreciation.¹⁸ Table G of Exhibit III-H-1 displays the amount of bonus depreciation available to the TPIRR in 2011.

¹⁶ CSX took advantage of bonus depreciation provisions in the federal tax code in 2008 through 2010 to defer significant taxes to later years. See CSX 2008 SEC Form 10-K (year ending Dec. 26, 2008) at 119 (“[t]he increase in deferred tax liability during 2008 is primarily due to the bonus depreciation provision of the Economic Stimulus Act of 2008”), CSX 2009 SEC Form 10-K (year ending Dec. 25, 2009) at 117 (“[t]he increase in deferred tax expense during 2008 is primarily due to the bonus depreciation provision of the Economic Stimulus Act of 2008 which had an impact of approximately \$200 million. Likewise, 2009 deferred tax expense was impacted by approximately \$160 million related to bonus depreciation”), and CSX 2010 SEC Form 10-K (year ending Dec. 31, 2010) at 44 (“[d]eferred income tax liability also increased by \$525 million due to the impact of accelerated depreciation and bonus depreciation”).

¹⁷ For example, a \$1 million asset with a five (5) year MACRS life placed into service between January 1, 2008 and June 30, 2010 would accrue \$500,000 in bonus depreciation in year one (\$1 million x 50 percent bonus factor), plus \$100,000 in standard MACRS depreciation (\$500,000 remaining cost basis x 20% for the Year 1 MACRS factor for a 5 year asset) for a total of \$600,000 in depreciation in the first year. See <http://www.depreciationbonus.org/> for a description and example of bonus depreciation under the various enacting laws.

¹⁸ The TPIRR begins calculating depreciation on all assets in the first year of railroad operations. This is consistent with the fact that no depreciation charges are incurred during the 30-month construction and testing period.

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The STB expressed some skepticism in *AEPCO* as to whether bonus depreciation allowed under the prior and current tax law should be allowed in SAC presentations. Not allowing a shipper to avail itself of the bonus depreciation provisions clearly taken and used by the railroad companies, however, would create a barrier to entry, and place the shipper at a distinct disadvantage relative to the incumbent railroad. The STB defines a barrier to entry as any type of cost that a new entrant would have to incur that was not actually incurred by the defendant carrier.¹⁹ There is no denying that CSXT reduced its tax costs and increased its cash flows by employing the tax shielding effects of the bonus depreciation. If the STB were to disallow shippers the same tax advantage enjoyed by the incumbent railroad, it would be creating a clear barrier to entry by forcing the SARR to pay higher taxes than those paid by the incumbent. In this instance, the incumbent carrier, CSXT, was able to lower its tax expense and increase its cash flow by employing bonus depreciation allowed under the law. Denying the TPIRR the same tax-shielding benefits as the CSXT would be a textbook example of a barrier to entry to the SARR.

The STB may also have been concerned about the bonus depreciation since it deemed the bonus depreciation as “temporary,” and “now-expired.”²⁰ However, the bonus depreciation allowances allowed by federal tax law extended over at least six (6) tax years.²¹ In other words, bonus depreciation was current under federal tax law at the time the SARR was constructed and several years beyond. Moreover, the structure of the Board’s DCF model limits the bonus depreciation taken by TPI to only the assets placed into service in 2008, 2009, and 2010. This is

¹⁹ See *West Texas Utilities* at 670-671.

²⁰ See *AEPCO* at 142.

²¹ On January 2, 2013 President Obama signed the American Taxpayer Relief Act (H.R. 8) to temporarily avert the “fiscal cliff.” Section 331 of the new law extended 50 percent bonus depreciation through the end of 2013.

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because the DCF model assumes assets are only replaced at the end of their useful lives, meaning replacement assets are ineligible for use of the bonus depreciation.

Bonus depreciation was a tax benefit available to the TPIRR under then-applicable tax laws. To expect or require complainants in rate cases to disregard laws in existence during construction and operation of the SARR because the laws are “temporary” ignores the fact that the legal regime under which society exists is constantly changing and evolving. New laws are always being enacted; pre-existing laws are always being amended or repealed. Moreover, to ignore existing law would invite potentially limitless speculation into the SAC process. One party would argue that certain laws should not apply, while the opposing party would object and, instead, argue that different laws should be disregarded. As the Board recently stated, “we must follow existing law...We have no reason in this 10-year DCF analysis to exclude costs that are required by Federal law because of the possibility that the law might change in the future or tax breaks that do not currently exist may be enacted.”²²

Given that CSXT has utilized bonus depreciation, TPI should not be penalized by incurring a cost that the incumbent carrier has not incurred. Moreover, CSXT and/or its predecessor companies have benefited from investment tax credits and other tax deferral mechanisms that are not available to the TPIRR. For example, investment tax credits were available to railroads in the 1970’s and 1980’s, which the railroads, including CSXT and its predecessors, used to help develop their current networks.²³ It would be manifestly unfair to limit tax benefits available to the TPIRR under current tax law while allowing CSXT and its predecessors to fully benefit from prior tax avoidance mechanisms not available to the TPIRR.

²² See *AEPCO* at 34 [footnote omitted].

²³ See, e.g., *Nevada Power II* at 317.

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g. Average Annual Inflation In Asset Prices

Table H computes the average annual inflation rate by which the capital recovery charge in Table I is indexed. The weighted average inflation rate was used because Table H calculates the required capital recovery necessary to return the investment. All road property and equipment accounts are indexed at the quarterly rates shown in Table B. The weighted average inflation rates are based on the inflation indexes discussed in Part III-G.

h. Discounted Cash Flow

Table I shows the calculation of the capital carrying charge and associated flow of funds required to recover the total road property investment and equipment investment. Inputs to this spreadsheet were taken from the Tables A through H described *supra*. Table I calculates the quarterly capital carrying charge required over the 40 quarters of the DCF period, after consideration of the applicable tax liability.

The total start-up investment is comprised of the road property and equipment investment shown in Table C, the road property IDC calculated in Table D, the present value of replacement investment calculated in Table F, and any capitalized maintenance-of-way expenses. The result equals the total investment to be recovered over the life of the TPIRR from the quarterly capital recovery stream. The quarterly capital recovery stream reflects the tax benefits associated with interest on the investment financed with debt from Table E and the asset tax depreciation from Table G.

The cash flow shown in Column (8) of Table I is the amount remaining each quarter after the payment of federal and state tax liabilities. This cash flow is used for payment of return on total investment in the TPIRR. For road property investment, this quarterly figure is then discounted by the fourth root of the composite annual cost of capital from Table A, adjusted to reflect the assets being placed in service on June 30, 2010. The present value cash flow is then

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summed for each quarter along with the future cash flow; the total equals the total cost that must be recovered. The future cash flow is the residual value of the TPIRR's unconsumed assets, future interest payments and remaining tax liabilities (remaining interest and depreciation), and reflects the cash flow required to account for the value of the assets not consumed during the 10-year life of the DCF model.

Prior to the STB's decision in *AEPCO*, unused depreciation was accounted for in the terminal value calculation on an undiscounted basis. However, the STB modified its approach in *AEPCO* to calculate the present value of unused depreciation in the terminal value calculation.²⁴ TPI has included the STB's modified terminal value approach in its DCF model, but in doing so, has identified a flaw in the STB's model. The STB's DCF model explicitly assumes that the SARR's capital structure will remain constant into perpetuity.²⁵ This means that the amounts of common equity and debt carried on the assumed SARR's financial statements will remain the same forever. However, the STB's DCF model assumes that after year 20, and until the first assets are replaced in the replacement level of the DCF model, the railroad has no debt and no tax shielding interest payments. Stated differently, the model assumes, from a tax payment perspective, that the railroad is 100 percent equity financed after year 20 and before its first replacement cycle. This creates an irreconcilable mismatch between the SARR's capital structure and its cash flows. The capital structure assumes that the SARR is carrying debt, and its associated interest payments, but the cash flows reflect no benefits from the interest tax shields.

²⁴ See *AEPCO* at 140-141.

²⁵ The cost of capital used to calculate the terminal value in the DCF model equals the simple average cost of capital from the first year of the SARR's construction to the most recent cost of capital issued by the STB. It also reflects the average railroad industry capital structure over the same period. Between 2009 and 2012, debt as a percentage of railroad industry capital ranged from 20.8 to 29.1 percent. See *Railroad Cost of Capital – 2009* at page 19, *Railroad Cost of Capital – 2010* at page 18, *Railroad Cost of Capital – 2011* at page 24, and *Railroad Cost of Capital -- 2012* at page 17.

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To correct for this flaw, TPI adjusted 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. Specifically, TPI calculated an interest tax shield perpetuity by dividing the last full quarterly coupon payment by one plus the quarterly real cost of capital.²⁶ This calculation aligns the capital structure assumption of a fixed level of debt forever with the interest payable on this debt.²⁷

This change not only corrects for a flaw in the STB's DCF model, but also aligns the SARR with how real world railroads operate. As indicated above in Part III-H-1(d), the railroads are constantly issuing new debt as older debt issuances mature, or the railroads call the debt before its maturity. Since the last round of mergers in the mid-1990s the amount of railroad industry debt, as measured by the four major railroads included in the STB's cost of capital calculations (UP, BNSF, CSXT and NS), has remained consistent. As shown in Exhibit III-H-2, the amount of railroad industry debt between 1998 and 2009 remained at approximately \$30 billion in aggregate.²⁸ It is generally agreed in the financial community that borrowing can add value to a firm because of the tax shielding impact of interest payments.²⁹ Under the STB's current DCF model assumptions, the value this debt adds from the interest tax shields is unaccounted for in all periods in the cash flow projections, but is accounted for in the cost of capital. The change made by TPI corrects this flaw.

²⁶ This is the same type of calculation used to develop the terminal capital carrying charge.

²⁷ To avoid a double count in the impact of the interest tax shields, TPI has adjusted the asset replacement calculations to remove the impact of the interest tax shields on replacement assets.

²⁸ The amount of debt carried by the railroads increased beginning in 1996 as the railroads took on debt to finance their last round of mergers. 2009 is the final year in this analysis because that was the last year that BNSF was included in the STB's cost of capital calculation.

²⁹ See, e.g., Brealey, Myers, and Allen, at page 476 ("... most financial managers believe that there is a moderate tax advantage to corporate borrowing, at least for companies that are reasonably sure they can use the corporate tax shields.").

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TPI's correction is also consistent with financial theory. It is well settled that a firm's cost of equity will change with changes in leverage. This is famously known as Modigliani and Miller's ("MM") Proposition 2, which states that the expected return on the common stock of a levered firm increases in proportion to the debt-equity ratio.³⁰ This means a higher debt-to-equity ratio leads to a higher required return on equity, because of the higher risk involved for equity-holders in a company with debt. The converse of this is also true. Stated differently, as the amount of debt held by a company falls, the required return on equity falls because of the lower risk involved for equity-holders in a company without any debt.³¹

If the TPIRR's debt was assumed to be reduced over time as principal was repaid, the cost of both the TPIRR's debt and equity would shift. The cost of debt would fall because firms with less debt, holding all else constant, will pay a lower interest rate than higher levered firms. Similarly, the cost of equity would fall pursuant to MM Proposition 2 because the expected return on TPIRR common equity falls in proportion to the debt-equity ratio. The only proper way to show a constant capital structure in perpetuity, as the STB has assumed in its DCF model, is to assume a constant level of debt over the SARR's infinite life. Moreover, the Board's use of the railroad industry cost of capital necessarily requires that the TPIRR have a capital structure similar to that of the railroad industry. TPI's adjustment to the DCF model aligns the disconnect inherent in the current version of the STB's model.

The development of the quarterly levelized capital carrying charge requirement is a relatively simple calculation, *i.e.*, the starting capital carrying charge requirement times the quarterly index factor from Table H, which will recover total investment during the 10-year DCF model period. The starting capital carrying charge requirement which recovers the total

³⁰ See Brealey, Myers and Allen at page 453 for a fuller explanation of MM's Proposition 2.

³¹ *Id.*

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investment is developed through an iterative process. The DCF model begins with a specified amount and then runs through the calculation described above to develop the cumulative present value of the cash flow. If this cumulative number does not equal the total costs to be recovered from the quarterly revenue flow (start-up investment plus the present value of the replacement investment), the starting cost is adjusted upward or downward as necessary and the DCF model runs through the calculations again. The process is repeated until the starting quarterly charge yields a cumulative present value cash flow which equals the required investment to be recovered from the quarterly capital recovery flow.

i. Computation of Tax Liability - Taxable Income

Table J, Part 1 of Exhibit III-H-1 displays the calculation of the TPIRR's federal tax liability on road property. The procedures followed to develop the federal tax liability are discussed in Part III-G. Table J, Part 2 shows the calculation of the TPIRR's state income tax liability for both road and equipment property, which also is discussed in Part III-G.

j. Operating Expenses

Table K displays the operating expenses incurred in each year of the DCF period based on the traffic levels described in Part III-A. Annual operating expenses that change with the level of traffic volumes are adjusted by the annual change in gross ton-miles to take into consideration the shifting nature of TPIRR's traffic.³²

³² For example, assume that in Year 1 of the 10-year period, Movement A transports 1,000 gross tons over 1,000 miles of the SARR, producing 1.0 million gross ton-miles of traffic (1,000 gross tons x 1,000 miles = 1,000,000 gross ton-miles). In Year 2, Movement A is forecasted to be discontinued, but is replaced in the SARR traffic group by Movement B. Movement B also transports 1,000 gross tons, but only moves over 100 miles of the SARR, producing 100,000 gross ton-miles (1,000 gross tons x 100 miles = 100,000 ton-miles). Even though both Movement A and Movement B represent 1,000 tons of traffic annually, Movement B will be less expensive to move than Movement A, given the lower aggregate costs associated with a shorter movement and the 90 percent reduction in gross ton-miles. Adjusting costs by the change in gross ton-miles instead of the change in tons reflects the shifting nature of the SARR's traffic mix and its actual impact on the SARR's operating costs.

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TPI developed the correlation between CSXT operating expenses (adjusted to current year price levels through the use of the RCAF-U) and various operating metrics, including net tons, gross ton-miles, net ton-miles and car-miles, and found the change in operating expenses between 1996 and 2012 was more closely correlated with gross ton-miles than the other two factors.³³ The change in gross ton-miles is an appropriate metric to use to adjust operating expenses because it takes into consideration multiple operating factors, in this case distance and tonnage factors.

Therefore, TPI has adjusted train and engine personnel expenses, locomotive related expenses, loss and damage expenses, and intermodal lift costs annually by the change in TPIRR gross ton-miles. Table K states the annual operating costs on a quarterly basis, and indexes them to reflect inflation over the 10-year analysis period based on the inflation rates shown in Table B.

In addition, TPI has capitalized rail grinding and rail crossing maintenance, instead of treating these activities as standard operating cost items. TPI took this approach because, based on the accounting standards CSXT previously used in its real world operations and statements made by CSXT engineering executives which are discussed below, TPI believes the proper methodology for accounting for these MOW costs is to include them in TPIRR's capital recovery stream.

CSX's 2009 SEC Form 10-K discusses when and where the railroad decided to treat maintenance of way outlays as either a capital expense or an operating expense. As indicated by CSX:

The Company's largest category of capital spending is track assets which are typically completed by CSXT employees. Costs for track projects that are capitalized include:

³³ See e-workpaper "Analysis of Op Exp and Statistics.xlsx" which shows an 89.9 percent correlation between changes in gross ton-miles and operating expenses.

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- labor costs, because many of the assets are self-constructed;
 - costs to purchase or construct new track or to prepare ground for the laying of track;
 - welding (rail, field and plant) which are processes used to connect segments of rail;
 - rail grinding which is a procedure for removing ridges and defects in a rail surface to restore rail to its original shape and extend its useful life;
-
- gauging which is the process of standardizing the distance between rails.³⁴

Based on CSX's prior description of its own accounting practices, the key factor of whether the cost is expensed or capitalized is whether the activity extends the life of the asset: "[t]he Company's capital spending includes purchased or self-constructed assets and property additions that substantially extend the service life or increase the utility of those assets."³⁵ Based on statements made by CSXT engineering executives, there is no question that rail grinding and crossing repaving extend the useful lives of CSXT's assets. A recent news article included the following statement:

At CSX Transportation, MOW officials are seeking a computerized selection of the daily grind plan based on a laser-head profile at the front of the grinder and a daily pre-grind measurement to improve grinding operations. In addition, if grinders could operate more efficiently, CSXT could reduce the amount of track time needed for grinding, said CSXT Spokesman Gary Sease in an email, adding that the Class I's "preventative grinding philosophy" calls for operating production grinders on main routes to maintain rail and extend rail life.³⁶

There is no question that rail grinding extends the useful life of rail and crossings. Based on this widely acknowledged fact, and CSXT's own statement that it capitalizes maintenance activities that extend the life of assets, TPI has chosen to capitalize rail grinding and certain maintenance of way activities.

³⁴ See CSX SEC Form 10-K for Year Ending December 25, 2009 at 98.

³⁵ *Id.* at 96.

³⁶ See "Technology update: Rail grinding equipment," Progressive Railroading, May 2010.

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The objective in identifying the costs of an asset is to distinguish the expenditures that produce future benefits from those that produce benefits only in the current period. The costs in the second group (i.e., costs that produce benefits only in the current period) are recorded as expenses, but those in the first group are capitalized; that is, they are recorded as an asset and expensed in future periods through depreciation. As indicated above, the key aspect is the timing of the benefits associated with the expenditure. If the expenditure extends the future life of the asset, e.g., produces future benefits, it can be capitalized under GAAP. TPI recognizes that CSXT recently decided to expense rail grinding.³⁷ While expensing some maintenance cost, such as rail grinding, is allowable under GAAP, this does not mean capitalizing of the costs is disallowed. In fact, CSXT itself stated that capitalization of rail grinding is an “acceptable method.”³⁸ In this instance, TPI has chosen to capitalize certain maintenance-of-way expenses, which is perfectly consistent with GAAP and is “acceptable” according to CSXT.

k. Summary of SAC

Total SAC for the TPIRR based on investment and operating costs is summarized in Table L of Exhibit III-H-1. The capital requirement from Table I and the annual operating expenses from Table K are presented and summed in Table L for each year of the TPIRR’s operation.

2. Maximum Rate Calculations

The SAC analysis summarized in Parts III-A through III-G and the accompanying Exhibits, and displayed in Exhibit III-H-1, demonstrates that over the 10-year DCF period the revenues generated by the TPIRR exceed its total capital and operating costs. Table III-H-1 below shows the excess revenue over SAC in each year of the DCF period for this case.

³⁷ See CSX Corporation Third Quarter 2010 Quarterly Financial Report at 11.

³⁸ *Id.*

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Table III-H-1
Summary of DCF Results – July 1, 2010 to June 30, 2020
 (\$ in millions)

Year	Annual Stand-Alone Requirement	Stand- Alone Revenues	Overpayments or Shortfalls	PV Difference	Cumulative PV Difference
(1)	(2)	(3)	(4)	(5)	(6)
July 1, 2010 – Dec 2010	\$2,815	\$3,152	\$337	\$337	\$337
2011	5,900	6,832	932	835	1,172
2012	6,008	6,851	842	678	1,850
2013	6,161	7,301	1,139	828	2,679
2014	6,299	7,671	1,371	896	3,575
2015	6,582	8,139	1,557	915	4,490
2016	6,837	8,720	1,882	995	5,484
2017	7,066	9,122	2,056	977	6,461
2018	7,384	9,721	2,337	999	7,460
2019	7,724	10,422	2,698	1,036	8,496
Jan 2020 – June 30, 2020	4,012	5,587	1,575	574	9,070

Source: Exhibit III-H-1

Where stand-alone revenues are shown to exceed costs, rates for the members of the TPIRR traffic group -- including TPI in particular -- must be adjusted to bring revenues and SAC into equilibrium. In *Major Issues*, the Board adopted MMM as its rate prescription approach for use in proceedings under the *Coal Rate Guidelines*.³⁹

Under MMM, maximum reasonable rates for each year of the DCF period are expressed as a ratio of each movement's stand-alone revenues to the variable cost of providing the subject service over the TPIRR route. Revenues are expressed as each movement's annual stand-alone revenue calculated using the ATC methodology detailed in Part III-A. Revenues are categorized based on traffic type (*i.e.*, coal, intermodal, or general freight), ultimate origin and destination, and CSXT origin and destination. Variable costs for each movement are calculated using

³⁹ See *Major Issues* at 14-23.

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CSXT's 2012 URCS costs for the portion of the movement replicated by the TPIRR, based on the nine (9) cost inputs identified in *Major Issues*.⁴⁰

a. Calculation of Variable Costs Used In The MMM

In *Major Issues*, the Board determined that parties in SAC cases should use the incumbent railroad's unadjusted URCS Phase III variable costs as the cost input for the MMM model.⁴¹ The Board, however, expressed a concern in *AEPCO* that use of variable costs based on a movement's characteristics on the incumbent carrier would not reflect, in some cases, the movement's characteristics when it moved over the SARR.⁴² Specifically, the STB stated that, where the SARR transported trains in overhead service between interchanges with the incumbent carrier (i.e., cross-over traffic), parties should calculate the variable costs for all cars on a trainload service basis even if the cars moved in single car or multiple car service on the incumbent railroad. The Board felt this would better reflect the actual cost of operations incurred by the SARR in moving this traffic.

Pursuant to the Board's order, the shipper in *AEPCO* submitted revised variable cost calculations for use in its MMM model.⁴³ The incumbent railroads subsequently submitted their reply variable cost calculations pursuant to the Board's order, and made one key change from the shipper's opening submission. The railroads asserted that, while the variable costs for non-issue overhead traffic should be calculated as if the traffic were operated in unit train service, the

⁴⁰ In developing the revenues and variable costs for use in the MMM model, TPI found instances of clear errors in the CSXT traffic and revenue data pertaining to the number of units transported. For example, the revenue data may have shown revenue associated with a full unit train of coal, but the traffic data only indicated one (1) car on the train. Where such anomalies occurred, TPI adjusted the number of units on the movement as to properly calculate the variable costs associated with the movement.

⁴¹ See *Major Issues* at 14.

⁴² See *AEPCO* at 35.

⁴³ See "Revised Variable Cost Calculations of Complainant Arizona Electric Power Cooperative, Inc.," filed July 5, 2011 in STB Docket No. 42113. *AEPCO* stated that its filing should not be mistaken for any acquiescence in or agreement with the Board's basic premises or assumptions. See page 3.

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empty return ratio should not reflect the standard 2.0 empty return ratio used in unit train costing. Instead, the railroads indicated the empty return ratios should reflect each applicable traffic group.⁴⁴ In simple terms, the railroads argued that parties should use movement specific adjustments to the variable cost calculations to replace the default empty return ratio with an empty return ratio based on the type of traffic moved.

The STB did not come to a final conclusion on these issues in *AEPCO* because the impact was immaterial to the outcome of the case.⁴⁵ Instead, the Board indicated it had properly positioned the issue for litigants in future cases to consider and brief. Consistent with the Board's position, TPI considers this issue below.

i. The Proposed Variable Cost Adjustments Are Inconsistent With The Focus On An Incumbent's Costs

In its June 27, 2011 decision in *AEPCO*, the Board stated that the variable costs used in the MMM model should reflect the "actual operating characteristics of the movements on the SARR" rather than those of the incumbent's operations.⁴⁶ The Board also stated that this treatment was required by pages 47-48 of *Major Issues*.⁴⁷ However, the discussion in *Major Issues* centered on the general issue of whether to allow movement-specific adjustments to URCS when calculating variable costs; it did not address MMM. The relevant MMM part of the *Major Issues* decision indicates that the defendant's unadjusted variable costs should be used, not those of the SARR:

The Maximum Markup Methodology provides for demand-based differential pricing. The approach recognizes that, because competition would compel the defendant carrier to price some of its services below an

⁴⁴ See BNSF/UP Response on Variable Cost Calculations at page 3-5 (filed July 19, 2011) in STB Docket No. 42113.

⁴⁵ See *AEPCO* at 36.

⁴⁶ See *AEPCO II* at 2.

⁴⁷ *Id.*

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average R/VC level, the defendant carrier must be able to price other services above the average to compensate. By design, the Maximum Markup Methodology therefore calculates the precise amount that the defendant carrier would need to price its services above the average R/VC ratio to cover all its costs and earn adequate revenues. This calculation rests on the demand for rail transportation services, as observed in the existing rate structure of the defendant carrier.⁴⁸

In adopting MMM, the Board strove to develop a method based on demand-based differential pricing that reflected the relationship between revenues and costs for the real-world movements of the defendant railroad, with a cap only at the highest level and only if the selected SARR traffic group provides a reasonable return on investment.⁴⁹ Adjusting the variable costs used in the MMM to reflect a SARR's operations would adversely distort this relationship and the resulting rate prescriptions.

A simple example illustrates the need to use the defendant railroad's variable costs in application of MMM: assume that two incumbent-railroad, single car movements, identical in all ways, move over the SARR, except that one is an overhead movement on the SARR (i.e., the car moves on the same train from the SARR origin to the SARR destination) and the other is not (i.e., the car receives an inter-train switch while on the SARR). The two movements would also have the same URCS variable costs, because under the Board's costing methodology, the two movements would have the same nine (9) inputs into the Board's Phase III cost model. By the adjustment proposed by the Board in *AEPCO*, the overhead movement would have lower variable costs than the second movement and subsequently a higher R/VC ratio. This may lead to the overhead movement receiving a rate reduction in the MMM process while the identical movement, which does not move in overhead service, sees no change in rates. This outcome is completely contradictory to the idea that demand, as reflected by relative R/VC ratios, should set

⁴⁸ See *Major Issues* at 20 (emphasis added).

⁴⁹ See *Major Issues* at 20-23.

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the price.⁵⁰ Conversely, there is no distortion if the variable cost parameters are based on the incumbent's movement characteristics and not the SARR's characteristics.

This was the position taken by the Board in *WFA/Basin*. In discussing the correct variable costs to use in the MMM model, the Board unequivocally stated that the variable costs used in the MMM model are the defendant railroad's variable costs estimated by URCS and not the SARR's variable costs.⁵¹

ii. The Proposed Adjustments Violate the Long-Cannon Factors

Under Constrained Market Pricing and the so-called "Long-Cannon" factors, a carrier must charge its competitive traffic as much of its unattributable costs as demand will permit before passing along the remaining costs to captive shippers.⁵² This is one of the primary reasons the STB rejected the percent rate reduction approach formerly used to establish SAC rates prior to *Major Issues*.⁵³ The STB found in *Major Issues* that MMM "reflects the important principle that a railroad should recover as much of its costs as possible from each shipper served before charging differentially higher rates to its captive shippers."⁵⁴ Adjusting the variable costs used in the MMM model to reflect operations of the SARR instead of the incumbent could violate these factors by reducing rates on competitive traffic below the rates dictated by their demand.

⁵⁰ See *Guidelines*, at 523 (the ICC "concluded that a meaningful maximum rate policy could not be founded on a strictly cost-based approach....Therefore, we expressed our commitment to the concept of demand-based differential pricing, whereby the carrier may price its services according to the varying demand elasticities for them") (footnote omitted).

⁵¹ See *WFA/Basin II* at 30.

⁵² See *Guidelines* at 539-540. See also 49 USC § 10701(d)(2).

⁵³ The percent reduction method violated the Long-Cannon factors because it reduced all rates by an equal percentage, and thus did not require competitive traffic to carry as much unattributable costs as demand would allow. See *Major Issues* at 12-13.

⁵⁴ See *Major Issues* at 16.

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For example, assume a competitive movement with a rate of \$10 and variable costs of \$8 based on the incumbent carrier's operating characteristics. This produces an R/VC ratio of 125 percent, which, according to the Board, reflects the highest rate the railroad can charge without fear of losing this traffic to a competitor. This rate also reflects the amount of unattributable costs that this movement can absorb.

Now assume that this movement moves in overhead service on a SARR, and has variable costs of \$6.67 based on the SARR operating characteristics. This produces an R/VC of 150 percent for MMM purposes. If the final MMM ratio were, say, 140 percent, the competitive movement would not be due relief when using the incumbent's variable cost characteristics, because it is contributing as much as it can given its competitive environment. However, if the variable costs were calculated based on the fictional SARR's operating characteristics, this move would be due relief under the STB's proposed variable cost adjustments.⁵⁵ This reduction, however, is completely contradictory to the Long-Cannon Factor that a competitive movement contribute as much as its demand permits. A railroad can charge up to \$10 for this movement, but making the Board's proposed MMM adjustments provides a rate below this theoretically optimal level, thus contradicting the Long-Cannon Factors.

Within the MMM rate reduction approach, reducing the rate for a competitive movement means captive traffic must assume a greater share of the SAC, and subsequently higher rates. The Board rejected this very notion in *Major Issues* when the railroads argued that it is more efficient to lower rates on shippers with more competitive options and shift recovery of

⁵⁵ The MMM adjusted R/VC ratio of 150 percent exceeds the MMM R/VC ratio of 140 percent. Based on MMM the 140 percent R/VC ratio would then be multiplied by the SARR variable cost of \$6.67, producing a rate of \$9.34, or a \$0.66 reduction in the rate.

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unattributable costs to shippers with fewer competitive alternatives.⁵⁶ As required by *Guidelines* and 49 USC § 10702, the Board should continue to use the incumbent railroad's characteristics when calculating the MMM variable costs.

iii. The Board Should Reject Any Adjustment To Variable Costs

Even if the Board were to decide that parties should adjust the variable costs used in the MMM model to reflect the SARR's operating characteristics, the Board should not accept the railroads' recommendation to use movement specific empty return ratios.

As indicated above, the incumbent railroads in *AEPCO* asserted that the empty return ratio on the overhead movements should be adjusted from the URCS default of 2.0 to a movement specific factor.⁵⁷ The STB must reject this position for several reasons.

First, the Board clearly indicated in *Major Issues* that parties need to use unadjusted URCS to estimate the variable costs for each movement in the MMM model:

We will replace the percent reduction approach with the Maximum Markup Methodology. Under this method, the parties should use unadjusted URCS to estimate the variable cost of each movement in the traffic group, and then determine the maximum contribution of each movement towards SAC costs, expressed as a markup over variable cost.⁵⁸

The Board used unadjusted Phase III URCS costs in its analyses for a variety of reasons, including, but not limited to, reducing the complexity involved with maximum reasonable rate cases.⁵⁹ The movement specific adjustment recommended by the railroads clearly contradicts this intent. Second, adjusting the empty return ratio away from the 2.0 factor used when costing

⁵⁶ See *Major Issues* at 17.

⁵⁷ See *AEPCO* at 35-36.

⁵⁸ See *Major Issues* at 14.

⁵⁹ *Id.* at 50.

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trainload movements introduces piecemeal and incomplete adjustments to the variable cost calculations.⁶⁰

The railroads asserted in their *AEPCO* filing that, while it is proper to determine the variable costs for individual overhead traffic as if the traffic moved in unit train service, it is improper to assign the Phase III default unit train empty return ratio of 2.0.⁶¹ Instead, the railroads claimed that parties must override the Phase III model's default unit train empty return ratio and instead substitute a movement specific ratio based on traffic group types. The railroads argued this adjustment would reflect the fact that non-unit train traffic does not have an empty car for every loaded car moved.⁶²

The problem with the railroads' position in *AEPCO* is that it introduces incomplete adjustments to the variable cost calculation. The Board's URCS Phase III model calculates total unit train miles by multiplying the URCS short line miles by the empty return ratio. The Phase III model then uses the total unit train miles to develop locomotive unit mile ("LUM") dependent costs. If the empty return ratio used is different than the default Phase III empty return ratio, then LUM costs will be either overstated or understated. To solve this problem, a user would have to make another adjustment to LUM to remove the impact of the changed empty return ratio. As the Board has said, "piecemeal...adjustments to URCS are suspect."⁶³ "[S]elective replacement of system-average costs with movement-specific costs may bias the entire analysis, rendering the modified URCS output unreliable."⁶⁴

⁶⁰ See *Major Issues* at 51. Cf. *Cargill* at 11 ("we conclude that permitting piecemeal movement-specific adjustments to URCS in the fuel surcharge context...would not likely lead to more accurate results, and would almost certainly increase litigation and litigation costs").

⁶¹ See "*Defendants' Response To The Revised Variable Cost Calculations Of Complainant Arizona Electric Power Cooperative, Inc.*," filed July 19, 2011 at 4.

⁶² *Id.*

⁶³ See *Major Issues* at 48 and 51.

⁶⁴ *Id.* at 52.

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The Board chose not to allow movement specific adjustments, in part, because of the impact these one-time adjustments would have on unit costs and the complexity of a SAC case.⁶⁵ The *AEPCO* defendants' recommended adjustment to the empty return ratio would introduce additional complexity and piecemeal results to the variable cost calculation process, while also casting doubt on the accuracy of the URCS result.

b. Indexing Variable Costs In The MMM Model

The Board indicated in *Major Issues* that parties in SAC cases should project the base year URCS variable costs in MMM forward using the hybrid RCAF approach used to index a SARR's operating expenses.⁶⁶ The Board revised this position in *WFA/Basin II*, saying that the hybrid RCAF would distort the actual distribution of R/VC ratios used to develop MMM rate reductions and the degree of differential pricing the carrier will need in the future.⁶⁷ Instead, the Board indicated parties should apply the RCAF-A index to base year URCS variable costs in order to forecast future variable costs because the RCAF-A would better reflect the future productivity of the incumbent railroad than the hybrid RCAF.⁶⁸

While the RCAF-A may better reflect future costs than the hybrid RCAF, the Board's standard URCS indexing method is superior to both, and the Board should use the standard URCS method to index URCS variable costs in MMM in this proceeding. The Board previously determined that, in calculating variable costs to implement an R/VC ratio rate standard, the standard URCS indexing approach produces the most accurate results. Specifically, the Board determined in *OG&E* that the standard URCS indexing approach would produce the most accurate results in developing future variable costs for rate prescription purposes, and directed its

⁶⁵ See, e.g., *Major Issues* at 60.

⁶⁶ See *Major Issues* at 14 (n. 19).

⁶⁷ See *WFA/Basin II* at 30.

⁶⁸ See *WFA/Basin II* at 30.

PUBLIC VERSION

use.⁶⁹ Obviously it would be inappropriate to use two (2) different indices, the STB's standard URCS index and the RCAF-A, to accomplish the same, singular purpose, i.e., to forecast variable costs.

The use of a forecasted CSXT-specific URCS index also is better suited to the goals of the MMM approach than the application of the more general RCAF-A index. The STB indicated in *WFA/Basin II* that an accurate presentation of the defendant railroad's variable costs is key to the MMM's ability to maintain differential pricing required by the defendant carrier:

In sum, for MMM to correctly calculate the degree of differential pricing needed by the defendant railroad to recover the total SAC costs over the DCF analysis period, we need to properly forecast the defendant carrier's variable costs.⁷⁰

In other words, obtaining a “correct[]” MMM “calculat[ion]” requires properly forecasting the defendant's variable costs. The best way to do this is use of a carrier-specific URCS index instead of the industry-wide RCAF-A. An URCS index takes into consideration the specific weighting of cost components unique to a specific railroad, while the RCAF-A bases its cost weighting on inputs from all Class I railroads. The most accurate way to calculate a railroad's future variable costs is to use an index specific to that carrier.

The STB's URCS index uses five (5) indices: the (1) AAR Wage Index, (2) AAR Wage Supplements Index, (3) AAR Materials and Supplies Index, (4) AAR Fuel Index, and (5) Producer Price Index – All Commodities (“PPI”). All five indices are weighted by actual railroad costs reported in the railroad's Annual Report Form R-1. Global Insight⁷¹ publishes forecasts for each of the first four (4) indices, and the Board already accepts Global Insight's forecasts of the first three (3) for use in the DCF model. The fuel forecast is included in the

⁶⁹ See *OG&E* at 11.

⁷⁰ See *WFA/Basin II* at 30.

⁷¹ Now IHS Economics.

PUBLIC VERSION

same documentation. Likewise, the Energy Information Administration (“EIA”) – whose coal production, transportation cost, and GDP-IPD forecasts already are accepted by the Board – publishes a PPI forecast.⁷² To forecast CSXT URCS Phase III variable costs for MMM purposes, therefore, TPI uses the STB’s URCS index, with the December 2013 Global Insight and the EIA’s 2014 Annual Energy Outlook forecasts for its components. Weighting factors are taken from CSXT’s Annual Report Form R-1 data.

Following the calculation of the specific annual variable costs for each movement, TPI calculated each movement’s maximum contribution toward SAC each year, expressed as a mark-up over the movement’s variable costs. Under MMM, a movement cannot contribute more to SAC than the contribution reflected in its current actual R/VC or forecasted R/VC.⁷³ For each year in the DCF period, the MMM model sets each movement’s R/VC ratio at the lesser of the average R/VC ratio required to cover total SAC, or the movement’s actual R/VC ratio.⁷⁴ The average R/VC ratio required to cover SAC then is iteratively increased until no movement in the traffic group is assigned a share of SAC greater than its actual contribution over variable costs as measured by its R/VC ratio, and the aggregate adjusted stand-alone revenues equal total SAC.⁷⁵

Application of MMM yields the maximum R/VC ratios for each year of the DCF model summarized in Table III-H-2 below.

⁷² The EIA lists its PPI forecasts as its Wholesale Price Index forecasts in its Annual Energy Outlook.

⁷³ See *Major Issues* at 14.

⁷⁴ *Id.*

⁷⁵ According to the Board, this step reflects the assumption that the rates charged by the defendant railroad on all non-issue traffic are profit-maximizing rates, such that the reapportionment represents “an appropriate application of demand-based differential pricing.” See *Major Issues* at 14.

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Table III-H-2
TPIRR MMM Results

Time Period	Maximum R/VC Ratios
(1)	(2)
July 1, 2010 – Dec 2010	223.6%
2011	179.5%
2012	174.3%
2013	160.2%
2014	149.7%
2015	145.6%
2016	137.8%
2017	135.5%
2018	131.3%
2019	126.9%
Jan 2020 – June 30, 2020	122.2%

Source: Exhibit III-H-3.

As indicated in Table III-H-2, the maximum R/VC ranges from 122.2 percent to 223.6 percent over the 10-year DCF period.

The maximum lawful transportation rates for TPI traffic equal the greater of the jurisdictional threshold or the MMM maximum rates. Exhibit III-H-4 through Exhibit III-H-17 compare CSXT's rates at 3Q10 through 4Q13, respectively, to the jurisdictional threshold and the MMM maximum rates. The issue CSXT rates are greater than both the jurisdictional threshold and the MMM rates for all movements and all time periods.

IV. WITNESS QUALIFICATIONS AND VERIFICATIONS

This Part contains the Statement of Qualifications and Verifications of each witnesses who is responsible for a portion of TPI's Opening Evidence narrative (and the exhibits and workpapers referred to therein). Each statement identifies the portion of the narrative for which the witness is responsible.

3. **THOMAS D. CROWLEY**

Mr. Crowley is an economist and President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, fuel supply and transportation issues. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Suite 150, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Crowley co-sponsored Part II-A with Witness Timothy D. Crowley in the market dominance phase of this proceeding. In this part of the Opening Evidence, he is co-sponsoring Part III-A with Witnesses Michael E. Lillis, Daniel L. Fapp and Sean D. Nolan. Mr. Crowley is also co-sponsoring Part III-G and Part III-H with Mr. Fapp.

Mr. Crowley is a graduate of the University of Maine from which he obtained a Bachelor of Science degree in Economics. He has also taken graduate courses in transportation at The George Washington University in Washington, D.C. He spent three years in the United States Army and has been employed by L.E. Peabody & Associates, Inc. since February, 1971. He is a member of the American Economic Association, the Transportation Research Forum, and the American Railway Engineering Association.

As an economic consultant, Mr. Crowley has organized and directed economic studies and prepared reports for railroads, freight forwarders and other carriers, shippers, associations, and state governments and other public bodies dealing with transportation and related economic and financial matters. Examples of studies in which he has participated include organizing and directing traffic, operational and cost analyses in connection with multiple car movements, unit train operations for coal and other commodities, freight forwarder facilities, TOFC/COFC rail facilities, divisions of through rail rates, operating commuter passenger service, and other studies dealing with markets and the transportation by different modes of various commodities from

both eastern and western origins to various destinations in the United States. The nature of these studies has enabled Mr. Crowley to become familiar with the operating and accounting procedures utilized by railroads in the normal course of business.

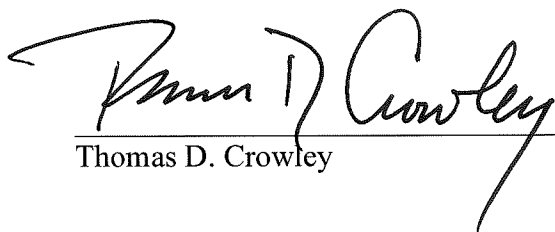
Additionally, Mr. Crowley has inspected both railroad terminal and line-haul facilities used in handling general freight, intermodal and unit train movements of coal and other commodities in all portions of the United States. The determination of the traffic and operating characteristics for specific movements was based, in part, on these field trips.

In addition to utilizing the methodology for developing a maximum rail rate based on stand-alone costs, Mr. Crowley also presented testimony before the Interstate Commerce Commission (“ICC”) in Ex Parte No. 347 (Sub-No. 1), *Coal Rate Guidelines - Nationwide*, the proceeding that established this methodology and before the Surface Transportation Board (“STB”) in Ex Parte No. 657 (Sub-No. 1), *Major Issues In Rail Rate Cases*, the proceeding that modified the application of the stand-alone cost test. Mr. Crowley also presented testimony in a number of the annual proceedings at the STB to determine the railroad industry current cost of capital, i.e., STB Ex Parte No. 558, *Railroad Cost of Capital*. He has submitted evidence applying ICC (now the STB) stand-alone cost procedures in numerous rail rate cases. He has also developed and presented numerous calculations utilizing the various formulas employed by the ICC and STB (both Rail Form A and Uniform Railroad Costing System (“URCS”)) to develop variable costs for rail common carriers. In this regard, Mr. Crowley was actively involved in the development of the URCS formula, and presented evidence to the ICC analyzing the formula in Ex Parte No. 431, *Adoption of the Uniform Railroad Costing System for Determining Variable Costs for the Purposes of Surcharge and Jurisdictional Threshold Calculations*.

As a result of his extensive economic consulting practice since 1971 and his participating in maximum-rate, rail merger, and rule-making proceedings before the ICC and the STB, Mr. Crowley has become thoroughly familiar with the operations, practices and costs of the rail carriers that move traffic over the major rail routes in the United States.

VERIFICATION

I, Thomas D. Crowley, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, 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.



Thomas D. Crowley

Executed on February 14, 2014

4. **PHILIP H. BURRIS**

Mr. Burris is Senior Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm with offices in Alexandria, VA, Tucson, AZ and Glens Falls, NY.

The specific evidence Mr. Burris is co-sponsoring relates to the analysis of joint facilities costs in Part III-C with Brian A. Despard. He is also sponsoring the development of operating statistics, crew requirements, locomotive and freight car requirements, fuel costs, personnel compensation, equipment lease/maintenance costs, operating units cost, training and recruiting costs, ad valorem taxes, loss and damage expenses, insurance costs, intermodal lift costs, automotive handling costs and application of unit costs to operating statistics in Part III-D. Mr. Burris is also sponsoring the evidence related to the identification of land to be acquired through easements and the associated costs of that land (Part III-F-1).

Mr. Burris received his Bachelor of Science in Business Administration from Virginia Polytechnic Institute and State University in 1971. He was awarded a Master of Business Administration, specializing in transportation economics, from American University in 1978. Mr. Burris has worked in the consulting industry for more than 30 years. In addition to his current position as Senior Vice President of L.E. Peabody & Associates, Inc., Mr. Burris has been an employee of the following consulting firms: A. T. Kearney, Wyer Dick & Associates, Inc. and George C. Shaffer & Associates.

Mr. Burris has extensive experience in the field of transportation economics as it pertains to transportation supply alternatives, plant location analysis, regulatory policy and dispute resolution before regulatory agencies as well as state and federal courts. He has designed, directed and executed analyses of the costs of moving various commodities by different modes of transportation including rail, barge, truck, pipeline, ocean and intermodal. He has also performed economic analyses of maximum reasonable rate levels for the movement of coal and

other commodities using the Board's CMP methodology, and specifically the stand-alone cost constraint. Mr. Burris has submitted evidence regarding maximum reasonable rate levels using the stand-alone cost constraint to the Board and its predecessor and testified before the Railroad Commission of Texas, the Colorado Public Utilities Commission, the Illinois Commerce Commission, the Public Service Commission of Nevada and various state and federal courts and arbitration panels.

In the public sector, Mr. Burris has performed studies and written draft reports for the Railroad Accounting Principles Board, an independent body created by Congress to establish cost accounting principles for use in implementing the regulatory provisions of the Staggers Act of 1980.

Since 2005, Mr. Burris has served as a member of the Board of Directors of the South Central Florida Express Railroad, a wholly owned subsidiary of United States Sugar Corporation.

VERIFICATION

I, Philip H. Burris, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, 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.



Philip H. Burris

Executed on February **14**, 2014

5. CHARLES A. STEDMAN

Mr. Stedman is a Vice President of L. E. Peabody & Associates, Inc., headquartered in Alexandria, VA.

The specific evidence Mr. Stedman is co-sponsoring relates to the development of the SARR system (Part III-B) and the roadbed preparation/earthworks component of the road property investment cost of the SARR, exclusive of culverts, roadbed specifications and yard drainage (Part III-F-2). Mr. Stedman is also sponsoring the development of SARR route and track miles (Part III-B).

Mr. Stedman has been employed by L. E. Peabody & Associates, Inc. since October 1981. Since that time, he has performed and directed numerous extensive projects and analyses undertaken on behalf of utility companies, short line railroads, state and local governments and entrepreneurs. These projects include: (a) participation in the development of variable cost evidence presented to the ICC and the Board in numerous cases; (b) the development of variable costs contained in numerous reports and other analyses presented to clients; (c) the development of stand-alone cost evidence presented to the ICC and the Board in numerous cases; (d) the development of evidence in abandonment cases before the ICC; (e) the development of net liquidation values and rehabilitation costs for interested parties in abandonments and acquisitions; and (f) the preliminary design (including route layout), construction and maintenance costs associated with the construction of a new rail line.

Prior to joining L. E. Peabody & Associates, Inc., Mr. Stedman was employed by the United States Railway Association ("USRA") where he monitored the effectiveness of the operating plan of Consolidated Rail Corporation ("Conrail") using a computer model, participated in data manipulation and analyzed results in order to make projections about Conrail's future operations.

Mr. Stedman also worked as the chief research assistant on a transportation project for the Maryland Department of Transportation and was the co-author of the resulting Report "International Air Cargo Potential at Baltimore-Washington International Airport." Recommendations in this Report were used to increase international air cargo shipment volumes through Baltimore-Washington International Airport. And, as a research assistant for the ICC, Mr. Stedman studied the effect of selected railroad mergers on the national railroad system using a computer model to aid in determining shifts in traffic patterns caused by specific rail mergers.

Mr. Stedman is a graduate of the University of Maryland where he obtained a Bachelor of Arts degree in Political Science with a minor in Business Transportation. He has attended numerous railroad construction and maintenance seminars across the country and is a Certified Track Foreman and a member of the American Railway Engineering and Maintenance-of-Way Association.

Mr. Stedman has conducted several field inspections of eastern and western carriers' rail lines in order to develop and determine the existing and potential operating and economic conditions of these lines. He has also conducted and directed detailed research into the valuation records of major eastern and western railroads. This research entailed, among other things, detailed reviews of both ICC and railroad valuation maps, land acquisition records (including title status and market value) and the ICC's Bureau of Valuation B.V. Form No. 561, commonly referred to as the ICC Engineering Reports.

VERIFICATION

I, Charles A. Stedman, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, 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.



Charles A. Stedman

Executed on February **14**, 2014

6. **MICHAEL E. LILLIS**

Mr. Lillis is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Lillis is co-sponsoring the portions of Part III-A related to the development of CSXT traffic data and the selection of the SARR traffic group including the identification of traffic volumes and associated traffic revenues available to the SARR with Thomas D. Crowley.

Mr. Lillis received a Bachelor of Arts degree in economics from the University of Virginia in 1985. He has taken continuing education courses in law at the University of Virginia and has taken numerous graduate courses while enrolled in the MBA program at George Washington University.

Mr. Lillis has been employed by L.E. Peabody & Associates, Inc. since 1995. Prior to joining L. E. Peabody & Associates, Inc., Mr. Lillis worked for Western Fuels Association, Inc., ("WFA") a national fuel supply organization in the electric utility industry. While with WFA, he managed coal supply and rail transportation agreements for shippers that represented the membership of WFA. He organized and presented numerous economic studies and analyses for shippers relating to coal transportation, coal supply and related economic and regulatory problems. Mr. Lillis has negotiated, implemented and monitored both long term and short term coal supply and rail transportation agreements. Mr. Lillis has conducted field trips to coal suppliers in Wyoming's Powder River Basin and New Mexico's San Juan Basin to develop on-site information used in the quantification of contract provisions and the development of operational mine costs.

While at L.E. Peabody & Associates, Inc., Mr. Lillis has participated in studies that utilize various formulas employed by the Surface Transportation Board ("STB") in the development of costs for common carriers, including the Uniform Railroad Costing System ("URCS"). He has developed variable costs for common carriers with particular emphasis on the general purpose costing system for rail carriers. Mr. Lillis has also performed extensive analyses in the area of stand-alone costing including route layout, design and construction costs, traffic and revenue development, forecasting and the development of detailed operating plans for various stand-alone railroads.

As part of his work at L.E. Peabody & Associates, Inc., Mr. Lillis conducted numerous studies for electric utilities regarding least cost alternatives for coal and natural gas delivery to various power plants. These studies included the valuation of existing contractual arrangements for fuel supply and transportation service, the evaluation of alternative fuel sources and transportation options (including trucking coal from nearby railroad locations, rail build-out to a competing railroad and conveyor delivery) and the development of operating characteristics and the associated operating and investment costs for each alternative. He has also developed numerous forecasts of coal prices, natural gas prices, freight rates and general economic indicators for electric utilities.

VERIFICATION

I, Michael E. Lillis, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, 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.


Michael E. Lillis

Executed on February *14*, 2014

7. **DANIEL L. FAPP**

Mr. Fapp is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, transportation, marketing, and fuel supply problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Fapp is co-sponsoring the SARR revenue evidence in Part III-A along with the discounted cash flow modeling evidence and stand alone cost results (Part III-G and Part III-H, respectively) with Mr. Thomas D. Crowley. He is also co-sponsoring the RTC modeling component of Part III-C with Timothy D. Crowley and William H. Humphrey.

Mr. Fapp received a Bachelor of Science degree in Business Administration with an option in Marketing (cum laude) from the California State University, Northridge in 1987. In 1993, he received a Master of Business Administration degree specializing in finance and operations management from the University of Arizona's Eller College of Management. Mr. Fapp has lectured in graduate level finance and economics classes discussing corporate capital theory and costs of equity determination, and is a member of the Professional Advisory Council for the Eller School of Management Finance Department at the University of Arizona. He is also a member of Beta Gamma Sigma, the national honor society for collegiate schools of business.

Mr. Fapp has been employed by L. E. Peabody & Associates, Inc. since December 1997. Prior to joining L. E. Peabody & Associates, Inc., he was employed by BHP Copper Inc. in the role of Transportation Manager - Finance and Administration, where he also served as an officer of the three BHP Copper Inc. subsidiary railroads: The San Manuel Arizona Railroad, the Magma Arizona Railroad (also known as the BHP Arizona Railroad) and the BHP Nevada Railroad. Mr. Fapp has also held operations management positions with Arizona Lithographers in Tucson, AZ and MCA-Universal Studios in Universal City, CA.

While at BHP Copper Inc., Mr. Fapp was responsible for all financial and administrative functions of the company's transportation group. He also directed the BHP Copper Inc. subsidiary railroads' cost and revenue accounting staff, and managed the San Manuel Arizona Railroad's and BHP Arizona Railroad's dispatchers and dispatching functions ensuring safe and efficient operations. He served on the company's Commercial and Transportation Management Team and the company's Railroad Acquisition Team, where he was responsible for evaluating the acquisition of new railroads, including developing financial and economic assessment models. During his time with MCA-Universal Studios, Mr. Fapp held several operations management positions, including Operations Manager, where his duties included vehicle routing and scheduling, personnel scheduling, forecasting facilities utilization, and designing and performing queuing analyses and simulations.

As part of his work for L.E. Peabody & Associates, Inc., Mr. Fapp has performed and directed numerous projects and analyses undertaken on behalf of utility companies, short line railroads, bulk shippers, and industry and trade associations. Examples of studies which he has organized and/or directed include, traffic, operational and cost analyses in connection with the rail movement of coal, metallic ores, pulp and paper products, and other commodities. He has also analyzed multiple car movements, unit train operations, divisions of through rail rates and switching operations throughout the United States. The nature of these studies enabled him to become familiar with the operating procedures utilized by railroads in the normal course of business.

Since 1997, Mr. Fapp has participated in the development of cost of service analyses for the movement of coal over the major eastern and western coal-hauling railroads. He has conducted on-site studies of switching, detention and line-haul activities relating to the handling

of coal. He has also participated in and managed several projects assisting short-line railroads. In these engagements, he assisted short-line railroads in their negotiations with connecting Class I carriers, performed railroad property and business evaluations, and worked on rail line abandonment projects.

Mr. Fapp has been frequently called upon to perform financial analyses and assessments of Class I, Class II and Class III railroad companies. In addition, he has developed various financial models exploring alternative methods of transportation contracting and cost assessment, developed corporate profitability and cost studies, and evaluated capital expenditure requirements. He has also determined the Going Concern Value of privately held freight and passenger railroads, including developing company specific costs of debt and equity for use in discounting future company cash flows.

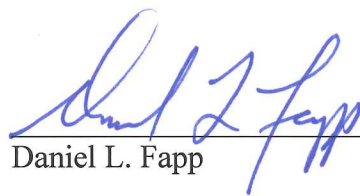
His consulting assignments regularly involve working with and determining various facets of railroad financial issues, including cost of capital determinations. In these assignments, Mr. Fapp has calculated railroad capital structures, market values, cost of railroad debt, cost of preferred railroad equity and common railroad equity. He is also well acquainted with and has used the commonly accepted models for determining a firm's cost of equity, including single-stage and multi-stage Discounted Cash Flow models ("DCF"), Capital Asset Pricing Model ("CAPM"), Farma-French Three Factor Model and Arbitrage Pricing Model.

In his tenure with L. E. Peabody & Associates, Inc., Mr. Fapp has assisted in the development and presentation of traffic and revenue forecasts, operating expense forecasts, and DCF, which were presented in numerous proceedings before the STB. He presented evidence applying the STB's stand-alone cost procedures in a number of rail proceedings before the STB. He has also presented evidence before the STB in numerous proceedings, including, but not

limited to, Ex Parte No. 661, *Rail Fuel Surcharges*, Ex Parte No. 664, *Methodology To Be Employed In Determining the Rail Road Industry's Cost of Capital*, Ex Parte No. 664 (Sub-No. 1), *Use Of A Multi-Stage Discounted Cash Flow Model In Determining The Railroad Industry's Cost of Capital*, Ex Parte No. 558 (Sub-No. 13), *Railroad Cost of Capital – 2009*, Ex Parte No. 661 (Sub No. 14), *Railroad Cost of Capital – 2010*, and Ex Parte No. 715, *Rate Regulation Reforms*. In addition, his reports have been used as evidence before the Nevada State Tax Commission.

VERIFICATION

I, Daniel L. Fapp, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, 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.



Daniel L. Fapp

Executed on February **14**, 2014

8. ROBERT D. MULHOLLAND

Mr. Mulholland is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Mulholland is sponsoring the development of the base year and peak period train lists in Part III-C with Timothy D. Crowley.

Mr. Mulholland received a Bachelor's degree in Government & Legal Studies from Bowdoin College in 1995. In 2004, he received a Master's degree in Transportation Policy, Operations & Logistics from George Mason University's School of Public Policy. Mr. Mulholland was employed by L.E. Peabody & Associates, Inc. from 1995 through 2004 and rejoined the Firm in 2008.

Mr. Mulholland has directed and conducted economic studies and prepared reports for freight carriers, shippers, federal agencies, the U.S. Congress, and other public bodies dealing with freight transportation and related economic issues. As part of his work for L.E. Peabody & Associates, Inc., Mr. Mulholland has developed evidence containing base year traffic and revenue data and forecasts of those volumes and revenues for hypothetical stand-alone railroads in several Surface Transportation Board ("STB" or "Board") proceedings dealing with the calculation of maximum reasonable rail transportation rates for coal and chemical shippers. Mr. Mulholland has presented written testimony before the STB in an Ex Parte proceeding related to the inclusion of cross-over traffic and the development of revenue divisions for that traffic in rate reasonableness proceedings. He also presented written testimony before the Board in a separate Ex Parte proceeding related to proposed adjustments to the STB's Uniform Railroad Costing System ("URCS") mode. Mr. Mulholland has developed evidence and presented written

testimony containing fuel cost calculations for multiple commodities in an STB proceeding dealing with the determination of reasonable practices related to fuel surcharges.

Mr. Mulholland has conducted analyses of historical and forecasted rail transportation rates based on contract and tariff provisions and U.S. Government economic data for use in rail transportation contract negotiations. He has developed studies analyzing delivered fuel prices to electric utilities using Federal Energy Regulatory Commission ("FERC"), Energy Information Administration ("EIA"), and related data. Mr. Mulholland conducted studies forecasting the impact of the Union Pacific-Southern Pacific merger on shippers with reduced access to rail competition following the merger, and developed studies analyzing the impact of the 1997-1998 Union Pacific Railroad service crisis on system traffic flows and transit times. He has organized and directed multiple traffic operations and cost analyses in connection with rail facilities analyses and rate and revenue division analyses.

Mr. Mulholland has developed a series of reports evaluating and critiquing the Federal Railroad Administration's ("FRA") benefit-cost analyses (BCA") related to the implementation of Positive Train Control ("PTC") systems on the Class I carriers' rail systems. He has developed economic and operational studies relative to the rail transportation of coal, grain, chemicals, and crude oil on behalf of various shippers, including analyses of the relative efficiency and costs of railroad operations over multiple routes. He has supported the negotiation of transportation contracts between coal shippers and railroads. He has developed numerous variable cost calculations utilizing the various formulas employed by the STB for the development of variable costs for common carriers, with particular emphasis on the basis and use of the URCS model.

From 2004 to 2006, Mr. Mulholland directed the freight economics and freight infrastructure delivery programs for the Office of Freight Management & Operations of the Federal Highway Administration (“FHWA”). While employed at FHWA, Mr. Mulholland was a member of the United States Department of Transportation (“USDOT”) inter-agency working group that drafted the National Freight Policy. In addition, Mr. Mulholland served on the USDOT Freight Gateway Team, a group headed by the Undersecretary for Policy and composed of one representative from each of the surface modal agencies.

From 2006 to 2008, Mr. Mulholland was employed by ICF International, where he directed and conducted numerous analyses of the trucking and rail industries for Federal transportation agencies including the Federal Motor Carrier Safety Administration (“FMCSA”), the FRA, and the FHWA. His work included analyses of the current rail and trucking industries and forecasts of future trends in both industries.

VERIFICATION

I, Robert D. Mulholland, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, 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.


Robert D. Mulholland

Executed on February *14*, 2014

9. **TIMOTHY D. CROWLEY**

Mr. Crowley is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Crowley co-sponsored TPI's opening quantitative market dominance evidence in Part II-A with Mr. Thomas D. Crowley. In this part of the Opening Evidence, he is sponsoring the non-road property investment in Part III-E and is coordinating the workpaper production of all electronic files in accordance with the Surface Transportation Board's ("STB") March 12, 2001 decision in Ex Parte No. 347 (Sub-No. 3), *General Procedures For Presenting Evidence in Stand-Alone Cost Rate Cases*. He is also co-sponsoring the RTC modeling component of Part III-C with Mr. Daniel L. Fapp and Mr. William H. Humphrey, the development of the peak train list with Mr. Robert D. Mulholland in Part III-C as well as the roadbed preparation/earthworks component of the road property investment cost of the SARR in Part III-F with Mr. Charles A. Stedman.

Mr. Crowley received a Bachelor of Science degree in Management with a concentration in Finance from Boston College in 2001. He graduated cum laude. He has been employed by L.E. Peabody & Associates, Inc. since 2002.


Mr. Crowley has provided analytical support for both market place and litigation projects sponsored by L. E. Peabody & Associates, Inc. The analytical support included the gathering, review and manipulation of data from the major Class I railroads, the STB and various other government and public sources. Specifically, the analyses conducted by Mr. Crowley have included the development of the transportation costs associated with the movement of chemicals, coal and other products to different destinations located throughout the country.

Mr. Crowley has also assisted in developing the return on road property investment realized by major western railroads for specific sections of rail. These studies were used in variable, avoidable, and stand-alone cost analyses. He has forecasted transportation revenues included in transportation contracts entered into by major companies, taking into account the escalation factors used in specific contracts. Additionally, Mr. Crowley has reviewed virtually all major transportation coal contracts between eastern and western railroads and the major consumers of coal in the United States. The results of this review were presented to the STB.

Mr. Crowley has experience with the STB's Simplified Standards For Rail Rate Cases issued in Ex Parte 646 (Sub No. 1). He has done extensive work with the revised guidelines for non-coal proceedings, which incorporates a three benchmark methodology. The three benchmark methodology includes calculations using revenue shortfall allocation method ("RSAM"), in which Mr. Crowley was trained by members of the STB. Mr. Crowley also has extensive experience with the STB's recently revised full stand alone cost procedures having developed and sponsored evidence in a number of recent maximum reasonable rate cases based on this constraint.

VERIFICATION

I, Timothy D. Crowley, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, 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.



Timothy D. Crowley

Executed on February *14*, 2014

11. WILLIAM H. HUMPHREY

Mr. Humphrey is a Vice President of L. E. Peabody & Associates, Inc.

Mr. Humphrey is co-sponsoring TPI's Opening evidence in Part III-C related to the simulation of the SARR's operations using the Rail Traffic Controller ("RTC") Model with Daniel L. Fapp and Timothy D. Crowley.

Mr. Humphrey received a Bachelor of Science degree in Sociology with a minor in Computer Science from Boston College in 2001. He has been employed by L. E. Peabody & Associates, Inc. since 2002.

Mr. Humphrey has been the lead programmer for numerous cases utilizing the industry-standard RTC Model to simulate various real-world railroad operations over multiple railroads in all parts of the United States. He was the lead RTC programmer in the first maximum reasonable rate case based on the stand-alone cost constraint that required the use of the RTC Model (*Ottertail v. BNSF*). Mr. Humphrey has extensive experience modeling RTC in rate cases as well as to create and analyze railroad systems for capacity analyses, infrastructure investment analyses, and various other purposes.

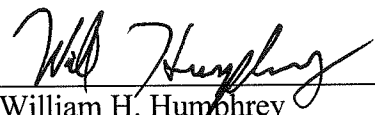
Mr. Humphrey has developed Microsoft Visual Studio applications including the Railroad Operations Simulator ("ROS") program used to model railroad operations by using advanced physics models which utilize highly detailed track information, train specific train characteristics, and detailed operational guidelines. He has designed programs that update, analyze, and summarize data originating at the Energy Information Administration. Mr. Humphrey has written programs that organize, analyze, manipulate, and summarize mainframe databases containing various industry data.

Mr. Humphrey has provided analytical support for testimony sponsored by L. E. Peabody & Associates, Inc. through the gathering and manipulation of data originating at the Energy

Information Administration, the Surface Transportation Board, the Federal Railroad Administration and other publicly available sources. Specifically, these analyses include the development of the delivered costs of fuels to electric utilities and development of detailed track statistics for various railroads located throughout the United States. Mr. Humphrey has conducted extensive research which has been used to support both fuel supply and transportation analyses developed by L. E. Peabody & Associates, Inc.

VERIFICATION

I, William H. Humphrey, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, 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.



William H. Humphrey

Executed on February *14*, 2014

12. BRIAN A. DESPARD

Mr. Despard is a Vice President of L. E. Peabody & Associates, Inc. an economic consulting firm with offices in Alexandria, VA, Tucson, AZ and Glens Falls, NY.

Mr. Despard is co-sponsoring TPI's Opening evidence related to the analysis of joint facilities costs in Part III-C Mr. Philip H. Burris.

Mr. Despard earned a Bachelor of Science degree in Economics with a minor in Decision Sciences from George Mason University in 1989. Mr. Despard was employed by L.E. Peabody & Associates, Inc. from 1987 through 1997 and rejoined the Firm in 2013.

Mr. Despard has over 25 years of experience solving economic and marketing challenges related to transportation and energy. He has experience studying and modeling energy markets and regulatory policy for electric utilities and independent power producers. Mr. Despard has submitted testimony in cases before the Interstate Commerce Commission and has been involved in settlement proceedings before the Federal Energy Regulatory Commission.

Mr. Despard has been involved with optimizing value around electric generating assets both as a consultant and as a manager, having assessed and managed value around coal-fired generation and natural gas-fired generation. He has specific experience with, and held oversight responsibility for unit bidding and dispatch, trading, origination, fuel supply and transportation, contract management, regulatory affairs and strategic analysis. Mr. Despard has also led economic studies of power asset options available for meeting compliance with existing and potential SO₂, NO_X and CO₂ emissions requirements.

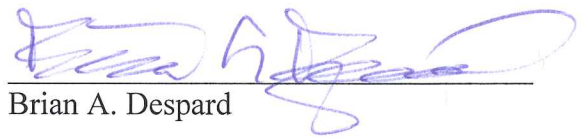
As an economic consultant, Mr. Despard provided electric utilities with coal supply and coal transportation contract valuation, structuring and negotiation support through the modeling of contract value and risk. He also assessed coal and natural gas markets for electric utility clients. In addition, he supported electric utilities and petrochemical companies in litigation

through the economic valuation of fuel supply agreements, rail transportation contracts and regulatory standards.

Prior to rejoining L. E. Peabody & Associates, Inc. in 2013, Mr. Despard was Vice President, Asset Management at Dynegy, Inc. where he managed commercial staff with responsibility for optimizing gross margin from up to 4,000 MW of electric generation assets, including base load coal, natural gas combined-cycle and natural gas peaking assets. His key responsibilities included meeting profitability targets for the portfolio of generating assets through asset optimization and hedging, reporting region profits/losses to senior management, identifying and implementing strategic actions to increase long-term asset values and monitoring/interpreting regulatory policy impacts on profitability. Prior to his work at Dynegy, Mr. Despard was Manager, Financial Analysis at Tennessee Valley Authority (“TVA”), where he managed a team of analysts within the CFO organization that supported corporate decision making through financial analysis of contracts, assets and capital additions. As a fuel supply analyst at TVA, he supported natural gas procurement with evaluation of markets for supply and pipeline transport.

VERIFICATION

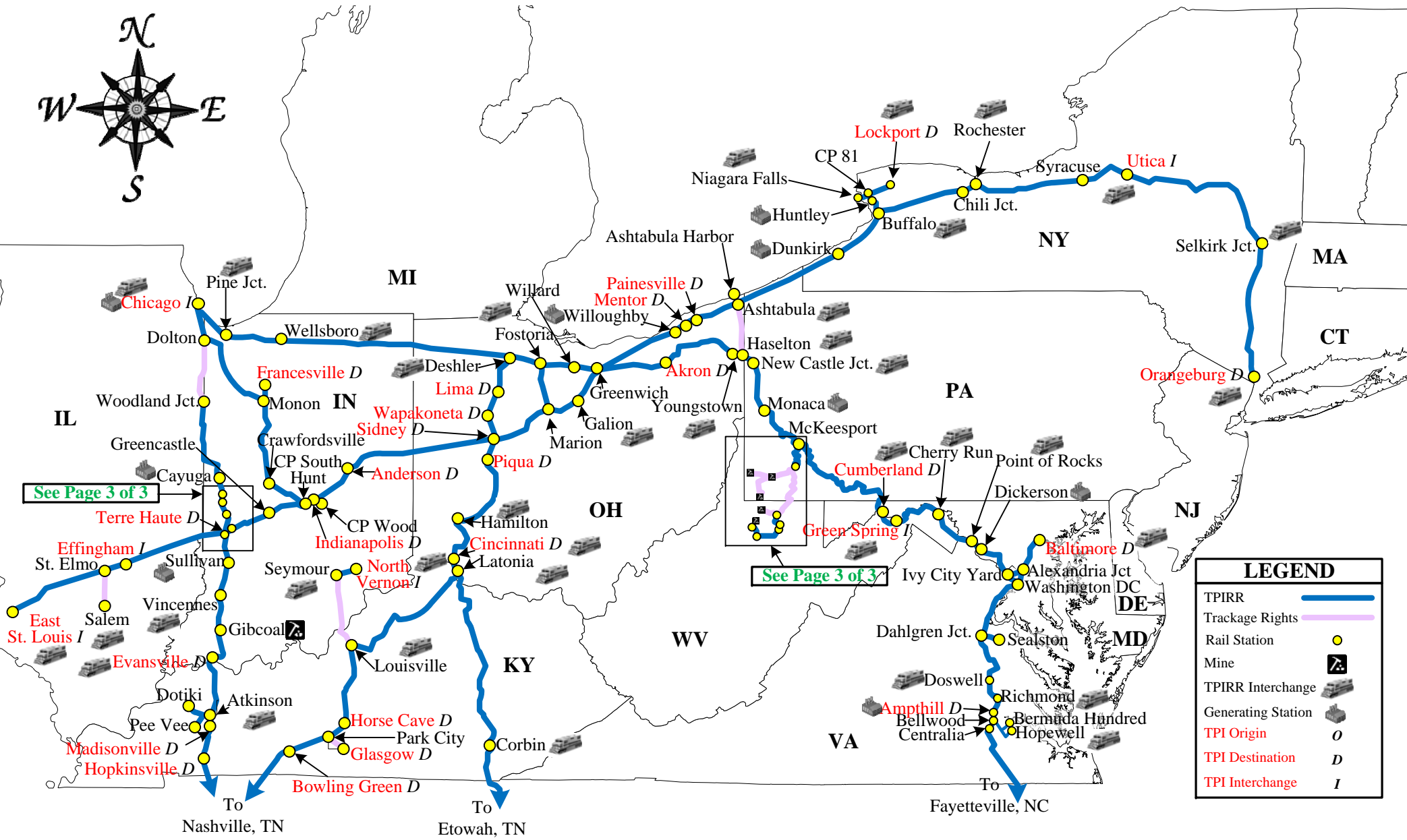
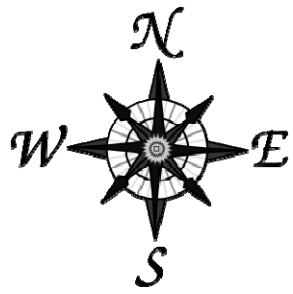
I, Brian A. Despard, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals & Refining USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Brian A. Despard

Executed on February *14*, 2014

Total Petrochemicals & Refining USA, Inc. Stand-Alone Railroad ("TPIRR")

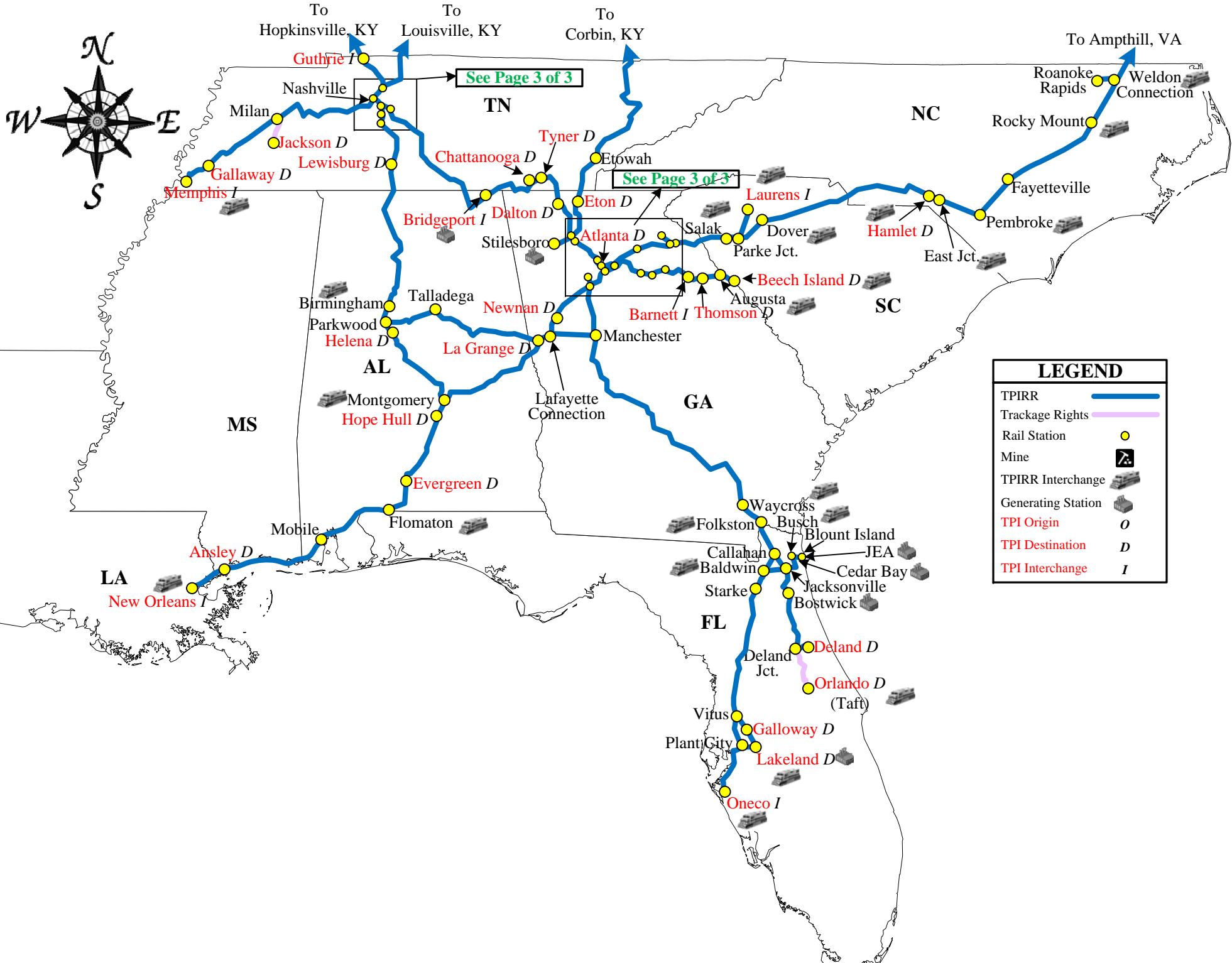


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Rail Station	
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TPIRR Interchange	
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Total Petrochemicals & Refining USA, Inc. Stand-Alone Railroad ("TPIRR")

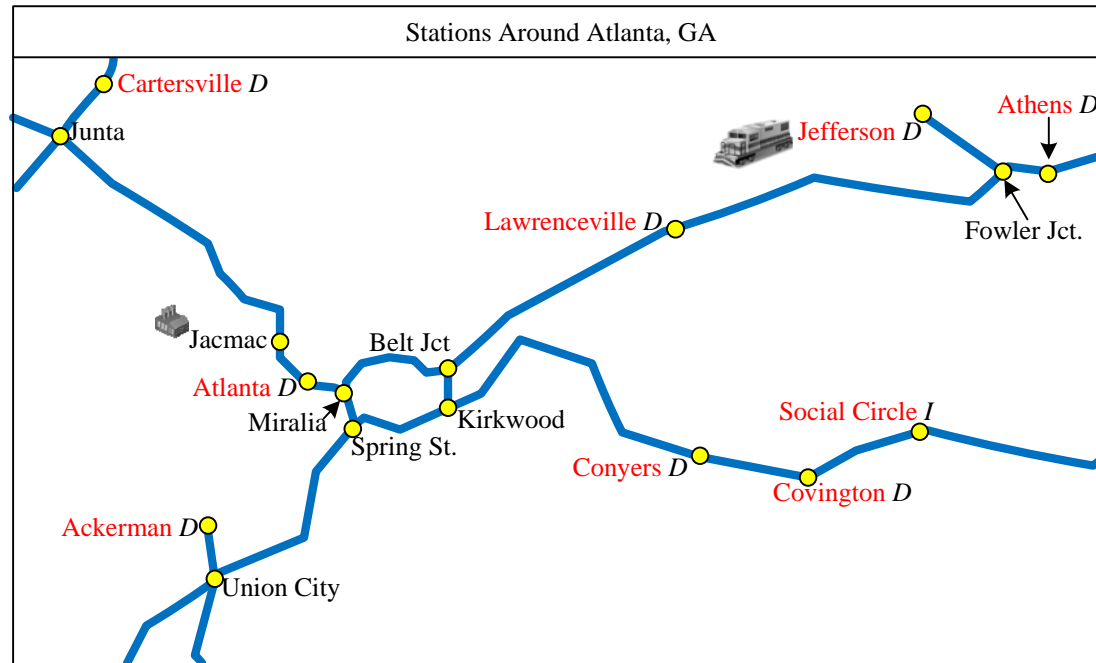
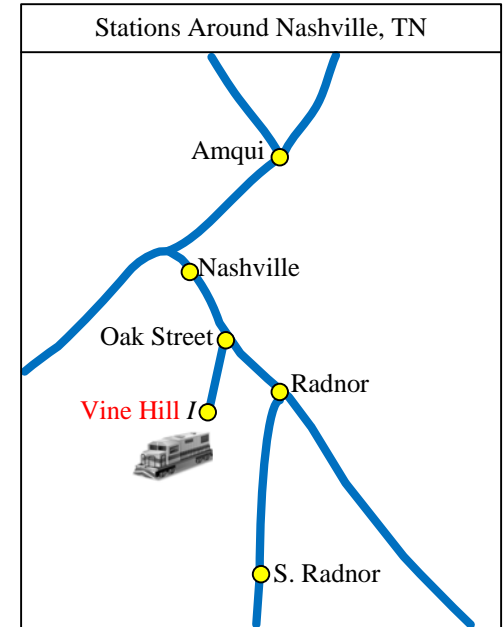
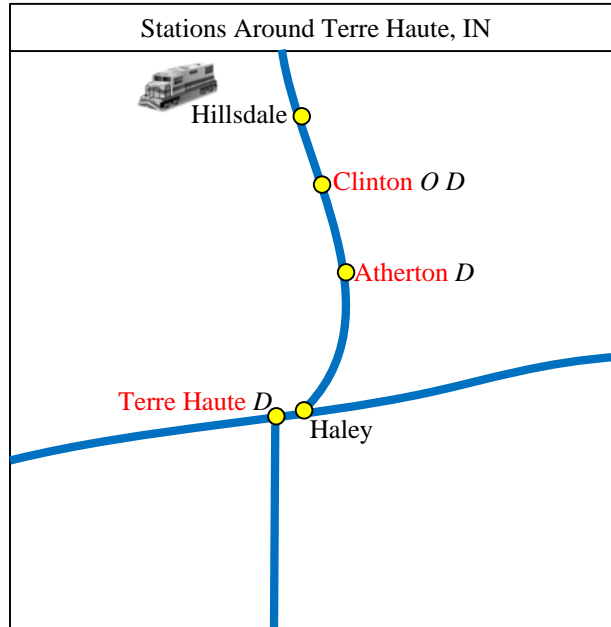
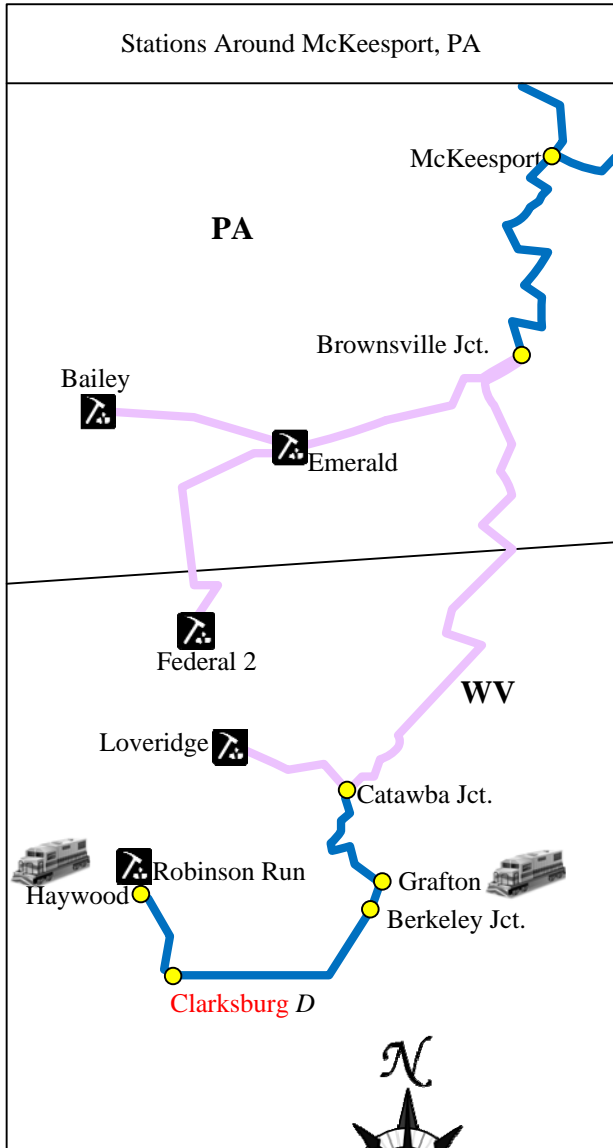


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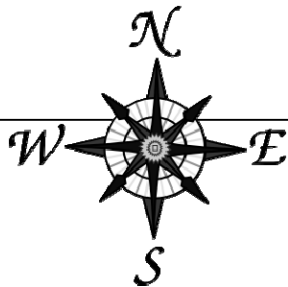
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Total Petrochemicals & Refining USA, Inc. Stand-Alone Railroad ("TPIRR")



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Comparison of the TPIRR System and the Real-World CSXT

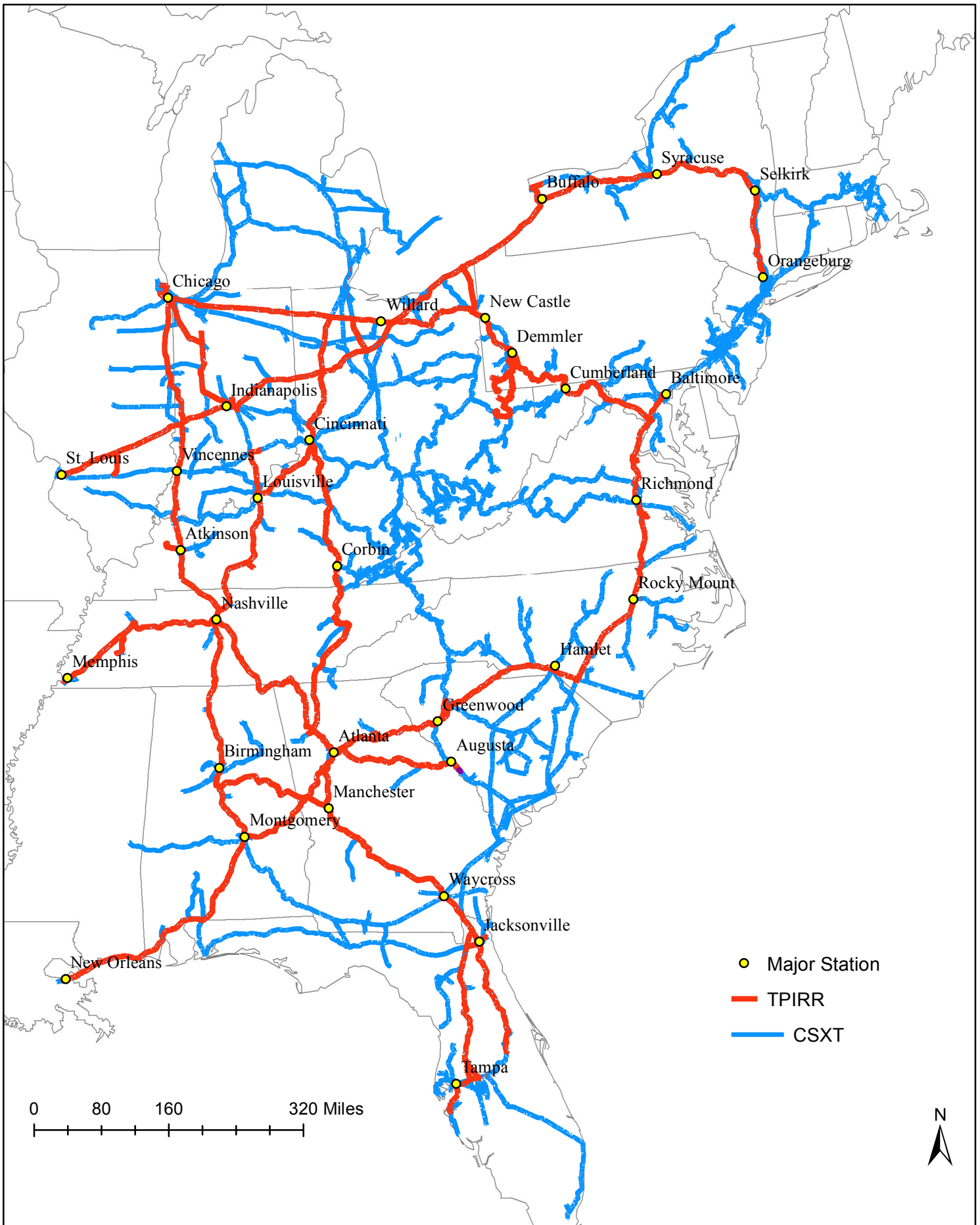


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TPIRR TRAIN LIST DEVELOPMENT

In this Exhibit, as well as Exhibit III-C-2 through Exhibit III-C-5, TPI provides details of the procedures that it has used to develop the list of TPIRR trains from CSXT's traffic data and other discovery responses that TPI then used to prepare the TPIRR's operating plan and to model TPIRR peak period operations in the RTC Model. The procedures described herein incorporate information and suggestions provided by CSXT in an October 11, 2013 discovery letter from CSXT's legal counsel to TPI's legal counsel, which has been reproduced as Exhibit III-C-2 ("October 11 letter").

That nine page October 11 letter reads like a disclaimer and includes several caveats regarding TPI's use of the historical traffic data CSXT provided in this case to develop its opening evidence. CSXT attempts to cast much of the data captured by its highly sophisticated (and very expensive) proprietary equipment tracking software as unreliable and unfit for use in evaluating CSXT's rail operations and developing a plan to replicate portions of those operations. These incredible claims should be critically assessed within the litigation context in which they are offered, which is to corner TPI into adopting CSXT's preferred procedure for developing the TPIRR's operating plan based upon the MultiRail Freight Edition software.

The evidence of this lies in the fact that CSXT produced virtually the same traffic data to TPI from January 2008 through June 2010 without any of the caveats in the October 11 letter that was part of CSXT's supplemental data production. Over the course of several months, TPI and CSXT corresponded on multiple occasions regarding the nature of specific elements of the provided data and how that data could best be used by TPI in developing its Opening Stand-Alone evidence. Never once during the course of that lengthy and involved exchange did CSXT express any reservation regarding the reliability of its traffic data or the validity of that data for

use as the primary building blocks for the development of the SARR train list and operating plan. Neither did CSXT ever mention that it believed that a third-party software package would be a useful tool for TPI to use to avoid any problems that may have existed in its provided databases.

In September and October 2013, CSXT supplemented its original production of traffic data with *identically structured data* covering the Supplemental Discovery Period from July 2010 through June 2013. Specifically, in its accompanying 2013 correspondence, CSXT indicated that:

Each of these three [Car Waybill data, Container Waybill data, and Car Shipment data] types of records contains the same fields as the traffic data that CSXT previously provided to TPI during the Initial Discovery Period.¹

The car event data is being produced in the same format and with the same fields as the data produced for the Initial Discovery Period.²

The Train Sheet data being produced today complements CSXT's earlier productions of traffic data.³

However, in its 2013 correspondence, the same databases provided three years earlier were provided with much more detailed descriptions and disclaimers regarding their limitations and the inappropriateness of their use in developing SAC evidence. Specifically:

This letter and CSXT's productions provide extensive explanatory information in response to TPI's request that CSXT explain how TPI can 'utilize' and 'evaluate' CSXT's traffic data. [Citing TPI RFP 23, which was filed in 2010.]

¹ Letter from M. Warren to J. Moreno 1 (Sept. 27, 2013). See e-workpaper "2013 09 27 MJW to Moreno Re CSXT Hard Drive EHD-004.pdf".

² Letter from M. Warren to J. Moreno 1 (Oct. 4, 2013). See e-workpaper "2013 10 04 MJW to Moreno Re CSXT DVD-103 and EHD-005.pdf".

³ Letter from M. Warren to J. Moreno 2 (Oct. 11, 2013).

At the outset, traffic data provide only a historical archive of CSXT operations at particular points in time and under particular operating conditions. [Emphasis added]

[W]hile TPI may choose to use CSXT's historical event data as a guide to designing its train service plan for its SARR, TPI cannot stop there if it is to "design[] a SARR specifically tailored to serve an identified traffic group."

CSXT cautions TPI *at the outset* of the vulnerabilities of an approach that simply mimics certain trains extracted from CSXT's historical event data and ignores the need to independently develop tailored plans for blocking, car classification, and local train service. [Emphasis added]

As explained in its August 29, 2013 letter, Oliver Wyman will make MultiRail available to TPI for a reasonable price. CSXT encourages TPI to consider using MultiRail or a similar tool to develop a car blocking and train service plan that accords with the SAC requirement that a SARR operating plan "meet the needs of the traffic group selected." [Citing *CP&L*.]⁴

CSXT's claims that it provided the cautions and qualifiers included in its October 11 letter "at the outset" are patently false. In fact, CSXT's position regarding the appropriateness of its traffic data for the development of SAC operating evidence has changed 180 degrees in three years.⁵

But as TPI details herein, CSXT's traffic data, even with the limitations claimed by CSXT, provides a solid foundation for developing a feasible operating plan using the same basic

⁴ Letter from M. Warren to J. Moreno 2-3, 5 (Oct. 11, 2013).

⁵ CSXT cannot have it both ways. Either (1) CSXT sandbagged TPI in the first round of evidence three years ago by failing to "provide extensive explanatory information in response to TPI's requests... at the outset" in 2010—TPI was less than one month away from filing its Opening evidence when the case was bifurcated, or (2) CSXT's newly provided cautions and qualifiers are overblown and intended as a means for CSXT to gain control over TPI's development of its Opening evidence.

procedures that both railroads and shippers have used in every SAC case decided by the Board for more than a decade.

The remainder of this exhibit describes the procedures followed to identify the Base Year and peak period trains and train operations under the following topical headings:

- A. CSXT's Claims Are Overblown And Often Contradictory
- B. TPI's Reasonable Use Of CSXT Provided Traffic Data to Develop Train Lists and Operating Evidence
- C. Identification of the Peak Period Trains

A. CSXT'S CLAIMS ARE OVERBLOWN AND OFTEN CONTRADICTORY

CSXT begins its assault on its own historical traffic data by describing the data as, "provid[ing] only a historical archive of CSXT operations at particular points in time under particular operating conditions;" and stating that, "the operating plan that TPI must design for its SARR traffic group necessarily will vary from historical CSXT operations . . . for at least four reasons."⁶ The four reasons CSXT cites are: (1) that TPI will select a subset of CSXT's traffic data; (2) TPI will forecast volume growth over its analysis period; (3) TPI's rail system will physically differ from CSXT's in terms of footprint and facilities; and (4) TPI's SARR traffic selection will result in the creation of cross-over traffic. All of these statements, however, have been true for every SAC case presented to the Board, yet they have not provided a basis for rejecting operating plans founded upon historical traffic data.

Moreover, CSXT's fourth reason why CSXT historical traffic data should not be used to develop the SARR operating plan is actually the principal reason why the historical traffic data *must* form the basis for the development of the SARR operating plan. SAC rules clearly restrict the SARR from imposing any downstream operational changes to the residual incumbent on

⁶ Letter from M. Warren to J. Moreno 2 (Oct. 11, 2013).

cross-over traffic movements.⁷ Were TPI to ignore the actual CSXT operations for the non-SARR portions of the cross-over traffic movements, it would necessarily force the residual CSXT to alter its operations for those movements. It is imperative, therefore, that the operating plan maintain a link to CSXT's real-world operations in order to avoid this pitfall and to demonstrate feasibility.

Furthermore, CSXT's claim that an operating plan based on CSXT's historical operations is "doomed to failure,"⁸ is inconsistent with statements CSXT makes later in its letter regarding the need to use specific historical data to inform its operating plan. For example, CSXT "produced several databases containing records from its delay reporting system... [that] provide important evidence of the delay incidents *that CSXT encounters in the real world and for which TPI's operating evidence must account.*"⁹ On the one hand, CSXT claims that its historical traffic data are irrelevant to SARR operations because the SARR traffic group, volumes, physical plant, and equipment will differ from those of CSXT, and on the other hand CSXT claims that its historical delay data are perfectly relevant to SARR operations and must be reflected in the SARR operating plan. CSXT cannot have it both ways.

With respect to car and train movement, CSXT states that TPI should use a third party software package—and even specifies which one it should use (i.e., Oliver Wyman's "MultiRail Freight Edition")—without regard for the actual historical operations of the selected traffic, even cross-over traffic that will be originated and/or terminated by CSXT in the future.

As part of its description of the limitations associated with its own historical traffic data, CSXT claims that its data "do not capture the full range of CSXT's operations."¹⁰ CSXT then

⁷ *E.g.*, *TMPA* at 595.

⁸ Letter from M. Warren to J. Moreno 3 (Oct. 11, 2013).

⁹ *Id.* at 5 (emphasis added).

¹⁰ *Id.* at 3.

justifies the use of MultiRail to develop the SARR operating plan in part because it has the capabilities to “identify the optimal train service and blocking and classification plans for [the selected] traffic.”¹¹ But, even if CSXT were to create an operating plan for the SARR using MultiRail that it believes to be superior to TPI’s operating plan, that would not demonstrate the infeasibility of TPI’s operating plan. TPI needs only to demonstrate that its operating plan is feasible, not that it is superior to all other alternatives. *Duke/NS* at 100 (“where the shipper’s opening evidence is feasible and supported, it is used in the Board’s SAC analysis.”); *Guidelines* at 543 (“The proponent of the SAC model must show that the alternative is feasible and could satisfy the shipper’s needs.”).

TPI’s use of CSXT historical data ensures that the SARR operations will reflect “the full range of CSXT’s operations,” including bad-order setouts and pickups, and routing anomalies and delays caused by planned and unplanned track outages. CSXT well knows that in the real world, things do not always go according to plan. In fact, use of a modeling tool that in CSXT’s words reflects the “optimal plans” would necessarily mean that the posited SARR operations could not possibly take into consideration the “incidents *that CSXT encounters in the real world and for which TPI’s operating evidence must account.*”¹²

B. TPI’S REASONABLE USE OF CSXT-PROVIDED TRAFFIC DATA TO DEVELOP TRAIN LISTS AND OPERATING EVIDENCE

As discussed above, CSXT’s lengthy diatribe against its traffic data is riddled with contradictory statements and themes regarding the appropriateness of using actual historical data

¹¹ *Id.* at 4.

¹² Letter from M. Warren to J. Moreno 5 (Oct. 11, 2013) (emphasis added). Evidence in a pending SAC case, Dkt. No. NOR 42130, *SunBelt Chlor Alkali Partnership v. Norfolk Southern Ry. Co.*, illustrates this point. SunBelt’s operating plan included cars that moved off-route, via an interchange with KCS at New Orleans rather than Meridian, during the period captured by the historical data, while the NS operating plan routed all of the cars via New Orleans. The route deviation through Meridian recorded in the historical data was due to a derailment on the origin carrier, KCS. See “Brief of Norfolk Southern Railway Company,” Dkt NOR 42130, p. 14 (dated July 26, 2013). This was a real-world incident for which SunBelt was able to account, while NS was not.

vis-à-vis a modeled alternative. However, when the self-serving rhetoric is filtered out, the October 11 letter does provide some useful insights as to the relationships among the provided historical data sets, and their relative strengths and weakness for developing SAC evidence. TPI has used the letter to guide the development of its train lists and operating plan from historical data sources, as discussed in more detail below, including a step-by-step outline in Exhibit III-C-3.

CSXT's October 11 letter identified several important areas where specific deficiencies exist within its provided databases, including certain situations in which its provided data sets contain conflicting information. In some cases, CSXT identified areas where one set of data generally contains more reliable information than others. TPI has accepted CSXT's qualifying statements at face value and constructed train lists accordingly.

It must be noted, however, that while CSXT did provide some useful information regarding the overall strengths, weaknesses, and limitations of its provided databases in its October 11 letter, CSXT often provided very limited information regarding the specific types of data collection issues inherent in its various data sets. For example, CSXT disclosed that, "CSXT's train sheet data do not contain extensive information on local train movements."¹³ But CSXT did not elaborate as to what types of data were typically missing from that database with respect to local train movements. Through a laborious process of data analysis and evaluation, TPI was able to develop complicated coding solutions to work around the data limitations generally acknowledged but not specifically identified by CSXT.

TPI principally relied on the following eight CSXT databases to develop its train lists: (1) Car Waybill data, (2) Container Waybill data, (3) Car Shipment data, (4) Car Event data, (5)

¹³ Letter from M. Warren to J. Moreno 3 (Oct. 11, 2013).

Network Locations data, (6) Train Sheet Root Records data, (7) Train Sheet Intermediate Station data, and (8) Train Sheet Power data. TPI also relied on the CSA Report¹⁴ customer data, and the Train Profile Information¹⁵ provided by CSXT to evaluate and validate its results. Exhibit III-C-4 shows a high-level overview of the databases and general processes TPI used to develop its train lists.

TPI has used the provided data to design an operating plan based on a set of train lists that “account[] for all necessary blocking, car classification, switching, local service, pickups, and setouts providing complete service from origin (or on-SARR junction) to destination (or off-SARR junction) for its selected traffic.”¹⁶ The general procedures TPI used to analyze and develop train lists from the various CSXT databases are described below. These procedures are followed by a description of the procedures and specific components used to compile group-specific train lists to support the operating plan and to be used as inputs to the RTC model.

The discussion is summarized under the following headings and includes references to the CSXT statements that informed the development of the specified train lists:

1. Train List Overview
2. Analysis of Combined Waybill, Car Shipment and Car Event Data
3. Analysis of Train Sheet Data

¹⁴ CSA Report data was used to develop customer-specific operating requirements that informed peak period train operations.

¹⁵ TPI used the Train Profile Information data to evaluate its results, but during this evaluation it became clear that the Train Profile Information database provided by CSXT is incomplete. Despite CSXT’s claims to the contrary, the provided Train Profile Information does not include profile information for all of the trains moving over the CSXT system in the study period. More specifically, CSXT’s claim that the profiles data identifies “all the local trains that are necessary to serve CSXT’s customers today” is simply not true. In fact, in the Base Year, there were 1,994 CSXT local trains and 4,476 other trains moving selected traffic as identified in the CSXT traffic data for which no Train Profile Information was provided. [See: work paper “Profiles1 Update comp to TPIRR traf Trains.xlsx”] On October 11, 2013, CSXT provided updated train profile data, along with a statement that, “we expect to produce updated Train Profile data for the Supplemental Discovery Period next week.” In an October 18, 2013 letter, TPI requested that CSXT “clarify whether TPI should expect additional [train profile data] production.” CSXT responded on October 21, 2013, stating, “The fact is that TPI has possessed clearly labelled train profile data since... October 11.” See Exhibit III-C-2 at page 6, and workpapers “10-18-13 Matthew Warren Letter re- STB Docket No. NOR 42121.pdf” and “2013 10 21 MJW to Moreno Re Reply to 10 18 2013 Letter.pdf.”

¹⁶ Letter from M. Warren to J. Moreno 3 (Oct. 11, 2013).

4. Line-haul Merchandise Train List
5. Unit Train List
6. Local Train List
7. On-SARR and Off- SARR Junctions
8. Trains Carrying TPI Issue Traffic

1. Train List Overview

CSXT indicated in its October 11 letter that:

CSXT cautions TPI at the outset of the vulnerabilities of an approach that simply mimics certain trains extracted from CSXT's historical event data and ignores the need to independently develop tailored plans for blocking, car classification, and local train service.¹⁷

[H]istorical train data do not capture the full range of CSXT's operations.¹⁸

As a general rule, CSXT believes the Car Event data are a more useful source of information for TPI's purposes, because they provide a more granular view of each individual car's movement. Car event data is particularly useful for understanding the service needs of carload traffic. But... TPI cannot solely rely on either Car Event data or Train Sheet data; Rather, TPI must consider all of the operating information sources CSXT produces as a whole if it is to understand CSXT's operations and the service needs of CSXT's traffic.¹⁹

The event data that CSXT is producing today are the most complete and comprehensive care [sic] movement data in CSXT's possession. That said, a complete picture of CSXT's operations cannot be reconstructed from the event data alone, in part because the sheer size and complexity of CSXT's operations often results in less than uniform data capture.²⁰

The data provided by CSXT made it necessary for TPI to use a two-pronged approach to develop and compile complete train lists that capture the full route, loading, unloading, classification, blocking, and switching activities associated with each train moving TPIRR

¹⁷ Letter from M. Warren to J. Moreno 3 (Oct. 11, 2013).

¹⁸ *Id.*

¹⁹ *Id.* at 8.

²⁰ *Id.*

traffic. The data also made it necessary for TPI to use three related but somewhat different train list development protocols for three distinct groups of trains. Specifically, TPI separately developed programs tailored to identify and evaluate: (1) line-haul merchandise trains;²¹ (2) unit trains; and (3) local trains. The three independently developed train lists were not combined into a master TPIRR train list until the conclusion of their independent development. On the most basic level, the three train lists are developed from common underpinnings. However, key process differences for the three train groups at critical points in their development enable the production of train lists containing the group-specific elements needed to develop a comprehensive TPIRR operating plan.

The primary source for the routing and mileage data for unit and line-haul merchandise trains was the Train Sheet data,²² while the primary sources for the loading, unloading, blocking, classification, and switching activities (i.e., handling data) for all trains were the Carload and Container Waybill data and the Car Shipment and Car Event data. In addition, the Car Event and Carload and Container Waybill data were used as required to validate and expand the routing data for unit and line-haul merchandise trains, while the Train Sheet consist, loading, unloading, switching, and blocking data were used to validate and expand the handling data for all trains.

TPI separately analyzed the two groups of databases (Train Sheet and Car Event/Waybill) to develop preliminary train list inputs from each, and then TPI compiled the two separate train lists into a single master train list for each of the three distinct train groups defined above.²³

²¹ Intermodal, Auto, and Intercity Manifest Trains.

²² As discussed in greater detail in the section on local trains below, local train routing was primarily developed using car event and waybill data, but was validated and expanded using train event and train profiles data. In addition, the train mileage developed from the train event data were verified and, where needed, adjusted based on the RTC model output.

²³ See Exhibit III-C-4, orange blocks.

As discussed further below, for unit and line-haul merchandise trains, TPI conservatively included trains in its master train list even when the train was only shown to move over the SARR system in the train event data.²⁴ Based on CSXT's description of the general (un)reliability of its provided traffic data with respect to local train operations, and based on the TPIRR-specific local train operating plan, different rules were needed to identify the final TPIRR local train list. The identification of the final local train list and the development of the route for those trains are discussed later in this exhibit.

2. Analysis of Combined Waybill, Car-Shipment, and Car-Event Data

After identifying the TPIRR revenue traffic, TPI identified the specific shipment keys associated with the cars moving that traffic over the CSXT system.²⁵ For each of the identified shipment keys, TPI processed the car-event data to identify all of the trains upon which each individual car moved, and to identify the specific locations where each car was placed on²⁶ and removed from²⁷ each of the trains on which it moved.²⁸ Then, TPI identified all of the empty cars moving on all of the CSXT trains moving TPIRR revenue traffic, and all empty CSXT unit trains²⁹ and conducted the same analysis for those cars.³⁰

TPI encountered significant obstacles in developing its car-event and waybill data based train lists, each of which required the development of novel and complex programming solutions to overcome. A few key examples follow.³¹

²⁴ See, Exhibit III-C-3 at I.A-B. The few (well under one percent of total) trains that appeared only in the car event data were excluded from the train list, and the traffic moving on them was excluded from the TPIRR traffic group.

²⁵ Each railcar moving over the CSXT system has a series of shipment keys associated with it as it moves.

²⁶ First Node.

²⁷ Last Node.

²⁸ See Exhibit III-C-3 at I.C-D.

²⁹ As identified on the CSXT Train Designation Scheme provided at CSX-TPI-C-028892.

³⁰ See Exhibit III-C-3 at I.E-F.

³¹ See Exhibit III-C-3 for a complete explanation of all novel and complex programming.

CSXT's Traffic and Revenue Database field-definition file contains a cryptic description of the data contained in the TRAIN_SUFFIX field of its Car Event database. It reads: "Train Suffix: the calendar date of the train operation in 'YYYYMMDD' format, but not necessarily the date on which the train first moved." Certainly CSXT could have provided more detail regarding the nature of what the data represents or how it relates to the date on which the train first moved. Through extensive data testing and evaluation, TPI discovered that for certain train types—most notably, line-haul merchandise and certain local trains—the TRAIN_SUFFIX changes en route, despite the fact that the actual train on which the cars are moving does not change. For example, Train ID {{[REDACTED]}} is a daily manifest train running between {{[REDACTED]}} with regular scheduled stops. A car that is first placed on the train in {{[REDACTED]}} and runs the entire route to {{[REDACTED]}} often will have the TRAIN_SUFFIX change en route when the calendar date turns over. When this happens, the Car Event data will indicate that the car left {{[REDACTED]}} on {{[REDACTED]}} 20130101, and arrive in {{[REDACTED]}} on {{[REDACTED]}} 20130102, for example. In this case, the car will actually have been on the same train from Cincinnati to Atlanta, but the car event data would appear to indicate that it moved on two separate trains. To accommodate this data nuance, TPI associated all car event data records for a given SHIPMENT_KEY&TRAIN_ID combination with the first TRAIN_SUFFIX date included in the car event data for that shipment. In the above example, this would mean that the car would have been considered to be on train {{[REDACTED]}} 20130101 for the entire movement from {{[REDACTED]}} {{[REDACTED]}}.³²

CSXT indicated in its October 11 letter that:

³² See Exhibit III-C-3 at I.I.

Car event data for local trains contain limited detail for activities at a given station and frequently do not detail customer-specific services or locations.

This data can be derived from other sources, however. Waybill and patron data includes information on shippers and receivers.

Information on particular customers served by CSXT is typically not available in the car event database or the Train Sheet database. However, customer information is available in the Waybill data...

The car event data do not include detail on the connecting carriers for shipments. However, this information is available in the Waybill data CSXT previously produced.³³

Therefore, after TPI compiled its initial car-event-data summary database containing a data record for each train on which each individual car carrying TPIRR traffic moved, TPI identified the first train and the last train upon which each car movement (defined by shipment key) traveled between its CSXT origin and its CSXT destination. Then, TPI associated the critical CSXT origin location milepost,³⁴ connecting carrier,³⁵ and origin customer identification data³⁶ from the Waybill data with the first train upon which the car moved according to the Car Event data.³⁷

Next, TPI associated the critical CSXT destination location milepost,³⁸ connecting carrier,³⁹ and destination customer identification data⁴⁰ from the Waybill data with the last train upon which the car moved according to the Car Event data. Through a series of logic loops, TPI overwrote Car Event origin/destination location data with Waybill origin/destination location and

³³ Letter from M. Warren to J. Moreno 9 (Oct. 11, 2013).

³⁴ ON_NET_ORIG_MP.

³⁵ ON_JCT_ROAD_CITY.

³⁶ ORIGIN_IIDS.

³⁷ See Exhibit III-C-3 at I.G.1 – 3.

³⁸ ON_NET_DEST_MP.

³⁹ OFF_JCT_ROAD_CITY.

⁴⁰ DESTINATION_IIDS.

customer data where the Car Event data did “not detail customer-specific services or locations.”⁴¹

As noted above, CSXT indicated in its October 11 letter that:

The event data that CSXT is producing today are the most complete and comprehensive care [sic] movement data in CSXT’s possession. That said, complete picture of CSXT’s operations cannot be reconstructed from the event data alone, in part because the sheer size and complexity of CSXT’s operations often results in less than uniform data capture.⁴²

In an example of “less than uniform data capture,” the first few events (and occasionally the last few events, or even events in the middle of a movement) for several car shipments in the provided Car Event data contain invalid data in the TRAIN_ID and/or TRAIN_SUFFIX data fields. These are the two data fields that identify the specific train on which a car is moving at a given point in time along its route. TPI addressed this issue through the application of several logic loops based on the evaluation of the captured first node and last node data for a given train on which a car moved.⁴³ The programming loops evaluated the train type, location data, and flags included in the Car Event data for the reported locations that indicate activities such as classification, origination, and termination handling events, among others.

As discussed in more detail below in the section on local train list compilation, although the processes used to make the milepost data substitutions generally resulted in enhancements to the CSXT data to make it more “uniform” and complete, they occasionally resulted in faulty substitutions for some movements. TPI manually evaluated the data substitutions its process made for the local trains for which data substitutions were made and then developed a series of add-on programming loops that globally validated or rejected those substitutions.⁴⁴

⁴¹ See Exhibit III-C-3 at I. H. 1 – 3.

⁴² Letter from M. Warren to J. Moreno 8 (Oct. 11, 2013).

⁴³ See Exhibit III-C-3 at I.G.4-9. and I.H.4-7.

⁴⁴ See Exhibit III-C-3 at I.G.10. and I.H.8.

The resulting “SarrAllShTrn” table⁴⁵ identifies the first node and last node for each train on which each carload included in the TPIRR traffic group moved between origin and destination, based on a combination of Car Event and Waybill data.

Next, TPI compiled the car-specific train segments included in the table developed as described above into the “SarrAllConsist” table containing a car movement summary on a train-by-train basis.⁴⁶ For example, if the prior process determined that 20 individual loaded cars and 10 individual empty cars moved from {{ [REDACTED] }} on train {{ [REDACTED] }} 20130101, the compilation exercise would result in one record showing those 30 cars moving together as a block on that train. For most non-unit trains, this resulted in the identification of several individual blocks of cars moving from point to point along the train route. For example, the {{ [REDACTED] }} 20130101 train may contain three data records, one showing 30 cars moving from {{ [REDACTED] }}, one showing 10 cars moving between {{ [REDACTED] }} and {{ [REDACTED] }}, and one showing 20 cars moving between {{ [REDACTED] }} and {{ [REDACTED] }}.⁴⁷

3. Analysis of Train Sheet Data

TPI developed routing data for line-haul merchandise trains and unit trains for the July 2012 through June 2013 time period based on a combination of: (1) CSXT provided “Train Sheet Root Records” (TM600) data, which contain overview data for the segments that make up a train’s full route, including train size, weight, and car count data; and (2) CSXT provided “Train Sheet Intermediate Station” (TM605) data, which contain routing and mileage detail for intermediate stations along the segments that make up the train route. For a given train, CSXT provided from one to over a dozen TM600 data records, and for each TM600 data record, there

⁴⁵ The “SarrAllShTrn” table contains Train-specific On-Off data for All SARR Shipments and can be found at electronic workpaper dbo_aSarrAllShTrn.

⁴⁶ The “SarrAllConsist” table contains a compilation of the SarrAllShTrn car-specific records into blocks of cars moving together on specific trains and can be found at electronic workpaper dbo_aSarrAllConsist.

⁴⁷ See Exhibit III-C-3 at I. I.

may be several dozen TM605 records. Therefore, for most trains, hundreds of individual routing detail records were linked, aligned, verified, and analyzed to compile detailed train routing and SARR mileage data.⁴⁸

Specifically, TPI identified the TM605 Train Sheet Intermediate Station data records associated with each of the TM600 Train Sheet Root Records, aligned them, and sorted them by event order and time.⁴⁹ Next, TPI manually analyzed the provided Network Locations data table to identify the station mileposts that are situated on the TPIRR network. Then, TPI compared the universe of mileposts included in the TM605 data, and determined that there were over 1,300 mileposts in that table that were not included or identified in the provided Network Locations data. TPI was able to manually align and evaluate most of the mileposts with the Network Locations data, and it expanded the provided Network Locations data table to include all of the mileposts included in the TM605 data with appropriate On-SARR flags.⁵⁰

After the TM605 milepost data could be accurately categorized as On-SARR or Off-SARR, TPI evaluated the combined TM600 and TM605 detailed routing table (i.e., the “TrainsAllEvents” table) for each train carrying cars moving TPIRR traffic. All CSXT stations were identified as On-SARR or Off-SARR, the On-SARR location and Off-SARR location were identified, and the sub-segment miles were summed for all stations flagged as On-SARR.⁵¹

The train miles developed using this process were later compared to the mileage data produced from the RTC modeling process. Where there was disagreement between the two mileage calculations for specific trains and routes, the RTC-developed miles were used. The

⁴⁸ The TrainsAllEvents table.

⁴⁹ See Exhibit III-C-3 at III.A.

⁵⁰ On November 18, 2013, TPI requested that CSXT provide the missing data. On November 26, 2013, CSXT provided some but not all the requested data -- See 11/26/13 letter from Warren to Moreno. See: workpaper “2013 11 26 MJW to Moreno Re CSXT DVD 114 and Reply to 11 18 Letter.pdf”.

⁵¹ See Exhibit III-C-3 at III.B-C.

RTC miles were deemed to be more accurate for two primary reasons: (1) the train-event data do not include mileage data for many of the segments over which CSXT (and TPIRR) operates via trackage-rights agreements with landlord carriers; and (2) some train-event data records either contained no mileage data or contained erroneous milepost data that did not allow the segments to be properly classified as on-SARR. In addition, the use of RTC-derived miles ensures consistency between the mileage data and the transit time data used to develop operating statistics and operating costs, as transit time data are also generated by the RTC model.

In instances where a Base Year train had no comparable counterpart in the RTC model output, the miles developed from the train event data for those trains were adjusted based on the ratio of RTC miles-to-train event miles for peak-period trains within the relevant subgroup (e.g., coal trains loading in the Pennsylvania mine fields).

As noted by CSXT in its October 11 letter:

The Train Sheet Root records in table TM600 include information on each train's total loaded and empty shipments upon arrival and departure at select locations. Total pickups and setouts can be inferred from changes in these fields for stations that are reported in the TM600 records. Pickups and setouts at intermediate stations cannot be inferred using Train Sheet data.⁵²

For example, there are generally three TM600 records associated with Train {{[REDACTED]}}, as follows: (1) {{[REDACTED]}}; (2) {{[REDACTED]}}; and (3) {{[REDACTED]}}. Consist changes at the four locations reported in the TM600 data "can be inferred from changes in these fields . . . that are reported in the TM600 records."⁵³ However, cars are often set out and picked up at other locations along this train's route that are not reported in the

⁵² Letter from M. Warren to J. Moreno 8-9 (Oct. 11, 2013).

⁵³ *Id.* at 9.

TM600 records, including {{[REDACTED]}}, among others. These {{[REDACTED]}} pickups and setouts “cannot be inferred using Train Sheet data.”⁵⁴

To account for this deficiency in the Train Sheet data, TPI developed TRAIN_SUFFIX data from TrainsAllEvents records using several of the provided data fields in the TM600 table,⁵⁵ and linked the TrainsAllEvents table to the SarrAllConsist table it developed as described above—the table contains the train-by-train summary of car movement based on Car Event and Waybill data—using the TRAIN_ID and TRAIN_SUFFIX data fields. Using the link it developed,⁵⁶ TPI was able to pull location-specific en route pickup and setout (consist change) information developed from the Car Event and Waybill data into the TrainsAllEvents train routing database it created, including stations like Knoxville, that appear in the TM605 Intermediate Station data but not in the TM600 Train Sheet Root data.⁵⁷

4. Line-haul Merchandise Train List

TPI developed the TPIRR line-haul merchandise train list using building blocks developed as described above. The first step was to identify the trains included in the SarrAllConsist table developed from Car Event and Waybill data as described above and link that file to the Train Sheet data. When the link was made, 99.5% of the roughly 128,000 trains identified in the SarrAllConsist table were found in the Train Sheet data.⁵⁸ The remaining 0.5% percent of trains were sampled and manually evaluated to determine the reason for the failed link test. In nearly all cases, the cause of the failure was due to discrepancies in TRAIN_SUFFIX

⁵⁴ *Id.*

⁵⁵ This was another instance in which the supporting data provided by CSXT was both cryptic and inaccurate, but TPI was able to identify the correct fields based on extensive data evaluation.

⁵⁶ TPI was required to develop this link using portions of several provided data fields because CSXT did not provide fields that could be used to directly link Car Event data with Train Sheet data.

⁵⁷ See Exhibit III-C-3 at III.B.3-6.

⁵⁸ See Train Matching Between Car Events And Train Sheets V03 11272013.xlsx.

date between the Car Event and Train Sheet data.⁵⁹ In other words, the train did exist in the Train Sheet data, but the TRAIN_SUFFIX date was off by a day or two. For the 99.5% of trains where positive links were made, the trains were included in the pool of TPIRR trains and progressed to the SARR routing analysis.

Next, TPI evaluated all line-haul merchandise trains that appeared in the Train Sheet data but that were not included in the SarrAllConsist table. This evaluation included all of the trains described above where the counterpart train did exist in the SarrAllConsist table but could not be linked due to having a slightly different date. It also included several trains repositioning empty cars (such as empty autoracks) that were excluded from the SarrAllConsist compilation process because all cars were non-revenue empties and the trains were not designated as empty trains in the provided CSXT train designation scheme.⁶⁰ All line-haul merchandise trains that appeared in the Train Sheet data but that were not included in the SarrAllConsist table were included in the pool of TPIRR trains and progressed to the SARR routing analysis.⁶¹

a. Routing

The SARR train routing evaluation entailed the comparison of each individual station reported in the Train Sheet data for each line-haul merchandise train to the expanded NetworkLocations data developed by TPI. Stations were flagged as being On-SARR or Off-SARR, the first On-SARR location and the last On-SARR location were identified, and miles

⁵⁹ In addition, some trains are associated with TRAIN_IDs identified as “Re-billable Flagmen” in the Car Event data. According to CSXT’s Train Designation Scheme, this means that, “T&E employee is used to protect outside party and expense can be billed to the outside party.” See, CSX-TPI-C-028892. However, these train symbols do not appear in the provided Train Sheet data. Some of the trains for which links were not made were caused by CSXT’s inconsistent naming convention among its provided databases for these trains.

⁶⁰ See CSX-TPI-C-028892.

⁶¹ See Exhibit III-C-3 at III. E.

were accumulated for each sub-segment of the train route that was identified as being On-SARR.⁶²

First, trains that were found in both the SarrAllConsist table and the Train Sheet data were processed.⁶³ The train routing procedure was run both on the entire train route (all TM600 and TM605 records combined)⁶⁴ and it was run on the individual TM600 Train Sheet Root records and corresponding TM605 Intermediate Station records.⁶⁵ The individual Train Sheet Root summary records were used to identify trains that exited and reentered the SARR, and the stations at which those interchanges occurred. Affected trains were manually reviewed and split into the required operating segments to develop the operating plan and peak period RTC train list.

Next, trains that were not found in the SarrAllConsist table but that were present in the Train Sheet data were processed.⁶⁶ After the train routing procedure was run, trains exiting and reentering the SARR were manually reviewed and split to develop the operating plan and peak period RTC train list.

b. Blocking, Pickups, Setouts, Classification, and Switching

CSXT stated in its October 11 letter that TPI must “demonstrate[] how shipments will be ‘blocked and assembled into the appropriate trains for delivery.’”⁶⁷

The SARR train consist change evaluation entailed the comparison of each individual station reported in the Train Sheet data to each individual station for which a SarrAllConsist record was created in the Car Event and Waybill data train list compilation process. Specifically,

⁶² The miles were later validated or adjusted using the mileage data produced in the RTC model output tables.

⁶³ See Exhibit III-C-3 at III.C-D.

⁶⁴ Output table = “dbo_aSarrBaseLhManTrainsTriSum” (Traingulated Train Summary).

⁶⁵ Output table = “dbo_aSarrBaseLhManTrainsTri” (Traingulated Segment Data).

⁶⁶ See Exhibit III-C-3 at III.F.

⁶⁷ Letter from M. Warren to J. Moreno 4 (Oct. 11, 2013) (citation omitted).

all locations included in the Train Sheet data were linked to the SarrAllConsist table, and where corresponding blocking data were found, they were imported into the TrainsAllEvents train routing database. Implicit in the SarrAllConsist blocking data are the car-specific pickup and setout events summarized in the SarrAllShTrn table. This process pulled in intermediate switching activities for the trains that were not present in the Train Sheet data (such as the {{[REDACTED]}} pickups and setouts for the {{[REDACTED]}} train in the above examples). It also served to validate and supplement the terminal and intermediate switching activities that were present in the Train Sheet Root Records data. For example, the Train Sheet Root Records data may have indicated that train {{[REDACTED]}} 20130101 left {{[REDACTED]}} with 18 loaded cars and 10 empty cars. However, the SarrAllConsist data may have indicated that train {{[REDACTED]}} 20130101 left {{[REDACTED]}} with 20 loaded cars and 10 empty cars. To be conservative, TPI accepted and used the greater of the two car counts in all cases where there was a conflict between the data sets.⁶⁸ After individual station car counts were developed, the running train consist was developed by ticking down through the sequential train events and making consist changes at all stations where one was reported in the combined data sets.⁶⁹

The same process was then used to develop blocking, pick-up, set-out, and switching data for trains that were included in the provided train sheet data but not included in the SarrAllConsist table developed from Car Event and Waybill data. However, because no car-event and waybill data were available for these trains, TPI defaulted to the train data in the development of routing and consist data for these trains.

⁶⁸ There are many potential reasons for the car counts to be different at a given station. One is that the TRAIN_SUFFIX data changes for individual line-haul merchandise trains while en route in the Car Event data, so on occasion car date reporting slips by a day in the CSXT Car Event data. There are several other valid reasons, including the several disclaimers CSXT made regarding the “less than uniform data capture” implicit in its Car Event data. See Letter from M. Warren to J. Moreno (Oct. 11, 2013).

⁶⁹ See Exhibit III-C-3 at III.B.6.

c. Compilation

After the routing, blocking, pickups, setouts, and switching activities were developed for all line-haul merchandise trains based on a combination of Train Sheet, Car Event, and Waybill data, the SARR operations were evaluated to identify the trains that would be handled by the TPIRR. In order to qualify as a TPIRR train, the train was required to have reported two or more consecutive On-SARR stations and to have cumulative SARR miles of 10 or more. The former qualification ensured that the TPIRR train list did not inadvertently include trains that simply crossed over TPIRR trackage without ever traversing the SARR, and the latter ensured that the SARR avoided short-hauling trains that would reduce the efficiency of both the SARR and the residual incumbent. For example, if a line-haul merchandise train originates in the Waycross, GA yard, and it would move for only a couple of miles before exiting the TPIRR for furtherance over the residual CSXT, the CSXT would simply handle that train in its entirety from Waycross. In other words, this would not be a TPIRR train.

5. Unit Train List

TPI developed the TPIRR unit train list using a somewhat similar model as that used to develop the line-haul merchandise train list, but with some important differences. Unlike other railroads, CSXT often tracks unit trains in its Train Sheet database over an entire cycle of movement.⁷⁰ Therefore, an individual train (as identified by a unique combination of Train ID and Train Suffix (or date)) is associated with a given train for an entire cycle. In many cases, particularly for unit coal trains, the full cycle begins at an intermediate point along the empty leg of the movement. For example, Trains with a Train ID of {{[REDACTED]}} typically begin their route of movement at {{[REDACTED]}}, move empty to {{[REDACTED]}} to load, move loaded to

⁷⁰ Most railroads' train event data is compiled such that an individual train, as defined by Train ID and Train Suffix (or date) is associated with the loaded portion of a unit train cycle, and a different train is associated with the corresponding empty leg.

{{ [REDACTED] }} where they unload, and finally return empty to {{ [REDACTED] }}. This entire loop is treated as a single train movement in the CSXT data environment.

As with line-haul merchandise trains, the first step was to identify the unit trains included in the SarrAllConsist table developed from Car Event and Waybill data as described above and link that file to the Train Sheet data. When the link was made, 99.3 percent of the roughly 28,000 trains identified in the SarrAllConsist table were found in the Train Sheet data.⁷¹ The remaining 0.7 percent of trains were manually evaluated to determine the reason for the failed link test. In many cases, it appeared that the cause of the failure was due to discrepancies in TRAIN_SUFFIX date between the Car Event and Train Sheet data.⁷² For the 99.3% of trains where positive links were made, the trains were included in the pool of TPIRR trains and progressed to the SARR routing analysis.

Next, TPI evaluated all unit trains that appeared in the Train Sheet data but that were not included in the SarrAllConsist table. This evaluation included all of the trains described above where the counterpart train did exist in the SarrAllConsist table but could not be linked due to having a slightly different date or having a coded Rebill TRAIN_ID in the car event data. It also included several trains repositioning empty cars (such as empty ore trains) that were excluded from the SarrAllConsist compilation process because all cars were non-revenue empties and the trains were not designated as empty trains in the provided CSXT train-designation scheme. *All* trains that appeared in the Train Sheet data but that were not included in the SarrAllConsist table were included in the pool of TPIRR trains and progressed to the SARR routing analysis.

⁷¹ See Train Matching Between Car Events And Train Sheets V03 11272013.xlsx.

⁷² In addition, some trains are associated with TRAIN_IDs identified as "Re-billable Flagmen" in the Car Event data.

a. Routing

As with the line-haul merchandise train process, the SARR unit train routing evaluation entailed the comparison of each individual station reported in the Train Sheet data for each unit train to the expanded NetworkLocations data developed by TPI. Stations were flagged as being On-SARR or Off-SARR; the first On-SARR location and the last On-SARR location were identified; and miles were accumulated for each sub segment of the train route that was identified as being On-SARR.⁷³

First, trains that were found in both the SarrAllConsist table and the Train Sheet data were processed.⁷⁴ The train routing procedure was run both on the entire train route (all TM600 and TM605 records combined)⁷⁵ and it was run on the individual TM600 Train Sheet Root records and corresponding TM605 Intermediate Station records.⁷⁶ The individual Train Sheet Root summary records were used to identify trains that exited and reentered the SARR, and the stations at which those interchanges occurred. Affected trains were manually evaluated and split into SARR operating segments to develop the operating plan and peak period RTC train list. This process was relatively more complicated and more labor intensive due to the CSXT practice of tracking certain unit trains for full cycles and due to the fact that there was often disagreement between the Waybill/Car Event and Train Sheet data regarding the loading and unloading locations for unit train traffic (discussed in more detail below).

Next, trains that were not found in the SarrAllConsist table but that were present in the Train Sheet data were processed.⁷⁷ After the train routing procedure was run, trains exiting and

⁷³ The miles were later validated or adjusted using the mileage data produced in the RTC model output tables.

⁷⁴ See Exhibit III-C-3 at III.B-D.

⁷⁵ Output table = "dbo_aSarrBaseLhManTrainsTriSum" (Triangulated Train Summary).

⁷⁶ Output table = "dbo_aSarrBaseLhManTrainsTri" (Triangulated Segment Data).

⁷⁷ See Exhibit III-C-3 at III. E - F.

reentering the SARR were manually evaluated and split to develop the operating plan and peak-period RTC train list.

b. Loading and Unloading

The first step of the SARR unit train consist change evaluation was identical to the process used for line-haul merchandise trains, it entailed the comparison of each individual station reported in the TrainsAllEvents data table to each individual station for which a SarrAllConsist record was created in the Car Event and Waybill data train list compilation process. Specifically, all locations included in the TrainsAllEvents table were linked to the SarrAllConsist table, and where corresponding loading, unloading, and switching data were found, they were imported into the TrainsAllEvents table.

Implicit in the SarrAllConsist blocking data are the car-specific pickup and setout events summarized in the SarrAllShTrn table. This process pulled in intermediate switching activities for the trains that were not present in the Train Sheet data. For the many unit trains that are tracked for a full cycle in the CSXT Train Sheet data, this means the loading and unloading activities would be reported as consist changes rather than train origins and destinations. For example, the {{ [REDACTED] }} and {{ [REDACTED] }} locations in the Train {{ [REDACTED] }} example above would be reported as consist changes. This process also allowed for TPI to identify and account for operational anomalies such as bad-order setouts and pickups en route. Specifically, if the SarrAllConsist data indicated that a car or two was set out or picked up en route at a reported TM605 Intermediate Station, that activity would be reflected in the unit train statistics for that train.

As with the line-haul merchandise train process, this portion of the analysis also served to validate and supplement the terminal and intermediate switching activities that were present in

the Train Sheet data. For example, the Train Sheet data may have indicated that train {{[REDACTED]}} 20130101 left {{[REDACTED]}} with no loaded cars and 110 empty cars. However, the SarrAllConsist data may have indicated that train {{[REDACTED]}} 20130101 left {{[REDACTED]}} with no loaded cars and 100 empty cars. To be conservative, TPI accepted and used the greater of the two car counts in all cases where there was a conflict between the data sets.⁷⁸ After individual station car counts were developed, the running train consist was developed by ticking down through the sequential train events and making consist changes—including bad order pickups and setouts—at all stations where one was reported in the combined data sets.

For many unit trains, the TM605 Intermediate Station routing detail failed to include the location where the SarrAllConsist data indicated the loading and unloading activity occurred for a given unit train. TPI included the SarrAllConsist loading and unloading location data for each unit train in the unit train output tables.⁷⁹

The same process was then used to develop blocking, pick-up, set-out, and switching data for trains that were included in the provided train sheet data but not included in the SarrAllConsist table developed from Car Event and Waybill data. Because no car event and waybill data were available for these trains, TPI defaulted to the train data in the development of routing and consist data for these trains, with one important addition for unit trains. For individual trains that CSXT recorded as full- or partial-cycle trains in its Train Sheet data, and for which TPI was unable to capture related loading and unloading data in the combined Waybill/Car Event data, TPI imposed the predominant loading and unloading locations for that

⁷⁸ There are many potential reasons for the car counts to be different at a given station. One is that the TRAIN_SUFFIX data changes for individual line-haul merchandise trains while en route in the Car Event data, so on occasion car date reporting slips by a day in the CSXT car event data. There are several other valid reasons, including the several disclaimers CSXT made regarding the “less than uniform data capture” implicit in its event data.

⁷⁹ See Exhibit III-C-3 at II.C-F. and III. D.2.d.

train symbol on the Train Sheet route. For example, if there were a {{[REDACTED]}} train in the Train Sheet data for which TPI identified no Car Event or Waybill data, TPI assumed that train loaded at {{[REDACTED]}} and unloaded at {{[REDACTED]}} like the other {{[REDACTED]}} trains for which CSXT provided Waybill data.⁸⁰

After this process was run, TPI manually evaluated every unit-train route and altered the train routes to accommodate the loading and unloading activities and locations as indicated in the combined Waybill/Car Event data.

c. Compilation

After the routing, loading, unloading, pickup, and setout activities were developed for all unit trains based on a combination of Train Sheet, Car Event, and Waybill data, the SARR operations were evaluated to identify the trains that would be handled by the TPIRR. In order to qualify as a TPIRR train, the train was required to have reported two or more consecutive On-SARR stations, and to have cumulative SARR miles of 10 or more. The former qualification ensured that the TPIRR train list did not inadvertently include trains that simply crossed over TPIRR trackage without ever traversing the SARR, and the latter ensured that the SARR avoided short-hauling trains that would reduce the efficiency of both the SARR and the residual incumbent. For example, if a unit train originated in the Chicago, IL, yard and it moved for only a few miles before exiting the system for furtherance over the residual CSXT, the CSXT would simply handle that train in its entirety from Chicago.

⁸⁰ See Exhibit III-C-3 at II.C-F. and III.F.7.d.

6. Local Train List

TPI's procedures for identifying local trains required to serve TPIRR traffic and the development of the TPIRR local train list was significantly different from the processes used for line-haul merchandise and unit trains. There were two primary causes for the differences.

First, CSXT expressed significant reservation regarding the validity of both its Car Event data and particularly its Train Sheets data with respect to data capture for local trains.

Specifically:

CSXT cautions TPI at the outset of the vulnerabilities of an approach that simply mimics certain trains extracted from CSXT's historical event data and ignores the need to independently develop tailored plans for... local train service.⁸¹

CSXT's train sheet data do not contain extensive information on local train movements. To develop an operating plan that accounts for local service, TPI must consult other sources in the discovery record, including CSXT's car event data, waybill and patron information, [and] train profile information⁸²

Local Operations. Car Event data for local trains contain limited detail for activities at a given station and frequently do not detail customer-specific services or locations. In addition, Train Sheet data for local trains frequently do not contain all details on the train operations or routing. This data can be derived from other sources, however. Waybill and patron data includes [sic] information on shippers and receivers. Moreover, the train profile information provides further details on CSX trains.⁸³

However, elsewhere CSXT stated that its car event data are particularly useful for tracking individual carload shipments. For example:

⁸¹ Letter from M. Warren to J. Moreno 3 (Oct. 11, 2013).

⁸² *Id.*

⁸³ *Id.* at 9.

Car event Data is [sic] particularly useful for understanding the service needs of carload traffic.⁸⁴

Car Event data provide a granular account of each car's movement and allows one to infer where individual cars were picked up or set out.⁸⁵

TPI inferred from CSXT's convoluted message that, for local train operations: (1) Waybill data are generally more reliable than car event data; (2) Car Event data are generally more reliable than Train Sheet data; (3) Train Sheet data are useful for limited purposes; and (4) Train Profile information should be used to validate data pulled from the three major CSXT traffic databases. As discussed below, TPI developed its local train list in accordance with these guiding principles.

Second, TPIRR designed its local train operations to streamline and maximize the efficiency of both its own local train service and the local train service of the residual CSXT. Specifically, with the exception of a few local trains carrying issue traffic,⁸⁶ all TPIRR local trains are local to the TPIRR. In other words, unless the particular consist and route of a local train moving issue traffic requires that train to be interchanged between TPIRR and the residual CSXT, TPIRR local trains serve only TPIRR stations. All local trains carrying cars that originate and/or terminate at Off-SARR points will be handled by the residual CSXT as they are in the real world. For example, if a real-world CSXT local train moves cars from Off-SARR stations near Birmingham to Birmingham, which is a TPIRR station, residual CSXT will continue to provide that local service (and receive an ATC revenue division reflecting the costs it

⁸⁴ *Id.* at 8.

⁸⁵ *Id.*

⁸⁶ Of the 42,208 local trains identified in the Base Year, 1,214 handled the issue traffic. Of the 1,214 issue traffic local trains, 122 moving over thirteen (13) lanes in the Base Year also contained non-issue traffic that would be interchanged with the residual CSXT.

incurs to do so.) TPIRR will provide the line-haul merchandise service for that carload, assuming for example that it moves over the TPIRR from Birmingham to Chicago.

The reasons for TPIRR's treatment of local trains (on both the TPIRR and the residual CSXT) are straightforward. TPIRR has an obligation to ensure that its traffic group receives the same or greater level of service as the traffic group does in the real world. This includes cross-over traffic movements. TPI's treatment of both TPIRR and residual CSXT's local train service ensures that the vast majority of these complex short-haul train movements will be provided by a single railroad, and therefore will not require en route interchanges between the TPIRR and the residual CSXT. Due to CSXT's network structure and the location of customer facilities in many of the urban centers it serves, real-world CSXT local-train routes often exit and reenter the TPIRR multiple times within only a few miles over the course of a relatively short run. The operations that would be required to accommodate multiple interchanges for these trains would severely hamper the ability of both TPIRR and the residual CSXT to efficiently and effectively serve their customers.

The only alternative would be to expand the SARR well beyond the footprint required to serve the TPI issue traffic in order to enable the TPIRR to operate all of these real-world CSXT local trains, as shown in Exhibit III-C-5.⁸⁷ Furthermore, this would very quickly cascade into an even greater expansion of the SARR, because every additional segment of track added to accommodate the entire operational cycle of the first group of potentially interline local trains would introduce a new group of local trains whose operations would require even further expansion to accommodate. This sort of expansion would turn the SAC analysis on its head by

⁸⁷ For example, CSXT local trains {{ [REDACTED] }} and {{ [REDACTED] }} run between {{ [REDACTED] }} and {{ [REDACTED] }}. Rather than interchanging the trains five (5) miles south of {{ [REDACTED] }}, CSXT will continue to operate these trains as it does in the real world, and the point of CSXT-TPIRR interchange for all traffic moving on these trains will be {{ [REDACTED] }}.

shifting from a theoretical railroad designed principally to serve the issue traffic and other traffic that shares the facilities required to serve the issue traffic to a railroad designed principally to serve all of the incumbent's local train traffic of which the issue traffic happens to share only a small portion of the required facilities.

a. Routing

The SARR local-train routing evaluation differed significantly from the routing evaluation used for line-haul merchandise and unit trains. TPI placed great emphasis on capturing relevant Waybill data, and combining it with Car Event data to develop the foundation of its local-train operational data. TPI also consulted the Train Sheet data and Train Profile information to verify, evaluate, and develop the train routing and train miles for the local trains it included in its train list.⁸⁸

As discussed in general terms above, the primary building blocks for the TPI local-train list are the SarrAllShTrn and SarrAllConsist tables developed from combined CSXT Car Event and Waybill data. These data tables incorporate the association of CSXT origin location milepost,⁸⁹ connecting carrier,⁹⁰ and origin customer identification data⁹¹ from the waybill data with the first train upon which the car moved according to the car event data (often a local train for carload traffic), and the association of CSXT destination location milepost,⁹² connecting carrier,⁹³ and destination customer identification data⁹⁴ from the waybill data with the last train upon which the car moved according to the Car Event data (again, often a local train for carload traffic).

⁸⁸ The miles were later validated or adjusted using the mileage data produced in the RTC model output tables.

⁸⁹ ON_NET_ORIG_MP.

⁹⁰ ON_JCT_ROAD_CITY.

⁹¹ ORIGIN_IIDS.

⁹² ON_NET_DEST_MP.

⁹³ OFF_JCT_ROAD_CITY.

⁹⁴ DESTINATION_IIDS.

As discussed above, the processes used to make the initial milepost data substitutions generally resulted in enhancements to the CSXT data that better reflected actual operations and better identified customers served by local trains. However, after the initial substitution programs were run, TPI evaluated the output tables containing the data substitutions its process made for local trains. This evaluation was based on a review of the substituted origins and destinations, and involved cross-referencing every substitution against the Train Profiles routing data for every local train for which CSXT provided Train Profiles data. Where the train profiles route validated the substitution, it was retained.

The process also involved a check based on the mileage between the replacement Origin/Destination milepost from the Waybill data and the Car Event data sourced Origin/Destination milepost for which data substitutions were made. This test was required because CSXT did not provide Train Profiles data for all local trains and because the Train Profiles route does not always include all stations served by a particular train. If the replacement origin/destination from the Waybill data were found to be proximate to the corresponding Car Event origin/destination and Train Profiles route, the replacement Waybill origin/destination locations were deemed to have been reasonably served by the local train in question. If the replacement data failed either test, it was manually reviewed to identify any anomalies that the two tests would not capture, and ultimately, a judgment call was made regarding the validity of the replacement.

After the local train service location validation analysis was complete, an additional programming loop was added to the Car Event and Waybill data processing protocol to reject

unreasonable location substitutions, and the entire process was rerun to develop the final SarrAllShTrn and SarrAllConsist train lists.⁹⁵

Next, the SarrAllConsist table was evaluated to identify local trains that either served only TPIRR stations, or that served TPI issue traffic in the Base Year. Trains that passed either test were included in the TPIRR local train list.

The event timestamps captured in the SarrAllConsist table were used to determine the route of movement for all TPIRR local trains.

b. Pickups and Setouts

After the route was established, the carload pickups and setouts reported in the SarrAllConsist file were assigned to the corresponding en route stations for each train, and compiled train consist data were generated.

Implicit in the SarrAllConsist blocking data are the car-specific pickup and setout events summarized in the SarrAllShTrn table. For local trains, TPI deferred to the Waybill/Car Event data for pickup and setout detail. However, in many cases the terminal stations reported in the Waybill and Car Event data were also reported in the Train Sheet data. In those cases, the Train Sheet data were used to validate and supplement the terminal switching activities as reported in the combined Waybill and Car Event data.

c. Compilation

After the routing, pickups, setouts, and switching activities were developed for all local trains based on a combination of Car Event and Waybill data, TPI compared the TPIRR local train list to the TrainAllEvents table to evaluate the validity of local-train routing and mileage data reported in the Train Sheet data. For TPIRR local trains for which Train Sheet data were

⁹⁵ See Exhibit III-C-3 at I.G.10. and I.H.8.

available and for which the Train Sheet data route appeared reasonable (i.e., the Train Sheet data placed the train on the TPIRR system at the correct locations on the correct date), train-mileage data were collected. The average train-mileage data for trains of a given TRAIN_ID that did move over the TPIRR route were used as a surrogate for other TPIRR local trains with the same TRAIN_ID but for which no reliable Train Sheet mileage data were available.⁹⁶

7. On-SARR and Off-SARR Junctions

To ensure that the residual incumbent remained whole from a revenue perspective, the ATC calculation was adjusted to allocate revenues to the residual CSXT for individual movement segments that are not operated by TPIRR (i.e., trains that are not included in the combined TPIRR train list). Specifically, revenues were only allocated to the TPIRR for portions of a movement that were *both* on the TPIRR network *and* moving on a train included in the combined TPIRR train list. Revenues were allocated to the residual CSXT for portions of a movement that were *either* off the TPIRR network *or* moving on a train that was not included in the combined TPIRR train list. This means that, in some cases, the On-SARR and Off-SARR junctions are not at the geographical end of the TPIRR physical plant, but rather are in a major TPIRR/CSXT yard.

8. Trains Carrying TPI Issue Traffic

In most cases, the TPIRR network and train operations allow for TPIRR to provide service to issue traffic in the same manner as CSXT provides in the real world. Specifically, the issue traffic moves in the same trains over the same routes on the TPIRR as it does over the CSXT.

⁹⁶ As noted above, the miles were later validated or adjusted using the mileage data produced in the RTC model output tables.

However, for some issue traffic movements in the Base Year, the traffic is internally rerouted over alternate routes. In all such cases, this requires the reassignment of the carloads carrying issue traffic to alternate trains that follow a different route than the CSXT trains on which the traffic moves in the real world. Each of the affected lanes and the specific operational adjustments are described individually below.

a. Issue Lanes B62 and B113 (Chicago to Clarksburg, WV)

Based on CSXT's actual routing, the trains for these lanes typically travel from { [REDACTED] [REDACTED] [REDACTED] }. To eliminate the Off-SARR routing in the Base Year, TPI has rerouted the issue traffic on these Off-SARR trains onto the following trains that travel On-SARR—{ [REDACTED] [REDACTED] [REDACTED] }.

b. Issue Lane B12 (New Orleans to Oneco, FL)

Based on CSXT's actual routing, the trains for these lanes typically travel from { [REDACTED] [REDACTED] [REDACTED] }. However there are some actual CSXT movements for this lane from { [REDACTED] } in the Base Year that travel completely On-SARR. To eliminate the Off-SARR routing in the Base Year for the movements that do not travel completely On-SARR, TPI has rerouted the issue traffic on these Off-SARR trains onto the following trains that travel On-SARR based on CSXT actual routing for this lane—{ [REDACTED] [REDACTED] [REDACTED] }.

c. Issue Lane B16 (New Orleans to Galloway, FL)

Based on CSXT's actual routing, the trains for these lanes typically travel from { [REDACTED] [REDACTED] [REDACTED] }. To eliminate the Off-SARR routing in the Base Year, TPI has rerouted the issue traffic on these Off-SARR trains onto the following trains that travel On-SARR—{ [REDACTED] [REDACTED] }.

d. Issue Lanes B38 and B104 (New Orleans to Deland, FL)

Based on CSXT's actual routing, the trains for these lanes typically travel from { [REDACTED] [REDACTED] [REDACTED] }. To eliminate the Off-SARR routing in the Base Year, TPI has rerouted the issue traffic on these Off-SARR trains onto the following trains that travel On-SARR—{ [REDACTED] [REDACTED] }.

e. Issue Lane B18 (Chicago to Cincinnati, OH)

Based on CSXT's actual routing, the trains for these lanes typically travel from { [REDACTED] [REDACTED] [REDACTED] }. However there are some actual CSXT movements for this lane from { [REDACTED] } in the Base Year that travel completely On-SARR. To eliminate the Off-SARR routing in the Base Year for the movements that do not travel completely On-SARR, TPI has rerouted the issue traffic on these Off-SARR trains onto the following trains that travel On-SARR based on CSXT actual routing for this

lane—{{ [REDACTED]
[REDACTED] }}.

f. Issue Lane B84 (Chicago to Wapakoneta, OH)

Based on CSXT's actual routing, the trains for these lanes typically travel from { [REDACTED]
[REDACTED]
[REDACTED] }. However there are some actual CSXT movements for this lane from { [REDACTED] } in the Base Year that travel completely On-SARR. To eliminate the Off-SARR routing in the Base Year for the movements that do not travel completely On-SARR, TPI has rerouted the issue traffic on these Off-SARR trains onto the following trains that travel On-SARR based on CSXT actual routing for this lane—{{ [REDACTED]
[REDACTED] }}.

g. Issue Lanes B109 and B110 (Chicago to Lima, OH)

Based on CSXT's actual routing, the trains for these lanes typically travel completely On-SARR from { [REDACTED] }. The few trains that do not travel completely On-SARR travel from { [REDACTED]
[REDACTED] }. To eliminate the Off-SARR routing in the Base Year for the movements that do not travel completely On-SARR, TPI has rerouted the issue traffic on these Off-SARR trains onto the following trains that travel On-SARR based on CSXT actual routing for this lane—{{ [REDACTED]
[REDACTED] }}.

C. IDENTIFICATION OF THE PEAK-PERIOD TRAINS

TPI compiled the complete Base Year TPIRR train list from the CSXT provided traffic data and related sources and applied the relevant growth factors to determine the number of trains that must be added to serve the TPIRR traffic group in the peak year. Specifically, TPI slotted the required growth trains into the peak year based on the distribution implicit in the Base Year train list. This ensured that the seasonality implicit in the Base Year is reflected in the peak year. The procedures TPI used are described in detail below under the following topical headings:

1. Application Of TPI Volume Forecast To Base Year Trains
2. Combined TPIRR Train List
3. Development Of Peak Period Train Counts
4. Development Of Peak Period RTC Input Train List

1. Application Of TPI Volume Forecast To Base Year Trains

The Base Year train list was developed from the latest available 12 months of historical traffic data provided by CSXT, from July 2012 through June 2013. The peak train list represents the last 12-months of the 10-year SAC analysis from July 2019 through June 2020. TPI applied its volume forecast to the Base Year trains to determine the number and size of trains the TPIRR would be moving in the peak year. As a general rule, the projected aggregate volume change from 2012-2019 was applied to Base Year trains that moved between July and December 2012 to generate the July-December 2019 portion of the peak-year train list, and the projected aggregate volume change from 2013-2020 was applied to Base Year trains that moved between January and June 2013 to generate the January-June 2020 portion of the peak-year train list. The specific procedures used to develop the peak-year trains varied by train group. Each group is discussed separately below.

a. Unit Trains

Unit trains were split into five (5) groups: coal, grain, other, extra (non-coal), and empty. Within each group, the trains were further split into multiple subgroups based on the train origin-destination (“O-D”) pair and the year of movement. For coal, the subgroup O-D pairs were based on the loading (or interchange received) and unloading (or interchange forwarded) locations for the loaded portion of the train movement. For other unit train groups, the subgroup O-D pairs were based on the CSXT origin (or interchange received) and destination (or interchange forwarded) states for the train movement.⁹⁷ This resulted in the creation of 1,597 subgroups of unit trains.

For each of the subgroups, the Base Year train count, aggregate car count, average cars per train, and maximum cars per train statistics were developed from the associated Base Year trains.⁹⁸ Next, the peak year average train size was developed for each subgroup based on the following rule—the Base Year average car count per train was increased by the lesser of 10 percent of the Base Year average car count or 10 cars, unless the result exceeded the Base Year maximum car count per train (in which case the Base Year maximum train size would be used as the peak year maximum train size.)⁹⁹ The difference between the peak-year average train size and the Base Year average train size was then multiplied by the Base Year train count to determine the number of available growth slots available on the historical trains.¹⁰⁰

The next step was to identify the appropriate growth factor applicable to each subgroup of trains. O-D specific projected volume changes were applied to each of the coal-train subgroups. These O-D specific growth indices reflect the EIA volume projections specific to the

⁹⁷ See “Train List Unit V09 12162013 With Peak Calc v2.xlsx” at level “UnitPeakCalc”, columns A through E.

⁹⁸ *Id.* columns F through H and K.

⁹⁹ *Id.* column I.

¹⁰⁰ *Id.* columns J and O.

relevant origin coal fields and they reflect the plant capacities of the TPIRR coal shippers. The TPIRR system-wide STCC 01 projected volume change was applied to each of the grain train subgroups. Similarly, a system-wide industrial traffic composite volume change was applied to each of the non-coal, non-grain unit trains. These growth factors were applied to the Base Year car counts to develop the peak-year car requirements for each subgroup.¹⁰¹

The available growth slots on historical trains were then subtracted from the peak-year car requirements to determine whether additional trains would be required to handle the peak-year volume growth. If additional peak trains were required, the excess growth cars were divided by the peak-year average car count per train to determine the number of growth trains required to serve the TPIRR traffic group.¹⁰²

b. Line-Haul Merchandise Trains

Line-haul merchandise trains were split into three (3) groups: intermodal, auto, and manifest. Within each group, the trains were further split into multiple subgroups based on the train origin-destination (“O-D”) pair and the year of movement. Specifically, the subgroup O-D pairs were based on the O-D pair region and train number group, i.e. 0-99, 100-199, etc., of the train movement. This resulted in the creation of 4,290 subgroups of merchandise trains.

For each of the subgroups, the Base Year train count, aggregate car count, average cars per train, and maximum cars per train statistics were developed from the associated Base Year trains.¹⁰³ Next, the aggregate growth cars were calculated for each train in the Base Year. The TPIRR system-wide STCC 37 projected volume change was applied to each train in the auto train subgroup. Similarly, a system-wide industrial-traffic composite volume change was applied to each of the manifest trains, and a system-wide intermodal-traffic composite volume

¹⁰¹ *Id.* columns M and N.

¹⁰² *Id.* columns Q through V.

¹⁰³ See “Manifest Train Peak Period Analysis_Opening_v3.xlsx” at level “Growth Trains by year”.

change was applied to each of the intermodal trains. These growth factors were applied to the Base Year car counts to develop the peak year car requirements for each subgroup.¹⁰⁴ Once the number of growth cars per train was developed, the peak-year train size was developed for each train based on the following rule—the Base Year car count per train was increased by the number of growth carloads calculated above, unless the result exceeded either the Base Year maximum car count per train or a train length of 1.75 miles¹⁰⁵ (in which case the peak year maximum train size would be set at the Base Year maximum train size or the number of cars required to reach the 1.75 mile limit based on an average car length per train, as appropriate.)¹⁰⁶ The difference between the peak year train size and the Base Year train size was then calculated to determine the available growth slots and any overage in the projected number of cars per train was distributed amongst other trains in the subject subgroup. After all available growth slots per train in a given subgroup were filled, the remaining cars were aggregated to determine the total number of excess growth cars needed to move peak year traffic volumes for each subgroup.¹⁰⁷

The aggregate growth cars per subgroup were then divided by the peak year average train size per subgroup to determine the number of additional growth trains required to handle the peak year volume growth.¹⁰⁸

¹⁰⁴ *Id.* at level “Combined” column BE.

¹⁰⁵ Additionally, there were 477 trains identified in the peak week with train lengths greater than 2 miles that were capped at Base Year train sizes. Due to en route consist changes and other factors, portions of these trains were larger than 2 miles in length in the peak period. For example, a train starts with 150 cars and ends with 50 cars for an average train size of 100 cars. However, the 150 car train for the first part of the movement produced a train length greater than 2 miles. For these specific trains, the maximum train size was capped at the Base Year train size and any growth cars for these trains were distributed in accordance with the procedures identified in this section.

¹⁰⁶ *Id.* at level “Growth Trains by Year”, column M.

¹⁰⁷ *Id.* at level “Growth Trains by Year”, column N.

¹⁰⁸ *Id.* at level “Growth Trains by Year”, column P.

c. Local Trains

Local trains were split into two (2) groups in line with the real-world CSXT groupings: coal mine runs and merchandise locals. Within each group, the trains were further split into multiple subgroups based on the train home station (origin), and the year of movement.¹⁰⁹ This resulted in the creation of 424 subgroups of local trains.

For each of the subgroups, the Base Year train count, aggregate car count, average cars per train, and maximum cars per train statistics were developed from the associated Base Year trains.¹¹⁰

The next step was to identify the appropriate growth factor applicable to each subgroup of trains. A system-wide industrial-traffic composite volume change was applied to each of the merchandise local trains, and a system-wide coal-traffic composite volume change was applied to each of the coal mine run local trains. These growth factors were applied to the Base Year car counts to develop the peak year car requirements for each subgroup.¹¹¹

Next, the peak-year average train size was developed for each subgroup based on the following rules: the peak-year aggregate car count divided by the Base Year train count was used, unless the result exceeded the Base Year maximum car count per train. For coal mine run trains, if the calculated peak-year average train size (car count) exceeded the Base Year maximum train size, the average train size was capped at the greater of the Base Year maximum size or 50 cars per train. For merchandise locals, if the calculated peak-year average train size (car count) exceeded the Base Year maximum train size, the average train size was capped at the

¹⁰⁹ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "Local Trains BY", columns A through J.

¹¹⁰ *Id.* columns L through O.

¹¹¹ *Id.* column T.

greater of the Base Year maximum size or 100 cars per train.¹¹² If the calculated peak-year train size could not accommodate all projected growth, trains were added to the peak year.¹¹³

2. Combined TPIRR Train List

After the individual train lists (described above) were developed, they were compiled into a single table showing daily train counts for the Base Year, determined based on the TRAIN_SUFFIX date.¹¹⁴ Based on the TRAIN_SUFFIX data, there were two seven-day periods in the Base Year¹¹⁵ with the greatest combined number of trains moving TPIRR traffic: one was from December 8, 2012 through December 14, 2012, and the other was from December 10, 2012 through December 16, 2012. Specifically, of the 187,906 trains moving in the Base Year, 3,789 trains moved in the two peak weeks.¹¹⁶

3. Development Of Peak Period Train Counts

Peak period daily train counts were developed by allocating the projected growth train requirements developed as described above within the specific train groups according to the distribution that was implicit in the Base Year, and then adding those slotted growth trains to the Base Year daily train counts. The specific procedures followed are discussed below.

a. Unit Trains

Using the procedures described above, TPI determined that it must add 3,469 net unit trains in the peak year to accommodate TPIRR projected volume growth.¹¹⁷ Specifically, TPI must add 1,417 unit coal trains, 136 unit grain trains, and 1,916 other unit trains.¹¹⁸ Then, TPI calculated the daily distribution (percent of annual total dispatched on each day) in the Base Year

¹¹² *Id.* column U.

¹¹³ *Id.* columns V.

¹¹⁴ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", columns A through Q.

¹¹⁵ July 1, 2012 through June 30, 2013.

¹¹⁶ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", cells P374, Q379, R175, and R177.

¹¹⁷ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "UnitPeakCalc", cell P3.

¹¹⁸ *Id.* range P6:P10.

for each of the three unit train categories.¹¹⁹ TPI determined the number of daily net train additions that would be required for each group on each day in the peak year to accommodate the projected TPIRR volume growth by multiplying the total additional train requirement by the calculated daily distribution for each day in the peak year.¹²⁰ The required daily additional trains were then added to the Base Year historical train counts for each day to determine the peak year daily train count for each group.¹²¹

b. Line-Haul Merchandise Trains

Using the procedures described above, TPI determined that it must add 1,048 line-haul merchandise trains in the peak year to accommodate TPIRR projected volume growth.¹²² Specifically, TPI must add 790 intermodal trains, 21 auto trains, and 237 manifest trains.¹²³ Then, TPI calculated the daily distribution (percent of annual total dispatched on each day) in the Base Year for each of the three unit train categories.¹²⁴ Next, TPI determined the number of daily net train additions that would be required for each group on each day in the peak year to accommodate the projected TPIRR volume growth by multiplying the total additional train requirement by the calculated daily distribution for each day in the peak year.¹²⁵ The required daily additional trains were then added to the Base Year historical train counts for each day to determine the peak year daily train count for each group.¹²⁶

¹¹⁹ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", columns S through U.

¹²⁰ *Id.* columns Z through AB.

¹²¹ *Id.* columns AG through AI.

¹²² See "Manifest Train Peak Period Analysis_Opening_v3.xlsx" at level "Growth Trains by year", column P.

¹²³ *Id.* range P4306:4308

¹²⁴ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", columns V through X.

¹²⁵ *Id.* columns AC through AE.

¹²⁶ *Id.* columns AJ through AL.

c. Local Trains

Using the procedures described above, TPI determined that it must add two local trains in the peak year to accommodate TPIRR projected growth.¹²⁷ Specifically, TPI must add one merchandise local and one coal mine run train. Then, TPI calculated the daily distribution (percent of annual total dispatched on each day) in the Base Year for local trains.¹²⁸ TPI determined the number of daily net train additions that would be required on each day in the peak year to accommodate the projected TPIRR volume growth by multiplying the total additional train requirement by the calculated daily distribution for each day in the peak year.¹²⁹ The required daily additional trains were then added to the Base Year historical train counts for each day to determine the peak year daily train count.¹³⁰

d. Combined Trains and Peak Period Determination

After the peak year daily train counts were developed for each train group, they were summed to determine the total peak year daily train counts.¹³¹ TPI determined that the seven-day period in the peak year¹³² with the greatest combined number of trains moving TPIRR traffic was from December 10, 2019 through December 16, 2019. Specifically, of the 192,425 trains moving in the peak year, 3,882 trains will move in the peak week.¹³³ TPI used a two-day warm-up period and a one-day cool down period in accordance with recent SAC cases. As a result the RTC model peak period was determined to be December 8, 2019 through December 17, 2019.

¹²⁷ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "Local Trains BY", column Y.

¹²⁸ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", column Y.

¹²⁹ *Id.* column AF.

¹³⁰ *Id.* column AM.

¹³¹ *Id.* column AN.

¹³² July 1, 2019 through June 30, 2020.

¹³³ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", cells AN374, AO379, and AP177.

4. Development Of Peak Period RTC Input Train List

After the peak period was identified, the corresponding Base Year trains were identified and used to form the basis for the peak period train list. The train consist data were updated to reflect the peak year train sizes based on the application of the relevant growth factors (up to the train-specific size limits). After the required adjustments were made to the Base Year trains, the growth trains were added according to the distribution implicit in the peak period calculation as discussed in the preceding section.¹³⁴ As shown in the work papers,¹³⁵ due to the need to add whole (not partial) trains, TPI added 131 total trains in the peak period, although the peak period calculation required only the addition of 128 trains.

The specific procedures used to develop the peak period train list are discussed by train group below.

a. Unit Trains

There were 764 total unit trains included in the Base Year data for the ten-day peak period.¹³⁶ In many cases, due to dispatching delays or due to the fact that the peak period trains were originated by CSXT miles from the SARR system and did not enter the SARR until well after the train was initially dispatched, the On-SARR time for TPIRR trains lagged behind the TRAIN_SUFFIX date. In some cases, this resulted in On-SARR times for peak period trains occurring after the peak period ended. More generally, it led to a light train load in the early part of the peak period and a regular train load in the middle and end of the peak period. Therefore, TPI altered the on-SARR times to ensure that the peak period analysis reflected the full load of

¹³⁴ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", range AR168:AY181.

¹³⁵ *Id.*

¹³⁶ See "Peak Period Unit Trains v1.xlsx" at level "Base Train Raw Data", cell H773; and "Train List Unit V0912162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", range G169-178.

trains reflected in its peak period calculation.¹³⁷ Specifically, for trains with On-SARR times occurring after the peak period ended, TPI set the On-SARR time back 10 days. For example, if a train originated Off-SARR at 5:00 PM on 12/17/2012 and did not report having entered the SARR until 3:00 AM on 12/19/2012, TPI adjusted the On-SARR time to 3:00 AM on 12/09/2012 and let the train run through the RTC model from that point forward. This resulted in a total of 101 trains having the clock turned back, and it balanced the peak period train load.¹³⁸

TPI then evaluated the Base Year trains based on the On-SARR times and determined that, if it had simply removed these 101 trains and added in their place the trains whose On-SARR times were in the base period window, it would only have added 93 additional trains.¹³⁹ TPI's approach is conservative and ensures that its train list reflects the TRAIN_SUFFIX-based model it used to determine the peak period.

TPI manually evaluated each of the peak period trains to determine the precise route of movement, On-SARR and Off-SARR locations, loading and unloading locations, linking requirements, and On-SARR times. In many cases, particularly for unit coal trains, this process required TPI to split the CSXT train cycle into loaded and empty segments and create flags to link them at the mine and plant. TPI also split trains that exited and reentered the SARR into separate train segments for modeling.¹⁴⁰

After it had evaluated and adjusted all of the Base Year trains included in the peak period, TPI added the required growth trains. TPI did this by creating duplicates of trains that

¹³⁷ TPI developed its base and peak year train lists from many disparate databases provided by CSXT in discovery. The TRAIN_SUFFIX data field was the common data point that allowed all of the databases to be linked and compiled in a coordinated manner. The TRAIN_SUFFIX data field was the appropriate field for purposes of universally classifying train movements by date and determining the peak period. As discussed in the following paragraphs, this approach actually led to overstated (and conservative) peak period train counts and operating statistics. The peak period does not need to precisely mirror the base period, it simply has to be a fair representation of the peak period operations.

¹³⁸ See "Peak Period Unit Trains v1.xlsx" at level "Base Train Raw Data", cell {{[REDACTED]}}.

¹³⁹ *Id.* cell H775.

¹⁴⁰ See "Peak Period Unit Trains v1.xlsx" at level "Peak Train List Base".

moved in the peak period.¹⁴¹ The determination of which trains would be duplicated was done on a train subgroup basis and was based on the likelihood that a growth train would be required.¹⁴² For example, if one subgroup required 20 growth trains to move its peak year traffic and another subgroup required two growth trains, the first subgroup would be ten-times as likely to have a duplicate train added in the peak period as the second subgroup.¹⁴³ This approach eliminated bias and required TPI to add trains in its heaviest growth lanes in the peak year.

b. Line-Haul Merchandise Trains

There were 3,366 total line-haul merchandise trains included in the Base Year data for the ten-day peak period.¹⁴⁴ As with unit trains, in some cases, the On-SARR time for TPIRR trains did not match the TRAIN_SUFFIX date. Where this resulted in On-SARR times for peak period trains occurring before or after the peak period ended, TPI altered the On-SARR times to ensure that the peak period analysis reflected the full load of trains reflected in its peak period calculation. This resulted in a total of 44 trains having the On-SARR time adjusted, and it balanced the peak period train load.¹⁴⁵

TPI manually evaluated each of the merchandise trains to determine the precise route of movement, on- and off-SARR locations, pick-up and set-out locations, consist changes, and on-SARR times. In many cases, this process required TPI to split trains that exited and reentered the SARR into separate train segments for modeling.¹⁴⁶

After it had evaluated and adjusted all of the Base Year trains included in the peak period, TPI added the required growth trains. As with coal trains, TPI did this by creating

¹⁴¹ See "Peak Period Unit Trains v1.xlsx" at level "Peak Adds".

¹⁴² See "Peak Period Unit Trains v1.xlsx" at level "Peak Adds Worksheet".

¹⁴³ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "UnitPeakCalc", column AA.

¹⁴⁴ See "Train List Unit V09 12162013 With Peak Calc v2.xlsx" at level "BsYrPeakAll", range L169:L178.

¹⁴⁵ See "Manifest Train Routing for RTC_v4.xlsx" at level "Train Routing", column L; and "Manifest Train Peak Period Analysis_Peak Week_v5.xlsx" at level "dbo_aSarrTeManTrainsNotInCeSum", column Z.

¹⁴⁶ See "TPI RTC Peak Train List_Manifest_v6.xlsx" at level "Manifest Train List."

duplicates of trains that moved in the peak period.¹⁴⁷ The determination of which trains would be duplicated was done on a train subgroup basis and was based on the likelihood that a growth train would be required.¹⁴⁸ This approach avoided bias and ensured that TPI added trains in its heaviest growth lanes in the peak year.

c. Local Trains

There were 1,089 total local trains included in the Base Year data for the ten-day peak period.¹⁴⁹ As with unit and manifest trains, in some cases, the On-SARR time for TPIRR trains did not match the TRAIN_SUFFIX date. Where this resulted in On-SARR times for peak period trains occurring before or after the peak period ended, TPI altered the On-SARR times to ensure that the peak period analysis reflected the full load of trains reflected in its peak period calculation. This resulted in a total of 31 trains having the On-SARR time adjusted, and it balanced the peak period train load.¹⁵⁰

TPI manually evaluated each of the 1,089 local trains to determine the precise route of movement, pick-up and set-out locations, consist changes and On-SARR times. All of the TPIRR local trains in the peak period are local to the TPIRR, i.e. do not interchange with the residual CSXT.¹⁵¹ There were 204 local trains that did not initially produce a route of movement based on the combined CSXT car event and car waybill data. These 204 unique trains performed industry switching, so the pickup and setout of cars happened at the same location. Of those 204 local trains, there were 31 that traveled less than 0.7 miles (19 traveled 0 miles) and 173 that

¹⁴⁷ *Id.*

¹⁴⁸ See "Manifest Train Peak Period Analysis_Opening_v3.xlsx" at level "Growth Trains by year", column AK.

¹⁴⁹ See "Peak Period Local Trains v5 wDwell v3.xlsx" at level "Peak Train List."

¹⁵⁰ *Id.* at level "Base Train Raw Data" column BL and FX.

¹⁵¹ Three (3) local trains are interchanged with CSXT at the destination of the issue traffic (Laurens, SC) and CSXT serves the additional 30+ miles.

traveled greater than 0.7 miles based on the Train Sheet data.¹⁵² The 31 trains that traveled less than 0.7 miles were not input into the RTC as they represent yard operations, which the RTC does not model. For the 173 trains that traveled greater than 0.7 miles, a combination of the Train Sheet and Train Profile data was evaluated to determine the route these trains traveled.

No local growth trains were required in the peak period.

d. Other Considerations

Using the SarrAllShTrn table developed as part of the Base Year train list development procedures, TPI identified the connecting road for trains that were interchanged with other short line and Class I rail carriers.¹⁵³ TPI also used the SarrAllShTrn table to determine which of the peak period trains were moving TIH traffic.¹⁵⁴

¹⁵² See "RTC Locals with No Turn Point v2.xlsx."

¹⁵³ See "IF Location Sum MU PP.xlsx" and "IR Location Sum MU PP.xlsx."

¹⁵⁴ See "TIH_FLAG_SHIPMENT_KEYS_PEAK_TRAINS_v2.xlsx."



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October 11, 2013

Jeffrey O. Moreno
Thompson Hine LLP
1919 M Street, N.W.
Washington, DC 20036-1600

Re: *Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc.*,
STB Docket No. 42121

Dear Jeff:

Enclosed are documents that CSX Transportation, Inc. ("CSXT") is producing to Total Petrochemicals & Refining USA, Inc. ("TPI") as part of the agreed supplemental discovery in the above-referenced proceeding. The enclosed DVD labeled CSX-TPI-HC-DVD-104 and the documents it contains have been designated "Highly Confidential" pursuant to the June 23, 2010 Protective Order entered by the Surface Transportation Board in this proceeding.

CSX-TPI-DVD-104 contains additional transportation contracts being produced in response to TPI Request for Production 26, delay data being produced in response to TPI Request for Production 42, joint facility agreements being produced in response to TPI Request for Production 75, maintenance of way wage rates being produced in response to TPI Request for Production 95, affiliate bills being produced in response to TPI Request for Production 114, and intermodal contracts being produced in response to TPI Request for Production 156. CSX-TPI-DVD-104 also contains failed equipment detector ("FED") costs being produced in response to TPI Request for Production 141. The spreadsheet "Fed Costs Update.xls" fully replaces the "Fed Costs.xls" spreadsheet previously produced on September 29, 2010.

The enclosed hard drive CSX-TPI-HC-EHD-006 and the Train Sheet data it contains has been designated "Highly Confidential." Because CSX-TPI-HC-EHD-006 contains traffic event data for the Supplemental Discovery Period,¹ it has also been designated as Sensitive Security

¹ "Supplemental Discovery Period" has the meaning that term had in CSXT's prior discovery letters, *i.e.*, the time period between July 1, 2010 and June 30, 2013.



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Information (“SSI”) that is controlled under 49 C.F.R. Parts 15 and 1520.² The hard drive is encrypted; a password to decrypt it is being sent to you under separate cover.

The Train Sheet data being produced today complements CSXT’s prior productions of traffic data, including its September 25 production of Waybill, Car Shipment, and Container Shipment data on CSX-TPI-HC-EHD-004 and its October 4 production of Car Event data on CSX-TPI-HC-EHD-005. In addition, this letter and CSXT’s productions provide extensive explanatory information in response to TPI’s request that CSXT explain how TPI can “utilize” and “evaluate” CSXT’s traffic data. *See* TPI Request for Production 23. Section I of this letter explains four key concepts that TPI should have in mind as it evaluates the traffic event data. Section II describes the event data and the decoders CSXT has provided for it, and discusses some ways that TPI can link and better understand the data.

I. KEY CONCEPTS FOR EVALUATING AND USING CSXT’S CAR EVENT AND TRAIN SHEET DATA.

A. Car and Train Data Are a Historical Archive of CSXT Operations at Particular Points in Time.

At the outset, traffic data provide only a historical archive of CSXT operations at particular points in time and under particular operating conditions. CSXT’s operations are dynamic—train and yard operations change regularly based on traffic volumes, track conditions, weather, and other factors. While this historical data provides a snapshot of customer service requirements and operating practices as they existed at that point in time, the operating plan that TPI must design for its SARR traffic group necessarily will vary from historical CSXT operations. This is so for at least four reasons: (1) TPI will be selecting a subset of CSXT’s historical traffic, not all of CSXT’s traffic; (2) TPI must posit Peak Year operations for a traffic base that will (in all likelihood) have expanded in accordance with TPI’s traffic volume projections; (3) TPI’s SARR presumably will be transporting its traffic over a network that has different facilities, geographic reach, and track capacity than CSXT’s existing network; and (4) TPI’s SARR likely will be positing crossover traffic movements that convert local CSXT movements into interline or overhead movements on the SARR. All these factors mean that, while TPI may choose to use CSXT’s historical event data as a guide to designing its train

² The enclosed hard drive CSX-TPI-HC-EHD-006 contains Sensitive Security Information (“SSI”) that is controlled under 49 C.F.R. Parts 15 and 1520. No part of the records contained in the enclosed hard drive may be disclosed to persons without a “need to know” as defined in 49 C.F.R. Parts 15 and 1520, except with the written permission of the Administrator of the Transportation Security Administration or the Secretary of Transportation. Unauthorized release or disclosure of SSI may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 U.S.C. § 552 and 49 C.F.R. Parts 15 and 1520.



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service plan for its SARR, TPI cannot stop there if it is to “design[] a SARR specifically tailored to serve an identified traffic group.”³ On the contrary, TPI must design a “detailed operating plan” that accounts for all necessary blocking, car classification, switching, local service, pickups, and setouts providing for complete service from origin (or on-SARR junction) to destination (or off-SARR junction) for its selected traffic.⁴ Some of the tools and data detailed below can aid TPI in meeting the STB’s requirement that it produce an operating plan “specifically tailored” to the service needs of its selected traffic.

CSXT cautions TPI at the outset of the vulnerabilities of an approach that simply mimics certain trains extracted from CSXT’s historical event data and ignores the need to independently develop tailored plans for blocking, car classification, and local train service. Any “operating plan” based solely on historical operations out of CSXT’s event data is doomed to failure, both because it fails to account for the different traffic group that TPI’s SARR will serve and because historical train data do not capture the full range of CSXT’s operations. For example, CSXT’s train sheet data do not contain extensive information on local train movements. To develop an operating plan that accounts for local service, TPI must consult other sources in the discovery record, including CSXT’s car event data, waybill and patron information, train profile information, and data on local train crew starts and assignments. This letter identifies certain additional data sources produced by CSXT that TPI can use in conjunction with the traffic event data.

B. TPI Must Develop a Full Train Service, Car Classification, and Blocking Plan Tailored to the Needs of Its Own Traffic.

While TPI has broad discretion to select traffic for its SARR traffic group, it is likely that its traffic group will contain substantial amounts of carload traffic. Indeed, the traffic whose rates TPI has challenged is carload traffic that requires significant switching and car classification at intermediate points to move across CSXT’s network.⁵ And TPI may elect to select significant amounts of other carload traffic for its SARR traffic group. If TPI does so,

³ See *AEPCO v. BNSF & UP*, STB Docket No. 42113, at 4 (served Nov. 16, 2011)

⁴ *Id.* (“Based on the traffic group to be served, the level of services to be provided, and the terrain to be traversed, a detailed operating plan must be developed for the SARR.”); *Texas Mun. Power Auth. v. BNSF*, 6 S.T.B. 573, 589 (2003) (“[T]he SARR must meet the transportation needs of the traffic in the group by providing service that is equal to (or better than) the existing service for that traffic.”).

⁵ See *Total Petrochemicals & Refining USA, Inc. v. CSX Transp., Inc.*, STB Docket No. NOR 42121, at 34 n.89 (May 30, 2013) (“The fact that TPI’s shipments move in carload traffic means that the shipments must often be transported to one or more classification yards to be blocked and assembled into the appropriate trains for delivery.”).



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then its operating plan for that traffic must include not only a train service plan, but also a detailed car classification and blocking plan that demonstrates how shipments will be “blocked and assembled into the appropriate trains for delivery.”⁶ Train service and blocking and classification plans must be carefully designed to provide complete service from origin (or on-SARR junction) to destination (or off-SARR junction) and to ensure that all rail customers are receiving complete service in a way that meets the customers’ needs.⁷

Real-world railroads typically use computer software to help them identify optimal train service and blocking and classification plans for their traffic. The MultiRail Freight Edition created by Oliver Wyman is one such modeling tool. MultiRail generates optimized blocking and train service plans for a selected traffic group, based on the characteristics of the traffic, the railroad’s network configuration, customer service requirements, and other carrier inputs. CSXT uses a version of MultiRail as a tool for its own real-world planning and service design, and published materials indicate that MultiRail is used by many other railroads to plan their day-to-day operations.⁸

To be sure, it is technically possible to develop a feasible carload blocking and train service plan without the use of MultiRail or similar tools. Indeed, before the advent of MultiRail and other computerized modeling tools, railroads developed their operating plans without the assistance of such technology. But computerized modeling tools like MultiRail are both a labor-saving device and a powerful means for identifying efficiencies that human operators may miss and avoiding human error in developing an operating plan, particularly when that operating plan involves millions of carloads moving between thousands of locations. The real-world efficiency improvements that Class I railroads achieved after adopting computerized modeling are apt

⁶ *Id.*

⁷ See, e.g., *Carolina Power & Light Co. v. Norfolk So. Ry. Co.*, 7 S.T.B. 235, 259 (2003) (a complainant “carries the burden of demonstrating that its operating plan would meet the needs of the traffic group selected”).

⁸ See, e.g., *Ultimate Technology—Software That Made the Uncontrollable Controllable*, TRAINS MAGAZINE, Nov. 2010, available at http://rail.railplanning.com/files/2010/11/Trains-Nov2010_38-39.pdf (describing MultiRail’s success in improving service at six Class I railroads); *This is How to Run a Railroad*, FORBES, Feb. 13, 2006, available at <http://www.forbes.com/forbes/2006/0213/094.html> (describing use of MultiRail to improve operational efficiency).



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evidence of what a useful tool MultiRail can be to develop a least-cost, most-efficient blocking and train service plan for a SARR that meets the needs of the SARR's selected customers.⁹

As explained in CSXT's August 29, 2013 letter, Oliver Wyman will make MultiRail available to TPI for a reasonable price. CSXT encourages TPI to consider using MultiRail or a similar tool to develop a car blocking and train service plan that accords with the SAC requirement that a SARR operating plan "meet the needs of the traffic group selected." *Carolina Power & Light Co. v. Norfolk So. Ry. Co.*, 7 S.T.B. at 259.

C. TPI Must Use the Event Data As One of Multiple Tools to Develop a Full Operating Plan for The SARR Traffic.

In addition to waybill, car event, and train sheet data, CSXT has produced multiple data sets with operational information that can be used by TPI to supplement information provided in the traffic data and to develop its own operating plan. We have detailed some of this information below.

1. Accidents, Delay, and Incident Reports: CSXT has produced several databases containing records from its delay reporting system. While CSXT's delay reporting systems require human input (and thus do not capture all delays on the railroad), they provide important evidence of the delay incidents that CSXT encounters in the real world and for which TPI's operating evidence must account. "Car Delay Database.xls" produced on DVD-036¹⁰ and "Car Delay Database Update.xls" produced on DVD-104 include car delays associated with incidents occurring on the Line-of-Road. "Locomotive Delay Database.xls" produced on DVD-036 and "Locomotive Delay Database Update.xls" produced on DVD-104 include locomotive delays associated with incidents occurring on the Line-of-Road. "TCIS Incidents.xlsx" produced on DVD-041 and "TCIS Incidents Update.xlsx" produced on DVD-104 include additional data on signal delays not captured in the above-listed databases. In addition, "Incident List.xls" produced on DVD-036 and "Incident List Update.xls" produced on DVD-104 list both train accidents and road crossing accidents.

⁹ See, e.g., *Ultimate Technology—Software That Made the Uncontrollable Controllable*, TRAINS MAGAZINE, Nov. 2010, available at http://rail.railplanning.com/files/2010/11/Trains-Nov2010_38-39.pdf.

¹⁰ All references to production DVDs in this letter are to the CSXT-TPI series of DVDs that CSXT produced to TPI. CSXT has omitted the prefix from each DVD reference for simplicity's sake.



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2. Train Profile Information: The extensive train profile data CSXT has provided include information that may be useful to TPI. The “Profiles” folder on DVD-41 contains a pdf file explaining CSXT’s train designation scheme and several spreadsheets with detailed data on CSXT’s historical train service plans. Further explanatory data was provided on DVD-068 and DVD-078, and we expect to produce updated train profile data for the Supplemental Discovery Period next week. Updated train profile data is also included on the enclosed hard drive. This train profile information can be used both to clarify any ambiguities in the traffic event data and to inform TPI’s development of its own train service plan (*e.g.*, by identifying all the local trains that are necessary to serve CSXT’s customers today).
3. Yard and Local Train Information. TPI should also incorporate the information CSXT produced on yard and local train service into TPI’s operating plan analysis. “Yard Crew Size and Starts.xls,” produced on DVD-063, includes data on yard operations and local train crew starts throughout the CSXT network. DVD-063 also includes yard diagrams and “Yard Matrix.xls,” a spreadsheet with detailed information on each CSXT yard that includes scheduled yard jobs, local switch assignments, and average daily cars switched and handled. CSXT expects to produce updated data for the Supplemental Discovery Period soon.
4. Intermodal Lift Information. If TPI chooses to select intermodal traffic as part of its traffic group, it will find useful information in “Intermodal Costs and Volume.xls” (produced on DVD-042), which contain information on loads and lifts at each CSXT intermodal terminal. Updated information for the Supplemental Discovery Period will be produced soon.
5. Road Crew Districts. CSXT has produced detailed information on its road crew districts and road crew assignments at “Detail District maps update.pdf” on DVD-025. While TPI is not required to replicate these road crew districts and assignments for its SARR, this data on CSXT’s real-world staffing requirements should inform TPI’s analysis of the road crews necessary to serve the SARR’s traffic.
6. Helper Service Details. Detailed information on the helper service required on CSXT’s network was made available to TPI in “Helper Services.xls” (produced on DVD-063) and “Helper Service Detail.xls” (produced on DVD-069). This data includes information about helper locations, helper assignments, and helper crew starts, all of which should be useful to TPI as it designs its operating plan.



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7. Shortline Information. Information regarding short line railroads with which CSXT connects—including several that play a role in some of the issue movements—has also been produced. “Shortline Matrix.xls” produced on DVD-074 includes information on CSXT’s operating relationships with shortlines and interchange locations, and DVD-066 contains several CSXT agreements with shortlines.
8. Sidetrack Agreements. “All Track Agmt.xlsx” produced on DVD-029 summarizes, and DVDs 030, 031, and 080 include, multiple sidetrack agreements between CSXT and customers on its network, which must be taken into account if TPI selects traffic from those customers.¹¹
9. Interline Service Agreements. On DVD-037, CSXT produced intercompany service agreements with a host of connecting railroads, which among other things detail interchange locations, procedures, and schedules for a significant number of railroads with which TPI’s SARR likely will need to interchange traffic
10. Trip Plans. In response to TPI’s interrogatory 5 requesting a description of each TPI movement whose rate was challenged in the complaint, CSXT created trip plans for the complaint traffic that were produced on DVD-041. These trip plans provide useful evidence of the blocking, classification, and local service necessary to serve the issue traffic.
11. HazMat Operating Procedures. CSXT produced information on operating practices for the transportation of hazardous materials on DVD-010 and DVD-098.

D. CSXT Remains Willing To Answer Further Questions If Necessary.

CSXT has undertaken a significant effort to eliminate any confusion and provide TPI with the most complete and accurate data possible. The parties have had a series of exchanges about CSXT’s traffic data, and CSXT provided extensive instructions, explanations, and decoders for that data.¹² This letter and the accompanying production provide further explanations of how TPI can “utilize” and “evaluate” CSXT’s traffic data.¹³ If TPI has any

¹¹ “All Track Agmt.xlsx” includes fields that allow TPI to identify relevant sidetrack agreements by customer name and location.

¹² See, e.g., CSXT discovery productions of September 23, 2010; October 22, 2010, and January 25, 2011, and CSXT letter responses dated November 4, 2010, December 10, 2010, December 23, 2010, and January 19, 2011.

¹³ TPI Request for Production 23.



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additional questions after reviewing this information, please advise us of these questions before TPI files its opening evidence in this case.

II. DESCRIPTION OF CSXT'S CAR EVENT AND TRAIN SHEET DATA.

CSXT's September 27, 2013 production on CSX-TPI-HC-EHD-004 contained Car Waybill data, Container Waybill data, and Car Shipment data for the entire Supplemental Discovery Period, along with decoders and instructions to help TPI analyze that data. CSXT's October 4, 2013 production on CSX-TPI-HC-EHD-005 contained Car Event data and updated decoders for the Supplemental Discovery Period. Today's production on CSX-TPI-HC-EHD-006 completes CSXT's traffic data production with the Train Sheet data for the Supplemental Discovery Period.

Like CSXT's previous supplemental traffic productions, the Train Sheet data for the Supplemental Discovery Period is being produced in the same format and with the same fields as the data produced for the Initial Discovery Period.

As a general rule, CSXT believes that the Car Event data are a more useful source of information for TPI's purposes, because they provide a more granular view of each individual car's movement. Car Event Data is particularly useful for understanding the service needs of carload traffic. But as discussed above in Section I.C., TPI cannot solely rely on either Car Event data or Train Sheet data; rather, TPI must consider all of the operating information sources CSXT produces as a whole if it is to understand CSXT's operations and the service needs of CSXT's traffic.

The event data that CSXT is producing today are the most complete and comprehensive car movement data in CSXT's possession. That said, a complete picture of CSXT's operations cannot be reconstructed from the event data alone, in part because the sheer size and complexity of CSXT's operations often results in less than uniform data capture. To design an operating plan that is specifically tailored to meet the service needs of the selected traffic, TPI must also use other sources to derive information that is not captured in the Car Event or Train Sheet data. A few examples of how TPI can do this are detailed below.

Timestamps. Car Event data contain timestamp information for car events when data is collected for that particular car. As a general rule, Car Event timestamp data is collected for "nodal events"—*i.e.*, individual events during transport such as classification, switches, origin and termination activity—but not for "link events"—*i.e.* when particular rail segments are traversed. Additional timestamps can be found in the Train Sheet data associated with train activities at locations.

Pickups and Setouts. Car Event data provide a granular account of each car's movement and allows one to infer where individual cars were picked up or set out. In addition, the Train



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Sheet Root records in table TM600 include information on each train's total loaded and empty shipments upon arrival and departure at select locations. Total pickups and setouts can be inferred from changes in these fields for stations that are reported in the TM600 records. Pickups and setouts at intermediate stations cannot be inferred using the Train Sheet data.

Local Operations. Car event data for local trains contain limited detail for activities at a given station and frequently do not detail customer-specific services or locations. In addition, Train Sheet data for local trains frequently do not contain all details on the train operations or routing. This data can be derived from other sources, however. Waybill and patron data includes information on shippers and receivers. Moreover, the train profile information provides further details on CSX trains—including customers served and schedule activities. TPI should also consult the local and yard operational data discussed above in Section I.C.3. as it designs local train operations for the SARR.

Customer Details. Information on particular customers served by CSXT is typically not available in the Car Event database or the Train Sheet database. However, customer information is available in the Waybill data and accompanying Patron file that CSXT has produced. In addition, the train profile information that CSXT expects to produce next week contains details on customer activities performed by trains.

Connecting carriers. The Car Event data do not include detail on the connecting carriers for shipments. However, this information is available in the Waybill data CSXT previously produced.

* * *

CSXT will be producing additional responsive documents on a rolling basis.

Sincerely,

A handwritten signature in black ink, appearing to read "G. Paul Moates". The signature is written in a cursive style with a long horizontal line extending to the right.

G. Paul Moates
Paul A. Hemmersbaugh
Matthew J. Warren

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- I. Compile Train Data from Car Waybill (“CW”) & Container Waybill (“UW”) & Car Event (“CE”) data for Selected TPIRR Traffic into “SARR_L_SH_TRN” table:
- A. Link selected TPIRR carloads and containers from the CW and UW data¹ to CE data
 - B. Sort CE data by [1] SHIPMENT_KEY² (Ascending), [2] YYYYMM (Ascending), [3] SEQUENCE_NBR (Ascending), [4] TIMESTAMPS (Ascending)
 - C. Using the sorted database, for each selected shipment (car), identify first and last Nodal record (TRANS_MP <> “UNKNOWN”) associated with each TRAIN_ID with a valid TRAIN_SUFFIX³ on which the SHIPMENT_KEY moves⁴ (Note, first Nodal record sometimes equals last Nodal record for a given SHIPMENT_KEY&TRAIN_ID combination)⁵
 - 1) For the first Nodal record for each individual SHIPMENT_KEY&TRAIN_ID, capture: [1] TRAIN_ID, [2] TRAIN_SUFFIX, [3] TRANS_MP, [4] TIMESTAMPS, [5] SW_CLASS_ON, [6] RECIP_SWITCH_FLAG, [7] INTER_SWITCH_FLAG, [8] SW_IX_IN, [9] SW_IND_OUT, [10] ORIGINATIONS
 - a) Flag each first Nodal location as On- or Off-SARR, insert new field containing ON/OFF toggle.
 - b) For the first Nodal event for the first valid TRAIN_ID reported in the CE Data for each SHIPMENT_KEY:
 - i. FOR CARLOAD SHIPMENTS: From the relevant CW data, pull in fields [1] ON_NET_ORIG_MP, [2] ON_JCT_ROAD_CITY, [3] ORIGIN_IIDS – These fields will be blank for all trains except the first train for a SHIPMENT_KEY.
 - ii. Flag the CW ON_NET_ORIG_MP as On- or Off-SARR, insert new field containing ON/OFF toggle.⁶

¹ Waybill records where INSCOPE=1 .and. ONSARR>0.

² Note: a single car event shipment key is associated with a flatcar movement, and this will often be associated with multiple containers. Flat Cars are only be counted once regardless of the number of containers moving on them for purposes of developing the TPIRR train list. Each Record contains a flag to identify it as having moved containers (i.e., flatcars) or not.

³ Exclude Car Event Records Where TRAIN_SUFFIX=“UNKNOWN”.

⁴ Records with TRAIN_ID=“UNKNOWN” are excluded from this portion of the analysis.

⁵ For ShipmentKey&TrainID combinations with reliable flagging in the classification, switching, industry spot/pull, and origination/termination fields, only those flagged records were included in this data capture loop, but for ShipmentKey&TrainID combinations with unreliable flagging in the relevant fields for the records car event considered for this portion of the analysis (i.e., records with valid TRAIN_ID and TRAIN_SUFFIX data), all records were included in the data capture loops. This ensured the reliance on appropriate flags when they were present and the use of next-best data where they were not.

⁶ Blank for container traffic, as MP data are not provided in the container waybill data.

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- iii. FOR CONTAINER SHIPMENTS: populate field ON_NET_ORIG_MP with “FirstT”
- 2) For last Nodal record for each individual SHIPMENT_KEY&TRAIN_ID, capture: [1] TRAIN_ID, [2] TRAIN_SUFFIX, [3] TRANS_MP, [4] TIMESTAMPS, [5] SW_CLASS_OFF, [6] RECIP_SWITCH_FLAG, [7] INTER_SWITCH_FLAG, [8] SW_IX_OUT, [9] SW_IND_IN, [10] TERMINATIONS
- a) Flag each Nodal location as ON or OFF SARR, insert new field containing ON/OFF toggle.
 - b) For the last Nodal event for the last TRAIN_ID reported in the CE Data for each SHIPMENT_KEY:
 - i. FOR CARLOAD SHIPMENTS: From the relevant CW data, pull in fields [1] ON_NET_DEST_MP, [2] OFF_JCT_ROAD_CITY, [3] DESTINATION_IIDS – These fields will be blank for all trains except the last train for a SHIPMENT_KEY.
 - ii. Flag the CW ON_NET_DEST_MP as On- or Off-SARR, insert new field containing ON/OFF toggle.⁷
 - iii. FOR CONTAINER SHIPMENTS: populate field ON_NET_DEST_MP with “LastT”
- 3) For All CE records with the relevant SHIPMENT_KEY&TRAIN_ID (links and nodes), Sum [1] CAR_HOURS, [2] CAR_MILES, [3] TON_MILES_LADING, [4] TON_MILES_TARE
- 4) Output from Step I.C. should be as follows: one record for each valid TRAIN_ID⁸ on which a SHIPMENT_KEY moved (e.g., if a SHIPMENT_KEY moved on three trains, there will be three output table records for that SHIPMENT_KEY). Each output record will contain the SHIPMENT_KEY, First and Last Nodal record data capture (including handling and OnSARR flags) for a given TRAIN_ID, and summed Hours and Miles data for that SHIPMENT_KEY&TRAIN_ID combination.
- a) Output Table Name = “SARR_L_SH_TRN”
- D. Using the SARR_L_SH_TRN database, identify unique combinations of TRAIN_ID&TRAIN_SUFFIX for the First Nodal Events⁹

⁷ Blank for container traffic, as MP data are not provided in the container waybill data.

⁸ I.e., not “UNKNOWN”.

⁹ Note: TRAIN_SUFFIX sometimes changes for a given train (particularly line-haul merchandise trains, including intermodal, auto, and intercity manifest trains) along a route to reflect the movement date, not the date the train originates (e.g., A car may be reported in the CE data as first moving on TRAIN_ID Q539 with

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- 1) Output table = “SARR_L_SH_TRN_FN_SFX”
- E. Using the entire CE database:
- 1) Identify Empty carload and flatcar movements in the CE data as follows
 - a) Filter CE data to include empty moves only¹⁰
 - b) Sort CE data by [1] SHIPMENT_KEY (Ascending), [2] YYYYMM (Ascending), [3] SEQUENCE_NBR (Ascending), [4] TIMESTAMPS (Ascending)
 - c) Using the sorted database, for each selected shipment (car), identify first and last Nodal record (TRANS_MP <> “UNKNOWN”) associated with each TRAIN_ID¹¹ with a valid TRAIN_SUFFIX¹² on which the SHIPMENT_KEY moves (Note, first Nodal record sometimes equals last Nodal record for a given SHIPMENT_KEY&TRAIN_ID combo)¹³
 - d) Identify First Nodal events for each SHIPMENT_KEY&TRAIN_ID
 - i. Capture: [1] TRAIN_ID, [2] TRAIN_SUFFIX, [3] TRANS_MP, [4] TIMESTAMPS, [5] SW_CLASS_ON, [6] RECIP_SWITCH_FLAG, [7] INTER_SWITCH_FLAG, [8] SW_IX_IN, [9] SW_IND_OUT, [10] ORIGINATIONS
 - ii. Flag each Nodal location as ON or OFF SARR, insert new field containing ON/OFF toggle.
 - iii. If the identified first Nodal event is for the first TRAIN_ID reported in the CE Data for the SHIPMENT_KEY:
 - a. FOR CARLOAD SHIPMENTS: From the relevant CW data, pull in fields [1] ON_NET_ORIG_MP, [2] ON_JCT_ROAD_CITY, [3] ORIGIN_IDS – These fields will be blank if the TRAIN_ID is not the first TRAIN_ID for the empty SHIPMENT_KEY
 - b. Flag the CW ON_NET_ORIG_MP as On- or Off-SARR, insert new field containing ON/OFF toggle¹⁴

TRAIN_SUFFIX 20130115 and later moving on TRAIN_ID Q539 with TRAIN_SUFFIX 20130116, but the actual train on which it moved will not have changed.)

¹⁰ Car event data associated with Waybill records where INSCOPE=0.

¹¹ NOTE: Records with TRAIN_ID=“UNKNOWN” are excluded from this analysis.

¹² Exclude Car Event Records Where TRAIN_SUFFIX=“UNKNOWN”.

¹³ For ShipmentKey&TrainID combinations with reliable flagging in the classification, switching, industry spot/pull, and origination/termination fields, only those flagged records were included in this data capture loop, but for ShipmentKey&TrainID combinations with unreliable flagging in the relevant fields for the records car event considered for this portion of the analysis (i.e., records with valid TRAIN_ID and TRAIN_SUFFIX data), all records were included in the data capture loops. This ensured the reliance on appropriate flags when they were present and the use of next-best data where they were not.

¹⁴ Blank for container traffic, as MP data are not provided in the container waybill data,

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- c. FOR CONTAINER SHIPMENTS: populate field ON_NET_ORIG_MP with “FirstT”
- e) Identify Last Nodal events for each SHIPMENT_KEY&TRAIN_ID
 - i. Capture: [1] TRAIN_ID, [2] TRAIN_SUFFIX, [3] TRANS_MP, [4] TIMESTAMPS, [5] SW_CLASS_OFF, [6] RECIP_SWITCH_FLAG, [7] INTER_SWITCH_FLAG, [8] SW_IX_OUT, [9] SW_IND_IN, [10] TERMINATIONS
 - ii. Flag each Nodal location as ON or OFF SARR, insert new field containing ON/OFF toggle
 - iii. If the identified last Nodal event is for the last TRAIN_ID reported in the **CE** Data for the SHIPMENT_KEY:
 - a. FOR CARLOAD SHIPMENTS: From the relevant **CW** data, pull in fields [1] ON_NET_DEST_MP, [2] OFF_JCT_ROAD_CITY, [3] DESTINATION_IIDS – These fields will be blank if the TRAIN_ID is not the last TRAIN_ID for the empty SHIPMENT_KEY
 - b. Flag the CW ON_NET_DEST_MP as On- or Off-SARR, insert new field containing ON/OFF toggle¹⁵
 - c. FOR CONTAINER SHIPMENTS: populate field ON_NET_DEST_MP with “LastT”
- f) For All **CE** records with the relevant SHIPMENT_KEY&TRAIN_ID (links and nodes), Sum [1] CAR_HOURS, [2] CAR_MILES, [3] TON_MILES_LOADING, [4] TON_MILES_TARE
- g) Filter the results to include only output records where either:
 - i. The TRAIN_ID&TRAIN_SUFFIX for the first Node is present in Output table **SARR_L_SH_TRN_FN_SFX** .or.
 - ii. The TRAIN_ID begins with “E” .or.
 - iii. The TRAIN_ID is between G700 and G999 (INCLUSIVE)
- h) Output from Step I.D. should be as follows: one record for each SHIPMENT_KEY&TRAIN_ID for empties moving on: (1) trains included in table **SARR_L_SH_TRN_FN_SFX** (based on TRAIN_ID&TRAIN_SUFFIX for first Nodal event) (e.g., if an empty SHIPMENT_KEY moved on a train carrying loaded selected traffic, there will be an output table record for that SHIPMENT_KEY&TRAIN_ID); and (2) trains defined as empty unit trains in the supporting documentation provided by CSXT. Each output record will contain the SHIPMENT_KEY, First and Last Nodal record data capture and

¹⁵ Blank for container traffic, as MP data are not provided in the container waybill data.

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flags for a given TRAIN_ID, and summed Hours and Miles data for the SHIPMENT_KEY&TRAIN_ID.

i. Output Table Name = “SARR_E_SH_TRN”

F. Combine the I.C. and I.E. Output Tables into one master Train Table

1) Table Name = “SARR_ALL_SH_TRN”

2) NOTE: Each Record contains a flag (L/E) to identify it as having been generated as part of the SARR_L_SH_TRN or SARR_E_SH_TRN process

G. Supplement First Node CE data with Alternate data for Records where complete CE data records do not accurately report origin station operations (i.e., train and/or locations)

1) Add three (3) new fields to SARR_ALL_SH_TRN:

a) ADJ_FIRST_NODE_MP

b) ADJ_FIRST_NODE_ONSARRFLAG

c) ADJ_FIRST_NODE_TS

2) Identify GROUP A¹⁶ carload records where:

a) First node ON_NET_ORIG_MP is populated .and.

b) First Node TRANS_MP <> First Node ON_NET_ORIG_MP .and.

c) First Node RECIP_SWITCH_FLAG = 0 .and.

d) First Node SW_IX_IN¹⁷ = 0 .and.

e) First Node SW_IND_OUT¹⁸ = 0 .and.

f) First Node ORIGINATION = 0 .and.

g) First Node SW_CLASS_ON = 0

3) For identified GROUP A carload records:

a) Replace ADJ_FIRST_NODE_MP with First Node ON_NET_ORIG_MP

¹⁶ For a given car movement, when the location (CSXT transportation milepost) of the first chronological node included the car event data for which valid train symbol data were provided did not match the CSXT origin location (CSXT transportation milepost) indicated in the waybill data for that movement, the waybill location data were used in lieu of the car event data. This replacement was required because in some cases the CSXT car event data did not include valid train symbol data for the first few event records. It is also consistent with CSXT’s statements that, “Car event data for local trains contain limited detail for activities at a given station and frequently do not detail customer-specific services or locations....” And “Waybill and patron data includes information on shippers and receivers.”

¹⁷ Interchange Received.

¹⁸ Industry Pull.

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- b) Replace ADJ_FIRST_NODE_ONSARRFLAG with First Node ORIG On-SARR flag
 - c) Replace ADJ_FIRST_NODE_TS with minimum (first chronological) CE TIMESTAMP that is greater than 1/1/2000 in CE data [NOTE: Include CE data records where TRAIN_ID="UNKNOWN"]
- 4) Identify GROUP B¹⁹ carload records where:
- a) First node ON_NET_ORIG_MP is NULL .and.
 - b) First Node TRANS_MP = Last Node TRANS_MP .and.
 - c) First Node RECIP_SWITCH_FLAG = 0 .and.
 - d) First Node SW_IX_IN²⁰ = 0 .and.
 - e) First Node SW_IND_OUT²¹ = 0 .and.
 - f) First Node ORIGINATION = 0 .and.
 - g) First Node SW_CLASS_ON = 0
- 5) For identified GROUP B carload records:
- a) Replace ADJ_FIRST_NODE_TS with minimum (first chronological) CE TIMESTAMP that is greater than 1/1/2000 in CE data [NOTE: Include CE data records where TRAIN_ID="UNKNOWN"]
 - b) Replace ADJ_FIRST_NODE_MP with TRANS_MP included in the record identified in the previous step. [Note: In many cases, the TRAIN_ID and/or TRAIN_SUFFIX fields associated with the first reported TRANS_MP will be "UNKNOWN"]
 - c) Determine whether this node is ONSARR and Populate ADJ_FIRST_NODE_ONSARRFLAG accordingly
- 6) For all other carload records not in GROUP A or GROUP B:
- a) Replace ADJ_FIRST_NODE_MP with First Node TRANS_MP
 - b) Replace ADJ_FIRST_NODE_ONSARRFLAG with First Node CE ONSARR Flag
 - c) Replace ADJ_FIRST_NODE_TS with First node TIMESTAMPS

¹⁹ For some car movements, car event data records do not include valid train symbol and handling flag data for all nodes (CSXT transportation milepost) where the car was handled. Therefore, TPI had to associate the car event data for the nodal events without valid train symbol and/or handling flags with a given train based on the subsequent or prior records for that car movement. A replacement was often required in cases the CSXT car event data did not include valid train symbol data for the first few car event records.

²⁰ Interchange Received.

²¹ Industry Pull.

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- 7) Identify flatcar records where:
 - a) First Node SW_IX_IN²² = 0 .and.
 - b) First Node SW_IND_OUT²³ = 0 .and.
 - c) First Node ORIGINATION = 0.and.
 - d) First Node SW_CLASS_ON = 0 .and.
 - e) First Node RECIP_SWITCH_FLAG = 0 .and.
 - f) First node ON_NET_ORIG_MP = “FirstT”
- 8) For identified flatcar records:
 - a) Replace ADJ_FIRST_NODE_TS with minimum (first chronological) CE TIMESTAMP that is greater than 1/1/2000 in CE data [NOTE: Include CE data records where TRAIN_ID=”UNKNOWN”]
 - b) Replace ADJ_FIRST_NODE_MP with TRANS_MP included in the record identified in the previous step. [Note: In many cases, the TRAIN_ID and/or TRAIN_SUFFIX fields associated with the first reported TRANS_MP will be “UNKNOWN”]
 - c) Determine whether this node is ONSARR and Populate ADJ_FIRST_NODE_ONSARRFLAG accordingly
- 9) For all other flatcar records:
 - a) Replace ADJ_FIRST_NODE_MP with First Node TRANS_MP
 - b) Replace ADJ_FIRST_NODE_ONSARRFLAG with First Node CE ONSARR Flag
 - c) Replace ADJ_FIRST_NODE_TS with First node TIMESTAMPS
- 10) Revise First Node CE data for Local Trains based on Validated Alternate Origin Data Table [LocalOsideValidatedReplacements]:
 - a) For records where First Character of TRAIN_ID = “A” .or. “B” .or. “C” .or. “D” .or. “F” .or. “H” .or. “J” .or. “M” .or. “O”
 - b) Link to [LocalOsideValidatedReplacements] on fields [FirstNodeTransportationMP], [AdjustedFirstNodeMP]
 - i. If link is made, skip record
 - ii. ELSE:
 - a. Replace AdjustedFirstNodeMP with FirstNodeTransportationMP

²² Interchange Received.

²³ Industry Pull.

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- b. Replace AdjustedFirstNodeTimestamp with FirstNodeTimestamps
 - c. Replace AdjustedFirstNodeOnSarr with FirstNodeCeOnSarr
- H. Supplement Last Node CE data with Alternate data for Records where CE data do not accurately report destination station operations (i.e., trains and/or locations)
- 1) Add three (3) new fields to SARR_ALL_SH_TRN:
 - a) ADJ_LAST_NODE_MP
 - b) ADJ_LAST_NODE_ONSARRFLAG
 - c) ADJ_LAST_NODE_TS
 - 2) Identify carload records where:
 - a) Last node ON_NET_DEST_MP is populated .and.
 - b) Last Node TRANS_MP <> Last Node ON_NET_DEST_MP .and.
 - c) Last node RECIP_SWITCH_FLAG = 0 .and.
 - d) Last node SW_IX_OUT²⁴ = 0 .and.
 - e) Last node SW_IND_IN²⁵ = 0 .and.
 - f) Last node TERMINATIONS = 0 .and.
 - g) Last node SW_CLASS_OFF = 0 .and.
 - h) First Character of TRAIN_ID <> “L” .and.
 - i) First Character of TRAIN_ID <> “Q” .and.
 - j) First Character of TRAIN_ID <> “R” .and.
 - k) First Character of TRAIN_ID <> “S” .and.
 - l) First Character of TRAIN_ID <> “X”
 - 3) For identified carload records:
 - a) Replace ADJ_LAST_NODE_MP with Last Node ON_NET_DEST_MP
 - b) Replace ADJ_LAST_NODE_ONSARRFLAG with Last Node DEST On-SARR flag
 - c) Replace ADJ_LAST_NODE_TS with maximum (last chronological) CE TIMESTAMP in CE data [NOTE: Include CE data records where TRAIN_ID=“UNKNOWN”]
 - 4) For all other carload records:
 - a) Replace ADJ_LAST_NODE_MP with Last Node TRANS_MP

²⁴ Interchange Forwarded.

²⁵ Industry Place.

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- b) Replace ADJ_LAST_NODE_ONSARRFLAG with Last Node CE ONSARR Flag
- c) Replace ADJ_LAST_NODE_TS with Last node TIMESTAMPS
- 5) Identify flatcar records where:
 - a) Last node SW_IX_OUT²⁶ = 0 .and.
 - b) Last node SW_IND_IN²⁷ = 0 .and.
 - c) Last node TERMINATIONS = 0.and.
 - d) Last node SW_CLASS_OFF = 0 .and.
 - e) Last node RECIP_SWITCH_FLAG = 0 .and.
 - f) Last node ON_NET_DEST_MP = “LastT”
 - g) First Character of TRAIN_ID <> “L” .and.
 - h) First Character of TRAIN_ID <> “Q” .and.
 - i) First Character of TRAIN_ID <> “R” .and.
 - j) First Character of TRAIN_ID <> “S” .and.
 - k) First Character of TRAIN_ID <> “X”
- 6) For identified flatcar records:
 - a) Replace ADJ_LAST_NODE_TS with maximum (last chronological) CE TIMESTAMP in CE data [NOTE: Include CE data records where TRAIN_ID=”UNKNOWN”]
 - b) Replace ADJ_LAST_NODE_MP with TRANS_MP included in the record identified in the previous step. [Note: In some cases, the TRAIN_ID and/or TRAIN_SUFFIX fields associated with the last reported TRANS_MP will be “UNKNOWN”]
 - c) Determine whether this node is ONSARR and Populate ADJ_LAST_NODE_ONSARRFLAG accordingly
- 7) For all other flatcar records:
 - a) Replace ADJ_LAST_NODE_MP with Last Node TRANS_MP
 - b) Replace ADJ_LAST_NODE_ONSARRFLAG with Last Node CE ONSARR Flag
 - c) Replace ADJ_LAST_NODE_TS with Last node TIMESTAMPS

²⁶ Interchange Forwarded.

²⁷ Industry Place.

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- 8) Revise Last Node CE data for Local Trains based on Validated Alternate Origin Data Table [LocalDsideValidatedReplacements]:
 - a) For records where First Character of TRAIN_ID = “A” .or. “B” .or. “C” .or. “D” .or. “F” .or. “H” .or. “J” .or. “M” .or. “O”
 - b) Link to [LocalDsideValidatedReplacements] on fields [LastNodeTransportationMP], [AdjustedLastNodeMP]
 - i. If link is made, skip record
 - ii. ELSE:
 - a. Replace AdjustedLastNodeMP with LastNodeTransportationMP
 - b. Replace AdjustedLastNodeTimestamp with LastNodeTimestamps
 - c. Replace AdjustedLastNodeOnSarr with LastNodeCeOnSarr
- I. Summarize data included in file **SARR_ALL_SH_TRN** into output records containing fields into new table “**SARR_ALL_CONSIST**” as follows:
 - 1) TRAIN_ID
 - 2) First Node TRAIN_SUFFIX
 - 3) Adj Nodal TIMESTAMP²⁸
 - 4) Adj Nodal TRANS_MP
 - 5) Adj On-SARR Flag for this TRANS_MP
 - 6) LOADED_FIRST = Count of L First Nodal SHIPMENT_KEYS at this TIME&MP
 - 7) EMPTY_FIRST = Count of E First Nodal SHIPMENT_KEYS at this TIME&MP
 - 8) LOADED_LAST = Count of L Last Nodal SHIPMENT_KEYS at this TIME&MP
 - 9) EMPTY_LAST = Count of E Last Nodal SHIPMENT_KEYS at this TIME&MP
- II. Using table **SARR_ALL_CONSIST** (Developed in Section I.D. above):
 - A. Query for unique: TRAIN_ID & First Node TRAIN_SUFFIX
 - 1) Where: TRAIN_SUFFIX>20120630
 - 2) Output table = “**SARR_ALL_ON_TRN_SFX**”
 - B. Link **SARR_ALL_ON_TRN_SFX** trains to Train Sheets (“**TS**”) data based on:

²⁸ Include one record for every unique TimeStamps&TransMP combination IN THE “ADJ” FIELDS CREATED IN STEPS I.G. and I.H. for a given TrainID&FirstNodeTrainSuffix combination and order ascending by ADJ TimeStamp. Note that the TimeStamp&TrainsMP combinations will come from BOTH ADJ FirstNode and ADJ LastNode events in the SARR_ALL_SH_TRN input file.

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- 1) TS: CsxTrainID & TpiTrainYY & TpiTrainMM & TrainSheetDay (NOTE: Must account for date formatting differences between tables)
 - 2) Determine and report link rate (break out by TRAIN_ID first character).
- C. Query **SARR_ALL_CONSIST** to Identify for unique: TRAIN_ID (for UNIT trains only)
- 1) Location (MP) with the greatest LoadedFirst car count (i.e., where most loaded cars originate on the CSXT system)
 - 2) Where: TRAIN_SUFFIX>20120630
 - 3) Output table = “**UTRN_SYMBOL_LOAD_LOCI**”
- D. Query **SARR_ALL_CONSIST** to Identify for unique: TRAIN_ID (for UNIT trains only)
- 1) Location (MP) with the greatest LoadedLast car count (i.e., where most loaded cars terminate on the CSXT system)
 - 2) Where: TRAIN_SUFFIX>20120630
 - 3) Output table = “**UTRN_SYMBOL_UNLOAD_LOCI**”
- E. Query **SARR_ALL_CONSIST** to Identify for unique: TRAIN_ID & First Node TRAIN_SUFFIX (for UNIT trains only)
- 1) Location (MP) with the greatest LoadedFirst car count (i.e., where most loaded cars originate on the CSXT system)
 - 2) Where: TRAIN_SUFFIX>20120630
 - 3) Output table = “**UTRN_TRAIN_LOAD_LOCI**”
- F. Query **SARR_ALL_CONSIST** to Identify for unique: TRAIN_ID & First Node TRAIN_SUFFIX (for UNIT trains only)
- 1) Location (MP) with the greatest LoadedLast car count (i.e., where most loaded cars terminate on the CSXT system)
 - 2) Where: TRAIN_SUFFIX>20120630
 - 3) Output table = “**UTRN_TRAIN_UNLOAD_LOCI**”
- III. Train Sheet Data Analysis:²⁹
- A. For all **SARR_ALL_ON_TRN_SFX** trains for which **TS** data are available (a positive link was made in Section II. above):
- 1) Evaluate TS600 Data Records for unit trains:³⁰

²⁹ See level “COMBOfile” of workpaper “Train Classification Analysis V07 11252013 WITH SUMMARY PROTOCOL FOR Q-L-R-S-X TRAINS.xlsx”. This Analytical Framework was first developed based on analysis of manifest train data but is applied to all trains.

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- a) Add New data field to TS600 called “SheetType”
- b) Populate SheetType with “L” [Load] where:
 - i. DeptLoads \geq (DeptLoads+DeptEmpties)*0.75 .and. DeptEmpties \leq (DeptLoads+DeptEmpties)*0.25 .and. ArrvlLoads \geq (ArrvlLoads+ArrvlEmpties)*0.75 .and. ArrvlEmpties \leq (ArrvlLoads+ArrvlEmpties)*0.25 .and. DeptLoads \geq 10 .and. DeptLoads \leq 160 .and. ArrvlLoads \geq 10 .and. ArrvlLoads \leq 160
- c) Populate SheetType with “E” [Empty] where:
 - i. DeptLoads \leq (DeptLoads+DeptEmpties)*0.25 .and. DeptEmpties \geq (DeptLoads+DeptEmpties)*0.75 .and. ArrvlLoads \leq (ArrvlLoads+ArrvlEmpties)*0.75 .and. ArrvlEmpties \geq (ArrvlLoads+ArrvlEmpties)*0.25 .and. DeptEmpties \geq 10 .and. DeptEmpties \leq 160 .and. ArrvlEmpties \geq 10 .and. ArrvlEmpties \leq 160
- d) Populate SheetType with “OT” [Origin Turn] where:
 - i. DeptLoads \leq (DeptLoads+DeptEmpties)*0.25 .and. DeptEmpties \geq (DeptLoads+DeptEmpties)*0.75 .and. ArrvlLoads \geq (ArrvlLoads+ArrvlEmpties)*0.75 .and. ArrvlEmpties \leq (ArrvlLoads+ArrvlEmpties)*0.25 .and. DeptEmpties \geq 10 .and. DeptEmpties \leq 160 .and. ArrvlLoads \geq 10 .and. ArrvlLoads \leq 160
- e) Populate SheetType with “DT” [Dest Turn] where:
 - i. DeptLoads \geq (DeptLoads+DeptEmpties)*0.75 .and. DeptEmpties \leq (DeptLoads+DeptEmpties)*0.25 .and. ArrvlLoads \leq (ArrvlLoads+ArrvlEmpties)*0.25 .and. ArrvlEmpties \geq (ArrvlLoads+ArrvlEmpties)*0.75 .and. DeptLoads \geq 10 .and. DeptLoads \leq 160 .and. ArrvlEmpties \geq 10 .and. ArrvlEmpties \leq 160
- f) Populate SheetType with “X” [Light] where:
 - i. DeptLoads+DeptEmpties $<$ 10 .and. ArrvlLoads+ArrvlEmpties $<$ 10
- g) Populate SheetType with “F” [Heavy] where:
 - i. DeptLoads+DeptEmpties $>$ 160 .and. ArrvlLoads+ArrvlEmpties $>$ 160
- h) Else, Populate SheetType with “U” [Undetermined]
- i) Query TS600 data as follows:
 - i. List of Unique Trains: defined as TrainID&TrainSuffix [TpiTrainYY&TpiTrainMM&TrainSheetDay] where TS600 Record SheetType = “OT”

³⁰ Trains with first Character = E, G, K, N, T, U, V, or W.

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- a. Output Table = “**UnitTrainOT**”
 - ii. List of Unique Trains: defined as TrainID&TrainSuffix [TpiTrainYY&TpiTrainMM&TrainSheetDay] where TS600 Record SheetType = “DT”
 - a. Output Table = “**UnitTrainDT**”
- 2) Develop Summary Train Data from **TS (600-605)**
- a) First TS 600 Record:³¹ [1] TrainSheetID, [2] CsxTrainID, [3] TpiTrainYY, [4] TpiTrainMM, [5] TrainSheetDay, [6] AdjDeptTime, [7] CsxCalledDateTime, [8] CsxOriginAlpha, [9] OriginMilePost, [10] DeptLoads, [11] DeptEmpties [12] DeptTons, [13] DeptLength [Note: DeptLoads and DeptEmpties are populated for X000 records and NULL for X999 records]
 - b) First Block of Sequential TS 605 Records:³² [1] TrainSheetID, [2] OnStationTime, [3] StationName, [4] StationMilePost, [5] SequenceNumber, [6] Mileage, [7] Direction
 - i. Note, include the first TS 605 record only where the StationName and StationMilePost differ from the corresponding TS600 CsxOriginAlpha and OriginMilepost
 - ii. Note 2: include TS605 records only where the StationName and StationMilePost differ from the prior TS605 record.
 - c) Subsequent TS 600 Record:³³ [1] TrainSheetID, [2] CsxTrainID, [3] TpiTrainYY, [4] TpiTrainMM, [5] TrainSheetDay, [6] AdjDeptTime, [7] CsxCalledDateTime, [8] CsxOriginAlpha, [9] OriginMilePost, [10] DeptLoads, [11] DeptEmpties [12] DeptTons, [13] DeptLength [Note: DeptLoads and DeptEmpties are populated for X000 records and NULL for X999 records]
 - d) Subsequent Blocks of Sequential TS 605 Records:³⁴ [1] TrainSheetID, [2] OnStationTime, [3] StationName, [4] StationMilePost, [5] SequenceNumber, [6] Mileage, [7] Direction
 - i. Note, include the first TS 605 record only where the StationName and StationMilePost differ from the corresponding TS600 CsxOriginAlpha and OriginMilepost

³¹ NOTE: TS600 Sort order is: [1] TpiTrainYY (Asc), [2] TpiTrainMM (Asc), [3] TrainSheetDay (Asc), [4] AdjDeptTime (Asc), [5] CsxCalledDateTime (Asc).

³² NOTE: TS605 Sort order is based on field OnStationTime (Asc) for a given TrainSheetID.

³³ NOTE: TS600 Sort order is: [1] TpiTrainYY (Asc), [2] TpiTrainMM (Asc), [3] TrainSheetDay (Asc), [4] AdjDeptTime (Asc), [5] CsxCalledDateTime (Asc).

³⁴ NOTE: TS605 Sort order is based on field OnStationTime (Asc) for a given TrainSheetID.

July 2012-June 2013 TPIRR Train List Development

- ii. Note 2: include TS605 records only where the StationName and StationMilePost differ from the prior TS605 record.
 - e) Final TS 600 Record:³⁵ [1] TrainSheetID, [2] CsxTrainID, [3] TpiTrainYY, [4] TpiTrainMM, [5] TrainSheetDay, [6] AdjDeptTime, [7] CsxCalledDateTime, [8] DestAlpha, [9] DestMilePost, [10] ArrvlLoads, [11] ArrvlEmpties [Note: ArrvlLoads and ArrvlEmpties are populated for X999 records and NULL for X000 records]
 - i. Note, include the final TS 600 record destination data as a record only where the DestAlpha and DestMilepost differ from the last StationName and StationMilePost from the corresponding TS 605 block
- 3) Output Table = **TRAINS_ALL_EVENTS**
- B. Using table **TRAINS_ALL_EVENTS**:
- 1) Add five new fields:
 - a) ENGR_MP
 - b) CITY
 - c) STATE
 - d) SPLC
 - e) SARRFLAG
 - 2) Link to expanded **NETWORK_LINKS** table based on TRANS_MP and populate the five new fields listed above.
 - 3) Add four new fields:
 - a) Sum Of CE LastNodeLoads
 - b) Sum Of CE LastNodeEmpties
 - c) Sum Of CE FirstNodeLoads
 - d) Sum Of CE FirstNodeEmpties
 - 4) Link to **SARR_ALL_CONSIST** (Developed in Section I above) based on TRAIN_ID&TRAIN_SUFFIX&TRANS_MP and populate the four new fields listed above. (NOTE: these are summed values, not lookup values).
 - 5) Add four new fields:
 - a) DepConsistL
 - b) DepConsistE

³⁵ NOTE: TS600 Sort order is: [1] TpiTrainYY (Asc), [2] TpiTrainMM (Asc), [3] TrainSheetDay (Asc), [4] AdjDeptTime (Asc), [5] CsxCalledDateTime (Asc).

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- c) DeptTonsAll
- d) DeptLengthAll
- 6) Populate as Follows:
 - a) For each TrainSheetID: First Record DepConsistL: Max of **TS600** DeptLoads or **SARR_ALL_CONSIST** Sum Of CE FirstNodeLoads
 - b) For each TrainSheetID: First Record DepConsistE: Max of **TS600** DeptEmpties or **SARR_ALL_CONSIST** Sum Of CE FirstNodeEmpties
 - c) For each TrainSheetID: First Record DeptTonsAll: **TS600** DeptTons
 - d) For each TrainSheetID: First Record DeptLengthAll: **TS600** DeptTons
 - e) Subsequent TS 605 Records DepConsistL:
 - i. Calculate Prior record DepConsistL minus Sum Of CE_LastNodeLoads plus Sum Of CE_FirstNodeLoads
 - ii. Max of above calculation or zero.
 - f) Subsequent TS 605 Records DepConsistE:
 - i. Calculate Prior record DepConsistE minus Sum Of CE LastNodeEmpties plus Sum Of CE First NodeEmpties
 - ii. Max of above calculation or zero
 - g) Subsequent TS 605 Records DeptTonsAll: Linked **TS600** DeptTons
 - h) Subsequent TS 605 Records DeptLengthAll: Linked **TS600** DeptLength
- C. Summarize expanded table **TRAINS_ALL_EVENTS** as follows:
 - 1) For each train, show:
 - a) TrainSheetID
 - b) CsxTrainID
 - c) TpiTrainYY
 - d) TpiTrainMM
 - e) TrainSheetDay
 - f) TpiSequenceNumber
 - g) OriginStationName
 - h) OriginStationTransMP
 - i) OriginStationEngrMP
 - j) OriginStationCity

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- k) OriginStationState
- l) OriginStationSPLC
- m) DestStationName
- n) DestStationTransMP
- o) DestStationEngrMP
- p) DestStationCity
- q) DestStationState
- r) DestStationSPLC
- s) OnSARRStationName
- t) OnSARRTransMP³⁶
- u) OnSARREngrMP
- v) OnSARRCity
- w) OnSARRState
- x) OnSARRSPLC
- y) OnSARRTime
 - i. (Use AdjDeptTime if First OnSARR is TS600 or OnStationTime if First OnSARR is TS605)
- z) OffSARRStationName
- aa) OffSARRTransMP³⁷
- bb) OffSARREngrMP
- cc) OffSARRCity
- dd) OffSARRState
- ee) OffSARRSPLC
- ff) SARRMiles³⁸
- gg) SARRAvgLoads³⁹
- hh) SARRAvgEmpties⁴⁰
- ii) SARRAvgTons⁴¹

³⁶ First Record where SARRFLAG = 1.

³⁷ Last Record where SARRFLAG = 1.

³⁸ Sum of Mileage values for records flagged as OnSARR.

³⁹ Average of DepConsistL values for records flagged as OnSARR.

⁴⁰ Average of DepConsistE values for records flagged as OnSARR.

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- jj) SARRAvgLength⁴²
- 2) Output Table = **SARR_BASE_TRAINS_TRI**⁴³
 - a) Apply filter to output so that this table only includes Trains with two or more consecutive OnSARR Locations in the **TS 600/605** data
- D. Separately Summarize expanded table **TRAINS_ALL_EVENTS** as follows:
 - 1) For each train, show:
 - a) CsxTrainID
 - b) TpiTrainYY
 - c) TpiTrainMM
 - d) TrainSheetDay
 - e) OriginStationName
 - f) OriginStationTransMP
 - g) OriginStationEngrMP
 - h) OriginStationCity
 - i) OriginStationState
 - j) OriginStationSPLC
 - k) DestStationName
 - l) DestStationTransMP
 - m) DestStationEngrMP
 - n) DestStationCity
 - o) DestStationState
 - p) DestStationSPLC
 - q) OnSARRStationName
 - r) OnSARRTransMP⁴⁴
 - s) OnSARREngrMP
 - t) OnSARRCity
 - u) OnSARRState

⁴¹ Average of DepTons values for records flagged as OnSARR.

⁴² Average of DepLength values for records flagged as OnSARR.

⁴³ Specific to train type (i.e., SarrBaseLhMerchTrainsTri, SarrBaseUnitTrainsTri).

⁴⁴ First Record where SARRFLAG = 1.

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- v) OnSARRSPLC
 - w) OnSARRTime
 - i. (Use AdjDeptTime if First OnSARR is TS600 or OnStationTime if First OnSARR is TS605)
 - x) OffSARRStationName
 - y) OffSARRTransMP⁴⁵
 - z) OffSARREngrMP
 - aa) OffSARRCity
 - bb) OffSARRState
 - cc) OffSARRSPLC
 - dd) SARRMiles⁴⁶
 - ee) SARRAvgLoads⁴⁷
 - ff) SARRAvgEmpties⁴⁸
 - gg) SARRAvgTons⁴⁹
 - hh) SARRAvgLength⁵⁰
- 2) Output Table = **SARR_BASE_TRAINS_TRI_SUM**⁵¹
- a) Apply filter to output so that this table only includes Trains with two or more consecutive OnSARR Locations in the **TS 600/605** data
 - b) For unit and line-haul merchandise trains, apply filter to output so that this table excludes Trains with less than 10 OnSARR miles⁵²
 - c) Apply filter to output so that this table excludes Trains with Train Symbols between W001 and W099 INCLUSIVE
 - d) For unit trains only, add new data fields to table and populate as follows:
 - i. TrainOrigMP: Populate based on link to table **UtrnTrainLoadLoc1**
 - ii. TrainOrigEngMP: Populate based on link to **iNetworkLocations**
 - iii. TrainOrigCity: Populate based on link to **iNetworkLocations**

⁴⁵ Last Record where SARRFLAG = 1.

⁴⁶ Sum of Mileage values for records flagged as OnSARR.

⁴⁷ Average of DepConsistL values for records flagged as OnSARR.

⁴⁸ Average of DepConsistE values for records flagged as OnSARR.

⁴⁹ Average of DepTons values for records flagged as OnSARR.

⁵⁰ Average of DepLength values for records flagged as OnSARR.

⁵¹ Specific to train type (i.e., SarrBaseLhMerchTrainsTriSum, SarrBaseUnitTrainsTriSum).

⁵² This filter is not applied to local trains.

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- iv. TrainOrigState: Populate based on link to **iNetworkLocations**
 - v. TrainOrigSPLC: Populate based on link to **iNetworkLocations**
 - vi. TrainOrigSarrFlag: Populate based on link to **iNetworkLocations**
 - vii. SymbolOrigMP: Populate based on link to table **UtrnSymbolLoadLoc1**
 - viii. SymbolOrigEngMP: Populate based on link to **iNetworkLocations**
 - ix. SymbolOrigCity: Populate based on link to **iNetworkLocations**
 - x. SymbolOrigState: Populate based on link to **iNetworkLocations**
 - xi. SymbolOrigSPLC: Populate based on link to **iNetworkLocations**
 - xii. SymbolOrigSarrFlag: Populate based on link to **iNetworkLocations**
 - xiii. TrainOriginTurn: Populate based on link to table **UnitTrainOT** (“Y” if linked, / “N” if no link)
 - xiv. TrainDestMP: Populate based on link to table **UtrnTrainUnloadLoc1**
 - xv. TrainDestEngMP: Populate based on link to **iNetworkLocations**
 - xvi. TrainDestCity: Populate based on link to **iNetworkLocations**
 - xvii. TrainDestState: Populate based on link to **iNetworkLocations**
 - xviii. TrainDestSPLC: Populate based on link to **iNetworkLocations**
 - xix. TrainDestSarrFlag: Populate based on link to **iNetworkLocations**
 - xx. SymbolDestMP: Populate based on link to table **UtrnSymbolUnloadLoc1**
 - xxi. SymbolDestEngMP: Populate based on link to **iNetworkLocations**
 - xxii. SymbolDestCity: Populate based on link to **iNetworkLocations**
 - xxiii. SymbolDestState: Populate based on link to **iNetworkLocations**
 - xxiv. SymbolDestSPLC: Populate based on link to **iNetworkLocations**
 - xxv. SymbolDestSarrFlag: Populate based on link to **iNetworkLocations**
 - xxvi. TrainDestTurn: Populate based on link to table **UnitTrainDT** (“Y” if linked, / “N” if no link)
- e) For unit trains, apply filter to output so that this table excludes Trains where OriginTransMP=DestTransMP and TrainOrigMP=TrainDestMP and SymbolOrigMP=SymbolDestMP
- E. Identify trains the traverse the SARR per the **TS** data but that were not included in the list of trains identified from the combined waybill and car events data for SARR traffic. (i.e., all **TS** trains with Train Dates (TpiTrainYY & TpiTrainMM & TrainSheetDay) after 20130630 that are not present in table **SARR_ALL_ON_TRN_SFX** (a positive link was not made in Section II. above)

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- 1) Develop Summary Train Data from **TS (600-605)**
 - a) First TS 600 Record:⁵³ [1] TrainSheetID, [2] CsxTrainID, [3] TpiTrainYY, [4] TpiTrainMM, [5] TrainSheetDay, [6] AdjDeptTime, [7] CsxCalledDateTime, [8] CsxOriginAlpha, [9] OriginMilePost, [10] DeptLoads, [11] DeptEmpties [12] DeptTons, [13] DeptLength [Note: DeptLoads and DeptEmpties are populated for X000 records and NULL for X999 records]
 - b) First Block of Sequential TS 605 Records:⁵⁴ [1] TrainSheetID, [2] OnStationTime, [3] StationName, [4] StationMilePost, [5] SequenceNumber, [6] Mileage, [7] Direction
 - i. Note, include the first TS 605 record only where the StationName and StationMilePost differ from the corresponding TS600 CsxOriginAlpha and OriginMilepost
 - ii. Note 2: include TS605 records only where the StationName and StationMilePost differ from the prior TS605 record.
 - c) Subsequent TS 600 Record:⁵⁵ [1] TrainSheetID, [2] CsxTrainID, [3] TpiTrainYY, [4] TpiTrainMM, [5] TrainSheetDay, [6] AdjDeptTime, [7] CsxCalledDateTime, [8] CsxOriginAlpha, [9] OriginMilePost, [10] DeptLoads, [11] DeptEmpties [12] DeptTons, [13] DeptLength [Note: DeptLoads and DeptEmpties are populated for X000 records and NULL for X999 records]
 - d) Subsequent Blocks of Sequential TS 605 Records:⁵⁶ [1] TrainSheetID, [2] OnStationTime, [3] StationName, [4] StationMilePost, [5] SequenceNumber, [6] Mileage, [7] Direction
 - i. Note, include the first TS 605 record only where the StationName and StationMilePost differ from the corresponding TS600 CsxOriginAlpha and OriginMilepost
 - ii. Note 2: include TS605 records only where the StationName and StationMilePost differ from the prior TS605 record.
 - e) Final TS 600 Record:⁵⁷ [1] TrainSheetID, [2] CsxTrainID, [3] TpiTrainYY, [4] TpiTrainMM, [5] TrainSheetDay, [6] AdjDeptTime, [7]

⁵³ NOTE: TS600 Sort order is: [1] TpiTrainYY (Asc), [2] TpiTrainMM (Asc), [3] TrainSheetDay (Asc), [4] AdjDeptTime (Asc), [5] CsxCalledDateTime (Asc).

⁵⁴ NOTE: TS605 Sort order is based on field OnStationTime (Asc) for a given TrainSheetID.

⁵⁵ NOTE: TS600 Sort order is: [1] TpiTrainYY (Asc), [2] TpiTrainMM (Asc), [3] TrainSheetDay (Asc), [4] AdjDeptTime (Asc), [5] CsxCalledDateTime (Asc).

⁵⁶ NOTE: TS605 Sort order is based on field OnStationTime (Asc) for a given TrainSheetID.

July 2012-June 2013 TPIRR Train List Development

CsxCalledDateTime, [8] DestAlpha, [9] DestMilePost, [10] ArrvlLoads, [11] ArrvlEmpties [Note: ArrvlLoads and ArrvlEmpties are populated for X999 records and NULL for X000 records]

- i. Note, include the final TS 600 record destination data as a record only where the DestAlpha and DestMilepost differ from the last StationName and StationMilePost from the corresponding TS 605 block

f) Output Table = **TSONLY_TRAINS_ALL_EVENTS**

F. Using table **TSONLY_TRAINS_ALL_EVENTS**:

- 1) Add five new fields:
 - a) ENGR_MP
 - b) CITY
 - c) STATE
 - d) SPLC
 - e) SARRFLAG
- 2) Link to expanded **NETWORK_LINKS** table based on TRANS_MP and populate the five new fields listed above.
- 3) Determine which of the evaluated trains have two or more consecutive OnSARR Locations in the **TS 600/605** data
- 4) Report the number of trains that pass this test.
- 5) Add four new fields
 - a) DepConsistL
 - b) DepConsistE
 - c) DeptTons
 - d) DeptLength
- 6) Populate as Follows:
 - a) For each TrainSheetID: First Record DepConsistL: **TS600** DeptLoads
 - b) For each TrainSheetID: First Record DepConsistE: **TS600** DeptEmpties
 - c) For each TrainSheetID: First Record DeptTonsAll: **TS600** DeptTons
 - d) For each TrainSheetID: First Record DeptLengthAll: **TS600** DeptTons
 - e) Subsequent TS 605 Records DepConsistL:

⁵⁷ NOTE: TS600 Sort order is: [1] TpiTrainYY (Asc), [2] TpiTrainMM (Asc), [3] TrainSheetDay (Asc), [4] AdjDeptTime (Asc), [5] CsxCalledDateTime (Asc).

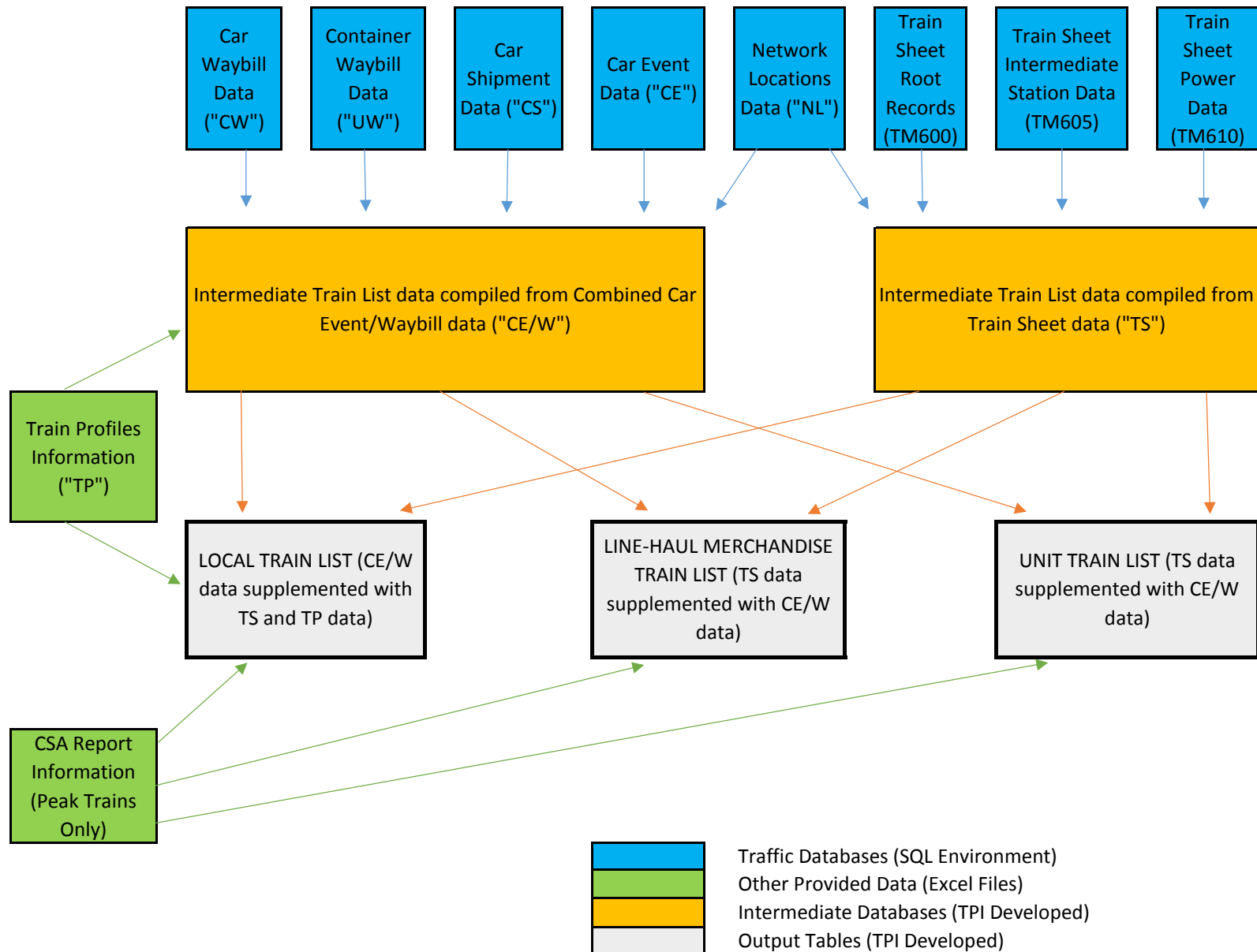
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- i. Use TS600 DeptLoads
- f) Subsequent TS 605 Records DepConsistE:
 - i. Use TS600 DeptEmpties
- g) Subsequent TS 605 Records DepTonsAll: Linked **TS600** DeptTons
- h) Subsequent TS 605 Records DepLengthAll: Linked **TS600** DeptLength
- 7) Develop and populate a table containing these trains in _TRI_SUM format.
 - a) Apply filter to output so that this table only includes Trains with two or more consecutive OnSARR Locations in the **TS 600/605** data
 - b) For unit and line-haul merchandise trains, apply filter to output so that this table excludes Trains with less than 10 OnSARR miles⁵⁸
 - c) Apply filter to output so that this table excludes Trains with Train Symbols between W001 and W099 INCLUSIVE
 - d) For unit trains, add new data fields to table and populate as follows:
 - i. SymbolOrigMP: Populate based on link to table **UtrnSymbolLoadLoc1**, else NULL
 - ii. SymbolOrigEngMP: Populate based on link to **iNetworkLocations**
 - iii. SymbolOrigCity: Populate based on link to **iNetworkLocations**
 - iv. SymbolOrigState: Populate based on link to **iNetworkLocations**
 - v. SymbolOrigSPLC: Populate based on link to **iNetworkLocations**
 - vi. SymbolOrigSarrFlag: Populate based on link to **iNetworkLocations**
 - vii. SymbolDestMP: Populate based on link to table **UtrnSymbolUnloadLoc1**, else NULL
 - viii. SymbolDestEngMP: Populate based on link to **iNetworkLocations**
 - ix. SymbolDestCity: Populate based on link to **iNetworkLocations**
 - x. SymbolDestState: Populate based on link to **iNetworkLocations**
 - xi. SymbolDestSPLC: Populate based on link to **iNetworkLocations**
 - xii. SymbolDestSarrFlag: Populate based on link to **iNetworkLocations**
 - e) Apply filter to output so that this table excludes unit trains where OriginTransMP=DestTransMP .and. SymbolOrigMP=SymbolDestMP

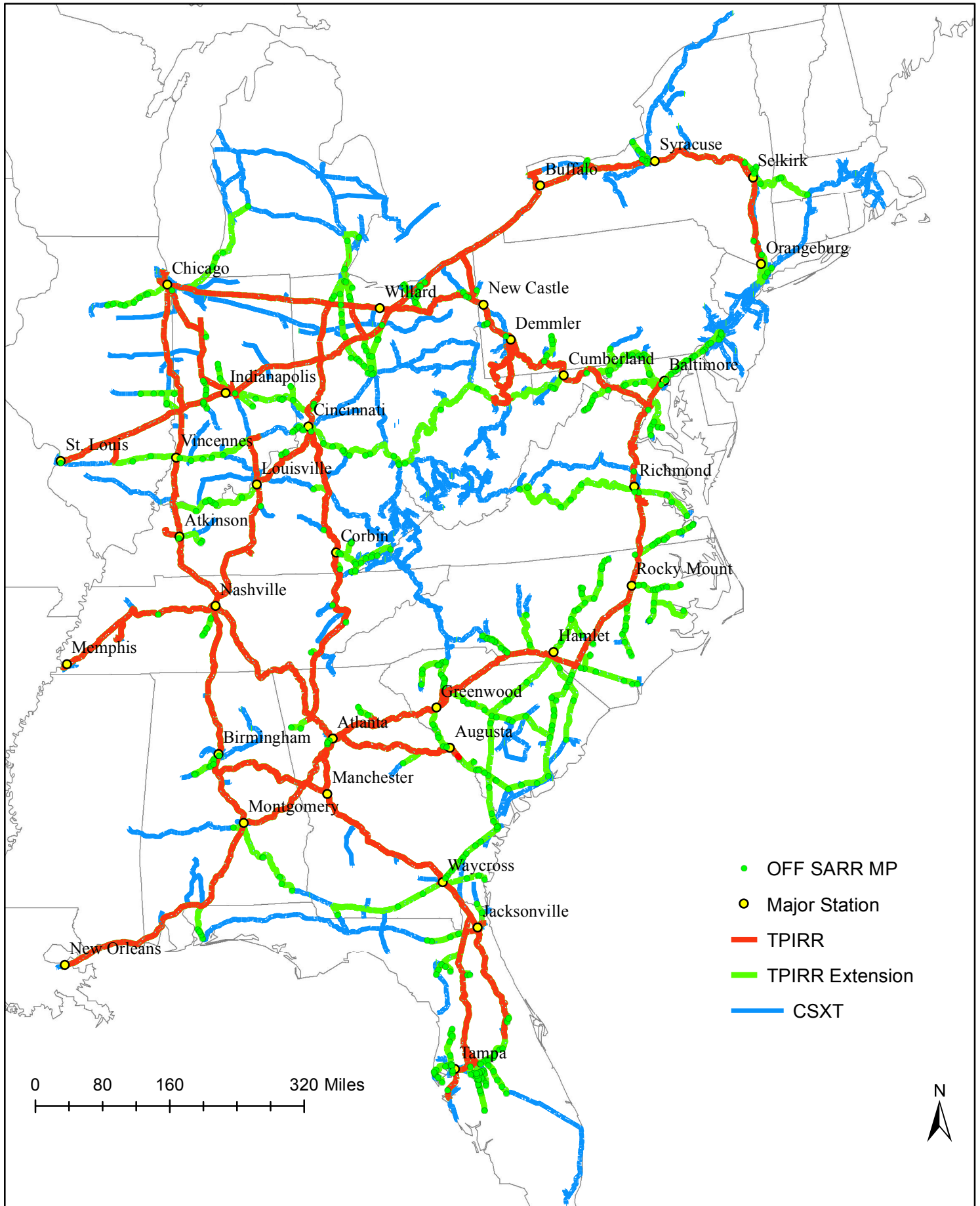
⁵⁸ Mileage requirement not applicable to local trains.

July 2012-June 2013 TPIRR Train List Development

TPI Train List Development Process



First Step in Identifying Additional Segments for All Local Trains Traversing the TPIRR



ROUTE MILEAGE BREAKDOWN

<u>Item</u>	<u>Total Miles</u>
(1)	(2)
1. TPIRR (Red)	7,357
2. TPIRR Extension (Green) 1/	6,200
3. Total CSXT	20,740

1/ Source: "Exhibit III-C-5-miles.xlsx"

TPIRR RTC MODELING PROCEDURES AND RESULTS**Table of Contents**

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TPIRR RTC MODELING PROCEDURES AND RESULTS

The TPI Stand-Alone Railroad (“TPIRR”) utilized the Rail Traffic Controller (“RTC”) model¹ to optimize the TPIRR’s system track configuration and provide the basis for many of the TPIRR’s annual operating metrics. The RTC model has been relied upon by the STB in numerous prior maximum rate reasonableness cases² to evaluate the feasibility of the SARR’s operating plan and to demonstrate the maximization of the SARR’s infrastructure.

The process followed to develop the needed metrics for TPIRR’s rail operations, based on the RTC model simulation, is discussed in the remainder of this Exhibit under the following topical headings:

- A. Development of The TPIRR System
- B. Operating Inputs Used in The RTC Model
- C. Development of The Peak Train List

A. DEVELOPMENT OF THE TPIRR SYSTEM

The TPIRR system is made up of 7,357 route miles. This is one of the largest stand-alone systems constructed and presented to the STB. The system includes track in seventeen (17) states and the District of Columbia. A schematic of the entire TPIRR is included at Exhibit III-A-1.

B. OPERATING INPUTS USED IN THE RTC MODEL

The following elements of the TPIRR’s operating plan were developed by Messrs. McDonald, Fapp, Mulholland, Crowley and Humphrey and input into the RTC Model by Messrs. Fapp, Crowley and Humphrey for purposes of simulating the TPIRR’s peak-period operations and developing train transit times:

¹ Version 69E.

² See, e.g., *AEPCO* at 28, *WFA/Basin I* at 15-16, *PSCo/Xcel I* at 614 and *Otter Tail* at 19.

TPIRR RTC MODELING PROCEDURES AND RESULTS

1. Road Locomotives
2. Train size
3. Helpers
4. Maximum train speeds
5. Dwell times
6. Time required to interchange trains with other railroads
7. Local Train Operations
8. Crew-change locations/times
9. Time for a train to reverse direction
10. Track inspections and maintenance windows
11. Time for random outages

Each of these elements is discussed below.

1. Road Locomotives

The RTC simulation demonstrated that most road trains can operate over the TPIRR system (other than the helper districts described below) with two ES44AC locomotives in a 1/1 DP configuration, except some heavy trains that need additional power at certain locations. The additional locomotives were generally placed on the head-end of the train, usually at crew-change locations, during crew-change time.³

The TPIRR will operate its local trains with a single SD40-2 locomotive where possible. Where this is not possible, due to local train sizes or topography, the TPIRR adds a second SD40-2 locomotive or instead uses ES44AC locomotives on the local trains. In addition, TPIRR worktrains will utilize SD40-2 locomotives. Finally, the TPIRR will use SD40-2 and SW1500 locomotives in its yards to perform its switching, car classification and blocking operations.

The July 1, 2010 through June 30, 2011 (“First Year”) locomotive requirements, which were developed from the RTC simulation statistics of the TPIRR are shown in Table 1 below.

³ In some cases, additional locomotives were added to the rear of the train to equalize power and minimize train slack.

TPIRR RTC MODELING PROCEDURES AND RESULTS

Exhibit III-C-6 Table 1 <u>TPIRR First Year Locomotive Requirements</u>	
Unit Type	Number of Units
(1)	(2)
1. ES44AC	709
2. SD40-2	167
3. SW1500	181
4. Total Units	1,057
Source: e-workpaper "TPIRR Operating Statistics_Open.xlsx."	

2. Train Size

The peak period forecast trains for the RTC simulation are based on comparable trains moving in the Base Year. The maximum train size was determined based on the largest trains by train type and lane operated by CSXT in the Base Year. All growth trains are limited to the same size and weight of actual Base Year trains, and no growth train has more than seven (7) locomotives (excluding helpers).

3. Helpers

TPIRR's helper districts were determined based on information provided by CSXT in discovery and correspond with locations on the TPIRR network where CSXT currently provides helper service. A summary of the helper locations and locomotives required at each location is shown in Table 2 below.

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Exhibit III-C-6
Table 2
TPIRR Helper Districts And Locomotive Requirements

Helper District	Distance (Miles) Helped	Helper Locomotives
(1)	(2)	(3)
1. Hancock to Shen	34	2
2. Hyndman to Sandpatch	18	2
3. Connellsville to Sandpatch	59	2
4. Grafton to Bridgeport	19	2
5. Smithfield to Grafton	23	2
6. Livingston to Kilsyth	73	1
7. Ford to North Fort Estill	14	1
8. Ford to Sanderson	9	1
9. No Holmes Gap to Middle Holmes Gap	7	1
10. Cowan to Tantallon	8	1
11. Sherwood to South Cowan	10	1

Source: e-workpaper "Helper Crews Per Day.xlsx."

Mr. McDonald instructed Messrs. Fapp, Crowley and Humphrey to allow twenty (20) minutes to add helper locomotives at the beginning of the helper district for each train requiring helper assistance and to allow fifteen (15) minutes to detach the helper locomotives at the end of the helper district.

The coupling and uncoupling of helper locomotives is a straight-forward process that takes a few minutes in terms of the physical operations. The allotted twenty (20) minutes for adding helper locomotives provides sufficient time to perform a brake test after the lead helper locomotive is coupled to the train. Modern technology permits helpers to be removed without stopping the train but Mr. McDonald has conservatively assumed the train will stop for the removal of helpers and has allotted fifteen (15) minutes for this process. This includes the time the helper crew needs to verify that the brakes on the distributed power ("DP") road locomotive at the rear of the train have been released.

TPIRR RTC MODELING PROCEDURES AND RESULTS

After being detached from a train (regardless of direction), each helper consist returns light to its point of origin. Light helper movements follow trains moving in the same direction, on the same block, with dispatcher authority (unless there is a long interval between trains, in which case they move on a separate block). This is consistent with real-world railroad practices based on Mr. McDonald's personal observation and experience. Light helper movements are not treated as separate trains for purposes of the RTC simulation.

4. Maximum Train Speeds

The maximum permissible train speeds input into the RTC Model are 70 mph for intermodal trains and 60 mph for non-intermodal trains (50 mph for TIH traffic and other "Key" trains as well as loaded coal and bulk grain trains) on the TPIRR's main lines. All trains are limited to a maximum speed of 40 mph on the TPIRR's branch lines except where existing CSXT timetable speeds are higher. These maximum speeds are consistent with CSXT's real-world practice on the lines being replicated by the TPIRR and FRA requirements.

Maximum train speeds are reduced below those specified above where a speed restriction is required by CSXT's operating timetables for the divisions and subdivisions in question. These restrictions exist for safety reasons (such as to maintain a safe braking distance), to reduce underbalance in curve super elevation per FRA track safety regulations and reduce track/curve wear, and to avoid high-speed gage separation on curves exceeding three (3) degrees. In addition, trains do not reach maximum authorized speed in some areas due to grades and curves. All of these restrictions and limitations have been incorporated into the RTC Model for application to the TPIRR's peak-period operations.

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5. Dwell Times

Dwell times have been allotted for trains at the TPIRR's yards based on the kind of activities being performed. These activities include 1,000/1,500-mile car inspections and associated bad-order car switching, locomotive fueling and 92-day inspections and crew changes.

Mr. McDonald has allotted a total of five (5) hours of dwell time at each yard for through trains requiring an inspection. This includes time for the inspection itself (three hours) and removal of any bad order cars from the train and addition of spare or repaired cars (one hour).⁴

Locomotives requiring FRA-mandated 92-day inspections are removed from the train upon arrival and replaced with fresh locomotives when the inspection and bad-order switching processes are completed. If locomotives that are not removed for a 92-day inspection require fueling, it is performed while the car inspection is taking place and the train is "blue-flagged." Another hour of dwell time has been allotted for these procedures, as well as for train staging time and contingencies.

TPI has also taken into consideration the need to inspect and fuel locomotives used in interline service to fulfill the common reciprocity with connecting carriers. TPI ensures all TPIRR's locomotives on originating trains are fully fueled and serviced prior to departure from the originating yard. Further, all trains that are to be interchanged to connecting carriers and

⁴ Six (6) hours of yard dwell time was allotted for empty coal trains to be consistent with the dwell time allotted for empty coal trains in the *WFA/Basin I* case. Less dwell time would be needed to inspect and service the TPIRR's non-coal trains because they tend to be shorter, there is less need to remove bad-order cars and replace them with spare cars, and no need to swap all locomotives on each train for new locomotives, which was the procedure used for empty SARR coal trains in *WFA/Basin I*. See "Opening Evidence of Complainants Western Fuels Association, Inc. and Basin Electric Power Cooperative (Public Version)" filed April 19, 2005 at III-C-41 and *WFA/Basin I* at 17.

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move a long distance on the TPIRR network are re-inspected and fueled at an intermediate point prior to being delivered to the connecting carrier.⁵

Since the RTC model simulation is a snapshot of the TPIRR's operations over a ten (10)-day simulation period, there is no way to tell in advance which road locomotives on which trains require a 92-day inspection or fueling upon arrival at one of the TPIRR's yards during that period. Based on Mr. McDonald's experience, it is likely that trains received in interchange from CSXT or another railroad will have locomotives with sufficient fuel and do not require a 92-day inspection while on the TPIRR. However, to be conservative, for all empty coal trains (and certain loaded coal trains as described earlier) and for all non-coal trains that move at long distances on the TPIRR, Mr. McDonald has assumed that the locomotives on the train will need fueling and or a 92-day locomotive inspections at one of the TPIRR's yards, as well as a 1,000-mile or 1,500-mile car inspection. These inspections occur at one of the following yards: Willard, Buffalo, Cincinnati, Nashville or Atlanta.

6. Time Required to Interchange Trains With Other Railroads

The TPIRR interchanges complete trains, including locomotives, with six (6) Class I railroads (BNSF, CSXT, CN, CP, NS and UP) as well as over 75 regional or short-line railroads.⁶

Mr. McDonald has allotted 30 minutes for the interchange of trains at all of these points. The interchange of run-through trains requires a change of crews, a brake set/release and a roll-by inspection, which can easily be accomplished within 30 minutes. The same 30 minutes for

⁵ Some of these trains are intermodal or auto trains that qualify for extended-haul status, thus permitting a 1,500-mile interval between inspections but to be conservative Mr. McDonald has assumed a 1,000-mile inspection is required.

⁶ See e-workpaper "TPIRR Yard Matrix Opening Grading.xlsx" for a complete list of TPIRR interchange locations and the railroads involved.

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SARR interchange time were accepted by the Board in *WFA/Basin II*.⁷ In locations where CSXT and its connecting carriers do not have run-through agreements, three (3) hours are allocated for interchange dwell time in the RTC model based on Mr. McDonald's experience.

A train received in interchange may have more locomotives than the TPIRR needs to move the train over its system, or may not have the locomotives arranged in a DP configuration. The inbound TPIRR road crew removes any extra locomotives and leaves them on the setout track at the interchange point during the time allotted for the interchange, and the outbound TPIRR crew rearranges locomotives into a DP configuration, if necessary, during the interchange time.⁸

7. Local Train Operations

In order to model all the TPIRR operations, local train movements were included in the RTC model. TPI identified 1,058 local trains⁹ that moved within the peak period which were included in the RTC model. All local trains are powered by SD-40-2 locomotives. Where possible, local trains are powered by a single SD-40-2 locomotive. Heavier local trains are powered by two SD-40-2 locomotives on the front-end of the train and the heaviest local trains are powered by ES44AC locomotives.

All local trains, except unit coal trains, utilize front-end power in order to facilitate efficient set out and pick up of blocks of cars. The single exception is where local trains are transporting coal and are too heavy to operate without distributed power. In these instances, the

⁷ See *WFA/Basin II* at 17-18.

⁸ The Class I railroads are converting to DP at a rapid pace; for example, Union Pacific reported at a recent RTC Model users' conference that 70 to 75 percent of its road trains now have a DP locomotive configuration. With the peak RTC simulation period ten years hence, it is reasonable to assume that the TPIRR will have in place run-through agreements that specify trains are to be received with DP power and that foreign-road locomotives will be equipped for DP operation.

⁹ See Exhibit III-C-1 at 51 for the development of local trains.

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trailing tonnage is so great that the knuckles connecting the cars would break without the use of distributed power. Therefore, TPI equipped these local trains with ES44AC locomotives in a distributed power configuration.

Due to the nature of local train service, many of the local trains run in turnaround service. All locations where local trains operate in turnaround service are configured so that the locomotive can be detached, moved around the cars, and reattached for movement in the reverse direction.

TPI used the customer survey reports provided by CSXT in discovery to identify switching times at each location served by a local train.¹⁰ Each local train was assigned a switching time based on location and train number. Some CSXT local trains served as many as six (6) different customers during a single workday. When long switching times and a high number of assigned stops would have resulted in a local crew exceeding the maximum hours of service, the crew was instructed to only set out the cars at the customer's siding. A subsequent local train switched those cars, if necessary. In each instance where cars were set on a customer's siding, 30 minutes of dwell time was included in the RTC model to set out the cars.

8. Crew-Change Locations/Times

At TPIRR crew-change points where the change of crews is the only function performed, Mr. McDonald has allotted 15 minutes for this function. Again, this is consistent with the time allotted for SARR crew changes in *WFA/Basin I*.¹¹

The RTC simulation confirms that the distance for each crew assignment, as well as the allotted time at points served by turn crews, can be covered by a single tour of duty including an

¹⁰ See "CSA Report_Dwell Time_V6 Dwell and loading Analysis.xlsx".

¹¹ See *WFA/Basin I* Opening Evidence of Complainants (Public Version), filed April 19, 2005 at III-C-30.

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allowance of one hour for crew preparation/taxi time. A few crews expire under the Hours of Service law and need to be taxied to their next terminal, while some trains are able to skip a crew change point and the crew can run through to the next crew-change point. Since the TPIRR is a new, start-up, non-unionized operation, its crew districts can be, and have been, designed for maximum efficiency.

9. Time for a Train to Reverse Direction

The TPIRR's track configuration is such that certain of the TPIRR's trains must reverse direction. This occurs with local trains that require reversal of traveling direction in order to serve the subsequent customer. This also occurs with any other train where it enters a yard for operational activities, or otherwise to reach its destination.

Mr. McDonald has allotted 45 minutes of dwell time to reverse direction for local trains that do not change crews at the reverse-direction point and are not providing pick-up or set-out services which are discussed in Local Train Operations above. This accounts for any switching occurring at the turn location and the time needed for the crew to move the locomotive to the opposite end of the train. For trains running in a Distributed Power configuration, 30 minutes was allotted since reversing a train with DP does not require movement of the locomotives. No additional time is allotted for reversing direction if the procedure occurs at a location where the train is interchanged with another railroad or otherwise undergoes a crew change. No extra time is needed beyond the normal 30 minutes allotted for interchange or 15 minutes allotted for crew changes at non-interchange locations.

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10. Track Inspections and Maintenance Windows

FRA rules require twice-weekly inspections for Class 4 track, which is the classification for the TPIRR's main tracks. As described in Exhibit III-D-3 (which describes the TPIRR's maintenance-of-way plan), the TPIRR's main and branch lines are inspected twice a week by the railroad's Track Inspectors using hi-rail vehicles (SUV-type vehicles equipped with retractable flanged wheels so they can operate either on highways or on railroad tracks). These inspections have to be performed during the peak traffic (RTC simulation) period. However, they can be performed between train movements and during periods of heavy traffic or the hi-rail vehicle can follow a train on the same block (with the dispatcher's approval). Accordingly, there is no need to allot separate time for FRA-prescribed track inspection in the RTC Model.

Consistent with the STB's decision in *AEPCO*, Messrs. Fapp, Crowley and Humphrey have included delay times in the RTC simulation to reflect maintenance being performed on the TPIRR's line. Specifically, they identified the times that CSXT trains were delayed due to maintenance activity based on train delay time data provided in discovery by CSXT.¹² These include, but are not limited to, delays due to rail grinding activities and Sperry Test cars on the tracks.

11. Time for Random Outages

Random events that affect track and equipment are a part of everyday railroading. It is unrealistic to expect that no such events would occur during the TPIRR's peak traffic period used for the RTC simulation, or that such events would not affect train operations during that period. Accordingly, time for random outages has been input into the RTC Model.

¹² See e-workpaper "Peak Period Delays (Final).xlsx."

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Track capacity is also impacted by program maintenance performed by the SARR. The STB indicated in its *AEPCO* decision that, while parties in prior SAC proceedings had not included track delays caused by program maintenance in their SARR simulations, such maintenance was common in the “real world” and therefore should be reflected in a SARR’s hypothetical world.¹³

It is impossible to determine exactly what events would impact train operations during the July 1, 2019 through June 30, 2020 peak year, or when they will occur. However, CSXT did provide data in discovery on events of an unexpected or “random” nature that affected train operations on the lines being replicated by the TPIRR for the period from 2010 through June, 2013, including train-related and track-related events. It also identified delays caused by MOW.¹⁴ Mr. McDonald utilized this data to identify the outages and delays that occurred on CSXT track replicated by the TPIRR during the peak period’s comparable time in the Base Year. They then provided this information to Messrs. Fapp, Crowley and Humphrey for input into the RTC Model during the 10-day simulation period.

Mr. McDonald selected the kinds of outages that he deemed most likely to occur including operational outages, such as a broken knuckle or drawbar, a train going into emergency braking mode, or a broken rail. Mr. McDonald excluded, however, those outages experienced by CSXT that would not be incurred by the TPIRR due to differences in the two railroads’ operations. For example, Mr. McDonald excluded delays caused by Amtrak operating on the TPIRR’s line since, unlike CSXT, Amtrak would not be a TPIRR tenant railroad. Similarly, Mr. McDonald also excluded outages caused by CSXT’s traditional signaling system as the TPIRR

¹³ See *AEPCO* at 28.

¹⁴ See e-workpaper “Peak Period Delays (Final).xlsx.”

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would operate from the beginning with a purpose built PTC system in place of traditional signals.

Consistent with the STB's decision in *AEPCO*, Mr. McDonald also identified maintenance work performed by CSXT that would cause train delays. As discussed above, this includes delays caused by rail grinding and ultrasonic testing. These delays are in addition to the random maintenance outages caused by such things as broken rails and power switch failures.

Additionally, Mr. McDonald identified locations where intersections with foreign railroads would interfere with TPIRR traffic and instructed Messrs. Fapp, Crowley and Humphrey to insert delays caused by foreign railroads at these locations. Accordingly, CSXT's own reported delays caused by foreign railroads were used as a surrogate. All of these delays were input into the RTC model.

Mr. McDonald also assumed an average duration for each outage indicated in CSXT train delay data that would occur in the Peak Year operations. In other words, if CSXT experienced a one hour delay in its December 2012 operation at a particular location, then the TPIRR would experience a one hour delay in the peak period at the same location. Mr. McDonald then instructed Messrs. Fapp, Crowley and Humphrey to include the outages on the TPIRR's lines (including the date and time for each outage) at the same location where CSXT experienced the outage.

The end result of the analysis was to include 452 operational and maintenance outages as inputs to the RTC Model. The 452 total outages included in the RTC simulation are shown, by date and time, location and type in TPI's workpapers.¹⁵

¹⁵ See e-workpaper "Peak Period Delays (Final).xlsx."

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C. DEVELOPMENT OF THE PEAK TRAIN LIST

Once the TPIRR network was developed and tested in the RTC model and the operating inputs were identified, the next step in the process was to identify the peak period trains that would be included for evaluation in the RTC model.

The modeling period included a two-day warm-up, the peak week and a one-day cool down. A complete discussion of TPI's development of the peak train list is included in Exhibit III-C-1.

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TPIRR OPERATING PERSONNEL

Consistent with the stand-alone concept of identifying the least-cost, most-efficient, feasible hypothetical alternative to the incumbent, the TPIRR is a non-union railroad that is built from the ground up to handle a defined traffic group.¹

TPI's experts have developed a staffing plan for the TPIRR to handle its projected peak traffic volume safely and efficiently by taking full advantage of modern technology. This staffing plan also permits the railroad to maintain its facilities in good condition while minimizing cost.

A. Staffing Requirements

The TPIRR's operating personnel include train-crew, line-supervisory, and field employees in Transportation, Engineering/Maintenance-of-Way, and Mechanical departments. The senior operating staff (headquartered at Atlanta, GA) report directly to the Vice President Operations. The TPIRR's operating-personnel requirements are discussed below in two general categories: Train/Switch Crew Personnel and Non-Train Operating Personnel.

1. Train/Switch Crew Personnel

The TPIRR requires a total of 3,108 train and engine ("T&E") crew members to transport its First Year (July 1, 2010 through June 30, 2011) trains. This count, which includes helper crews and switch crews located at the TPIRR's yards, is based on the number of trains moving over the various parts of the TPIRR system during the Base Year (July 1, 2012 through June 30, 2013), indexed to First Year traffic levels. The road-crew assignments and yard-crew assignments at the TPIRR yards were developed by Mr. McDonald (as described in Part III-C-1).

¹ The Board has accepted the concept of a non-unionized SARR. See *TMPA* at 687; *PSColXcel I* at 651.

The RTC Model simulation performed by Messrs. Fapp, Crowley, and Humphrey was used to confirm that train crews operating in these crew districts generally could complete each tour of duty within 12 hours and otherwise comply with the federal hours-of-service law, as amended.²

Consistent with Board precedent, T&E crews were developed using the total number of crew starts as determined by the actual train counts over an entire year.³ In this instance, crews were determined for all trains moving in the Base Year. The total crew starts from each crew base were then increased to reflect the 1.0068 percent re-crewing requirements based on the RTC simulation results that indicate the number of crews whose on-duty time expired under the Hours of Service law.

Given the large size and number of trains moving on the TPIRR, imbalances in trains moving along various routes are inevitable. Like any efficient railroad, the TPIRR seeks to minimize imbalances along the different routes, but in some instances deadheading is necessary to offset unavoidable imbalances. The number of crew starts was adjusted upward to reflect any imbalance of train flows. The procedure used to adjust the number of crew starts to reflect train-flow imbalances is included in TPIRR's workpapers.⁴ The adjusted crew count was then used to determine the total number of T&E crews required using the standard formula employed by the Board to determine how many crews are required to cover the number of crew starts assuming that each crew member is available 270 days a year.⁵

² See e-workpaper "TPI Open.DELAY."

³ See *PSCO/Xcel I* at 645.

⁴ See e-workpapers "Crew Rebalancing.xlsx" and "TPIRR Operating Statistics_Open.xlsx."

⁵ *Id.* This number is not affected by the hours-of-service provisions of RSIA.

2. Non-Train Operating Personnel

The staffing of TPIRR's non-train operations has been developed based on the experience of TPI's witness McDonald. Non-train operating personnel on the TPIRR, which includes operating personnel other than train and switch crews and maintenance-of-way ("MOW") personnel, are summarized in Table 1 below. MOW personnel are discussed separately in Part III-D(5).

Exhibit III-D-1 Table 1 <u>TPIRR Non-Train Operating Personnel</u>	
Position (1)	No. of Employees (2)
<u>a. Executive Office</u>	
Vice President–Operations	1
Administrative Assistant	1
Administrative pool (secretaries)	4
(1) Assistant Vice President–Stations & Customer Service	1
Director–Customer Service	3
Manager–Customer Service	3
Customer Service Agent	15
(2) Director–Operations Planning and Joint Facilities	1
Manager–Joint Facilities	2
Analyst–Operations Planning	2
(3) Director–Budgets	1
Analyst–Budgets	2
<u>b. Transportation Department</u>	
Vice President–Transportation	1
(1) Assistant Vice President–Transportation Center	1
(a) Director–Operations Control	1
Managers–Operations Control	9
(b) Chief Dispatcher	2
Assistant Chief Dispatcher (9 positions manned 24/7)	40
Dispatchers (32 desks manned 24/7)	140
(c) Director–Crew Management	1
<u>b. Transportation Department (continued)</u>	

Exhibit III-D-1
Table 1
TPIRR Non-Train Operating Personnel

Position (1)	No. of Employees (2)
Crew Callers	35
(d) Director–Coal Operations	1
Manager–Coal Operations	4
(e) Director–Intermodal Operations	1
Manager–Intermodal Operations	4
(2) Assistant Vice President–Safety & Materials	1
(a) Director–Rules, Safety & Training	3
Managers–Rules, Safety & Training	14
(b) Director–Environmental Control	2
(c) Director–Purchasing & Material Management	1
Manager–Purchasing & Inventory Control	4
Manager–Material Management	4
(3) General Manager	2
(a) Directors–Field Operations	14
(i) Managers–Field Operations	73
Assistant Manager–Field Operations	24
(ii) Managers–Locomotive Operations	15
(b) Managers–Yard Operations	79
Assistant Managers–Yard Operations	41
Administrative Assistants - Major Yards	12
<u>c. Mechanical Department</u>	
Vice President–Equipment Management	1
Manager–Administration	2
(1) Assistant Vice President–Motive Power	1
(a) Director–Engineering & Tech Service	1
(b) Director–Operating Research & IE	1
Manager–Testing & Environmental	1
(c) Superintendent–Motive Power, Field Operations	7
Manager–Budget, Motive Power	1
(d) Superintendent–Water & Fuel Services	1
(2) Assistant Vice President–Equipment Maintenance	1
Chief Mechanical Engineer	1
<u>c. Mechanical Department (continued)</u>	
Superintendent–Equipment Maintenance, Field Operations	7

Exhibit III-D-1 Table 1 <u>TPIRR Non-Train Operating Personnel</u>	
Position (1)	No. of Employees (2)
Car Inspectors	281
Manager–Budgets, Car Maintenance	1
Clerk–Car Repair Accounts	2
Total Non-Train Operating Personnel	874
Source: e-workpaper “TPIRR Operating Expense Open.xlsx.”	

Mr. McDonald relied on his 35 years of experience in railroad operations, engineering, and management, including a number of senior positions at C&NW, a Class 1 Railroad, in addition to other management positions early in his career at Penn Central, now a part of the CSX system, to develop non-train operating personnel for the TPIRR. Mr. McDonald designed the non-train operating personnel staff for the TPIRR from the ground up. He reviewed the number of trains moving on the TPIRR by direction over the entire TPIRR system, including general freight, intermodal, unit trains, and local trains. These trains are those actually moved by CSXT in the Base Year and reflect the same blocking and classification switching that CSXT performs for the carloads moving on the TPIRR.

Mr. McDonald spent a large portion of his career with C&NW where he served as Vice President (“VP”) Western Railroad Properties Inc., VP–Operating Administration, VP–Engineering, VP–Transportation, and VP–Operations. C&NW was similar in size to the TPIRR and was a cost effective, efficient railroad, like the TPIRR. Table 2 below compares non-train operations staffing levels of C&NW to those of TPI as a demonstration of the reasonableness of the TPIRR staffing developed by Mr. McDonald.

Exhibit III-D-1 Table 2 Comparison of C&NW Non-Train Operations Staffing With TPIRR		
Department (1)	1994 C&NW (2)	TPI Opening (3)
1. Office of VP-Operations	12	36
2. Transportation	387	527
3. Mechanical ^{1/}	49	28
4. Engineering	2	2
5. Total	450	593

1/ Excludes car inspectors.
Source: A complete listing of the non-train operating staff for both C&NW and TPIRR are included in TPI Opening e-workpaper "TPIRR Staffing Comparisons.xlsx", tab "Table Ex III-D-1."

As Table 2, above, indicates, TPIRR staffing levels exceed those for C&NW in 1994 by 143 employees. This compares favorably with C&NW, which was 80% the size of TPIRR in 1994. Descriptions of each of TPIRR's operating positions are provided below, in hierarchical fashion by department.⁶

a. Operations Executive Office

The Operations department is led by the VP-Operations who reports to the President-CEO and is a member of the TPIRR Board of Directors. The VP-Operations is responsible for all operating functions and supervises the VP-Transportation and the VP-Equipment Management. Also reporting to the VP-Operations is the Assistant VP ("AVP")-Stations and Customer Service, a Director-Operations Planning and Joint Facilities, and a Director-Budgets. The Operations department is supported by five (5) Administrative Assistants.

⁶ In *WFA/Basin I* the Board treated Customer Service personnel as Operating personnel and Marketing personnel as G&A staff. *WFA/Basin I* at 42, 45-46,

(1) Assistant Vice President–Stations and Customer Service

The AVP–Stations and Customer Service is responsible for preparing consists and switch lists for train crews and coordinating service with customers on the railroad. Reporting to the AVP–Stations and Customer Service are three (3) Directors–Customer Service, who oversee a staff of three (3) Managers and 15 Agents. Customer Service Agents work shifts to provide support 24/7.

(2) Director–Operations Planning and Joint Facilities

This position is responsible for designing and updating the most efficient routing, blocking, and scheduling of car and train movements, called service design and service management. In addition, the position is responsible for preparing and monitoring all joint-facility and industry contracts. There are two (2) manager positions and two (2) analyst positions assigned to assist the Director–Operations Planning and Joint Facilities.

(3) Director–Budgets

This position is responsible for preparation of the budget for the office of the VP–Operations as well as the entire Transportation Department. There are two (2) Analyst positions assigned to assist the Director–Budgets.

b. Transportation Department

The VP–Transportation is responsible for all transportation functions on the TPIRR. The AVP–Transportation Center, AVP–Safety and Materials, and two General Managers report to the VP–Transportation.

(1) Assistant Vice President–Transportation Center

The AVP–Transportation Center is responsible for managing and coordinating Operations Control, Dispatching, Crew Management, Intermodal, and Coal Operations.

Reporting to the AVP–Transportation Center are the Director–Operations Control, two (2) Chief Dispatchers, Director–Crew Management, Director–Coal Operations, and Director–Intermodal Operations.

(a) Director–Operations Control

The Director–Operations Control is responsible for all locomotive assignments on the railroad. This individual also monitors and maintains records of run-through operations with other railroads and, in concert with the Mechanical Department, handles the timely dispatch of locomotive power for required inspections. Nine (9) Managers–Operations Control assist the Director–Operations Control in performance of his/her responsibilities, with two Managers on shift 24/7. The Director and Managers are responsible for assignment of locomotives to trains and for maintaining applicable records, including run-through operations with other railroads. They also handle the dispatch of locomotive power for required inspections in concert with the Mechanical Department. In addition, this office is the centralized location for reporting incidents and accidents requiring notification to Federal, State, and local agencies. It is also the central point of contact for outside agencies to report any incident or accident that has the potential to disrupt rail operations.

(b) Chief Dispatchers

There are two Chief Dispatcher positions on the TPIRR that are responsible for managing the Dispatching staff and are ultimately responsible for dispatching trains, track inspection vehicles and work equipment. In addition, the Chief Dispatchers coordinate a variety of related tasks, including crew calling, taxi service, track-outage scheduling for MOW program work, and special requests from the Sales and Marketing Department and customers. Other duties include notifying local authorities about highway-crossing incidents and derailments and handling

locomotive and equipment failures. To assist the Chief Dispatchers with management duties and coordination of movements between dispatcher desks are 40 Assistant Chief Dispatchers that man 9 supervisory positions on a 24/7 basis. The Assistant Chief Dispatchers oversee 32 dispatching desks located at the Atlanta headquarters. The 32 Dispatcher desks are responsible for controlling the movement of all trains and equipment operating within their respective territories, including road trains, local trains, work trains, and MOW equipment, including inspection vehicles. Each desk is manned by 1 dispatcher per shift with 3 shifts per day, 7 days per week. A total of 140 employees are required to man the 32 dispatcher positions on a 24/7 basis.⁷

(c) Director–Crew Management and Crew Callers

The TPIRR utilizes an automated crew-management system.⁸ The automated crew-management system is designed to handle virtually all basic crew interactions via automated calling and response, including calling crews, routing calls from dispatchers to crews, and selecting the correct crew for each job. Still it requires some augmentation by human personnel to troubleshoot any technical problems and interface with crews as necessary. Accordingly, Mr. McDonald has staffed the TPIRR with a Director–Crew Management and 8 Crew Caller desks. The Director–Crew Management manages the crew-calling system, supervises and assists the crew callers as needed, handles exceptions, and assigns crew vacations. The Director also interfaces with TPIRR’s Information Technology personnel as needed. The 8 crew-caller positions (35 callers in total) are on duty on a 24/7 basis to augment the automated crew-management system.

⁷ A listing of the territory covered by each of the 32 dispatch desks is included in e-workpaper “TPIRR Dispatcher Districts.xlsx.”

⁸ See Exhibit III-D-2.

(d) Director–Coal Operations

The Director–Coal Operations is responsible for monitoring unit coal train shipments between mines and utilities, both on-line and off-line. Reporting to the Director–Coal Operations are 4 Managers–Coal Operations who assist the Director with his/her responsibilities. The four managers provide 24/7 coverage for one position.

(e) Director–Intermodal Operations

The Director–Intermodal Operations is responsible for monitoring on- and off-line intermodal-train shipments for customers and shippers. Reporting to the Director–Intermodal Operations are 4 Managers–Intermodal Operations who assist the Director with his/her responsibilities. The 4 managers provide 24/7 coverage for one position.

(2) Assistant Vice President–Safety and Materials

The AVP–Safety and Materials is responsible for all safety and training on the TPIRR. In addition, the AVP–Safety and Materials heads the Materials Department. Reporting to the AVP–Safety and Materials are 3 Directors–Rules, Safety, and Training, 2 Directors–Environmental Controls, and a Director–Purchasing and Material Management.

(a) Directors–Rules, Safety and Training

The 3 Directors–Rules, Safety, and Training are responsible for safety, rules, and training on the TPIRR system. These positions are also responsible for the operating timetable, rules, and related instructions and for interfacing with the FRA and other government agencies in matters pertaining to rules and operating practices.

Reporting to the Directors are 14 Managers–Rules, Safety, and Training who monitor safety, conduct rules and training classes for transportation, maintenance, and mechanical

operating personnel in their respective territories, and assist the Director in the performance of his/her duties.

(b) Director–Environmental Controls

The two (2) Directors–Environmental Controls are responsible for monitoring practices and activity in the field as well as testing where applicable on TPIRR to insure compliance with all State and Federal environmental regulations.

(c) Director–Purchasing and Material Management

The Director–Purchasing and Material Management is responsible for purchases of all materials and equipment, negotiating and enacting contracts with vendors, maintaining inventories, and handling distribution of materials and equipment as required. Assisting the Director are 4 Managers–Purchasing and Inventory Control and 4 Managers–Material Management. The Managers–Purchasing and Inventory Control are responsible for purchasing needs of all departments on the railroad, negotiating and making contracts with vendors, and accounting for and insuring proper inventories are maintained. The Managers–Material Management are responsible for the proper use of materials and equipment and the management and distribution of materials and equipment, including leased vehicles on the railroad.

(3) General Managers–Transportation

The General Managers–Transportation for the Northern and Southern Regions are responsible for all transportation field operations and supervise the TPIRR’s Directors–Field Operations on their respective territories.

(a) Directors Field–Operations

The Directors–Field Operations and Managers–Field Operations are responsible for train operations in their respective territories and for supervising train crews. They also perform

FRA-mandated and other appropriate testing and respond to and investigate accidents and day-to-day operating problems that may be encountered.

The TPIRR has 14 Directors–Field Operations positioned throughout the system. These positions are the equivalent of Transportation Superintendents on a Class I railroad. The specific locations and number of Directors–Field Operations at each location are included in our workpapers.⁹

(i) Manager–Field Operations

The TPIRR has 73 Managers–Field Operations positions—32 are stationed at major terminals and 41 at outlying points. All Managers report to their respective Directors–Field Operations. These positions are equivalent to a Trainmaster on a Class I railroad. The specific locations and number of Managers–Field Operations at each location are included in our workpapers.¹⁰ Supporting the staff of 73 Managers–Field Operations are 24 Assistant Managers–Field Operations.

(ii) Managers–Locomotive Operations

The TPIRR has 15 Managers–Locomotive Operations (“MLO”), who are responsible for the safe and efficient handling of locomotives and trains by the TPIRR’s engineers. These Managers must, in compliance with FRA guidelines, annually monitor Locomotive Engineers. Their duties are similar to those of a Road Foreman of Engines or Traveling Engineer on a Class I railroad. They are FRA-certified locomotive engineers, qualified on their respective territories, and required to ride with any Engineer that must be recertified. They are responsible for training and qualifying any engineer who is unfamiliar with a given territory or has not run over a

⁹ See e-workpaper “NonTrainStaffingbyLocation.xlsx.”

¹⁰ *Id.*

territory in more than a year. The MLO must also investigate all incidents and accidents where train handling issues are suspected. They are assigned to various locations throughout the TPIRR, as shown in our workpapers.¹¹

(b) Managers–Yard Operations

The TPIRR has 79 Managers–Yard Operations assigned to yards throughout the system. There are also 41 Assistant Managers–Yard Operations throughout the system, where traffic volumes warrant. These positions direct the movement of trains and other equipment within the yards' limits. All Managers and Assistant Managers–Yard Operations report to the Directors–Field Operations. At small yards where there is no Assistant Manager–Yard Operations, a designated crew member, acting as a footboard Yardmaster, will receive instructions directly from Customer Service.¹² Each major yard has an Administrative Assistant (12 in total) to support the Managers-Yard Operations.

c. Mechanical Department

The Vice President–Equipment Management supervises the TPIRR's mechanical function, which largely involves overseeing the acquisition and maintenance of the TPIRR's equipment (including rolling stock) as well as administration of the AAR Interchange Rules with respect to the TPIRR's use of other railroads' locomotives and equipment on trains that operate in interline service. This position is also responsible for interfacing with the TPIRR's locomotive and car maintenance contractors. Reporting to the VP–Equipment Management are an AVP–Motive Power, an AVP–Equipment Maintenance, and 2 Managers that are responsible for administration of inventories, billings, and special records.

¹¹ *Id.*

¹² *Id.* (identifying the assignment locations for Managers and Assistant Managers–Yard Operations).

(1) Assistant Vice President–Motive Power

The AVP–Motive Power is responsible for maintenance of the locomotive fleet and ensuring the correct complement of power and locomotive consists are available as requested by Operations Control.

(a) Director–Engineering & Technical Services

The Director–Engineering & Technical Services reports to the AVP–Motive Power and is responsible for investigation of technical issues regarding operation of motive power on the TPIRR system. This Director represents the TPIRR at the AAR and other organizations to keep TPIRR informed of developments and advances in the industry.

(b) Director–Operating Research & Industrial Engineering

The Director–Operating Research & Industrial Engineering reports to the AVP–Motive Power and is responsible for researching the latest developments in motive power and equipment and advancing them for the benefit of the TPIRR. This Director also represents the TPIRR at the AAR and other organizations to keep the TPIRR informed of developments and advances in the industry. Reporting to the Director–Operating Research & Industrial Engineering is 1 Manager–Testing & Environmental who is responsible for testing of materials and environmental compliance, including investigation of any problems involving cars containing hazardous commodities while on the TPIRR (and related federal reporting requirements).

**(c) Superintendents–Motive Power,
Field Operations**

There are 7 Superintendents–Motive Power, Field Operations that report to the AVP–Motive Power. Each is responsible for inspection, maintenance, and repair of locomotives in his/her respective territory, including those at contractor shops located on the TPIRR. One Manager–Budget, Motive Power assists the Superintendents with planning and budgeting.

(d) Superintendent–Water and Fuel Service

The Superintendent–Water and Fuel Service reports to the AVP–Motive Power and is responsible for administering the supply of fuel, lubricants, water, and sand for locomotives over the TPIRR system.

(2) Assistant Vice President–Equipment Maintenance

The AVP–Equipment Maintenance is responsible for equipment repairs and overseeing management of car inspectors. Reporting to this AVP is a Chief Mechanical Engineer and 7 Superintendents–Equipment Management, Field Operations, who are responsible for all matters concerning repair of equipment and their disposition, in addition to direct management of Car Inspectors. Also reporting to the AVP–Equipment Management is a Manager–Budgets, Equipment Maintenance, who is responsible for preparing budgets for the department. Reporting to the Manager–Budgets, Equipment Maintenance are 2 Clerks–Car Repair Accounts.

As mentioned above, Car Inspectors report to one of 7 Superintendents–Equipment Management, Field Operations. The TPIRR’s Car Inspectors have duties similar to those of carmen on a Class I railroad. They are located at the TPIRR’s yards where the railroad performs FRA-certified car inspections. The number of Equipment Inspector positions is based on the number of daily trains requiring inspection that move through the inspection points during the peak week. Equipment inspectors are also assigned at all yard locations where more than three trains per day originate. In yards where less than three trains per day originate, the train crews perform the necessary equipment inspections on trains prior to departure. Line-on-road carmen have been assigned to inspect and repair equipment that fails en route over the TPIRR system. Car inspection procedures are described in Part III-C.

The Inspectors are located at each of the TPIRR's 26 locations where high volumes of trains are inspected. Inspection teams comprise between 1 and 4 inspectors depending on the daily number of trains to be inspected. Each team is assigned small ATV-type vehicles which can travel on the roadways between the inspection tracks during the inspection process. This enhances the productivity of the crews, and the TPIRR has invested capital for roadways between the inspection tracks to achieve these savings. The inspection vehicles are equipped with tools and parts (such as brake shoes) needed for performing light car repairs.

A total of 281 employees are required to man the inspection crews on a 24/7 basis. The number of crews at each location is based on the maximum number of trains per day requiring inspection that operate through that location during the TPIRR's peak period included in the RTC simulation. In addition, "line of road" car inspectors are assigned in two-man teams at each of 13 major yard locations. The line-of-road inspectors are car repairmen and inspectors who provide minor car repairs in the field and also inspect cars on an as needed basis.¹³

B. Compensation

1. T&E Compensation

As stated previously, T&E personnel are assumed to work 270 shifts per year. Based on information provided by CSXT in discovery, T&E wages are determined using wages paid to T&E personnel who work 270 or more shifts per year in 2010. The wages for the 3,108 T&E personnel are based on the average amount paid by CSXT to its T&E personnel including all constructive allowances paid by CSXT to its train and enginemen. In 2010, CSXT paid its engineers and conductors working 270 or more shifts per year an average of {{[REDACTED]}} and

¹³ See e-workpaper "Trains to be Inspected.xlsx" for the location and number of car inspectors.

{{[REDACTED]}}, excluding fringes, respectively. Based on these amounts the TPIRR pays its T&E personnel a total of {{[REDACTED]}} million in the First Year.

2. Non-Train Personnel Compensation

Compensation for other non-train operating personnel is derived from CSXT's 2010 Wage Forms A&B and is established at the same levels as those paid by CSXT for comparable positions. Salaries and total compensation for the TPIRR's non-train operating personnel are shown in Table 3 below.

Exhibit III-D-1
Table 3

TPIRR Non-train Compensation

<u>Position</u> (1)	<u>No. of Employees</u> (2)	<u>Annual Salary</u> (3)	<u>Total Salary</u> (4)
a. Executive Office			
Vice President–Operations	1	\$628,045	\$628,045
Administrative Assistant	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Administrative pool (secretaries)	4	{{ [REDACTED] }}	{{ [REDACTED] }}
(1) Assistant Vice President–Stations & Customer Service	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Director–Customer Service	3	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Customer Service	3	{{ [REDACTED] }}	{{ [REDACTED] }}
Customer Service Agent	15	{{ [REDACTED] }}	{{ [REDACTED] }}
(2) Director–Operations Planning and Joint Facilities	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Joint Facilities	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst–Operations Planning	2	{{ [REDACTED] }}	{{ [REDACTED] }}
(3) Director–Budgets	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst–Budgets	2	{{ [REDACTED] }}	{{ [REDACTED] }}
b. Transportation Department			
Vice President–Transportation	1	\$628,045	\$628,045
(1) Assistant Vice President–Transportation Center	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(a) Director–Operations Control	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Managers–Operations Control	9	{{ [REDACTED] }}	{{ [REDACTED] }}
(b) Chief Dispatcher	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Assistant Chief Dispatcher (9 positions manned 24/7)	40	{{ [REDACTED] }}	{{ [REDACTED] }}
Dispatchers (32 desks manned 24/7)	140	{{ [REDACTED] }}	{{ [REDACTED] }}
(c) Director–Crew Management	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Crew Callers	35	{{ [REDACTED] }}	{{ [REDACTED] }}
(d) Director–Coal Operations	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Coal Operations	4	{{ [REDACTED] }}	{{ [REDACTED] }}
(e) Director–Intermodal Operations	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Intermodal Operations	4	{{ [REDACTED] }}	{{ [REDACTED] }}
(2) Assistant Vice President–Safety & Materials	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(a) Director–Rules, Safety & Training	3	{{ [REDACTED] }}	{{ [REDACTED] }}
Managers–Rules, Safety & Training	14	{{ [REDACTED] }}	{{ [REDACTED] }}
(b) Director–Environmental Control	2	{{ [REDACTED] }}	{{ [REDACTED] }}
(c) Director–Purchasing & Material Management	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Purchasing & Inventory Control	4	{{ [REDACTED] }}	{{ [REDACTED] }}

Manager–Material Management	4	{{ [REDACTED] }}	{{ [REDACTED] }}
(3) General Manager	2	{{ [REDACTED] }}	{{ [REDACTED] }}
(a) Directors–Field Operations	14	{{ [REDACTED] }}	{{ [REDACTED] }}
(i) Managers–Field Operations	73	{{ [REDACTED] }}	{{ [REDACTED] }}
<u>b. Transportation Department (continued)</u>			
Assistant Manager–Field Operations	24	{{ [REDACTED] }}	{{ [REDACTED] }}
(ii) Managers–Locomotive Operations	15	{{ [REDACTED] }}	{{ [REDACTED] }}
(b) Yardmaster	79	{{ [REDACTED] }}	{{ [REDACTED] }}
Assistant Yardmaster	41	{{ [REDACTED] }}	{{ [REDACTED] }}
Administrative Assistants - Major Yards	12	{{ [REDACTED] }}	{{ [REDACTED] }}
<u>c. Mechanical Department</u>			
Vice President–Equipment Management	1	\$628,045	\$628,045
Manager–Administration	2	{{ [REDACTED] }}	{{ [REDACTED] }}
(1) Assistant Vice President–Motive Power	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(a) Director–Engineering & Tech Service	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(b) Director–Operating Research & IE	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Testing & Environmental	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(c) Superintendent–Motive Power, Field Operations	7	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Budget, Motive Power	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(d) Superintendent–Water & Fuel Services	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(2) Assistant Vice President–Equipment Maintenance	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Chief Mechanical Engineer	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Superintendent–Equipment Maintenance, Field Operations	7	{{ [REDACTED] }}	{{ [REDACTED] }}
Car Inspectors	281	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Budgets, Car Maintenance	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Clerk–Car Repair Accounts	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Total Non-Train Operating Personnel	874		\$66,913,454
Source: e-workpaper "TPIRR Operating Expense Open.xlsx."			

3. Fringe Benefits

Fringe benefits for all TPIRR employees are based on 43.5 percent of wages. This number is based on the average ratio of fringe benefits to total wages paid in 2010 for all operating employees, as reported by each of the Class I carriers in their respective R-1 Annual Reports.

The TPIRR also incurs taxi and overnight expenses for train crews. The number of taxi trips required, the cost per trip, the number of overnight stays and the cost per stay were identified for each crew.¹⁴

Consistent with Board precedent, taxi trips and overnight stays were developed using the actual train counts (and the crews' related taxi and hotel requirements) over an entire year.¹⁵ The TPIRR's unit cost for taxi trips is estimated based on current rates for taxi service at each location where available. In other locations, the taxi rate is based on the average rate by state. The cost per overnight stay ranges from \$59.98 to \$190.36 and is based on hotel room rates throughout the TPIRR system.¹⁶

The cost of hotels is based on "rack rates" identified through a review of available hotel rates at specific locations near the TPIRR on the internet. As with any Class I railroad or other company which utilizes a high volume of overnight accommodations, the TPIRR would be able to negotiate hotel rates lower than rack rates based on the high volume of overnight stays its T&E employees would require. The discount from the hotel rack rate for large volume customers is up to 25%, as reported by grouptravel.org.¹⁷

It is assumed that the difference between the rack rate included in TPI's analysis and the hotel rates the TPIRR would be able to negotiate would be more than sufficient to pay for meals for T&E employees in overnight service.

¹⁴ See e-workpaper "Hotels Taxis_Open.xlsx."

¹⁵ See *WFA/Basin I* at 48; *PSCo/Xcel I* at 652.

¹⁶ See e-workpaper "Hotels Taxis_Open.xlsx."

¹⁷ See e-workpaper "What is the Average Discount When You Get Group Hotel Rates.pdf."

C. Materials, Supplies, and Equipment

Materials, supplies and equipment for operating personnel (other than MOW personnel) include office furniture and equipment, office supplies, safety equipment, EOTDs, motor vehicles (including railcar inspection vehicles), and tools and supplies. The total annual operating expense for these items equals \$4.8 million in the First Year.¹⁸ The transportation materials, supplies, and equipment expense includes the cost of 8 Ford Taurus sedans, 98 Ford Explorers, 26 4WD pick-up trucks for car-inspection teams, 12 Ford F-350 trucks and 23 ATV vehicles for car-inspection teams.

Information-Technology requirements, including computers and software, are described in Exhibit III-D-2. MOW-equipment requirements are described in Exhibit III-D-3.

¹⁸ See e-workpaper "TPIRR Operating Expense_Open.xlsx."

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TPIRR GENERAL & ADMINISTRATIVE EXPENSE

The general and administrative (“G&A”) expenses for the TPIRR include its headquarters (corporate) management and administrative staff, buildings and equipment, and other expenses, including information technology (“IT”) requirements, training and recruiting expense, and outsourced expenses. These expenses have been developed on the basis of the experience of TPI’s Witnesses Hunter, McDonald, Kruzich, and Burris and reflect a ground up approach to identifying the required staff of the TPIRR. Mr. Hunter and Mr. McDonald in particular have held a number of senior management positions at Class I railroads. Mr. Hunter has 37 years of experience in senior management positions at the Southern Pacific and Western Pacific Railroads and with several regional railroads. Mr. Hunter has been involved in several railroad mergers, including UP/MKT and SP/DRGW, and also KCS’s acquisition of its Mexican franchise. In all three transactions, his work involved operations, marketing, and organization/personnel. More recently, Mr. Hunter has worked extensively with BNSF in the areas of operations, equipment, marketing, and organization/personnel, and his projects have included analysis of large regional railroads and short-line holding companies in these same areas. Mr. McDonald has 35 years of experience in railroad operations, engineering, and management, serving in senior management positions at Class I railroads. Mr. McDonald spent a large portion of his career with C&NW where he served in numerous positions, including Vice President Western Railroad Properties, Inc., Vice President–Operating Administration, Vice President–Engineering, and Vice President–Operations.

TPI’s third G&A witness is Joseph Kruzich, who has 38 years of experience in railroad accounting, executive administration, and information technology, including serving as Vice President Telecommunications and Chief Information Officer of the Kansas City Southern

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Railway. Mr. Kruzich developed the TPIRR's IT requirements and costs including computer hardware, systems, software, and support personnel as well as out-sourcing needs. Finally, TPI also relies on Philip Burris, a Senior Vice President of L.E. Peabody & Associates, Inc., who has more than 30 years of consulting experience with regard to railroad economics. Mr. Burris developed G&A personnel salaries based on salaries paid to comparable personnel of CSXT or, where appropriate, other railroads.

The TPIRR's engineering staff was developed by TPI's engineering witness, Harvey Crouch, in consultation with Mr. McDonald. As the engineering function principally involves maintenance-of-way, the TPIRR's engineering personnel are discussed in Exhibit III-D-3.

In this Exhibit III-D-2, staffing requirements are discussed in sub-part A, compensation is addressed in sub-part B, equipment needs (and costs) are described in sub-part C, and other issues, including IT systems, are discussed in sub-part D.

A. STAFFING REQUIREMENTS

All TPIRR personnel have been designated as either operating personnel or non-operating personnel. TPIRR operating personnel are discussed in Exhibit III-D-1 and the maintenance-of-way employees, while considered operating personnel, are discussed separately in Exhibit III-D-3. Employees considered non-operating personnel on a Class I railroad are included in the TPIRR G&A staff. This staff performs all commercial, administrative, and legal functions necessary to serve the TPIRR traffic group. TPIRR is a unique railroad, unlike any existing railroad today. It is smaller than the largest Class I railroads (UP, BNSF, NS, CSXT) but larger than KCS and regional railroads. Because of changes in technologies and operations, it also cannot be compared well with past railroads. This makes it very difficult to benchmark

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TPIRR with other railroads past and present. TPIRR is a 7,000 plus mile system with revenues of approximately \$6.6 billion in the First Year of operations. TPIRR, as a system, has fewer branch lines than other major railroads, both past and present. TPIRR traffic is 44 percent intermodal and 13 percent coal, which is primarily transported in unit train movements. There is no railroad today with this type of traffic mix of this size. Without a good comparable railroad to use as a benchmark, TPIRR first evaluated the needs of the railroad and its traffic group for efficient and effective service, and then developed the G&A personnel and functions from the ground up. This process avoids extra unnecessary and redundant positions that are prevalent in long existing railroads. As a startup railroad, there are no past mergers or consolidations carrying over extra personnel from previous organizational structures. TPIRR is in a unique position to put together a modern-day rail system of its own unique size and complexity, efficiently sized and developed for the TPIRR traffic base. Indeed, many G&A activities do not vary with the number of route-miles or the traffic volume. The nature of most G&A activities means that a railroad the size of the TPIRR can achieve greater staffing economies of scale than a smaller railroad.

The G&A staff consists of 304 personnel and is based at Atlanta, GA, where the TPIRR's corporate headquarters building is located. This staff covers all executive and administrative activities including marketing, legal services, accounting and bookkeeping, budgeting, financial reporting, payroll, information systems, human resources, secretarial and clerical services, and supervising contractors in the performance of some out-sourced activities.

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The TPIRR's G&A staff is summarized in Table 1 below. This table does not include the operating and MOW employees located at the Atlanta, GA headquarters, who are discussed in Exhibit III-D-1 and Exhibit III-D-3, respectively.

Exhibit III-D-2 Table 1 <u>TPIRR G&A Personnel Requirement</u>	
<u>Position</u> (1)	<u>No. of Employees</u> (2)
<u>1. Executive</u>	
Outside Directors	5
President/CEO	1
Corporate Secretary	1
Manager-Administration	1
Manager-Planning	1
a. AVP-Administration	1
(1) Director of Corporate Relations	2
Manager-Corporate Communications	1
(2) Director-Government Relations	2
(3) Director-Corporate Quality Improv./Assurance	1
Manager-Corporate Quality Improv./Assurance	1
b. AVP-Human Resources	1
(1) Director-Human Resources	2
Manager-Human Resources	4
(2) Director-Labor Relations	1
Manager-Labor Relations	2
Claims Administrator-Labor Relations	1
Claims Analyst-Labor Relations	2
Total Executive	<u>30</u>
<u>2. Sales & Marketing</u>	
Vice President-Sales & Marketing	1
Manager Administration-Sales & Marketing	1
a. AVP-Consumer, Forest & Paper Products	1
Manager-Consumer Products	1
Manager-Forest & Paper Products	1
b. AVP-Aggregates, Minerals, Metals & Scrap	1
Manager Aggregates & Minerals	1
Manager-Metals	1
Manager-Scrap	1
c. AVP-Chemicals & Petroleum	1

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Exhibit III-D-2

Table 1

TPIRR G&A Personnel Requirement

<u>Position</u> (1)	<u>No. of Employees</u> (2)
Manager-Chemicals & Petroleum	2
d. AVP-Energy & Coal	1
Manager-Energy	1
Manager-Coal	1
e. AVP-Intermodal & Autos	1
Director Marketing-Intermodal & Autos	1
Manager Autos	1
Manager-Intermodal	1
f. AVP-Food & Grain	1
Manager-Food	1
Manager-Grain	1
g. AVP-Sales & Marketing Planning	1
Director-Market Planning	1
Manager-Business Development	1
Manager-Industrial Development	1
h. AVP Sales & Marketing Services	1
(1) Director-Field Sales	1
Manager-National Field Sales	2
Field Sales Representatives	6
(2) Director-Pricing Services & Contracts	1
Manager-Pricing Services	1
Manager-Contracts	1
(3) Director-Damage Prevention & Freight Claims	1
Manager-Damage Prevention & Freight Claims	1
Freight Claims Representative	4
(4) Director-Equipment Distribution	1
Manager-Open Top Hoppers, Gondolas	1
Manager-Covered Hoppers	1
Manager-Box, Tanks, Refrigerator	1
Manager-Flat, Auto, TOFC/COFC	1
Manager-Clearance Desk	1
Chief Car Distributor	1
(5) Manager-Information Services	1
(6) Manager-Support Services and Interline	1
(7) Manager-Customer Service	2
Total Sales & Marketing	56

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Exhibit III-D-2

Table 1

TPIRR G&A Personnel Requirement

<u>Position</u>	<u>No. of Employees</u>
(1)	(2)
<u>3. Finance & Accounting</u>	
Vice President–Finance & Accounting	1
Manager–Administration	1
a. Treasurer	1
Assistant Treasurer	1
Cash Manager	1
Manager–Risk Management & Insurance	1
b. AVP–Controller	1
(1) Assistant Controller–Revenue	1
(a) Director–Revenue & Distribution Accounting	1
Manager–Administration, Revenue Accounting	1
Manager–Freight & Customer Accounting	2
Analyst–Freight & Customer Accounting	2
Manager–Divisions & Interline Accounting	2
Analyst–Divisions & Interline Accounting	4
Manager–Central Freight Rate & Bill	2
Analyst–Central Freight Rate & Bill	7
(b) Director–Credit & Receivables	1
Manager–Collections	1
Supervisor–Collections	2
Analyst–Collections	6
Manager–Overcharge Claims	1
(c) Director–Ancillary Revenue Accounting	1
Manager–Ancillary Revenue Accounting	1
Analyst–Ancillary Revenue Accounting	4
(2) Assistant Controller–Accounts Payable	1
Manager–Accounts Payable	1
Analyst–Accounts Payable	4
Manager–Disbursements	1
Manager–Material Accounting	1
Manager–Vendor Control & Budgets	1
Payroll Manager	1
Payroll Supervisor	1
Payroll Accountant	2
Analyst–Payroll	8
(3) Director–Accounting Systems	1
Manager–Accounting Systems	3
LAN Application Programmer	2

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Exhibit III-D-2

Table 1

TPIRR G&A Personnel Requirement

<u>Position</u> (1)	<u>No. of Employees</u> (2)
(4) Director–Financial Reporting	1
Manager–Financial Reporting	1
Staff Accountants	2
c. AVP–Taxes	1
Director–Property, Sales & Use Tax	1
Manager–Tax	2
Tax Accountant	2
Director Property Accounting	1
Manager Property Accounting	2
Accountant–Property Accountant	2
d. Director Internal Auditing	1
Manager Internal Audit	2
Senior Auditor	1
Auditor	3
e. Director–Cost & Economic Analysis	1
Manager–Cost & Economic Analysis	2
Sr. Analyst–Cost & Economic Analysis	1
Analyst–Cost & Economic Analysis	1
Total Finance & Accounting	100
<u>4. Law</u>	
Vice President Law	1
Administrative Assistant–Law	1
Associate General Counsel	3
General Solicitor	1
General Attorney	2
Paralegal	1
a. Director–Real Estate	1
Real Estate Counsel	1
Manager–Real Estate	1
b. Director–Claims & Asset Protection	1
Manager–Claims	1
District Claims Agent	4
Administrative Assistant–Claims	1
Manager–Environmental Services	1
c. Director–Police	1
Assistant Director–Police	2

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Exhibit III-D-2 Table 1 <u>TPIRR G&A Personnel Requirement</u>	
<u>Position</u> (1)	<u>No. of Employees</u> (2)
Sergeant of Police	2
Special Agent	20
Total Law	45
<u>5. Information Technology</u>	
Vice President–Information Technology (“IT”)	1
Administrative Assistant–IT	1
a. Director–Technology Support	1
Technician–Help Desk	15
Technician–PC (24/7)	8
Technician–Telecommunications	2
b. Director–Network & Security	1
Engineers–Network	3
Technician–Security	4
Engineer–Exchange 2007	4
Manager–Server	4
Manager–Database	5
c. Director–IT Applications	1
Lead Technician–RMI Applications	8
Programmer–Applications Development	8
Analyst–Systems	3
Manager–Interface Support	1
Technician–Interface Support	3
Total Information Technology	73
Total G&A	304
Source: e-workpaper "TPIRR Operating Expense_Open.xls".	

The staffing of non-operational personnel on the TPIRR has been developed, to a large extent, based on the experience of TPIRR’s witnesses Hunter and McDonald. As mentioned above, Mr. McDonald spent a significant portion of his career with C&NW, which was similar in route mileage to the TPIRR. Despite the differences between TPIRR and past and present Class I railroads mentioned above, TPI has provided a comparison to the CN&W for illustrative

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

purposes. For this comparison we used the C&NW as it existed in 1994 due to its similar route mileage to TPIRR and because TPI's witness McDonald has intimate insights on the C&NW's staffing, having served as its VP of Operations in 1994.

Table 2 below compares non-train operations staffing levels of C&NW to those of TPIRR as a demonstration of the reasonableness of the TPIRR staffing developed by Mr. McDonald.

Exhibit III-D-2 Table 2 Comparison of C&NW G&A Staffing With TPIRR		
Department	1994 C&NW	TPI Opening
(1)	(2)	(3)
1. Executive	38	30
2. Sales & Marketing	97	56
3. Finance & Accounting	196	100
4. Law	84	45
5. Information Technology	118	73
6. Total	533	304

Source: e-workpaper "TPIRR Staffing Comparisons_Open.xlsx", Tab "Table Ex III-D-2".

Several significant factors drive the difference between TPIRR staffing and staffing for C&NW in 1994. First, TPIRR's traffic and revenue make-up are different than C&NW's. TPIRR's carload traffic is 44 percent intermodal and 13 percent coal as compared to C&NW's 33 percent intermodal and 18 percent coal in 1994. Also, compared to C&NW, a smaller percentage of TPIRR's business originates on the system with only 35.7 percent of traffic either being local to the system or interchange forwarded traffic compared with C&NW's 41.8 percent

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of carloads local or interchange forwarded.¹ In addition, 38 percent of TPIRR's traffic is overhead to its system compared with C&NW's 27.6 percent. These differences in traffic mix result in the need for fewer Sales and Marketing staff than the C&NW. Typically, the originating railroad is responsible for customer transactions on shipments, including processing of waybills, equipment supply, freight billing, price quoting, and collections. Where a freight collect shipment is used, the destination railroad is responsible for such functions. Significant originating and terminating traffic, as the C&NW had, required significant personnel to handle all of these functions (especially given the lesser degree of computerization in 1994). However, overhead traffic does not originate or terminate on the line, so the overhead railroad is not responsible for any of this customer billing and collections nor for the associated marketing and sales. Therefore, the TPIRR, with more overhead traffic and a smaller percentage of originating/terminating traffic, should require greatly reduced personnel in these areas as compared with the C&NW.

In addition, C&NW had an extensive network of branch lines making most of its traffic manifest carload traffic, with a significant amount of carload grain traffic. This type of traffic has a separate waybill, freight bill, movement record, etc. for every individual carload. Much of TPIRR's traffic is unit train traffic such as coal and intermodal, which means an entire train set, 80 to 120 cars at a time, moves as a single movement with one paperwork set. This obviously reduces not only the billing involved with each train, but also the sales/marketing and accounting efforts because a unit train is all one commodity and all for a single customer.

¹ See e-workpaper "TPIRR C&NW Traffic Comparison.xlsx."

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A third factor driving the difference between TPIRR staffing and staffing for C&NW in 1994 is that, as a private company, the TPIRR does not require Finance and Accounting staff to support the public filings required of public companies, which C&NW was in 1994.

A fourth factor driving staffing differences is that technology advancements and productivity improvements realized since 1994 allow for fewer staff needed to support certain administrative tasks, Information Technology, and recordkeeping in general across all departments. As discussed elsewhere in this Exhibit, TPIRR does not rely on a mainframe system and as a result does not need the amount of IT resources used by Class I Railroads, including C&NW in 1994.

Fifth, the configuration of C&NW was exceptionally different than that of the TPIRR in that C&NW had many more branch lines than the TPIRR. C&NW did not have the density of traffic like TPIRR's. C&NW was the result of several consolidations and mergers including the Chicago Great Western Railroad. In the 1990's the C&NW was made up of several main lines, but was also burdened with many branch lines. Many of these branch lines were marginal and in need of rationalization to justify the costs of the operations on the branches versus the traffic and revenue they were generating. C&NW's efforts at attempting to develop more traffic on these branch lines and addressing complaints when service was reduced to mitigate costs for these lines required significant sales, marketing, finance, and legal attention at the time. Unlike TPI, the C&NW was not able to select its preferred traffic group, nor could it avoid having to serve these low density branch lines. Consequently, C&NW needed to invest more resources in an attempt to generate additional traffic on those lines. Significant personnel resources also were utilized within C&NW simply to manage the added complexity of the excessive and aged branch

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line network it inherited through the mergers. TPIRR will not require the same personnel resources for the same traffic, not only because it is new and has few marginal traffic concerns, but also because it has few branch lines causing the complexity that requires these additional personnel.

In addition, in 1994, there were still a significant number of railroads competing for rail traffic. C&NW had to compete with Santa Fe, BN, CN, CCP, CP, Soo, GW, NS, SP, and UP. It was a significantly different landscape than today, requiring railroads in 1994 to expend more efforts in marketing and sales to continuously compete, develop more business, and capture market share. Since 1994, the majority of railroads in the U.S. have been consolidated into only seven (7) Class I railroads and a handful of Class II railroads competing today. Most rail customers today have only one serving rail carrier, so the serving railroad does not have to compete with other railroads for the rail business. The C&NW in 1994 still had numerous competing railroads with joint access to the customers, which means that the C&NW had additional personnel in sales and marketing to help them compete in the market of the time.

Even for shippers that remained captive, the bottleneck segments were much shorter in 1994 than today, which created more opportunities for downstream competition. Due to the fact that the Class I railroads were smaller in 1994, any long-haul rail transportation had a wide variety of potential routes available to it, using (or avoiding) numerous railroads during the transportation. Thus, any one railroad generally had a much shorter haul than today's large Class I railroads would have had for the same transportation. In other words, more routing options were available and, hence, more competition was possible for the same long-haul movement.

The personnel included as G&A are described in more detail below.

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**1. Executive Office**

The TPIRR's Executive Office consists of the President's office as well as the TPIRR's Board of Directors. The Executive office consists of 30 people including the President, Administrative staff, the Board of Directors, a Corporate Secretary, Corporate Communications and Government Affairs staff, Human Resources staff, Corporate Quality Improvement/Assurance staff, and a Manager-Planning.

The TPIRR's Board of Directors includes seven (7) people: the President, the Vice President-Operations, and five (5) outside directors. The outside directors would likely include two (2) representatives of the TPIRR's customer group, two (2) representatives of its investors, and an independent director with no other connection to the TPIRR.

The President serves as the railroad's CEO with the Vice President ("VP") of each major department reporting to him. These major departments include Operations, Sales and Marketing, Finance and Accounting, Administration, Human Resources, Law, and Information Technology. The President's staff also includes a Manager-Administration and a Manager-Planning.

a. Assistant Vice President-Administration

The Assistant Vice President ("AVP") - Administration reports to the President within the Executive Office and is responsible for Corporate Communication, Government Affairs, and Corporate Quality Improvement/Assurance. The AVP-Administration is also responsible for company interaction with public and government representatives and for consistent messaging across the company. Reporting to the AVP-Administration are two (2) Directors-Corporate Relations, two (2) Directors-Government Relations, and a Director-Corporate Quality Improvement/Assurance.

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i. Directors–Corporate Relations

While each organization’s VP has responsibility for their own departmental relations with outside parties, the Directors–Corporate Relations are responsible for consistent messaging across the departments. These Directors also manage all interaction with the media and provide company-wide assistance with messaging strategy (including advertising), public appearances, and print media. A Manager–Corporate Communications assists the Directors–Corporate Relations with their responsibilities.

ii. Directors–Government Relations

The Directors–Government Relations are responsible for the coordination of TPIRR’s interaction with government agencies and Federal, State, and Local representatives. These Directors will monitor activity at the legislative level and coordinate with department heads as needed to ensure adequate coverage of major governmental issues affecting TPIRR.

iii. Director–Corporate Quality Improvement/Assurance

The Director–Corporate Quality Improvement/Assurance is responsible for developing and maintaining corporate metrics for performance measurement and industry benchmarking. This Director must have a solid understanding of all aspects of the company and work closely with each member of the executive management team on performance improvement. A Manager–Corporate Quality Improvement/Assurance reports to the Director to assist with responsibilities.

iv. Assistant Vice President–Human Resources

The AVP–Human Resources (“HR”) reports to the President. The HR department is responsible for staffing, recruiting, compensation, benefits, compliance, labor relations, employee relations, employee development, and training coordination. Members of the

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department coordinate activities with managers throughout the company because managers play a significant role with their own organizational development, including managing personnel numbers, ensuring employee needs are met, and ensuring their employees are properly trained. The HR department is led by the AVP–Human Resources, who oversees two (2) Directors–Human Resources and a Director–Labor Relations.

v. Directors–Human Resources

Two (2) Directors–Human Resources are responsible for staffing and recruiting, compensation and benefits, and compliance and training. A pool of four (4) Managers assists the Directors with their responsibilities.

vi. Director–Labor Relations

Reporting to the AVP–Human Resources is the Labor Relations group which is led by a Director–Labor Relations. The group’s responsibilities include ensuring compliance with labor regulations and coordinating legal activities related to labor. Since the TPIRR is a non-union railroad, activities for this group will be less than for existing Class I Railroads. Reporting to the Director–Labor Relations are two (2) Managers–Labor Relations, two (2) Analysts–Labor Relations, and a Claims Administrator.

2. Sales and Marketing

The TPIRR Sales and Marketing organization consists of 56 people and is headed by the VP–Sales and Marketing who is assisted by an Administrative Assistant. The Sales and Marketing organization is responsible for managing sales to TPIRR’s existing customers as well as marketing to, and developing transportation services for, potential customers. The sales and marketing effort is organized by six (6) commodity groupings and includes departments for Sales

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and Marketing Planning and also Sales and Marketing Services. The six (6) commodity groupings include: 1) Consumer, Forest and Paper Products, 2) Aggregates, Minerals, Metals and Scrap, 3) Chemicals and Petroleum, 4) Energy and Coal, 5) Intermodal and Autos, and 6) Food and Grain.

One factor affecting staffing for the Sales and Marketing organization is that a large percentage of TPIRR's traffic does not originate on the TPIRR, rather it is interchange received from other carriers in interchange operations. In fact, only 35.7 percent of TPIRR's carload traffic is originated and terminated or originated and forwarded. Of the remaining carload traffic, 38.0 percent is overhead and 26.3 percent is received and terminated. As a result, the sales and marketing staffing required to manage TPIRR business is expected to be less than that of existing Class I railroads that have significantly higher amounts of originating and terminating traffic.

Within each of the commodity groups are Commodity Managers who are responsible for knowing the specific parameters of their commodity, including shipping regulations, equipment types and tenders, STCC codes, billing practices, transportation costs and modeling, special and unique services needed, major lanes and customers involved, etc. They are also expected to know their own respective markets, such as competition and emerging opportunities. These Managers are responsible for developing their annual revenue numbers each year and ensuring that the traffic handled is profitable.

a. Assistant Vice President—Consumer, Forest and Paper Products

The AVP—Consumer, Forest and Paper Products is responsible for the sales, marketing, pricing, and contracts for consumer products, including paper and paper products, wood

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products, and other consumer products. Reporting to the AVP are two (2) Managers. One Manager will handle forest and paper products, while the other Manager will handle consumer products.

b. Assistant Vice President–Aggregate, Minerals, Metal and Scrap

The AVP–Aggregate, Minerals, Metals and Scrap is responsible for sales, marketing, pricing, and contracts for mining products such as minerals, aggregates, cement, and raw ores. The position also handles processed and finished metals (both ferrous and non-ferrous), as well as scrap metal movements. Included in this department are three (3) Managers. One Manager will handle aggregates and minerals, another Manager will handle metals, and the third Manager will handle scrap.

c. Assistant Vice President–Chemicals and Petroleum

The AVP–Chemicals and Petroleum is responsible for sales, marketing, pricing, contracts, hazardous material risk costs, and customer requirements for chemical and petroleum commodities. Included in this department are two (2) Managers. One Manager handles the wide array of Chemicals while the other Manager handles Petroleum products including crude oil, shale, diesel, petroleum coke, gasoline, LPG, etc.

d. Assistant Vice President–Energy and Coal

The AVP–Energy and Coal is responsible for managing sales, marketing, pricing, and contracts for transportation services related to energy commodities, including coal. Reporting to the AVP–Energy and Coal is a Manager–Energy and a Manager–Coal. One Manager will handle all coal traffic and the other Manager handles all other energy related products such as LNG, ethanol, etc.

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**e. Assistant Vice President–Intermodal and Autos**

The AVP–Intermodal and Autos is responsible for sales, marketing, pricing, contracts, and service requirements for all intermodal traffic and customers, finished automobiles, and automotive parts and products. Reporting to the AVP is a Director - Intermodal and Autos. The Director is needed due to the large percentage of intermodal and auto traffic, and would focus on the sales and marketing aspects. Reporting to the Director is a Manager - Intermodal and a Manager - Autos.

f. Assistant Vice President–Food and Grain

The AVP–Food and Grain is responsible for sales, marketing, pricing, and contracts for food and grain commodities. Included in this department are two (2) Managers. One Manager is to handle grain traffic including wheat, barley, corn, etc. in manifest, blocked, and unit train movements, while the other Manager will handle all other food and food grade products, both dry and liquid. The AVP and the two Managers work directly with customers in order to meet their service requirements.

g. Assistant Vice President–Sales and Marketing Planning

The AVP–Sales and Marketing Planning is responsible for supporting the sales and marketing teams with market research, traffic research, and other studies. The Sales and Marketing Planning group includes a Director–Market Planning, a Manager–Business Development, and a Manager–Industrial Development. The Business Development efforts will focus on identifying new markets and new service needs. The Manager–Business Development develops traffic projections and identifies market trends that may affect new business. This Manager also handles special business development projects with Marketing, Operations,

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Finance, Real Estate, and Equipment departments, providing research and financial modeling support. The Manager–Industrial Development is responsible for new business development related to economic development projects and new industrial facilities. This Manager has a strong understanding of economic development goals, industrial development and synergistic services, infrastructure requirements for new facilities and projects, and the economics of traffic projections and rail freight revenue. This position will be the liaison for new industrial projects that will require rail service and will maintain strong relationships with the stakeholders for these projects, including state and local governments, regulatory agencies, economic development agencies, and shippers. This position will develop initial business plans for transportation services to new industrial facilities and will coordinate with relevant departments on initial price quoting, infrastructure costs, equipment plans, real estate options, and other economic drivers. The position will visit sites, assist with site location, and communicate TPIRR’s requirements from other departments to the project stakeholders.

h. Assistant Vice President–Sales and Marketing Services

The AVP–Sales and Marketing Services is responsible for supporting the Sales and Marketing teams in the areas of field sales, pricing, contract support, customer service, damage prevention, freight claims support, equipment distribution, and other services. Reporting to the AVP–Sales and Marketing are a Director–Field Sales, a Director–Pricing Services and Contracts, a Director–Damage Prevention and Freight Claims, a Director–Equipment Distribution, a Manager–Information Services, a Manager–Support Services and Interline, and a Manager–Customer Service.

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i. Director–Field Sales

The Director–Field Sales is responsible for TPIRR’s ongoing sales activity. The Director of Field Sales manages two (2) Managers–National Field Sales, one who is assigned to the Northern portion of the system and the other who is assigned to the Southern portion of the system. Each Manager oversees a team of three (3) Field Sales Representatives. The Sales teams will develop and maintain strong relationships with TPIRR customers in their areas, including understanding each customer’s business and transportation needs, developing business plans and economics for freight movements, and developing new business and traffic to rail service from these customers. These positions, along with the Customer Service group in Marketing and Operations, will serve as the customers’ direct interface for all sales and customer service concerns. Although most customer requests will be handled self-sufficiently by utilizing the online shipment, tracking and billing interfaces, these positions will serve as the customer service contact for their customers for special requests and exceptions, such as tracing problem shipments, expedited shipments, rate negotiating, special service agreements, etc., and these positions will coordinate with other TPIRR departments, like Marketing and Operations, on service issues, equipment needs and rates. The Sales Representatives will also make periodic sales calls and visits as necessary to their customers to discuss service, be familiar with operations at customer facilities, and develop additional traffic opportunities. The focus of representatives’ time will be larger customers and new opportunities.

ii. Director–Pricing Services and Contracts

The Director–Pricing Services and Contracts oversees a Manager–Pricing Services and a Manager–Contracts. The Manager–Pricing Services position works closely with all marketing

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groups for correct rates and manages expiration dates and renewals with these groups. This position sets up the relationships between new quotes, contract and package quotes, tariff, Rule 11, and interline pricing. The Manager–Pricing Services works closely with the Information Services position to ensure the online system provides correct rates and that other carriers provide proper interline rates. The Manager–Contracts handles all tariffs and contracts for ancillary services, demurrage, storage, etc., as well as the special pricing contracts, renewals, cancellations, amendments, and escalations. Special contracts are generally created for the larger clients with multiple services, and this position manages the contract language with the Law Department.

iii. Director–Damage Prevention and Freight Claims

The Director–Damage Prevention and Freight Claims is responsible for the TPIRR system freight claims and working on ways to reduce or prevent customer claims, including interfacing with connecting railroads on claims and liabilities. The Director is supported by a Manager and four (4) Freight Claims Representatives. Together, the members of the Damage Prevention and Claims group will handle all damage and shortage claims from customers, working closely with the Claims personnel in Accounting and Law as needed. Claims Representatives will be cross trained to handle all types of claims and process them, with specific representatives focusing on particular types of claims, but able to handle and cover each other's work as needed. Claims staff will be responsible for knowing common carrier claims procedures and standard practices, and processing claims according to these rules. The staff will record each claim, trace the chain of custody for the claim from start quote or movement by tracking down the relevant paperwork and tracing the movement through the system, establishing or confirming

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liability for each claim and proper amount, and making the correct recommendation for disposition of the claim. Most research and tracking will be performed digitally due to computerized shipment, paperwork, tracing, and billing systems. These representatives will document all steps, record results, and coordinate with the credit department on claim results for proper crediting and with field sales representatives as necessary to communicate to customers. These representatives will be familiar with the claims processes and digital tracing systems of other carriers as well, and will carry through claims against other carriers as necessary.

iv. Director–Equipment Distribution

One Director–Equipment Distribution is responsible for communicating with customers and coordinating with field personnel to ensure the equipment needs of customers are met on a real-time basis. Reporting to the Director–Equipment Distribution are a Chief Car Distributor and five (5) Managers–Car Distribution, each of which are assigned specific car groupings including tank cars, covered hoppers, open hoppers, box cars, and flat cars; however, each of these positions is cross trained with personnel able to handle any type of car and cover each other as necessary. These positions have a strong understanding of each customer’s equipment needs to ensure that equipment is supplied in a timely manner. This requires having accurate knowledge of where all cars are within the system on a given day, tracing cars and car sets through the digital systems, making calls to verify equipment locations and schedules, coordinating with the Mechanical department on bad order cars, and communicating with customers on schedules, issues, and special needs. These Managers produce reports on car management accuracy, discrepancies, surplus and shortages, issues, and possible solutions.

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v. Manager–Information Services

The Manager–Information Services reports to the AVP–Sales and Marketing Services and is responsible for the data systems, user interfaces, and programs involved with maintaining price quotes, tariffs, and contracts. This would be largely an IT position, but would be focused on optimal operation of this system. User interface responsibility would include ensuring internet integrity of the system for customer inquiries and data entry integrity for Marketing personnel. This Manager tracks system issues and projects exceptions for direct reporting to the AVP - Sales and Marketing Services. The position would coordinate closely with the Managers - Customer Service to ensure accurate data and communication with customers.

vi. Manager–Support Services and Interline

The Manager–Support Services and Interline reports to the AVP–Sales and Marketing Services. This Manager is the liaison with interchange carriers, short lines, and intermediary transportation services, such as transloads and industry switchers. This Manager will maintain strong relationships with these carriers, including developing new business with them, applying joint marketing strategies, and addressing issues. The position is responsible for interline movements, issues, and joint facilities and works with the Transportation Department as needed. The position handles joint line agreements with other carriers and coordinates between transportation for storage and switching as needed. The position works with other carriers on problems areas to support the Marketing department efforts.

vii. Managers–Customer Service

Two (2) Managers–Customer Service report directly to the AVP–Sales and Marketing Services and will coordinate customer inquiries of a commercial nature, working closely with the

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Customer Service staff in Operations, Sales, and Pricing to ensure customer issues are resolved. These Managers will survey customers on customer service impressions and coordinate with other TPIRR departments to improve overall customer service and problem resolution. This position develops customer service performance reports for the AVP and develops strategies to improve service.

3. Finance and Accounting Department

The Finance and Accounting Department is responsible for the TPIRR's basic financial and accounting activities, including treasury, taxation, revenue collection, disbursements for accounts payable, financial reporting, and budgeting and analysis. This organization consists of 100 employees and is headed by the VP - Finance and Accounting, who acts as the TPIRR's Chief Financial Officer ("CFO").

Many of the TPIRR's accounting and finance activities are performed using computer applications now common in the railroad industry, rather than being performed manually by in-house staff employees. As a startup railroad, TPIRR does not have to maintain archives of information, unlike Class I railroads today. Accounting and finance activities and the related programs are described in more detail in the Information Technology discussion. Compared to Finance and Accounting personnel accepted by the Board in recent SAC cases such as *WFA/Basin I* and *AEP Texas II*, the staffing devised by TPI reflects certain additions due to the TPIRR's more varied traffic base and larger number of carload transactions.

Six (6) staff positions directly report to the VP-Finance and Accounting: a Treasurer, an AVP-Controller, an AVP-Taxes, a Director-Internal Auditing (also reports to Board of Directors), a Director-Cost and Economic Analysis, and a Manager-Administration.

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**a. Treasurer**

TPIRR's Treasurer oversees the TPIRR's cash management, risk management, and insurance and is responsible for managing the company's cash, investments, debt instruments, 401K retirement plan, credit, and insurance policies. The Treasurer and his department are the primary interface with customer and supplier credit departments, banks and investment managers. The Treasurer also manages executive level investor and lender relationships.

Reporting to the Treasurer are an Assistant Treasurer and a Manager–Risk Management and Insurance. The Assistant Treasurer advises the Controller's Office on the receipt of funds from customers and the TPIRR's connecting carriers, monitors and supervises debt payment requirements, and assists the Treasurer in the performance of his duties. Reporting to the Assistant Treasurer is a Cash Manager who is responsible for day-to-day management of the company's cash including working capital. Also reporting to the Treasurer is a Manager - Risk Management and Insurance. This Manager is responsible for managing customer credit postings as well as credit postings to suppliers; this Manager also works closely with the Collections department under the Controller. The Manager–Risk Management and Insurance is responsible for managing insurance policies held by the company.

b. Controller

The TPIRR's Controller is responsible for all accounting activities, including direction of all billing, vendor payment processing, and financial reporting. As the railroad's chief accounting officer, he advises the VP Finance and Accounting on all accounting issues. Reporting to the Controller are an Assistant Controller–Revenue, an Assistant Controller–Accounts Payable, a Director–Accounting Systems, and a Director–Financial Reporting.

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**i. Assistant Controller–Revenue**

The Assistant Controller–Revenue oversees all customer and interline freight billing and collection. This position is also responsible for supervising billing for demurrage, storage, easements, and utility crossings, as well as inputting contract, tariff rate, and payment terms into the TPIRR’s billing system. Three staff positions report to the Assistant Controller–Revenue: a Director–Revenue and Distribution Accounting, a Director–Credit and Receivables, and a Director–Ancillary Revenue Accounting.

(a) Director–Revenue and Distribution Accounting

The Director–Revenue and Distribution Accounting manages a staff of 20 accounting professionals and is responsible for accounts receivable from shipping customers, other railroads, and transportation service providers, including the development of invoices. Two (2) Managers–Freight and Customer Accounting report to this Director and are supported by two (2) Analysts–Freight and Customer Accounting. Two (2) Managers–Divisions and Interline Accounting also report to the Director–Revenue and Distribution Accounting and are supported by four (4) Analysts–Divisions and Interline Accounting. The Revenue and Distribution group also includes two (2) Managers–Central Freight Rate and Bill who are supported by seven (7) Analysts. Lastly, a Manager–Administration supports the Revenue and Distribution Accounting group.

(b) Director–Credit and Receivables

The Director–Credit and Receivables manages a staff of 10 and is responsible for the timely receipt of receivables and for working with customers on billing and credit issues. The group includes a Manager–Collections, two (2) Supervisor–Collections, six (6) Analysts–Collections, and a Manager–Overcharge Claims.

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**(c) Director–Ancillary Revenue Accounting**

The Director–Ancillary Revenue Accounting is responsible for the invoicing of ancillary services of the TPIRR, including storage, demurrage, special switching, weighing, easements, leases, licenses, etc. These special services are outside the core line haul freight services of the TPIRR, but they produce substantial additional streams of revenue and require regular invoicing. The Director–Ancillary Revenue Accounting is supported by a Manager–Ancillary Revenue Accounting and four (4) Analysts–Ancillary Revenue Accounting.

ii. Assistant Controller–Accounts Payable

The Assistant Controller–Accounts Payable is responsible for overseeing all accounts payable and payroll processing, issuing vendor payments, advising the VP and Treasurer on cash requirements, and reviewing all contracts with outside suppliers. The Assistant Controller–Accounts Payable is supported by a Manager–Accounts Payable, a Manager–Disbursements, a Manager–Material Accounting, and a Manager–Vendor Control and Budgets. The Manager–Accounts Payable is supported by four (4) Analysts–Accounts Payable. Also reporting to the Assistant Controller–Accounts Payable is a Payroll Manager who is supported by a Payroll Supervisor, two (2) Payroll Accountants, and eight (8) Analysts–Payroll.

iii. Director–Accounting Systems

The Director–Accounting Systems reports to the Controller and is responsible for all computer and technology systems that enable TPIRR to efficiently function on a daily and long term basis. This Director and his team integrate the accounting data from multiple departments and are responsible for data integrity in accounting (including auditing data), training personnel,

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and solving issues related specifically to accounting systems. Reporting to this Director are three (3) Managers and two (2) Programmers.

iv. Director–Financial Reporting

Reporting to the Controller is a Director–Financial Reporting who is responsible for overseeing and coordinating monthly, quarterly, and annual reporting packages for review by the CFO, Controller, and senior management. This group also develops financial information for inclusion in R-1 reports as well as supports the Treasury department with financial reports needed for external purposes, such as to provide to investors and retirement planners. Because the TPIRR is not a publicly-held company, it does not need to prepare reports to the Securities Exchange Commission (“SEC”) or the equity-investment community. Responsibility for closing of the monthly books falls to the Assistant Controllers. The Director–Financial Reporting is mainly tasked with the organization of financial information into reports. Reporting to the Director–Financial Reporting is a Manager–Financial Reporting and two (2) Staff Accountants.

c. Assistant Vice President–Taxes

The AVP–Taxes reports to the CFO and manages the preparation of the TPIRR’s federal and state income tax returns, state sales and use tax returns, and ad valorem property tax returns. The AVP - Taxes is the advisor to the VP–Finance and Accounting on all tax matters. A computerized financial accounting system is used to track all of the TPIRR’s physical assets and asset replacements. The AVP–Taxes is supported by a Director–Property, Sales and Use Tax, two (2) Managers–Tax, and two (2) Tax Accountants. Also reporting to the AVP–Taxes is a Director–Property Accounting who is responsible for the accounting of TPIRR assets, including real estate, cars, locomotives, machinery, buildings, and other capital items. Reporting to the

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Director - Property Accounting are two (2) Managers—Property Accounting and two (2) Property Accountants.

d. Director—Internal Auditing

The Director—Internal Auditing reports first to the Board of Directors, then administratively to the CFO. Although the TPIRR employs an outside auditing firm, TPI's experts have added a Director—Internal Auditing to ensure adequate oversight of the company's various financial and accounting activities.² The Director—Internal Auditing is supported by two (2) Managers—Internal Audit, a Senior Auditor, and three (3) Auditors.

e. Director—Cost and Economic Analysis

The Director—Cost and Economic Analysis reports to the CFO and is responsible for developing and maintaining corporate budgets, determining the TPIRR's cost of providing service to its customers, and performing economic analyses of various operations and opportunities for the TPIRR. This group includes two (2) Managers—Cost and Economic Analysis, a Senior Analyst, and an Analyst.

4. Law Department

The Legal and Administrative Department consists of 45 employees and includes TPIRR's legal resources, labor relations, real estate, claims, and security. The Law department is led by the VP—Law. Much of the railroad's legal work is handled by outside counsel, who are supervised by the VP with the assistance of three (3) Associate General Counsels, a General Solicitor, and two (2) in-house General Attorneys. The legal department works with Labor Relations, Human Resources, and outside counsel to resolve FELA claims which become lawsuits. The legal department is also responsible for keeping current with FRA and PHMSA

² See *AEP Texas II* at 56-57.

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regulations and works with outside counsel to handle any proceedings at the Surface Transportation Board.

TPI has based the TPIRR's outside legal budget on a percent of revenue calculation. TPI found several benchmarks which show that companies with revenues greater than \$5 billion typically spend between 0.14 percent and 0.20 percent of revenues on legal expenses.³ Given that it is TPIRR's goal to be the most efficient, cost effective Class I carrier, TPI has elected to rely on the 2010 ALM Legal Intelligence benchmark of 0.1482 percent of revenues for legal spending.⁴ Applying this benchmark to TPIRR's revenues of \$6,567.9 million yields total legal related spending of \$9.7 million. In house legal costs are subtracted from this amount to yield outsource legal spending.⁵

The legal department includes a Paralegal and an Administrative Assistant. Also reporting to the VP–Law are a Director–Real Estate, a Director–Claims, and a Director–Police.

a. Director–Real Estate

The Director–Real Estate is responsible for sales, acquisitions and easements, letters and licenses of real estate on the TPIRR. This Director is assisted by one Real Estate Counsel and a Manager–Real Estate.

b. Director–Claims and Asset Protection

The Director–Claims and Asset Protection is responsible for the administration of claims on a system-wide basis. This Director is assisted by a Manager–Claims and four (4) District Claims Agents who provide assistance in investigating claims, and are also responsible for government safety reporting and representing the TPIRR in industry associations and safety

³ See e-workpaper "TPIRR Legal Benchmarks.pdf."

⁴ *Id.*

⁵ See e-workpaper "TPIRR G&A Outsourcing_Opening.xlsx."

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forums. Also reporting to the Director–Claims is a Manager–Environmental Services who is responsible for working with all Federal Agencies for compliance of regulations and reporting, response to spills, non-accident reporting, and other incidents. This Manager works with all areas of the railroad to keep the railroad compliant with water treatment and hazardous materials regulations. The Claims group also has an Administrative Assistant.

c. Director–Police

The TPIRR’s Security Services department is responsible for investigating potential crimes committed on or against TPIRR property, coordinating with TPIRR facilities managers to ensure proper security is in place at each facility, performing employee and contractor security checks, and protection of the freight moving on TPIRR. Due to the geography of the TPIRR system, staff is placed throughout the system with the Director - Police located in the Atlanta headquarters, two (2) Assistant Directors–Police, two (2) Sergeants of Police, and 20 Special Agents located throughout the system.

5. Information Technology Department

The TPIRR’s IT systems and associated personnel were developed by TPI Witness Kruzich, who has considerable experience with the IT function at Class I and other railroads. The IT system is administered by a staff consisting of a VP–Information Technology, three (3) Directors–Information Technology, and 68 IT Specialists. The TPIRR does not have a main-frame environment, but rather a NT/PC-based system. This means far less IT effort is required as compared to a typical Class I railroad due to the relative simplicity of a NT/PC-based system and the fact that many of the IT requirements are outsourced to RMI (i.e., Transportation,

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Revenue, Intermodal and Car Hire activities).⁶ As most of the TPIRR's application software is available off-the-shelf, little development and maintenance effort is required. Because the TPIRR is built new with current technology, it does not need to devote resources to incorporating legacy or pre-existing computer systems in its start-up costs.

The primary IT staff function is to trouble-shoot various problems with vendors, coordinate transportation software applications with outside vendors (RMI, Oracle, Scat, Alstom) and the business users, and monitor the network infrastructure and critical security systems. There will also be occasions when enhancements will be required to the crew-calling, accounting, human resources, and dispatching systems. The TPIRR's staff of management and IT specialists will be active participants in this effort.

The VP-IT oversees the IT department's daily activities, provides senior management with updates on new technology, and advises as to the future strategic direction of the department. This includes formulation of the logical and physical computer architecture plans and assessment of the cost and feasibility of all user requests. The VP-IT is accountable for information and data integrity for all systems on the TPIRR. This includes responsibility for a data center, technical service centers, communication networks, computer program development, and a help desk. The VP - IT will review all computerized and manual systems related to RMI and in-house operations. He will be extensively involved in the procurement of software and storage and retrieval equipment for the TPIRR. The VP - IT will also interface with RMI executives and is responsible for ensuring the RMI practices are compliant with TPIRR security policies.

⁶ See e-workpaper "TPIRR - Operating Budget.xls".

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Three (3) Directors report to the VP–Information Technology, including the Director–Technology Support, the Director–Network and Security, and the Director–IT Applications. An Administrative Assistant also reports to the VP–Information Technology and supports the IT group.

a. Director–Technology Support

The Director–Technology Support will be responsible for coordinating daily activities for the staff, processing equipment orders, managing staff travel, and assisting with infrastructure needs. The Director–Technology Support is responsible for ensuring that all technical needs of TPIRR’s user community and RMI technical personnel are being met. As described below, twenty-five (25) specialists report to the Director–Technology Support.

i. Help Desk PC Technicians

15 Help Desk PC Technicians (three (3) 24/7 positions) take incoming calls and emails from users reporting technical issues. These Technicians will investigate the issues with the users by phone and prescribe solutions if they are able. If issues are not able to be resolved over the phone by a Help Desk Technician, that Technician will reroute the calls to a Programmer Technician for immediate handling. These positions follow-up with the users to make sure the problem has been resolved.

ii. Programmer/PC and Telecommunications Technicians

Eight (8) Programmer/PC Technicians (including a 24/7 position) and two (2) Telecommunications Technicians provide user support in the day-to-day operation of the TPIRR’s operating system, software applications, computers, and phone systems. These employees provide technical support including resolving issues, configuring desktops,

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maintaining network connectivity and printing capability, and configuring and maintaining phone systems.

b. Director--Network and Security

The Director--Network and Security is responsible for overseeing local-area-network ("LAN") and wide-area-network ("WAN") functionality, for defining the security model to protect against cyber security vulnerabilities, and for protecting internal and external railroad data from malicious attack. The Director--Network and Security manages a staff of 16 network specialists and four (4) security technicians.

i. Network Engineer and Security Technicians

Three (3) Network Engineers and four (4) Security Technicians are responsible for overseeing network security matters and LAN and WAN functionality. These positions will monitor and implement solutions to protect against cyber-attacks, homeland security threats, and system lock down. They will also provide terrorist intrusion protection, support new user access, terminate employee access, and provide support and direction for activities associated with the ISO 17799 standard for IT security best practices. These positions are also responsible for the planning, designing, and managing of transmission facilities, cabling, and communications devices. They will also handle any telecommunications issues that occur.

ii. Exchange 2007 Engineers and Server Managers

Four (4) Exchange 2007 Engineers and four (4) Server Managers are responsible for messaging design and implementation of the Windows 2007 Exchange (server) environment. These positions are also responsible for email server support, Windows operating system support, operating system patching for servers, building and configuring new servers, refreshing

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existing hardware and software on servers, capacity management, performance tuning of the server base, and coordinating the scheduling, ordering, and installation of all server equipment and ancillaries.

iii. Database Managers

Five (5) Database Managers are responsible for the design, configuration, and implementation of database system performance, and configuration of the databases for optimal performance. They are also responsible for improving the effectiveness of database tools and services, ensuring data complies with legal regulations, ensuring the information is protected and backed-up, and monitoring database performance.

c. Director - IT Applications

The Director IT–Applications interfaces with the TPIRR’s business teams to analyze strategic business requirements and works with software vendors as necessary to resolve issues with TPIRR applications. The Director–IT Applications is responsible for leading internal software development projects to improve efficiency and user interfaces. This position is also responsible for staying informed on new industry software offerings, introducing new software possibilities to TPIRR management, and procuring new and updated software from vendors. As described below, there are twenty-three (23) applications specialists included under the Director–IT Applications.

i. RMI Technicians

Eight (8) Lead RMI Technicians are responsible for all RMI applications (RMI is the TPIRR’s principal software vendor/contractor) and serve as liaisons to RMI and the user Departments. These positions ensure all users’ needs are met in an efficient and timely manner.

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**ii. Programmers/Development**

Eight (8) Programmers/Development (including a 24/7 position) and three (3) Systems Analysts are responsible for maintaining and upgrading the crew calling and dispatching systems. These employees help manage the crew calling, accounting, and human resources dispatching systems, and they also are responsible for developing a corporate information web site. The TPIRR's web site will be designed to enable TPIRR's customers to do business online efficiently.

iii. Interface Support Manager

One (1) Manager-Interface Support and three (3) Interface Support Technicians manage TPIRR's various programs and software systems that will need to share information. These employees ensure that in-house systems can communicate with other in-house and external systems.

B. COMPENSATION

The salaries and benefits for the TPIRR's G&A personnel described above are based on comparable and competitive compensation packages presently available in the railroad industry (and in other service industries).

Specifically, annual salaries for the G&A personnel are based on data contained in CSXT's Wage Forms A and B, with several exceptions. Salaries for the President and VPs included in the G&A staff are based on the salaries, including bonuses, paid for similar positions by the Kansas City Southern Lines ("KCS"), a holding company which owns and operates the Kansas City Southern Railway and the Kansas City Southern de Mexico.⁷ According to KCS's

⁷ It should be noted that the compensation for all TPIRR vice president positions are based on the average compensation paid to KCS's *Executive* vice presidents rather than vice presidents as the compensation for vice

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website, the two (2) major lines comprising the KCS operate 7,075 route miles of railroad, which is similar to the 7,357 route miles⁸ operated by the TPIRR. This is far smaller than CSXT which operates over 20,740 miles and is also substantially smaller than the other Class I railroads. Executive compensation for the TPIRR includes salary and short-term incentives in the form of cash bonuses, but excludes long-term incentives in the form of stock and option awards. Stock and options awards are excluded in part because the TPIRR will be a private company but also because the actual cash values and the timing of cash impacts are uncertain, especially depending on how stock options are valued. Compensation for the Board of Directors is another exception. The Board will meet once per quarter and will be compensated \$10,000 per meeting attended.

As shown previously,⁹ fringe benefits for all employees are 43.5 percent of wages based on the average ratio of fringe benefits to total wages paid in 2010 to employees of all Class I carriers as reported by in the carriers' R-1 Annual Reports to the STB. The fringe benefit ratio includes expenses related to health and welfare benefits, railroad retirement, supplemental annuities, unemployment insurance, and other programs. The G&A staff salaries are summarized by Department in Table 3 below.

president positions are not reported in SEC filings. As a result, the compensation for TPIRR's vice presidents is greater than what is currently paid in the market place for this position.

⁸ This figure includes 491 route miles operated by TPIRR over rail lines owned by other railroads.

⁹ See the narrative discussion of compensation for the Train & Engine Crew.

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Exhibit III-D-2

Table 3

TPIRR G&A Compensation Requirement

<u>Position</u> (1)	<u>No. of Employees</u> (2)	<u>Annual Salary</u> (3)	<u>Total Salary</u> (4)
<u>1. Executive</u>			
Outside Directors	5	\$40,000	\$200,000
President/CEO	1	\$1,181,284	\$1,181,284
Corporate Secretary	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Administration	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Planning	1	{{ [REDACTED] }}	{{ [REDACTED] }}
a. AVP-Administration	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(1) Director of Corporate Relations	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Corporate Communications	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(2) Director-Government Affairs	2	{{ [REDACTED] }}	{{ [REDACTED] }}
(3) Director-Corporate Quality Improv./Assurance	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Corporate Quality Improv./Assurance	1	{{ [REDACTED] }}	{{ [REDACTED] }}
b. AVP-Human Resources	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(1) Director-Human Resources	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Human Resources	4	{{ [REDACTED] }}	{{ [REDACTED] }}
(2) Director-Labor Relations	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Labor Relations	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Claims Administrator-Labor Relations	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Claims Analyst-Labor Relations	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Total Executive	30		\$3,627,112
<u>2. Sales & Marketing</u>			
Vice President-Sales & Marketing	1	\$628,045	\$628,045
Manager Administration-Sales & Marketing	1	{{ [REDACTED] }}	{{ [REDACTED] }}
a. AVP-Consumer, Forest & Paper Products	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Consumer Products	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Forest & Paper Products	1	{{ [REDACTED] }}	{{ [REDACTED] }}
b. AVP-Aggregates, Minerals, Metals & Scrap	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager Aggregates & Minerals	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Metals	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Scrap	1	{{ [REDACTED] }}	{{ [REDACTED] }}
c. AVP-Chemicals & Petroleum	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Chemicals & Petroleum	2	{{ [REDACTED] }}	{{ [REDACTED] }}
d. AVP-Energy & Coal	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Energy	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Coal	1	{{ [REDACTED] }}	{{ [REDACTED] }}
e. AVP-Intermodal & Autos	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Director Marketing-Intermodal & Autos	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager Autos	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Intermodal	1	{{ [REDACTED] }}	{{ [REDACTED] }}
f. AVP-Food & Grain	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Food	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Grain	1	{{ [REDACTED] }}	{{ [REDACTED] }}

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Exhibit III-D-2

Table 3

TPIRR G&A Compensation Requirement

<u>Position</u> (1)	<u>No. of Employees</u> (2)	<u>Annual Salary</u> (3)	<u>Total Salary</u> (4)
g. AVP–Sales & Marketing Planning	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Director–Market Planning	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Business Development	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Industrial Development	1	{{ [REDACTED] }}	{{ [REDACTED] }}
h. AVP Sales & Marketing Services	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(1) Director–Field Sales	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–National Field Sales	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Field Sales Representatives	6	{{ [REDACTED] }}	{{ [REDACTED] }}
(2) Director–Pricing Services & Contracts	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Pricing Services	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Contracts	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(3) Director–Damage Prevention & Freight Claims	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Damage Prevention & Freight Claims	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Freight Claims Representative	4	{{ [REDACTED] }}	{{ [REDACTED] }}
(4) Director–Equipment Distribution	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Open Top Hoppers, Gondolas	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Covered Hoppers	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Box, Tanks, Refrigerator	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Flat, Auto, TOFC/COFC	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Clearance Desk	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Chief Car Distributor	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(5) Manager–Information Services	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(6) Manager–Support Services and Interline	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(7) Manager–Customer Service	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Total Sales & Marketing	56		\$5,912,326
<u>3. Finance & Accounting</u>			
Vice President–Finance & Accounting	1	\$628,045	\$628,045
Manager–Administration	1	{{ [REDACTED] }}	{{ [REDACTED] }}
a. Treasurer	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Assistant Treasurer	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Cash Manager	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Risk Management & Insurance	1	{{ [REDACTED] }}	{{ [REDACTED] }}
b. AVP–Controller	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(1) Assistant Controller–Revenue	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(a) Director–Revenue & Distribution Accounting	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Administration, Revenue Accounting	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Freight & Customer Accounting	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst–Freight & Customer Accounting	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Divisions & Interline Accounting	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst–Divisions & Interline Accounting	4	{{ [REDACTED] }}	{{ [REDACTED] }}

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Exhibit III-D-2

Table 3

TPIRR G&A Compensation Requirement

<u>Position</u> (1)	<u>No. of Employees</u> (2)	<u>Annual Salary</u> (3)	<u>Total Salary</u> (4)
Manager-Central Freight Rate & Bill	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst-Central Freight Rate & Bill	7	{{ [REDACTED] }}	{{ [REDACTED] }}
(b) Director-Credit & Receivables	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Collections	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Supervisor-Collections	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst-Collections	6	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Overcharge Claims	1	{{ [REDACTED] }}	{{ [REDACTED] }}
(c) Director-Ancillary Revenue Accounting	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Ancillary Revenue Accounting	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst-Ancillary Revenue Accounting	4	{{ [REDACTED] }}	{{ [REDACTED] }}
(2) Assistant Controller-Accounts Payable	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Accounts Payable	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst-Accounts Payable	4	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Disbursements	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Material Accounting	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Vendor Control & Budgets	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Payroll Manager	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Payroll Supervisor	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Payroll Accountant	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst-Payroll	8	{{ [REDACTED] }}	{{ [REDACTED] }}
(3) Director-Accounting Systems	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Accounting Systems	3	{{ [REDACTED] }}	{{ [REDACTED] }}
LAN Application Programmer	2	{{ [REDACTED] }}	{{ [REDACTED] }}
(4) Director-Financial Reporting	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Financial Reporting	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Staff Accountants	2	{{ [REDACTED] }}	{{ [REDACTED] }}
c. AVP-Taxes	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Director-Property, Sales & Use Tax	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Tax	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Tax Accountant	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Director Property Accounting	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager Property Accounting	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Accountant-Property Accountant	2	{{ [REDACTED] }}	{{ [REDACTED] }}
d. Director Internal Auditing	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager Internal Audit	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Senior Auditor	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Auditor	3	{{ [REDACTED] }}	{{ [REDACTED] }}
e. Director-Cost & Economic Analysis	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager-Cost & Economic Analysis	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Sr. Analyst-Cost & Economic Analysis	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst-Cost & Economic Analysis	1	{{ [REDACTED] }}	{{ [REDACTED] }}

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Exhibit III-D-2

Table 3

TPIRR G&A Compensation Requirement

<u>Position</u> (1)	<u>No. of Employees</u> (2)	<u>Annual Salary</u> (3)	<u>Total Salary</u> (4)
Total Finance & Accounting	100		\$8,122,750
<u>4. Law</u>			
Vice President Law	1	\$628,045	\$628,045
Administrative Assistant–Law	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Associate General Counsel	3	{{ [REDACTED] }}	{{ [REDACTED] }}
General Solicitor	1	{{ [REDACTED] }}	{{ [REDACTED] }}
General Attorney	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Paralegal	1	{{ [REDACTED] }}	{{ [REDACTED] }}
a. Director–Real Estate	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Real Estate Counsel	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Real Estate	1	{{ [REDACTED] }}	{{ [REDACTED] }}
b. Director–Claims & Asset Protection	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Claims	1	{{ [REDACTED] }}	{{ [REDACTED] }}
District Claims Agent	4	{{ [REDACTED] }}	{{ [REDACTED] }}
Administrative Assistant–Claims	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Environmental Services	1	{{ [REDACTED] }}	{{ [REDACTED] }}
c. Director–Police	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Assistant Director–Police	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Sergeant of Police	2	{{ [REDACTED] }}	{{ [REDACTED] }}
Special Agent	20	{{ [REDACTED] }}	{{ [REDACTED] }}
Total Law	45		\$3,854,589
<u>5. Information Technology</u>			
Vice President–Information Tech	1	\$628,045	\$628,045
Administrative Assistant–IT	1	{{ [REDACTED] }}	{{ [REDACTED] }}
a. Director–Technology Support	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Technician–Help Desk	15	{{ [REDACTED] }}	{{ [REDACTED] }}
Technician–PC (24/7)	8	{{ [REDACTED] }}	{{ [REDACTED] }}
Technician–Telecommunications	2	{{ [REDACTED] }}	{{ [REDACTED] }}
b. Director–Network & Security	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Engineers–Network	3	{{ [REDACTED] }}	{{ [REDACTED] }}
Technician–Security	4	{{ [REDACTED] }}	{{ [REDACTED] }}
Engineer–Exchange 2007	4	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Server	4	{{ [REDACTED] }}	{{ [REDACTED] }}
Manager–Database	5	{{ [REDACTED] }}	{{ [REDACTED] }}
c. Director–IT Applications	1	{{ [REDACTED] }}	{{ [REDACTED] }}
Lead Technician–RMI Applications	8	{{ [REDACTED] }}	{{ [REDACTED] }}
Programmer–Applications Development	8	{{ [REDACTED] }}	{{ [REDACTED] }}
Analyst–Systems	3	{{ [REDACTED] }}	{{ [REDACTED] }}

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Exhibit III-D-2

Table 3

TPIRR G&A Compensation Requirement

<u>Position</u> (1)	<u>No. of Employees</u> (2)	<u>Annual Salary</u> (3)	<u>Total Salary</u> (4)
Manager-Interface Support	1	{{[REDACTED]}}	{{[REDACTED]}}
Technician-Interface Support	3	{{[REDACTED]}}	{{[REDACTED]}}
Total Information Technology	73		\$5,515,505
Total G&A	304		\$27,032,283

Source: e-workpaper "TPIRR Operating Expense Open.xls".

C. MATERIAL, SUPPLIES AND EQUIPMENT

Consistent with the stand-alone principles of unlimited resources and barrier-free entry, the ready availability of materials and equipment is assumed.

The TPIRR owns or leases various types of vehicles and equipment used by its Operating and G&A staffs. Costs for this equipment have been included in the calculation of the TPIRR's annual operating expenses.¹⁰ Company vehicles are needed at the TPIRR's Atlanta, GA headquarters and by field operating personnel. A pool of Ford Explorers (an SUV with all-wheel drive) is maintained at headquarters for use primarily by the headquarters G&A, Operating and Engineering staffs, and Security personnel while traveling to the field on TPIRR business. Five (5) Ford Explorers and thirty-one (31) Ford Tauruses are included as G&A vehicles. These are in addition to the eight (8) Ford Tauruses, 98 Ford Explorers, 26 Pick-up trucks, 12 F350 trucks, and 23 ATV vehicles included in the materials, supplies, and equipment expense in the Operations Department.

¹⁰ See e-workpaper "TPIRR Materials and Supplies.xlsx."

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The TPIRR also needs miscellaneous office equipment and supplies including desks, telephones, and janitorial supplies.¹¹

D. OTHER**1. IT Systems**

The TPIRR's information technology systems have been developed by TPI Witness Joseph Kruzich, an experienced railroad IT expert. Mr. Kruzich has worked for Class I railroads reviewing various work procedures and providing recommendations on how the work processes could be improved to achieve a high degree of efficiency. This experience enabled him to become very familiar with the wide variety of work processes involved in running a railroad. Mr. Kruzich also served as IT VP of the Kansas City Southern Railroad and was instrumental in directing the development of the new KCS computer systems in the late 1990's. A more detailed description of Mr. Kruzich's qualifications is contained in Part IV of this opening evidence. Mr. Kruzich reviewed the TPIRR's operating plan and G&A requirements to determine the railroad's basic computer and communications needs and the level of support appropriate for its staff. The IT systems described below enable the TPIRR to operate safely and efficiently and to perform all administrative activities.

The TPIRR has an average of 555 train movements per day in the peak week, as well as a limited number of local customers and interchange points. It also handles primarily trainload movements, with multiple-car billing (using the RMI Revenue System to allocate revenues), rather than billing for individual railcars. This reduces the complexity of the computer and communications system required to support operations and renders unnecessary the expensive

¹¹ *Id.*

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

mainframe systems that large carriers use. Thus, the TPIRR does not require a large data facility to house a mainframe computer system and associated peripheral equipment. As described below, the TPIRR IT system design is NT/PC based and can be housed in a room approximately 20' X 30', with normal office environment heating and air conditioning accommodations. This room would be located in the TPIRR headquarters at Atlanta, GA. As stated previously, most of TPIRR's computer requirements will be outsourced to RMI in Atlanta.¹²

Based on the TPIRR operating plan and G&A staff departments, the capital requirements for IT and communications systems total \$29.2 million and the annual annuitized capital costs are \$4.9 million.¹³ The annual operating cost for IT and related communications is \$33.8 million at 3Q10 price levels.¹⁴ Table 4 below shows the capital and annual operating expenses separately for information technology and related communications systems.

Exhibit III-D-2 Table 4 Capital And Operating Costs For <u>TPIRR IT And Communications Systems</u>		
<u>Item</u>	<u>Capital Cost</u>	<u>Operating Expense</u>
(1)	(2)	(3)
1. Information Technology	\$28,736,110	\$32,628,553
2. Communications	<u>\$280,111</u>	<u>\$1,189,927</u>
3. Total	\$29,016,221	\$33,818,480

Source: e-workpapers "TPIRR - Capital Budget.xls" and "TPIRR - Operating Budget.xls".

The TPIRR's computer and IT communications systems are described below. They have been designed to meet the company's mission-critical technology needs; they enable the TPIRR

¹² See e-workpaper "TPIRR-Operating Budget.xls".

¹³ See e-workpaper "TPIRR-Capital Budget.xls".

¹⁴ See e-workpaper "TPIRR-Operating Budget.xls".

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to achieve operating efficiencies, customer satisfaction, optimum staffing,¹⁵ maximum productivity, and safe train operations. The costs summarized above are based on the TPIRR's highest daily train counts and number of annual carload transactions.

a. Transportation System

The key item in the TPIRR information technology architecture is RMI's Transportation Management Services ("TMS") package. TMS is an integrated system for managing day-to-day rail operations that is currently used by several regional railroads, such as Genesee & Wyoming, Inc., the largest operator of short line and regional railroads in North America. TMS includes modules for yard and inventory control, waybilling, train operations, switching settlements, demurrage, EDI consists, waybills, bills of lading, blocking instructions, work orders, switch instructions, and many other features. This system is outsourced to RMI using frame relay communications from TPIRR's Atlanta headquarters (where the major transaction reporting occurs) to Atlanta, GA, where RMI is also located.

TPIRR will use the mobile crew reporting system because it will provide an efficient means of inputting field activity. This system allows operating personnel in the field to enter information on train and crew events into the RMI system in real-time. This system is used by other Class I railroads to improve clerical and trainman efficiencies and minimize reporting errors by eliminating the need for clerical staff to input reports from the field. Mr. Kruzich has included the Mobil Crew Devices and their monthly service fees in the Capital and Operating Budgets. Field personnel access the RMI system via the Internet using mobile crew reporting

¹⁵ The TPIRR's IT personnel requirements are described above in the discussion of G&A personnel. The IT staff size is largely a function of the systems described in this section.

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devices as well as workstations. Mr. Kruzich estimates implementation costs for the RMI system will be \$4.0 million and annual operating expense will be \$18.8 million.¹⁶

b. Crew Management System

A crew management system is needed to efficiently manage the TPIRR train crews and equipment. The TPIRR will purchase a license from PS Technology for the SCAT Client Server system, related equipment, and software (Oracle Data Base). This system provides the capacity needed to schedule crew requirements involving approximately 3,108 train/engine/yard employees (First Year) and 111 home terminal crew locations over the TPIRR system. It also minimizes the need for a large staff of crew callers or other crew management personnel. Total costs for the crew management system equal \$1.6 million.¹⁷

c. Dispatching System

A computerized dispatching system, assisted by 32 TPIRR dispatcher positions on a 24/7 basis, monitors the movement of trains and other equipment at all times, and distributes traffic efficiently across the railroad. The TPIRR will purchase and implement a PC-based version of the Alstom Dispatching system. This system is similar to the one that was used by the KCS in 2000 when Mr. Kruzich was CIO. This system has plenty of capacity to meet the TPIRR's needs and includes all necessary equipment, installation, and on-site tests. The IT system requirements of this system are included in the signal and communications investment account in Part III-F.

d. Revenue Accounting

The TPIRR will use a revenue system to handle interline settlements for trainload transactions, multiple-car transactions, and single car transactions. RMI has a revenue system

¹⁶ See e-workpaper "TPIRR - Operating Budget.xls".

¹⁷ See e-workpaper "TPIRR - Capital Budget.xls".

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that meets TPIRR's requirements. In particular, the RMI Revenue Management Services ("RMS") is a full-function revenue management system that has been certified by the AAR for Interline Settlement System ("ISS") processing. This certification allows railroads using ISS/Connect to participate in the ISS. ISS/Connect provides complex rate management, EDI management, freight billing, support for industry reference files, revenue protection, and additional functionality. The RMS costs are based on the estimated total monthly settlements that are processed through the revenue management system at a cost of \$5.3 million.¹⁸

e. Car Accounting

The TPIRR needs a receipt and payable car hire system because the TPIRR owns some railcars and uses some railcars provided by its connecting carriers. RMI has a car hire system for receipts and payables that provides the necessary features required by the TPIRR to keep track of its cars off-line and foreign cars on-line. This system computes charges due TPIRR from foreign railroads and the TPIRR's payables to foreign roads. The system separates car earnings by designated owner groups, issues remittance and settlement summaries, flags non-moving cars and missing junctions, and helps keep track of assets with on-line access to car movement data. The annual operating expense for this system of \$0.7 million is based on the number of non-private interchange cars handled per month.¹⁹

f. General Accounting

The TPIRR uses the Oracle Solutions package for its general accounting system. Oracle "PeopleSoft" offers fully automated solutions to support the complete financial control and reporting process—from establishing and managing controls, creating and interfacing transactions

¹⁸ See e-workpaper "TPIRR - Operating Budget.xls".

¹⁹ See e-workpaper "TPIRR - Operating Budget.xls".

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from operational sources, transforming ledger balances to account for enterprise allocations and re-measurement to consolidating and reporting results. Built-in best practices provide strong internal controls, save time and money, and allow for strategic analysis of the business. The software is designed to run on Windows 7 and Windows NT operating systems. The total operating for the accounting system equals \$217,186 and capital costs for this system, including hardware and training equal \$2.2 million, which includes a Dell OptiPlex 380 PC, cables, HP LaserJet P4015n printer and Dell PowerEdge T710 Servers.²⁰ The CSXT is currently using Oracle PeopleSoft for many of their accounting activities.²¹

g. Human Resource Management

The TPIRR also uses Oracle Solutions package “PeopleSoft” for its Human Resources (“HR”) System. Oracle’s PeopleSoft Enterprise Human Resources delivers comprehensive HR capabilities, from workforce management to compensation and talent management. Extensive business process automation and rich self-service capabilities free HR teams to perform value-added services while reducing operational costs. This system covers the TPIRR’s human resource data needs at an affordable cost. The software package includes all basic employee reporting features, employee profile tracking, attendance reports, benefit, insurance and COBRA reports, compensation/job history reports, EEO and citizenship reports, organizational reports, and all OSHA and workers’ compensation reports. PeopleSoft is currently being used by CSXT for their Human Resource activities.²² The system uses a Dell OptiPlex GX280 PC, cables, an HP Laser Jet 4250tn printer, and a Dell PowerEdge 1800 Server. The annual operating cost for

²⁰ See e-workpaper “TPIRR- Computer Configuration.doc”.

²¹ See e-workpaper “CSX - Oracle.pdf.”

²² *Id.*

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this system equals \$772,088 and capital cost for this system, including hardware and training, is \$7.7 million.²³

h. Network and Router Equipment

The TPIRR needs networking capability and routers because it has a number of computers in multiple locations. Networking and router equipment permit these computers to communicate with one another. One router will be placed at each field reporting location and two at TPIRR headquarters. In addition to networking, the TPIRR will need several servers to accommodate various other activities such as: Identity & Access Server, Internet IDS/IPS Server, FTP/EDI Interface Support, File Server, MailServer, Corporate Web Site Server, Anti-Virus and Anti-Spyware, Security Network Server, Vulnerability Patch Management, and Auxiliary Mail Server. There is also a test and development system for system software fixes/upgrades and application software fixes/upgrades. Microsoft Cloud will be used to provide e-mail capability for most TPIRR employees to communicate among themselves on various issues. A Generac Commercial Series Standby Generator will be used as an Uninterruptible Power Supply (“UPS”) system to provide a backup in case of a major power outage. The total number of servers, UPS, and software costs are shown in detail in the capital and operating budget statements.²⁴ The TPIRR’s communications network consists of a microwave and commercial telephone system. The costs for these items are included in the network infrastructure costs discussed in Part III-F. The IT operating expense budget includes a network computer system for LAN and WAN, routers at various locations, and internet access for headquarters and field locations.²⁵

²³ See e-workpapers “TPIRR - Operating Budget.xls” and “TPIRR - Capital Budget.xls”.

²⁴ See e-workpapers “TPIRR - Operating Budget.xls” and “TPIRR - Capital Budget.xls”.

²⁵ See e-workpaper “TPIRR - Operating Budget.xls”.

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**i. Workstations and Printers**

Both desktop and laptop PC's are provided and included in the TPIRR's IT cost, with a high-end configuration to run a state-of-the-art operating system while avoiding the need to purchase other applications. One PC is provided for each G&A employee as well as for operating personnel located at headquarters. Additionally, one PC is provided at each crew change point and the major yard locations where employees are assigned. Laptops are provided for use by employees who are required to travel a considerable amount of their time. The total capital cost for desktop and laptop computers is \$1.1 million.²⁶

The TPIRR will use a variety of printers for work orders, safety bulletins, and normal office work such as printing contracts, correspondence, and reports. A color printer will be used for various maps, charts, and diagrams. Printers are also needed in the field and at major interchange locations to print information relating to the work performed there. TPIRR equipment will include a desktop laser printer for each desktop PC, a printer for laptop PCs where needed, one color and two line printers at headquarters, and one line printer at each of the TPIRR's yards. The total capital cost for printers for the TPIRR is \$267,315.²⁷

j. Voice and Data Communications

TPIRR will utilize NexPath Telephony Sever-NTS Server Rack Mounted Systems for telephone systems and telephone services to handle external and internal telephone activity. This system includes traditional telephones for each administrative employee, the NTS telephone system, a voicemail system, and a calling card system. NexPath Telephony Sever-NTS Server Rack Mounted Systems is capable of handling 51 outside lines and up to 85 extensions. There

²⁶ See e-workpaper "TPIRR - Capital Budget.xls".

²⁷ *Id.*

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are six of these systems provided in the Capital Budget. This system is capable of handling internal calls over the microwave system and external calls from various parties. The external calls would consist of local and long-distance telephone service, 800 services, paging, and faxing.

Data telecommunications between the RMI transportation system in Atlanta, GA and TPIRR's headquarters (also in Atlanta) are provided by AT&T. This is a frame relay system that is based on estimated transactions. The Internet is used for data communications for all the field offices. The field offices also have Internet access to the RMI transportation system in Atlanta. Cellular phones and pagers are provided for employees who need them to perform their work efficiently. The capital cost for this system is \$4,425²⁸ and the annual operating expenses equal \$318,068.²⁹

k. Automatic Equipment Identification

Automatic equipment identification ("AEI") includes a track-side scanner that reads information from each car (car number and initial) in a manner similar to reading a bar code. That information is accumulated on a PC while the train passes a specific site where the scanner is installed. These readings are then compared to the train consist residing on a computer to determine if there are any discrepancies. If discrepancies exist, the consist record is adjusted to agree with the reading from the scanner.

The TPIRR's AEI scanner locations are discussed in Part III-F-6. The capital costs for AEI scanners are included in the TPIRR's road property investment costs in Part III-F.

²⁸ *Id.*

²⁹ See e-workpaper "TPIRR - Operating Budget.xls".

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**i. Software Maintenance**

Software products such as PC accounting packages that run on a server, and tools such as security software and monitoring software, require payment of annual maintenance fees for support and upgrades. Some of these fees are included in the licensing agreement, such as that for the Oracle Products, which has an annual fee payable for the use of its product. Other providers have a flat charge for the package with no annual fees, but they will have enhancement upgrade announcements from time to time with a specified charge for the upgrade. The annual fees to be paid by the TPIRR for these various charges will be \$1.8 million.³⁰

m. Railinc Services

The TPIRR requires some Railinc services to pass and receive car location information to/from CSXT and its other interchange partners for the various interchange locations. The annual cost for these Railinc services is \$141,072.³¹

n. Network Security

The TPIRR also needs security software to protect its network from exterior intrusion due to the large amount of data that is transmitted to Atlanta and other parts of the railroad. The system to be used is the Watchguard Firebox X6500e UTM Software Suite. The Watchguard suite offers comprehensive Unified Threat Management and is an easily managed firewall and AV/IPS security appliance for mid-size businesses requiring a secure, private network. The annual cost for the network security software is \$43,665.³²

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

TPIRR GENERAL & ADMINISTRATIVE EXPENSE**2. Other Out-Sourced Activities**

As described earlier, several activities customarily provided in-house by large Class I railroads can be efficiently out-sourced by the TPIRR. Consistent with the stand-alone concept of an efficient, least-cost railroad, out-sourcing is used wherever the economics so justify without sacrificing the SARR's feasibility or service quality.

Out-sourced activities, in addition to those described in the preceding section, include finance and accounting activities (including financial/account auditing and payroll processing) and certain legal services.³³

A number of independent accounting, payroll service, and other firms have the experience and systems to perform these activities. For example, the payroll service firm Paychex has experience in complying with Railroad Retirement and other railroad-specific tax and regulatory reporting requirements.

Internal and External Audit are very important functions that will ensure TPIRR is conducting business in a professional manner. TPI has used a benchmark of 0.03 percent of revenue, approximately \$1.97 million, for internal auditing costs. This benchmark was published in the Journal of Accountancy, and will ensure TPIRR receives adequate internal audit support.³⁴

TPI has used CSXT's actual audit fees and revenue for the past three years to calculate a reasonable and reliable external audit cost for the TPIRR. TPI did so by calculating the percent of CSXT revenue that was spent on audit fees for the years 2009 through 2011.³⁵ After averaging the results, TPI came to the conclusion that 0.0252 percent of CSXT's revenue goes towards

³³ See e-workpaper "TPIRR G&A Outsourcing_Opening.xlsx."

³⁴ See e-workpaper "TPI Internal Audit.pdf."

³⁵ Audit fees were found in CSXT's annual proxy statement; Revenue was found in CSXT's annual report.

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external audits.³⁶ Applying this percent to the \$6,567.9 million First Year revenues of the TPIRR produces external audit costs of \$11.66 million.

The calculation of outsourced legal expense is addressed in a previous section. Estimated annual costs of \$1.71 million have been developed for outsourcing all of the activities described above.³⁷

3. Start-Up and Training Costs

Training costs for TPIRR employees are based on information provided by CSXT in discovery and include both training costs (based on CSXT's Railroad Education & Development Institute) and also employee compensation when in training. These costs are developed on a per employee basis by department, including transportation, mechanical, and engineering/MOW employees.

Table 5 below displays the cost per employee, number of employees trained, and total training cost by department.

<u>Department</u> (1)	<u>Training Cost per Employee</u> (2)	<u>Employees Trained</u> (3)	<u>Total Training Cost</u> (4)
1. Transportation	{{ [REDACTED] }}	3,248	{{ [REDACTED] }}
2. Engineering/MOW	{{ [REDACTED] }}	894	{{ [REDACTED] }}
3. Mechanical	{{ [REDACTED] }}	285	{{ [REDACTED] }}
4. Total		4,427	\$71,120,036

Source: e-workpaper "TPIRR Operating Expense_Open.xlsx".

³⁶ See e-workpaper "External Audit.xlsx."

³⁷ See e-workpaper "TPIRR G&A Outsourcing_Opening.xlsx."

TPIRR GENERAL & ADMINISTRATIVE EXPENSE

Training of transportation department employees includes T&E personnel and dispatchers, mechanical department employees, car inspectors, engineering/MOW employees, and all MOW track department personnel.

Recruiting costs are included for Executives (Director positions and above) at a level of (10) percent of salaries, based on fees charged by Summit Search Solutions, Inc.³⁸ In addition, a \$1,000 cost per employee is included for rank and file employee based on the amount accepted by the Board in *PSCo/Xcel I*.³⁹

Subsequent annual recruitment and training expenses are based on a three percent average annual attrition rate, which was CSXT's attrition rate as cited in a 1998 article.⁴⁰

A total amount of \$77.72 million has been provided for initial TPIRR training and recruiting costs.⁴¹ Consistent with *WFA/Basin I*, start-up training and recruitment costs are treated as operating expense in the TPIRR's first year of operations.⁴²

4. Travel

Travel expenses have been included for all TPIRR employees at the Director level and higher (except for the Assistant Controllers, as these positions do not require travel) and for the six (6) outside members of the board of directors. Annual travel expenses of \$10,475 per employee are included. This amount is based on the most recent available annual survey of

³⁸ See e-workpaper "III-D-3 Recruiting cost.pdf."

³⁹ See *PSCo/Xcel I* at 657-658.

⁴⁰ "With the UP Still Snarled Shippers Look Nervously to Next Mergers", published in the April 1998 edition of *Global Logistics & Supply Strategies*. See e-workpaper "Attrition Rate.pdf".

⁴¹ See e-workpaper "TPIRR Operating Expense_Open.xlsx".

⁴² See *WFA/Basin I* at 53.

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corporate travel managers performed by Runzheimer International, which estimates the annual cost of corporate business travel.⁴³

5. Bad Debt

TPI assumes the TPIRR will not have expense for bad debt resulting from the write down of doubtful accounts. This assumption is based on CSXT's actual experience which, according to its R-1 Annual Reports, shows a range of uncollectable amounts as a percent of revenue from a negative (0.15) percent to 0.09 percent with a three year average write down of uncollectable equal to a negative (0.01) percent.⁴⁴

⁴³ See e-workpaper "III-D-3 Travel.pdf".

⁴⁴ See e-workpaper "Bad Debt.xlsx".

TIIRR ROAD PROPERTY INVESTMENT

(\$ in Millions)

<u>Item</u>	<u>Amount</u>
(1)	(2)
1. Land	\$3,956
2. Roadbed Preparation	3,746
3. Track Construction	8,494
4. Tunnels	1,596
5. Bridges	3,438
6. Signals and Communications	1,554
7. Buildings and Facilities	985
8. Public Improvements	<u>226</u>
9. Subtotal	\$23,996
10. Mobilization	541
11. Engineering	2,004
12. Contingencies	<u>2,258</u>
13. Total	\$28,799

Source: See e-workpaper "III-F Total.xlsx"

TABLE A: TPIRR ANNUAL COST OF CAPITAL

Year	Industry Cost of Capital	Industry Cost of Debt 1/	Industry Cost of Preferred Equity 2/	Industry Cost of Equity 3/	TPIRR's Cost of Debt	TPIRR's Cost of Preferred Equity	TPIRR's Cost of Equity	Debt as a Percent of Total Investment	Preferred Equity as a Percent of Total Investment	Equity as a Percent of Total Investment	Composite Cost of Capital	1 + Cost of Capital	STB Prescribed Debt as a % of Capital 4/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
2008	11.75%	6.57%	0.00%	13.17%	6.57%	0.00%	13.17%	21.54%	0.00%	78.46%	11.75%	1.1175	21.54%
2009	10.43%	5.72%	0.00%	12.37%	5.72%	0.00%	12.37%	29.10%	0.00%	70.90%	10.43%	1.1043	29.10%
2010	11.03%	4.61%	0.00%	12.99%	4.61%	0.00%	12.99%	23.38%	0.00%	76.62%	11.03%	1.1103	23.38%
2011	11.10%	3.97%	0.00%	13.57%	5.79%	0.00%	13.57%	25.77%	0.00%	74.23%	11.57%	1.1157	20.83%
2012	10.80%	3.29%	0.00%	13.40%	5.79%	0.00%	13.40%	25.77%	0.00%	74.23%	11.44%	1.1144	22.56%
2013					5.79%	0.00%	13.10%	25.77%	0.00%	74.23%	11.22%	1.1122	
2014					5.79%	0.00%	13.10%	25.77%	0.00%	74.23%	11.22%	1.1122	
2015					5.79%	0.00%	13.10%	25.77%	0.00%	74.23%	11.22%	1.1122	
2016					5.79%	0.00%	13.10%	25.77%	0.00%	74.23%	11.22%	1.1122	
2017					5.79%	0.00%	13.10%	25.77%	0.00%	74.23%	11.22%	1.1122	
2018					5.79%	0.00%	13.10%	25.77%	0.00%	74.23%	11.22%	1.1122	
2019					5.79%	0.00%	13.10%	25.77%	0.00%	74.23%	11.22%	1.1122	
2020					5.79%	0.00%	13.10%	25.77%	0.00%	74.23%	11.22%	1.1122	

1/ Cost of railroad industry debt from the STB Decision in Ex Parte No. 558 (Sub-No. 12), Railroad Cost of Capital - 2008, decided September 24, 2009, STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010 and the STB Decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011.

2/ No preferred equity was issued in 2008 - 2010.

3/ Cost of railroad industry common equity from the STB Decision in Ex Parte No. 558 (Sub-No. 12), Railroad Cost of Capital - 2008, decided September 24, 2009, STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010 and the STB Decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011.

4/ Railroad industry capital structure from the STB Decision in Ex Parte No. 558 (Sub-No. 12), Railroad Cost of Capital - 2008, decided September 24, 2009, STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010 and the STB Decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011.

TABLE B: TPIRR INFLATION INDEXES

<u>Period</u>	<u>Land 1/</u>	<u>Hybrid</u> <u>RCAF 2/</u>	<u>MWS</u> <u>Excluding Fuel 3/</u>	<u>Materials &</u> <u>Supplies 4/</u>	<u>Wages</u> <u>& Supplements 5/</u>
(1)	(2)	(3)	(4)	(5)	(6)
1Q 2008	100.0		397.6	276.2	421.9
2Q 2008	97.4		399.6	283.4	422.7
3Q 2008	92.5		410.0	285.6	434.9
4Q 2008	86.5		418.1	318.9	437.1
1Q 2009	79.7		423.9	319.5	444.1
2Q 2009	74.0		422.7	305.5	445.8
3Q 2009	70.7		425.8	312.5	448.0
4Q 2009	69.0		421.7	302.2	445.4
1Q 2010	68.5		451.4	311.2	479.7
2Q 2010	69.6		448.8	305.2	477.9
3Q 2010	69.7	100.0	448.1	304.5	477.1
4Q 2010	70.1	103.4	451.7	322.0	477.5
1Q 2011	71.2	102.3	453.9	314.7	481.9
2Q 2011	72.8	110.1	454.5	309.1	484.0
3Q 2011	74.4	112.8	460.7	329.4	486.8
4Q 2011	75.6	113.1	466.7	331.8	493.5
1Q 2012	77.5	109.4	466.4	331.4	493.2
2Q 2012	79.0	111.0	476.6	344.5	502.7
3Q 2012	79.3	109.6	477.5	346.6	503.3
4Q 2012	80.1	113.1	475.6	340.7	502.4
1Q 2013	80.9	112.7	477.1	339.0	504.6
2Q 2013	82.9	113.7	471.1	334.0	498.4
3Q 2013	85.9	110.4	478.0	340.8	505.2
4Q 2013	86.6	110.1	477.6	332.4	506.8
1Q 2014	87.3	110.6	478.2	338.1	505.8
2Q 2014	87.9	110.6	481.7	341.1	509.3
3Q 2014	88.6	111.4	489.6	344.2	518.5
4Q 2014	89.3	112.3	496.7	348.3	526.3
1Q 2015	90.1	113.3	502.7	350.7	533.1
2Q 2015	90.8	112.8	503.1	352.5	533.1
3Q 2015	91.5	113.3	506.4	354.2	536.8
4Q 2015	92.2	114.5	510.7	356.4	541.7
1Q 2016	93.0	114.6	514.8	358.3	546.2
2Q 2016	93.7	114.8	518.9	360.3	550.8
3Q 2016	94.5	114.9	523.0	362.2	555.4
4Q 2016	95.2	115.1	527.1	364.2	560.1
1Q 2017	96.0	115.8	531.9	366.6	565.5
2Q 2017	96.8	116.6	536.7	369.1	570.9
3Q 2017	97.5	117.3	541.6	371.6	576.4
4Q 2017	98.3	118.0	546.6	374.0	581.9
1Q 2018	99.1	118.9	551.7	376.5	587.7
2Q 2018	99.9	119.7	556.8	378.9	593.5
3Q 2018	100.7	120.5	561.9	381.3	599.3
4Q 2018	101.5	121.3	567.2	383.8	605.2
1Q 2019	102.4	122.1	572.4	386.1	611.2
2Q 2019	103.2	123.0	577.6	388.3	617.2
3Q 2019	104.0	123.8	583.0	390.7	623.3
4Q 2019	104.9	124.6	588.3	393.0	629.4
1Q 2020	105.7	125.4	593.6	395.8	635.3
2Q 2020	106.6	126.1	599.0	398.6	641.3
<u>Annual Inflation Rate 6/</u>	4.36%		2.93%	2.71%	2.98%

1/ Used to index Road Property Account 2. Based on historic change in rural land prices as reported by the USDA and urban land prices as reported by the National Council of Real Estate Investment Fiduciaries.

2/ Used to index expenses in Table K. Based on the RCAF-U and RCAF-A through 4Q2013 then Global Insight forecast for remaining periods.

3/ Used to index Road Property Accounts 3, 5, 6, 13, 17, 19, 20, 26, 27, 37, and 39. Based on RCR indices - East Region through 4Q2013 then Global Insight forecast.

4/ Used to index Road Property Accounts 8, 9, and 11. Based on RCR indexes - East Region through 4Q2013 then Global Insight forecast for remaining periods.

5/ Used to index Road Property Accounts 1 and 12. Based on RCR indexes - East Region through 4Q2013 then Global Insight forecast for remaining periods.

6/ $2Q\ 2010 \div 2Q\ 2020^{(1/10)} - 1$. The Annual Rate is used to develop asset replacement values at the end of asset lives.

TABLE C: TPIRR PROPERTY INVESTMENT VALUES

Construction of the TPIRR occurs between January 1, 2008 and July 1, 2010.

Investments are assumed to be in July 1, 2010 dollars.

Property Account	Property Component	Service Life In Years 1/	Investment In 3Q2008 Dollars 2/	Investment In 3Q2009 Dollars 3/	Investment In 3Q2010 Dollars 4/	2008 Investment Value 5/	2009 Investment Value 6/	2010 Investment Value 7/	Total Property Investment 3Q 2010 8/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Engineering	NA	\$2,009,343,685	\$2,069,868,868	\$2,204,317,940	\$1,722,294,587	\$295,695,553	\$0	\$2,017,990,140
2	Land	NA	\$5,251,828,051	\$4,013,920,938	\$3,956,399,437	\$5,251,828,051	\$0	\$0	\$5,251,828,051
3	Grading	68	\$3,743,343,713	\$3,887,599,398	\$4,091,200,776	\$2,139,053,551	\$1,666,114,028	\$0	\$3,805,167,578
5	Tunnels	76	\$1,649,387,111	\$1,712,948,858	\$1,802,659,425	\$0	\$1,427,457,382	\$300,443,238	\$1,727,900,619
6	Bridges & Culverts	60	\$3,682,673,688	\$3,824,591,357	\$4,024,892,877	\$0	\$2,868,443,517	\$1,006,223,219	\$3,874,666,737
8	Ties	21	\$1,356,732,432	\$1,484,519,906	\$1,446,516,196	\$0	\$1,113,389,929	\$361,629,049	\$1,475,018,978
9	Rails and OTM	34	\$4,309,871,083	\$4,715,807,820	\$4,595,083,140	\$0	\$3,536,855,865	\$1,148,770,785	\$4,685,626,650
11	Ballast	36	\$1,789,010,268	\$1,957,512,986	\$1,907,400,653	\$0	\$1,468,134,739	\$476,850,163	\$1,944,984,903
12	Labor	32	\$1,501,289,729	\$1,546,511,379	\$1,646,965,578	\$0	\$1,159,883,534	\$411,741,395	\$1,571,624,929
13	Fences and Roadway Signs	45	\$17,394,666	\$18,064,997	\$19,011,097	\$0	\$13,548,748	\$4,752,774	\$18,301,522
16	Stations and Office Buildings	39	\$0	\$0	\$0	\$0	\$0	\$0	\$0
17	Roadway Buildings	37	\$871,601,481	\$905,190,026	\$952,596,643	\$0	\$905,190,026	\$0	\$905,190,026
19	Fuel Stations	28	\$34,520,586	\$35,850,891	\$37,728,474	\$0	\$35,850,891	\$0	\$35,850,891
20	Shops and Enginehouses	33	\$93,313,962	\$96,909,963	\$101,985,333	\$0	\$96,909,963	\$0	\$96,909,963
26	Communications Systems	13	\$352,979,886	\$366,582,526	\$385,781,188	\$0	\$122,194,175	\$257,187,459	\$379,381,634
27	Signals and Interlockers	29	\$1,253,461,091	\$1,301,765,202	\$1,369,941,256	\$0	\$433,921,734	\$913,294,171	\$1,347,215,905
39	Public Improvements	42	\$234,766,498	\$243,813,598	\$256,582,605	\$0	\$48,762,720	\$205,266,084	\$254,028,803
	Total		\$28,151,517,932	\$28,181,458,713	\$28,799,062,618	\$9,113,176,189	\$15,192,352,805	\$5,086,158,336	\$29,391,687,330

1/ 1 ÷ Depreciation Rate shown in Schedule 332 of CSXT's 2012 Annual Report R-1

2/ July 1, 2010, indexed to 2008 dollars; Investment Exhibit - 3Q2010 x Inflation Index from Table B, 3Q2008 ÷ 3Q2010.

3/ July 1, 2010, indexed to 2009 dollars; Investment Exhibit - 3Q2010 x Inflation Index from Table B, 3Q2009 ÷ 3Q2010.

4/ July 1, 2010, indexed to 2010 dollars; Investment Exhibit - 3Q2010 x Inflation Index from Table B, 3Q2010 ÷ 3Q2010.

5/ Column (4) x Percent constructed in 2008.

6/ Column (5) x Percent constructed in 2009.

7/ Column (6) x Percent constructed in 2010.

8/ Sum of Columns (7) through (9).

TABLE D: INTEREST DURING CONSTRUCTION

Month of Installation	Cost of Funds 1/	Timing of Account 1 Investment 2/	Timing of Account 2 Investment 2/	Timing of Accounts 3, 5 and 6 Investment 2/	Timing of Accounts 8 Through 39 Investment 2/	Total Investment by Month 3/	Interest During Construction 4/	Cost of Debt 5/	Deductible Interest During Construction 6/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Jan-08	0.93%	\$143,524,549	\$0	\$0	\$0	\$143,524,549	\$0	0.53%	\$0
Feb-08	0.93%	\$143,524,549	\$0	\$0	\$0	\$143,524,549	\$1,334,719	0.53%	\$164,368
Mar-08	0.93%	\$143,524,549	\$0	\$0	\$0	\$143,524,549	\$2,681,851	0.53%	\$330,265
Apr-08	0.93%	\$143,524,549	\$0	\$0	\$0	\$143,524,549	\$4,041,511	0.53%	\$497,704
May-08	0.93%	\$143,524,549	\$750,261,150	\$0	\$0	\$893,785,699	\$5,413,814	0.53%	\$666,700
Jun-08	0.93%	\$143,524,549	\$750,261,150	\$0	\$0	\$893,785,699	\$13,776,000	0.53%	\$1,696,487
Jul-08	0.93%	\$143,524,549	\$750,261,150	\$0	\$0	\$893,785,699	\$22,215,951	0.53%	\$2,735,849
Aug-08	0.93%	\$143,524,549	\$750,261,150	\$0	\$0	\$893,785,699	\$30,734,391	0.53%	\$3,784,878
Sep-08	0.93%	\$143,524,549	\$750,261,150	\$534,763,388	\$0	\$1,428,549,087	\$39,332,048	0.53%	\$4,843,662
Oct-08	0.93%	\$143,524,549	\$750,261,150	\$534,763,388	\$0	\$1,428,549,087	\$52,982,739	0.53%	\$6,524,717
Nov-08	0.93%	\$143,524,549	\$750,261,150	\$534,763,388	\$0	\$1,428,549,087	\$66,760,377	0.53%	\$8,221,405
Dec-08	0.93%	\$143,524,549	\$0	\$534,763,388	\$0	\$678,287,937	\$80,666,141	0.53%	\$9,933,872
Jan-09	0.83%	\$147,847,776	\$0	\$555,371,343	\$0	\$703,219,119	\$78,347,677	0.46%	\$12,753,674
Feb-09	0.83%	\$147,847,776	\$0	\$555,371,343	\$0	\$703,219,119	\$84,839,057	0.46%	\$13,810,361
Mar-09	0.83%	\$0	\$0	\$698,117,081	\$172,991,813	\$871,108,894	\$91,384,353	0.46%	\$14,875,824
Apr-09	0.83%	\$0	\$0	\$461,461,685	\$983,193,237	\$1,444,654,922	\$99,378,436	0.46%	\$16,177,125
May-09	0.83%	\$0	\$0	\$461,461,685	\$983,193,237	\$1,444,654,922	\$112,202,558	0.46%	\$18,264,675
Jun-09	0.83%	\$0	\$0	\$461,461,685	\$983,193,237	\$1,444,654,922	\$125,133,192	0.46%	\$20,369,563
Jul-09	0.83%	\$0	\$0	\$461,461,685	\$983,193,237	\$1,444,654,922	\$138,171,222	0.46%	\$22,491,933
Aug-09	0.83%	\$0	\$0	\$461,461,685	\$983,193,237	\$1,444,654,922	\$151,317,542	0.46%	\$24,631,931
Sep-09	0.83%	\$0	\$0	\$461,461,685	\$810,201,424	\$1,271,663,109	\$164,573,049	0.46%	\$26,789,703
Oct-09	0.83%	\$0	\$0	\$461,461,685	\$810,201,424	\$1,271,663,109	\$176,501,851	0.46%	\$28,731,510
Nov-09	0.83%	\$0	\$0	\$461,461,685	\$1,088,259,379	\$1,549,721,063	\$188,529,728	0.46%	\$30,689,444
Dec-09	0.83%	\$0	\$0	\$461,461,685	\$1,137,022,098	\$1,598,483,783	\$202,966,942	0.46%	\$33,039,578
Jan-10	0.88%	\$0	\$0	\$485,629,359	\$1,145,184,984	\$1,630,814,342	\$229,796,455	0.38%	\$23,083,456
Feb-10	0.88%	\$0	\$0	\$485,629,359	\$1,145,184,984	\$1,630,814,342	\$246,091,466	0.38%	\$24,720,319
Mar-10	0.88%	\$0	\$0	\$335,407,740	\$1,145,184,984	\$1,480,592,723	\$262,529,187	0.38%	\$26,371,517
Apr-10	0.88%	\$0	\$0	\$0	\$343,936,928	\$343,936,928	\$277,795,244	0.38%	\$27,905,019
May-10	0.88%	\$0	\$0	\$0	\$0	\$0	\$283,240,301	0.38%	\$28,451,984
Jun-10	0.88%	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$285,720,886</u>	0.38%	<u>\$28,701,164</u>
Total		\$2,017,990,140	\$5,251,828,051	\$9,407,734,934	\$12,714,134,205	\$29,391,687,330	\$3,518,458,687		\$461,258,684

1/ $((1 + \text{Cost of Capital from Table A for the applicable year})^{(1/12)} - 1) \times 100$.

2/ Applicable account value from Table C for the applicable investment period.

3/ Sum of Columns (3) through (6).

4/ January 08 equals Column (2) x prior Column (7), all other periods equal Column (2) x ((Sum of Column (7) for all prior periods) + (Sum of Column (8) for all prior periods))

5/ $((1 + \text{Cost of Debt from Table A for the applicable year})^{(1/12)} - 1) \times 100$.

6/ January 08 equals prior Column (7) x Column (9) x Table A, Column (9) for 2008, all other periods equal Column (9) x ((Sum of Column (7) for all prior periods) + (Sum of Column (8) for all prior periods)) x Table A, Column (9) for the applicable year

TABLE E: TPIRR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPITAL

INTEREST SCHEDULE FOR THE TPIRR 2008 ROAD PROPERTY INVESTMENT FOR THE 3Q2010 START-UP			INTEREST SCHEDULE FOR THE TPIRR 2009 ROAD PROPERTY INVESTMENT FOR THE 3Q2010 START-UP			INTEREST SCHEDULE FOR THE TPIRR 2010 ROAD PROPERTY INVESTMENT FOR THE 3Q2010 START-UP		
1. Total Investment	\$9,113,176,189	1/	1. Total Investment	\$15,192,352,805	1/	1. Total Investment	\$5,086,158,336	1/
2. IDC	\$319,939,542	2/	2. IDC	\$1,613,345,607	2/	2. IDC	\$1,585,173,539	2/
3. Principal	\$2,031,893,128	3/	3. Principal	\$4,890,458,238	3/	3. Principal	\$1,559,757,392	3/
4. Interest	6.57%	4/	4. Interest	5.72%	4/	4. Interest	4.61%	4/
5. Term (Quarters)	80	5/	5. Term (Quarters)	80	5/	5. Term (Quarters)	80	5/
6. Quarterly Coupon	\$32,581,752	6/	6. Quarterly Coupon	\$68,481,643	6/	6. Quarterly Coupon	\$17,673,541	6/
<u>Quarter</u>	<u>Interest 7/</u>		<u>Quarter</u>	<u>Interest 7/</u>		<u>Quarter</u>	<u>Interest 7/</u>	
(1)	(2)		(3)	(4)		(5)	(6)	
1	\$32,581,752		1	\$68,481,643		1	\$17,673,541	
2	\$32,581,752		2	\$68,481,643		2	\$17,673,541	
3	\$32,581,752		3	\$68,481,643		3	\$17,673,541	
4	\$32,581,752		4	\$68,481,643		4	\$17,673,541	
5	\$32,581,752		5	\$68,481,643		5	\$17,673,541	
6	\$32,581,752		6	\$68,481,643		6	\$17,673,541	
7	\$32,581,752		7	\$68,481,643		7	\$17,673,541	
8	\$32,581,752		8	\$68,481,643		8	\$17,673,541	
9	\$32,581,752		9	\$68,481,643		9	\$17,673,541	
10	\$32,581,752		10	\$68,481,643		10	\$17,673,541	
11	\$32,581,752		11	\$68,481,643		11	\$17,673,541	
12	\$32,581,752		12	\$68,481,643		12	\$17,673,541	
13	\$32,581,752		13	\$68,481,643		13	\$17,673,541	
14	\$32,581,752		14	\$68,481,643		14	\$17,673,541	
15	\$32,581,752		15	\$68,481,643		15	\$17,673,541	
16	\$32,581,752		16	\$68,481,643		16	\$17,673,541	
17	\$32,581,752		17	\$68,481,643		17	\$17,673,541	
18	\$32,581,752		18	\$68,481,643		18	\$17,673,541	
19	\$32,581,752		19	\$68,481,643		19	\$17,673,541	
20	\$32,581,752		20	\$68,481,643		20	\$17,673,541	
21	\$32,581,752		21	\$68,481,643		21	\$17,673,541	
22	\$32,581,752		22	\$68,481,643		22	\$17,673,541	
23	\$32,581,752		23	\$68,481,643		23	\$17,673,541	
24	\$32,581,752		24	\$68,481,643		24	\$17,673,541	
25	\$32,581,752		25	\$68,481,643		25	\$17,673,541	
26	\$32,581,752		26	\$68,481,643		26	\$17,673,541	
27	\$32,581,752		27	\$68,481,643		27	\$17,673,541	
28	\$32,581,752		28	\$68,481,643		28	\$17,673,541	
29	\$32,581,752		29	\$68,481,643		29	\$17,673,541	
30	\$32,581,752		30	\$68,481,643		30	\$17,673,541	
31	\$32,581,752		31	\$68,481,643		31	\$17,673,541	
32	\$32,581,752		32	\$68,481,643		32	\$17,673,541	
33	\$32,581,752		33	\$68,481,643		33	\$17,673,541	
34	\$32,581,752		34	\$68,481,643		34	\$17,673,541	
35	\$32,581,752		35	\$68,481,643		35	\$17,673,541	
36	\$32,581,752		36	\$68,481,643		36	\$17,673,541	
37	\$32,581,752		37	\$68,481,643		37	\$17,673,541	
38	\$32,581,752		38	\$68,481,643		38	\$17,673,541	
39	\$32,581,752		39	\$68,481,643		39	\$17,673,541	
40	\$32,581,752		40	\$68,481,643		40	\$17,673,541	
41	\$32,581,752		41	\$68,481,643		41	\$17,673,541	
42	\$32,581,752		42	\$68,481,643		42	\$17,673,541	
43	\$32,581,752		43	\$68,481,643		43	\$17,673,541	
44	\$32,581,752		44	\$68,481,643		44	\$17,673,541	
45	\$32,581,752		45	\$68,481,643		45	\$17,673,541	
46	\$32,581,752		46	\$68,481,643		46	\$17,673,541	
47	\$32,581,752		47	\$68,481,643		47	\$17,673,541	
48	\$32,581,752		48	\$68,481,643		48	\$17,673,541	
49	\$32,581,752		49	\$68,481,643		49	\$17,673,541	
50	\$32,581,752		50	\$68,481,643		50	\$17,673,541	
51	\$32,581,752		51	\$68,481,643		51	\$17,673,541	
52	\$32,581,752		52	\$68,481,643		52	\$17,673,541	
53	\$32,581,752		53	\$68,481,643		53	\$17,673,541	
54	\$32,581,752		54	\$68,481,643		54	\$17,673,541	
55	\$32,581,752		55	\$68,481,643		55	\$17,673,541	

TABLE E: TPIRR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPITAL

INTEREST SCHEDULE FOR THE TPIRR 2008 ROAD PROPERTY INVESTMENT FOR THE 3Q2010 START-UP			INTEREST SCHEDULE FOR THE TPIRR 2009 ROAD PROPERTY INVESTMENT FOR THE 3Q2010 START-UP			INTEREST SCHEDULE FOR THE TPIRR 2010 ROAD PROPERTY INVESTMENT FOR THE 3Q2010 START-UP		
1. Total Investment	\$9,113,176,189	1/	1. Total Investment	\$15,192,352,805	1/	1. Total Investment	\$5,086,158,336	1/
2. IDC	\$319,939,542	2/	2. IDC	\$1,613,345,607	2/	2. IDC	\$1,585,173,539	2/
3. Principal	\$2,031,893,128	3/	3. Principal	\$4,890,458,238	3/	3. Principal	\$1,559,757,392	3/
4. Interest	6.57%	4/	4. Interest	5.72%	4/	4. Interest	4.61%	4/
5. Term (Quarters)	80	5/	5. Term (Quarters)	80	5/	5. Term (Quarters)	80	5/
6. Quarterly Coupon	\$32,581,752	6/	6. Quarterly Coupon	\$68,481,643	6/	6. Quarterly Coupon	\$17,673,541	6/
<u>Quarter</u>	<u>Interest 7/</u>		<u>Quarter</u>	<u>Interest 7/</u>		<u>Quarter</u>	<u>Interest 7/</u>	
(1)	(2)		(3)	(4)		(5)	(6)	
56	\$32,581,752		56	\$68,481,643		56	\$17,673,541	
57	\$32,581,752		57	\$68,481,643		57	\$17,673,541	
58	\$32,581,752		58	\$68,481,643		58	\$17,673,541	
59	\$32,581,752		59	\$68,481,643		59	\$17,673,541	
60	\$32,581,752		60	\$68,481,643		60	\$17,673,541	
61	\$32,581,752		61	\$68,481,643		61	\$17,673,541	
62	\$32,581,752		62	\$68,481,643		62	\$17,673,541	
63	\$32,581,752		63	\$68,481,643		63	\$17,673,541	
64	\$32,581,752		64	\$68,481,643		64	\$17,673,541	
65	\$32,581,752		65	\$68,481,643		65	\$17,673,541	
66	\$32,581,752		66	\$68,481,643		66	\$17,673,541	
67	\$32,581,752		67	\$68,481,643		67	\$17,673,541	
68	\$32,581,752		68	\$68,481,643		68	\$17,673,541	
69	\$32,581,752		69	\$68,481,643		69	\$17,673,541	
70	\$32,581,752		70	\$68,481,643		70	\$17,673,541	
71	\$32,581,752		71	\$68,481,643		71	\$17,673,541	
72	\$32,581,752		72	\$68,481,643		72	\$17,673,541	
73	\$32,581,752		73	\$68,481,643		73	\$17,673,541	
74	\$32,581,752		74	\$68,481,643		74	\$17,673,541	
75	\$32,581,752		75	\$68,481,643		75	\$17,673,541	
76	\$32,581,752		76	\$68,481,643		76	\$17,673,541	
77	\$32,581,752		77	\$68,481,643		77	\$17,673,541	
78	\$32,581,752		78	\$68,481,643		78	\$17,673,541	
79	\$32,581,752		79	\$68,481,643		79	\$17,673,541	
80	\$32,581,752		80	\$68,481,643		80	\$17,673,541	

1/ From Table D, Column (7) for the applicable year investment.
2/ From Table D, Column (8) for the applicable year investment.
3/ (Total Investment + IDC) x (Proportion of Debt from Table A, Column (9)).
4/ From Table A, Column (6) for the applicable year investment.
5/ Based on Ex Parte No. 657 20-year payment period x 4.
6/ Quarterly coupon payments on Line 3 principal and Line 4 interest rates.
7/ Line 6 coupon payment.

TABLE F: TPIRR PRESENT VALUE OF REPLACEMENT COST

Property Account	Property Component	Service Life In Years 1/	Investment 2/	Salvage 3/	Replacement Year Asset Net Cost 4/	Replacement Cost Adjusted To Reflect An Infinite Life 5/	Present Value Of Replacement Cost Adjusted To Reflect An Infinite Life (2010 Dollars) 6/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3	Grading	68	\$32,752,077,215	\$0	\$27,992,394,378	\$28,208,337,947	\$21,898,374
5	Tunnels	76	18,344,000,066	0	15,678,165,416	15,750,080,063	5,721,005
6	Bridges & Culverts	60	25,739,860,167	0	21,461,273,766	21,776,815,835	43,180,350
8	Ties	21	3,062,332,337	0	2,444,354,361	3,165,778,438	360,163,143
9	Rails and OTM	34	13,811,643,162	926,616,441	10,261,099,393	11,272,085,467	325,712,816
11	Ballast	36	6,102,293,944	0	4,870,852,400	5,271,318,975	119,341,792
12	Labor	32	4,799,506,842	0	3,830,967,441	4,266,708,749	149,213,372
13	Fences and Roadway Signs	45	80,032,569	0	66,729,224	69,552,034	626,639
16	Stations and Office Buildings	39	0	0	0	0	0
17	Roadway Buildings	37	3,104,405,987	0	2,588,378,738	2,794,770,595	60,693,350
19	Fuel Stations	28	96,743,650	0	80,662,519	93,067,953	4,814,214
20	Shops and Enginehouses	33	299,309,674	0	249,557,178	275,932,257	8,755,303
26	Communications Systems	13	658,297,168	0	525,452,948	869,316,259	222,428,054
27	Signals and Interlockers	29	3,705,087,547	126,009,860	2,853,289,663	3,269,155,407	157,882,565
39	Public Improvements	42	<u>1,017,846,854</u>	<u>0</u>	<u>848,656,125</u>	<u>893,643,543</u>	<u>11,050,204</u>
Total			\$113,573,437,182	\$1,052,626,301	\$93,751,833,549	\$97,976,563,524	\$1,491,481,180

1/ From Table C, Column (3).

2/ (Table C, Column (10) after allocation of Engineering) x (Table B, 1.0 + Annual Inflation Index)^(Column (3)).

3/ [(Column (4) x Salvage %) - (Table C, Column (10) after allocation of Engineering x Salvage %)] x (1 - Current Federal Tax Rate) + (Table C, Column (10) after allocation of Engineering x Salvage %).

4/ Column (4) - (Present Value of the remaining tax deductions for depreciation, interest expense and the Present Value of any salvage).

5/ Column (6) + [(Column (6) / ((1 + Real Cost of Capital)^Column (3) - 1)].

6/ Column (7) / ((1 + Average Nominal Cost of Capital from Table A Column (2))^Column (3)).

TABLE G PART 1: TAX DEPRECIATION SCHEDULES

Depreciation of Start-up investment for tax purposes using accounting lives from Modified Accelerated Cost Recovery System (MACRS) 1/

<u>Road Property Account</u> (1)	<u>Road Property Component</u> (2)	<u>Asset Lives Per MACRS 2/</u> (3)	<u>Total 3Q 2010 Investment</u> (4)	<u>Depreciable Base</u> (5)
1	Engineering	5	\$2,017,990,140	\$2,017,990,140
2	Land	N/A	\$5,251,828,051	\$0
3	Grading	50	\$3,805,167,578	\$3,805,167,578
5	Tunnels	50	\$1,727,900,619	\$1,727,900,619
6	Bridges & Culverts	15	\$3,874,666,737	\$3,874,666,737
8	Ties	7	\$1,475,018,978	\$1,475,018,978
9	Rails and OTM	7	\$4,685,626,650	\$4,685,626,650
11	Ballast	7	\$1,944,984,903	\$1,944,984,903
12	Labor	7	\$1,571,624,929	\$1,571,624,929
13	Fences and Roadway Signs	15	\$18,301,522	\$18,301,522
16	Stations and Office Buildings	15	\$0	\$0
17	Roadway Buildings	15	\$905,190,026	\$905,190,026
19	Fuel Stations	15	\$35,850,891	\$35,850,891
20	Shops and Enginehouses	15	\$96,909,963	\$96,909,963
26	Communications Systems	7	\$379,381,634	\$379,381,634
27	Signals and Interlockers	7	\$1,347,215,905	\$1,347,215,905
39	Public Improvements	15	<u>\$254,028,803</u>	<u>\$254,028,803</u>
Total			\$29,391,687,330	\$24,139,859,278

1/ Applicable Depreciation Method: 200 or 150 percent
Declining Balance Switching to Straight Line
Applicable Recovery Periods: 7, 15 and 50 a/ years
Applicable Convention: Mid-quarter(property placed in service in third quarter)

The Depreciation Rates are as follows for the corresponding Recovery Period and Recovery year:

<u>Year</u>	<u>5-Year</u>	<u>7-Year</u>	<u>15-Year</u>	<u>50-Year a/</u>
1	20.00%	10.71%	3.75%	2.00%
2	20.00%	25.51%	9.63%	2.00%
3	20.00%	18.22%	8.66%	2.00%
4	20.00%	13.02%	7.80%	2.00%
5	20.00%	9.30%	7.02%	2.00%
6		8.85%	6.31%	2.00%
7		8.86%	5.90%	2.00%
8		5.53%	5.90%	2.00%
9			5.91%	2.00%
10			5.90%	2.00%
11			5.91%	2.00%
12			5.90%	2.00%
13			5.91%	2.00%
14			5.90%	2.00%
15			5.91%	2.00%
16			3.69%	2.00%
17				2.00%
18				2.00%
19-50				2.00%

a/ 50 year property uses the Straight Line Method for all time periods

2/ Bonus Depreciation Per the Economic Stimulus Act of 2008, the American Recovery & Reinvestment Act, and The Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010 for the following depreciable assets:

<u>MARCS Lives</u>	<u>Bonus Depreciation - 50%</u>	<u>Bonus Depreciation - 100%</u>
7	\$5,701,926,500	\$0
15	\$2,592,473,971	\$0

TABLE G PART 2: TAX DEPRECIATION SCHEDULES

Year	Amortization - 5 Years			Road Property Depreciation - MACRS 7 Years			Depreciation - MACRS 15 Years			Depreciation - MACRS 50 Years			Total
	Unamortized	Rate 2/	Annual	Undepreciated	Rate 2/	Annual	Undepreciated	Rate 2/	Annual	Unamortized	Rate 2/	Annual	Annual
	Investment 1/		Amort. 3/	Investment 4/		Amount 5/	Investment 6/		Amount 7/	Investment 8/		Amount 9/	Depreciation 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	\$2,017,990,140	20.00%	\$403,598,028	\$5,701,926,500	10.71%	\$610,676,328	\$2,592,473,971	3.75%	\$97,217,774	\$5,533,068,198	2%	\$110,661,364	\$9,516,553,964
2	\$1,614,392,112	20.00%	\$403,598,028	\$5,091,250,171	25.51%	\$1,454,561,450	\$2,495,256,197	9.63%	\$249,655,243	\$5,422,406,834	2%	\$110,661,364	\$2,218,476,085
3	\$1,210,794,084	20.00%	\$403,598,028	\$3,636,688,721	18.22%	\$1,038,891,008	\$2,245,600,954	8.66%	\$224,508,246	\$5,311,745,470	2%	\$110,661,364	\$1,777,658,646
4	\$807,196,056	20.00%	\$403,598,028	\$2,597,797,713	13.02%	\$742,390,830	\$2,021,092,708	7.80%	\$202,212,970	\$5,201,084,106	2%	\$110,661,364	\$1,458,863,192
5	\$403,598,028	20.00%	\$403,598,028	\$1,855,406,883	9.30%	\$530,279,164	\$1,818,879,738	7.02%	\$181,991,673	\$5,090,422,742	2%	\$110,661,364	\$1,226,530,229
6				\$1,325,127,719	8.85%	\$504,620,495	\$1,636,888,065	6.31%	\$163,585,108	\$4,979,761,378	2%	\$110,661,364	\$778,866,967
7				\$820,507,223	8.86%	\$505,190,688	\$1,473,302,958	5.90%	\$152,955,964	\$4,869,100,014	2%	\$110,661,364	\$768,808,016
8				\$315,316,535	5.53%	\$315,316,535	\$1,320,346,993	5.90%	\$152,955,964	\$4,758,438,650	2%	\$110,661,364	\$578,933,864
9							\$1,167,391,029	5.91%	\$153,215,212	\$4,647,777,286	2%	\$110,661,364	\$263,876,576
10					100%		\$1,014,175,817	5.90%	\$152,955,964	\$4,537,115,922	2%	\$110,661,364	\$263,617,328
11							\$861,219,853	5.91%	\$153,215,212	\$4,426,454,558	2%	\$110,661,364	\$263,876,576
12							\$708,004,641	5.90%	\$152,955,964	\$4,315,793,194	2%	\$110,661,364	\$263,617,328
13							\$555,048,677	5.91%	\$153,215,212	\$4,205,131,830	2%	\$110,661,364	\$263,876,576
14							\$401,833,466	5.90%	\$152,955,964	\$4,094,470,466	2%	\$110,661,364	\$263,617,328
15							\$248,877,501	5.91%	\$153,215,212	\$3,983,809,102	2%	\$110,661,364	\$263,876,576
16							\$95,662,290	3.69%	\$95,662,290	\$3,873,147,738	2%	\$110,661,364	\$206,323,653
17										\$3,762,486,374	2%	\$110,661,364	\$110,661,364
18								100%		\$3,651,825,010	2%	\$110,661,364	\$110,661,364
19										\$3,541,163,646	2%	\$110,661,364	\$110,661,364
20										\$3,430,502,282	2%	\$110,661,364	\$110,661,364
21										\$3,319,840,919	2%	\$110,661,364	\$110,661,364
22										\$3,209,179,555	2%	\$110,661,364	\$110,661,364
23										\$3,098,518,191	2%	\$110,661,364	\$110,661,364
24										\$2,987,856,827	2%	\$110,661,364	\$110,661,364
25										\$2,877,195,463	2%	\$110,661,364	\$110,661,364
26										\$2,766,534,099	2%	\$110,661,364	\$110,661,364
27										\$2,655,872,735	2%	\$110,661,364	\$110,661,364
28										\$2,545,211,371	2%	\$110,661,364	\$110,661,364
29										\$2,434,550,007	2%	\$110,661,364	\$110,661,364
30										\$2,323,888,643	2%	\$110,661,364	\$110,661,364
31										\$2,213,227,279	2%	\$110,661,364	\$110,661,364
32										\$2,102,565,915	2%	\$110,661,364	\$110,661,364
33										\$1,991,904,551	2%	\$110,661,364	\$110,661,364
34										\$1,881,243,187	2%	\$110,661,364	\$110,661,364
35										\$1,770,581,823	2%	\$110,661,364	\$110,661,364
36										\$1,659,920,459	2%	\$110,661,364	\$110,661,364
37										\$1,549,259,095	2%	\$110,661,364	\$110,661,364
38										\$1,438,597,731	2%	\$110,661,364	\$110,661,364
39										\$1,327,936,367	2%	\$110,661,364	\$110,661,364
40										\$1,217,275,003	2%	\$110,661,364	\$110,661,364
41										\$1,106,613,640	2%	\$110,661,364	\$110,661,364
42										\$995,952,276	2%	\$110,661,364	\$110,661,364
43										\$885,290,912	2%	\$110,661,364	\$110,661,364

TABLE G PART 2: TAX DEPRECIATION SCHEDULES

Year	Amortization - 5 Years			Road Property Depreciation - MACRS 7 Years			Depreciation - MACRS 15 Years			Depreciation - MACRS 50 Years			Total
	Unamortized	Annual		Undepreciated	Annual		Undepreciated	Annual		Unamortized	Annual		Annual
	Investment 1/ (1)	Rate 2/ (3)	Amort. 3/ (4)	Investment 4/ (5)	Rate 2/ (6)	Amount 5/ (7)	Investment 6/ (8)	Rate 2/ (9)	Amount 7/ (10)	Investment 8/ (11)	Rate 2/ (12)	Amount 9/ (13)	Depreciation 10/ (14)
44										\$774,629,548	2%	\$110,661,364	\$110,661,364
45										\$663,968,184	2%	\$110,661,364	\$110,661,364
46										\$553,306,820	2%	\$110,661,364	\$110,661,364
47										\$442,645,456	2%	\$110,661,364	\$110,661,364
48										\$331,984,092	2%	\$110,661,364	\$110,661,364
49										\$221,322,728	2%	\$110,661,364	\$110,661,364
50										\$110,661,364	2%	\$110,661,364	\$110,661,364
											100%		

1/ From Table G Part 1, Column (5), Road Property Accounts 1 minus Table G Part 1, 5-Year Bonus Depreciation.
2/ From Table G, Footnote 1/, Page 8.
3/ Column (2), Year 1 x Column (3).
4/ From Table G Part 1, Column (5), Road Property Accounts 8, 9, 11, 12, 26 and 27 minus Table G Part 1, 7-Year Bonus Depreciation.
5/ Column (5), Year 1 x Column (6).
6/ From Table G Part 1, Column (5), Road Property Accounts 6, 13, 16, 17, 19, 20 and 39 minus Table G Part 1, 15-Year Bonus Depreciation.
7/ Column (8), Year 1 x Column (9).
8/ From Table G, Page 8, Column (5), Road Property Accounts 3 and 5.
9/ Column (11), Year 1 x Column (12).
10/ Column (4) + Column (7) + Column (10) + Column (13) plus Page 8, 5, 7 & 15 Year Bonus Depreciation.

TABLE H: TPIRR AVERAGE ANNUAL INFLATION IN ASSET PRICES

Development of average annual inflation factors for all capital assets

1. 3Q 2010 Land value	\$5,251,828,051 1/
2. 3Q 2010 Property asset value accounts 3, 5, 6, 13, 17, 26, 27, 39 and 52	\$12,444,613,678 1/
3. 3Q 2010 Road Property asset value accounts 8, 9, and 11	\$8,105,630,532 1/
4. 3Q 2010 Road Property asset value accounts 1 and 12	\$3,589,615,068 1/

<u>Period</u>	<u>Quarter</u>	<u>Inflation Index For Land 2/</u>	<u>Inflation Index For Line 2 Property Assets 3/</u>	<u>Inflation Index For Line 3 Road Property Assets 4/</u>	<u>Inflation Index For Line 4 Road Property Assets 5/</u>	<u>Land Value 6/</u>	<u>Road Property Value 7/</u>	<u>3Q 2010 Inflation Index 8/</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0		1.000	1.000	1.000	1.000	\$5,251,828,051	\$24,139,859,278	1.000
1	3Q 2010	1.002	0.998	0.998	0.998	\$5,260,632,608	\$24,095,849,353	0.999
2	4Q 2010	1.007	1.006	1.055	0.999	\$5,289,978,226	\$24,663,449,341	1.019
3	1Q 2011	1.023	1.011	1.031	1.008	\$5,372,678,781	\$24,563,625,261	1.019
4	2Q 2011	1.046	1.013	1.013	1.013	\$5,491,333,660	\$24,447,308,855	1.019
5	3Q 2011	1.069	1.027	1.079	1.019	\$5,615,225,835	\$25,179,393,833	1.048
6	4Q 2011	1.087	1.040	1.087	1.033	\$5,706,981,947	\$25,459,831,104	1.060
7	1Q 2012	1.113	1.039	1.086	1.032	\$5,845,689,746	\$25,438,635,775	1.064
8	2Q 2012	1.135	1.062	1.129	1.052	\$5,961,004,935	\$26,140,739,889	1.092
9	3Q 2012	1.140	1.064	1.136	1.053	\$5,988,060,458	\$26,225,975,088	1.096
10	4Q 2012	1.151	1.060	1.116	1.051	\$6,044,450,846	\$26,009,835,875	1.091
11	1Q 2013	1.162	1.063	1.111	1.056	\$6,103,251,341	\$26,022,804,215	1.093
12	2Q 2013	1.191	1.050	1.094	1.043	\$6,256,848,803	\$25,677,070,659	1.086
13	3Q 2013	1.234	1.065	1.117	1.057	\$6,481,951,745	\$26,100,071,888	1.109
14	4Q 2013	1.244	1.064	1.089	1.060	\$6,533,446,508	\$25,877,907,645	1.103
15	1Q 2014	1.254	1.065	1.108	1.058	\$6,585,276,010	\$26,036,013,369	1.110
16	2Q 2014	1.264	1.073	1.118	1.066	\$6,637,570,304	\$26,240,661,541	1.119
17	3Q 2014	1.274	1.091	1.128	1.085	\$6,690,334,069	\$26,611,337,320	1.133
18	4Q 2014	1.284	1.107	1.141	1.101	\$6,743,572,036	\$26,976,266,767	1.147
19	1Q 2015	1.294	1.120	1.149	1.116	\$6,797,288,989	\$27,257,621,167	1.159
20	2Q 2015	1.305	1.121	1.155	1.116	\$6,851,489,766	\$27,315,864,122	1.162
21	3Q 2015	1.315	1.128	1.161	1.123	\$6,906,179,258	\$27,483,680,933	1.170
22	4Q 2015	1.326	1.138	1.168	1.133	\$6,961,362,412	\$27,695,755,580	1.179
23	1Q 2016	1.336	1.147	1.174	1.143	\$7,017,044,231	\$27,893,445,970	1.188
24	2Q 2016	1.347	1.156	1.180	1.153	\$7,073,229,773	\$28,092,588,940	1.196
25	3Q 2016	1.358	1.165	1.187	1.162	\$7,129,924,153	\$28,293,195,417	1.205
26	4Q 2016	1.369	1.174	1.193	1.172	\$7,187,132,544	\$28,495,276,418	1.214
27	1Q 2017	1.379	1.185	1.201	1.183	\$7,244,860,178	\$28,733,646,609	1.224
28	2Q 2017	1.391	1.196	1.209	1.195	\$7,303,112,345	\$28,974,053,069	1.234
29	3Q 2017	1.402	1.207	1.217	1.206	\$7,361,894,396	\$29,216,513,505	1.245
30	4Q 2017	1.413	1.218	1.226	1.218	\$7,421,211,741	\$29,461,045,784	1.255
31	1Q 2018	1.424	1.229	1.233	1.230	\$7,481,069,853	\$29,708,736,296	1.265
32	2Q 2018	1.436	1.241	1.241	1.242	\$7,541,474,266	\$29,958,568,504	1.276
33	3Q 2018	1.448	1.252	1.249	1.254	\$7,602,430,576	\$30,210,561,359	1.287
34	4Q 2018	1.459	1.264	1.257	1.266	\$7,663,944,445	\$30,464,733,982	1.297
35	1Q 2019	1.471	1.275	1.265	1.279	\$7,726,021,597	\$30,714,810,594	1.308
36	2Q 2019	1.483	1.287	1.272	1.291	\$7,788,667,822	\$30,967,019,895	1.319
37	3Q 2019	1.495	1.299	1.280	1.304	\$7,851,888,977	\$31,221,380,620	1.329
38	4Q 2019	1.507	1.311	1.288	1.317	\$7,915,690,985	\$31,477,911,672	1.340
39	1Q 2020	1.519	1.323	1.297	1.329	\$7,980,079,836	\$31,743,876,969	1.352
40	2Q 2020	1.532	1.335	1.306	1.342	\$8,045,061,589	\$32,012,115,428	1.363

Annual Average 9/

3.40%

1/ Table C, Page 3, Column (10).

2/ Previous Column (3) x (1 + Quarterly Inflation Rate Change from Table B).

3/ Previous Column (4) x (1 + Quarterly Inflation Rate Change from Table B).

4/ Previous Column (5) x (1 + Quarterly Inflation Rate Change from Table B).

5/ Previous Column (6) x (1 + Quarterly Inflation Rate Change from Table B).

6/ Line 1 x Column (3) for applicable quarter.

7/ (Line 2 x Column (4) for applicable quarter) + (Line 3 x Column (5) for applicable quarter) + (Line 4 x Column (6) for applicable quarter).

8/ (Column (7) + Column (8)) ÷ (Period 0; (Column (7) + Column (8))).

9/ Annual weighted inflation using the last two quarters, used to calculate real cost of capital.

TABLE I: TPIRR DISCOUNTED CASH FLOW

Discounted Cash Flow

Present Value of the Cash Flow Discounted at the Cost of Capital in Table A

Inflation In Asset Values From Table H

1. 3Q 2010 Road Property Investment	\$29,454,010,295 1/	Federal Tax Rate	35.0%
2. Interest During Construction (3Q 2010 Invest.)	\$3,518,458,687 2/		
3. Total 3Q 2010 Investment	\$32,972,468,982 3/	Route Mile Weighted	
4. Present Value Of Replacement Cost for the TPIRR	\$1,491,481,180 4/	Average State Tax Rate	6.11% 6/
5. Total Cost Recovered From Quarterly Revenue Flow	\$34,463,950,162 5/		

Period	Quarter	Quarterly Levelized Capital Carrying Charge Requirement 7/	Interest on Investment With Debt 8/	Tax Depreciation 9/	Actual Federal Tax Payments 10/	Actual State Tax Payments 11/	Cash Flow 12/	Present Value Cash Flow 13/	Cumulative Present Value 14/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1		\$804,063,860	\$118,736,937	\$4,758,276,982	\$0	\$0	\$804,063,860	\$793,138,752	\$793,138,752
2	4Q 2010	\$820,413,993	\$118,736,937	\$4,758,276,982	\$0	\$0	\$820,413,993	\$787,424,531	\$1,580,563,283
3	1Q 2011	\$819,944,986	\$118,736,937	\$554,619,021	\$0	\$0	\$819,944,986	\$765,842,195	\$2,346,405,478
4	2Q 2011	\$820,009,036	\$118,736,937	\$554,619,021	\$0	\$0	\$820,009,036	\$745,441,129	\$3,091,846,607
5	3Q 2011	\$843,453,953	\$118,736,937	\$554,619,021	\$0	\$0	\$843,453,953	\$746,270,420	\$3,838,117,027
6	4Q 2011	\$853,648,201	\$118,736,937	\$554,619,021	\$0	\$0	\$853,648,201	\$735,112,682	\$4,573,229,709
7	1Q 2012	\$856,866,827	\$118,736,937	\$444,414,661	\$0	\$0	\$856,866,827	\$718,351,574	\$5,291,581,283
8	2Q 2012	\$879,255,658	\$118,736,937	\$444,414,661	\$0	\$0	\$879,255,658	\$717,788,040	\$6,009,369,324
9	3Q 2012	\$882,331,262	\$118,736,937	\$444,414,661	\$0	\$0	\$882,331,262	\$701,406,912	\$6,710,776,235
10	4Q 2012	\$877,955,797	\$118,736,937	\$444,414,661	\$0	\$0	\$877,955,797	\$679,623,446	\$7,390,399,681
11	1Q 2013	\$879,921,521	\$118,736,937	\$364,715,798	\$0	\$0	\$879,921,521	\$663,280,103	\$8,053,679,784
12	2Q 2013	\$874,658,980	\$118,736,937	\$364,715,798	\$0	\$0	\$874,658,980	\$642,020,827	\$8,695,700,611
13	3Q 2013	\$892,410,328	\$118,736,937	\$364,715,798	\$0	\$0	\$892,410,328	\$637,870,142	\$9,333,570,753
14	4Q 2013	\$887,735,750	\$118,736,937	\$364,715,798	\$0	\$0	\$887,735,750	\$617,886,524	\$9,951,457,278
15	1Q 2014	\$893,485,803	\$118,736,937	\$306,632,557	\$0	\$0	\$893,485,803	\$605,577,873	\$10,557,035,150
16	2Q 2014	\$900,523,368	\$118,736,937	\$306,632,557	\$0	\$0	\$900,523,368	\$594,339,585	\$11,151,374,735
17	3Q 2014	\$912,121,231	\$118,736,937	\$306,632,557	\$0	\$0	\$912,121,231	\$586,205,059	\$11,737,579,794
18	4Q 2014	\$923,574,691	\$118,736,937	\$306,632,557	\$0	\$0	\$923,574,691	\$577,998,018	\$12,315,577,812
19	1Q 2015	\$932,752,179	\$118,736,937	\$194,716,742	\$0	\$0	\$932,752,179	\$568,431,224	\$12,884,009,036
20	2Q 2015	\$935,831,974	\$118,736,937	\$194,716,742	\$0	\$0	\$935,831,974	\$555,350,108	\$13,439,359,144
21	3Q 2015	\$941,926,344	\$118,736,937	\$194,716,742	\$0	\$0	\$941,926,344	\$544,306,165	\$13,983,665,309
22	4Q 2015	\$949,246,443	\$118,736,937	\$194,716,742	\$0	\$0	\$949,246,443	\$534,149,241	\$14,517,814,550
23	1Q 2016	\$956,186,220	\$118,736,937	\$192,202,004	\$0	\$0	\$956,186,220	\$523,942,280	\$15,041,756,830
24	2Q 2016	\$963,179,579	\$118,736,937	\$192,202,004	\$206,756,905	\$38,465,713	\$717,956,961	\$383,086,373	\$15,424,843,203
25	3Q 2016	\$970,226,961	\$118,736,937	\$192,202,004	\$216,644,008	\$40,305,141	\$713,277,812	\$370,607,612	\$15,795,450,816
26	4Q 2016	\$977,328,807	\$118,736,937	\$192,202,004	\$218,977,695	\$40,739,308	\$717,611,804	\$363,080,164	\$16,158,530,980
27	1Q 2017	\$985,438,824	\$118,736,937	\$144,733,466	\$237,240,974	\$44,137,066	\$704,060,783	\$346,880,935	\$16,505,411,915
28	2Q 2017	\$993,618,980	\$118,736,937	\$144,733,466	\$239,928,998	\$44,637,155	\$709,052,827	\$340,177,980	\$16,845,589,895
29	3Q 2017	\$1,001,869,907	\$118,736,937	\$144,733,466	\$242,640,277	\$45,141,570	\$714,088,060	\$333,608,190	\$17,179,198,086
30	4Q 2017	\$1,010,192,243	\$118,736,937	\$144,733,466	\$245,375,021	\$45,650,350	\$719,166,871	\$327,168,840	\$17,506,366,925
31	1Q 2018	\$1,018,615,893	\$118,736,937	\$65,969,144	\$274,025,249	\$50,980,530	\$693,610,114	\$307,266,353	\$17,813,633,279
32	2Q 2018	\$1,027,113,167	\$118,736,937	\$65,969,144	\$276,817,478	\$51,500,005	\$698,795,683	\$301,444,337	\$18,115,077,616
33	3Q 2018	\$1,035,684,736	\$118,736,937	\$65,969,144	\$279,634,121	\$52,024,022	\$704,026,592	\$295,735,396	\$18,410,813,013
34	4Q 2018	\$1,044,331,279	\$118,736,937	\$65,969,144	\$282,475,401	\$52,552,623	\$709,303,255	\$290,137,273	\$18,700,950,286
35	1Q 2019	\$1,052,881,063	\$118,736,937	\$65,904,332	\$285,306,183	\$53,079,271	\$714,495,609	\$284,595,786	\$18,985,546,071
36	2Q 2019	\$1,061,504,846	\$118,736,937	\$65,904,332	\$288,139,984	\$53,606,480	\$719,758,382	\$279,172,708	\$19,264,718,780
37	3Q 2019	\$1,070,203,304	\$118,736,937	\$65,904,332	\$290,998,323	\$54,138,255	\$725,066,726	\$273,855,541	\$19,538,574,320
38	4Q 2019	\$1,078,977,115	\$118,736,937	\$65,904,332	\$293,881,424	\$54,674,636	\$730,421,056	\$268,642,159	\$19,807,216,479
39	1Q 2020	\$1,088,025,401	\$118,736,937	\$65,969,144	\$296,833,420	\$55,223,835	\$735,968,146	\$263,582,899	\$20,070,799,378
40	2Q 2020	\$1,097,152,187	\$118,736,937	\$65,969,144	\$299,832,509	\$55,781,795	\$741,537,883	\$258,612,125	\$20,329,411,503
	Future	\$61,145,925,958	\$6,617,386,386	\$1,629,047,712	\$17,382,930,631	\$3,233,975,773	\$40,529,019,555	\$14,134,538,659	\$34,463,950,162

1/ From Table C, Column (10) + Repaving and Rail Grinding Capital Costs from [TPIRR Capitalized MOW.xlsx].

2/ From Table D, Column (8).

3/ Line 1 + Line 2.

4/ Table F Column (8).

5/ Line 3 + Line 4.

6/ Alabama, Washington Dc, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, New York, Ohio, Pennsylvania, South Carolina, Tennessee, corporate income tax rates weighted on TPIRR route miles.

7/ Quarterly carrying costs needed to recover the total investment over 40 quarters after consideration of the applicable interest payments, tax depreciation and tax liability. The Future value is an estimate of a perpetual income stream for the TPIRR and is calculated by taking the Period 40, Column (3) value and dividing it by the TPIRR's estimated quarterly Real Cost of Capital.

8/ Value from Table E.

9/ Value from Table G - Part 2, Column (14) divided by 4 quarters.

10/ Table J: Part 1.

11/ Table J: Part 2.

12/ (Column (3) - Column (6) - Column (7)).

13/ Column (8) discounted by the fourth root of the annual Cost of Capital adjusted to Midquarter dollars from Table A.

14/ Cumulative total of Column (9).

TABLE J - PART 1: COMPUTATION OF FEDERAL TAX LIABILITY - TAXABLE INCOME
(Road Property)

<u>Time Period</u> (1)	<u>Taxable Income B/4 NOL's IRR 1/</u> (2)	<u>Net Operating Losses Generated 2/</u> (3)	<u>NOL's Generated Plus Carryforward 3/</u> (4)	<u>Carryforward Utilized 4/</u> (5)	<u>Carryforward Remaining 5/</u> (6)	<u>Carryback Available 6/</u> (7)	<u>Carryback Utilized 7/</u> (8)	<u>Carryback Remaining 8/</u> (9)	<u>Annual Taxable Income 9/</u> (10)	<u>Annual Tax Liability 10/</u> (11)
2008	(\$39,399,906)	(\$39,399,906)	(\$39,399,906)	\$0	(\$39,399,906)	(\$39,399,906)	\$0	(\$39,399,906)	\$0	\$0
2009	(\$262,625,319)	(\$262,625,319)	(\$302,025,226)	\$0	(\$302,025,226)	(\$302,025,226)	\$0	(\$302,025,226)	\$0	\$0
1Q-2Q 2010	(\$159,233,459)	(\$159,233,459)	(\$461,258,684)	\$0	(\$461,258,684)	(\$461,258,684)	\$0	(\$461,258,684)	\$0	\$0
3Q 2010	(\$4,072,950,059)	(\$4,072,950,059)	(\$4,534,208,743)	\$0	(\$4,534,208,743)	(\$4,534,208,743)	\$0	(\$4,534,208,743)	\$0	\$0
4Q 2010	(\$4,056,599,926)	(\$4,056,599,926)	(\$8,590,808,669)	\$0	(\$8,590,808,669)	(\$8,590,808,669)	\$0	(\$8,590,808,669)	\$0	\$0
1Q 2011	\$146,589,028	\$0	(\$8,590,808,669)	\$146,589,028	(\$8,444,219,641)	(\$8,444,219,641)	\$0	(\$8,444,219,641)	\$0	\$0
2Q 2011	\$146,653,078	\$0	(\$8,444,219,641)	\$146,653,078	(\$8,297,566,563)	(\$8,297,566,563)	\$0	(\$8,297,566,563)	\$0	\$0
3Q 2011	\$170,097,995	\$0	(\$8,297,566,563)	\$170,097,995	(\$8,127,468,568)	(\$8,127,468,568)	\$0	(\$8,127,468,568)	\$0	\$0
4Q 2011	\$180,292,243	\$0	(\$8,127,468,568)	\$180,292,243	(\$7,947,176,325)	(\$7,947,176,325)	\$0	(\$7,947,176,325)	\$0	\$0
1Q 2012	\$293,715,229	\$0	(\$7,947,176,325)	\$293,715,229	(\$7,653,461,096)	(\$7,653,461,096)	\$0	(\$7,653,461,096)	\$0	\$0
2Q 2012	\$316,104,060	\$0	(\$7,653,461,096)	\$316,104,060	(\$7,337,357,036)	(\$7,337,357,036)	\$0	(\$7,337,357,036)	\$0	\$0
3Q 2012	\$319,179,664	\$0	(\$7,337,357,036)	\$319,179,664	(\$7,018,177,373)	(\$7,018,177,373)	\$0	(\$7,018,177,373)	\$0	\$0
4Q 2012	\$314,804,199	\$0	(\$7,018,177,373)	\$314,804,199	(\$6,703,373,174)	(\$6,703,373,174)	\$0	(\$6,703,373,174)	\$0	\$0
1Q 2013	\$396,468,786	\$0	(\$6,703,373,174)	\$396,468,786	(\$6,306,904,388)	(\$6,306,904,388)	\$0	(\$6,306,904,388)	\$0	\$0
2Q 2013	\$391,206,245	\$0	(\$6,306,904,388)	\$391,206,245	(\$5,915,698,143)	(\$5,915,698,143)	\$0	(\$5,915,698,143)	\$0	\$0
3Q 2013	\$408,957,593	\$0	(\$5,915,698,143)	\$408,957,593	(\$5,506,740,550)	(\$5,506,740,550)	\$0	(\$5,506,740,550)	\$0	\$0
4Q 2013	\$404,283,015	\$0	(\$5,506,740,550)	\$404,283,015	(\$5,102,457,534)	(\$5,102,457,534)	\$0	(\$5,102,457,534)	\$0	\$0
1Q 2014	\$468,116,309	\$0	(\$5,102,457,534)	\$468,116,309	(\$4,634,341,225)	(\$4,634,341,225)	\$0	(\$4,634,341,225)	\$0	\$0
2Q 2014	\$475,153,874	\$0	(\$4,634,341,225)	\$475,153,874	(\$4,159,187,351)	(\$4,159,187,351)	\$0	(\$4,159,187,351)	\$0	\$0
3Q 2014	\$486,751,737	\$0	(\$4,159,187,351)	\$486,751,737	(\$3,672,435,614)	(\$3,672,435,614)	\$0	(\$3,672,435,614)	\$0	\$0
4Q 2014	\$498,205,197	\$0	(\$3,672,435,614)	\$498,205,197	(\$3,174,230,417)	(\$3,174,230,417)	\$0	(\$3,174,230,417)	\$0	\$0
1Q 2015	\$619,298,501	\$0	(\$3,174,230,417)	\$619,298,501	(\$2,554,931,917)	(\$2,554,931,917)	\$0	(\$2,554,931,917)	\$0	\$0
2Q 2015	\$622,378,296	\$0	(\$2,554,931,917)	\$622,378,296	(\$1,932,553,621)	(\$1,932,553,621)	\$0	(\$1,932,553,621)	\$0	\$0
3Q 2015	\$628,472,666	\$0	(\$1,932,553,621)	\$628,472,666	(\$1,304,080,955)	(\$1,304,080,955)	\$0	(\$1,304,080,955)	\$0	\$0
4Q 2015	\$635,792,765	\$0	(\$1,304,080,955)	\$635,792,765	(\$668,288,191)	(\$668,288,191)	\$0	(\$668,288,191)	\$0	\$0
1Q 2016	\$645,247,279	\$0	(\$668,288,191)	\$645,247,279	(\$23,040,912)	(\$23,040,912)	\$0	(\$23,040,912)	\$0	\$0
2Q 2016	\$613,774,925	\$0	(\$23,040,912)	\$23,040,912	\$0	\$0	\$0	\$0	\$590,734,014	\$206,756,905
3Q 2016	\$618,982,879	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$618,982,879	\$216,644,008
4Q 2016	\$625,650,558	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$625,650,558	\$218,977,695
1Q 2017	\$677,831,355	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$677,831,355	\$237,240,974
2Q 2017	\$685,511,422	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$685,511,422	\$239,928,998
3Q 2017	\$693,257,935	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$693,257,935	\$242,640,277
4Q 2017	\$701,071,490	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$701,071,490	\$245,375,021
1Q 2018	\$782,929,283	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$782,929,283	\$274,025,249
2Q 2018	\$790,907,081	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$790,907,081	\$276,817,478
3Q 2018	\$798,954,633	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$798,954,633	\$279,634,121
4Q 2018	\$807,072,575	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$807,072,575	\$282,475,401
1Q 2019	\$815,160,523	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$815,160,523	\$285,306,183
2Q 2019	\$823,257,097	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$823,257,097	\$288,139,984
3Q 2019	\$831,423,780	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$831,423,780	\$290,998,323
4Q 2019	\$839,661,211	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$839,661,211	\$293,881,424
1Q 2020	\$848,095,485	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$848,095,485	\$296,833,420

TABLE J - PART 1: COMPUTATION OF FEDERAL TAX LIABILITY - TAXABLE INCOME

(Road Property)

Time Period	Taxable Income B/4 NOL's <u>IRR 1/</u>	Net Operating Losses <u>Generated 2/</u>	NOL's Generated Plus <u>Carryforward 3/</u>	Carryforward <u>Utilized 4/</u>	Carryforward <u>Remaining 5/</u>	Carryback <u>Available 6/</u>	Carryback <u>Utilized 7/</u>	Carryback <u>Remaining 8/</u>	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2Q 2020	\$856,664,311	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$856,664,311	\$299,832,509
Future	\$49,665,516,088	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$49,665,516,088	\$17,382,930,631

1/ Table I Column (3) - Table E Columns (2),(4) & (6) - Table G, Column (14) / 4 - Table J - Part 2, Column (11). Values for 2008 from Table D, Sum of Column (10).

2/ Column (2) if less than zero, otherwise zero.

3/ Cumulative total of Column (2).

4/ If Column (2) is greater than zero, and (Column (2) + Column (4) is less than zero, then Column (2), otherwise Column (4).

5/ Column (4) + Column (5) + Column (8).

6/ Previous period Column (9) + current period Column (3) - current period Column (5).

7/ If previous Column (10) is greater than zero, and previous Column (10) is less than current Column (7), then previous Column (10), otherwise zero.

8/ Column (7) + Column (8).

9/ If Column (2) is greater than zero, then Column (2) - Column (5) - Column (8), otherwise zero.

10/ Column (10) times applicable Federal Statutory Tax Rate.

TABLE J - PART 2: COMPUTATION OF STATE TAX LIABILITY - TAXABLE INCOME
(Road Property)

<u>Time Period</u> (1)	<u>Taxable Income B/4 NOL's IRR 1/</u> (2)	<u>Net Operating Losses Generated 2/</u> (3)	<u>NOL's Generated Plus Carryforward 3/</u> (4)	<u>Carryforward Utilized 4/</u> (5)	<u>Carryforward Remaining 5/</u> (6)	<u>Carryback Available 6/</u> (7)	<u>Carryback Utilized 7/</u> (8)	<u>Carryback Remaining 8/</u> (9)	<u>Annual Taxable Income 9/</u> (10)	<u>Annual Tax Liability 10/</u> (11)
2008	(\$39,399,906)	(\$39,399,906)	(\$39,399,906)	\$0	(\$39,399,906)	(\$39,399,906)	\$0	(\$39,399,906)	\$0	\$0
2009	(\$262,625,319)	(\$262,625,319)	(\$302,025,226)	\$0	(\$302,025,226)	(\$302,025,226)	\$0	(\$302,025,226)	\$0	\$0
1Q-2Q 2010	(\$159,233,459)	(\$159,233,459)	(\$461,258,684)	\$0	(\$461,258,684)	(\$461,258,684)	\$0	(\$461,258,684)	\$0	\$0
3Q 2010	(\$4,072,950,059)	(\$4,072,950,059)	(\$4,534,208,743)	\$0	(\$4,534,208,743)	(\$4,534,208,743)	\$0	(\$4,534,208,743)	\$0	\$0
4Q 2010	(\$4,056,599,926)	(\$4,056,599,926)	(\$8,590,808,669)	\$0	(\$8,590,808,669)	(\$8,590,808,669)	\$0	(\$8,590,808,669)	\$0	\$0
1Q 2011	\$146,589,028	\$0	(\$8,590,808,669)	\$146,589,028	(\$8,444,219,641)	(\$8,444,219,641)	\$0	(\$8,444,219,641)	\$0	\$0
2Q 2011	\$146,653,078	\$0	(\$8,444,219,641)	\$146,653,078	(\$8,297,566,563)	(\$8,297,566,563)	\$0	(\$8,297,566,563)	\$0	\$0
3Q 2011	\$170,097,995	\$0	(\$8,297,566,563)	\$170,097,995	(\$8,127,468,568)	(\$8,127,468,568)	\$0	(\$8,127,468,568)	\$0	\$0
4Q 2011	\$180,292,243	\$0	(\$8,127,468,568)	\$180,292,243	(\$7,947,176,325)	(\$7,947,176,325)	\$0	(\$7,947,176,325)	\$0	\$0
1Q 2012	\$293,715,229	\$0	(\$7,947,176,325)	\$293,715,229	(\$7,653,461,096)	(\$7,653,461,096)	\$0	(\$7,653,461,096)	\$0	\$0
2Q 2012	\$316,104,060	\$0	(\$7,653,461,096)	\$316,104,060	(\$7,337,357,036)	(\$7,337,357,036)	\$0	(\$7,337,357,036)	\$0	\$0
3Q 2012	\$319,179,664	\$0	(\$7,337,357,036)	\$319,179,664	(\$7,018,177,373)	(\$7,018,177,373)	\$0	(\$7,018,177,373)	\$0	\$0
4Q 2012	\$314,804,199	\$0	(\$7,018,177,373)	\$314,804,199	(\$6,703,373,174)	(\$6,703,373,174)	\$0	(\$6,703,373,174)	\$0	\$0
1Q 2013	\$396,468,786	\$0	(\$6,703,373,174)	\$396,468,786	(\$6,306,904,388)	(\$6,306,904,388)	\$0	(\$6,306,904,388)	\$0	\$0
2Q 2013	\$391,206,245	\$0	(\$6,306,904,388)	\$391,206,245	(\$5,915,698,143)	(\$5,915,698,143)	\$0	(\$5,915,698,143)	\$0	\$0
3Q 2013	\$408,957,593	\$0	(\$5,915,698,143)	\$408,957,593	(\$5,506,740,550)	(\$5,506,740,550)	\$0	(\$5,506,740,550)	\$0	\$0
4Q 2013	\$404,283,015	\$0	(\$5,506,740,550)	\$404,283,015	(\$5,102,457,534)	(\$5,102,457,534)	\$0	(\$5,102,457,534)	\$0	\$0
1Q 2014	\$468,116,309	\$0	(\$5,102,457,534)	\$468,116,309	(\$4,634,341,225)	(\$4,634,341,225)	\$0	(\$4,634,341,225)	\$0	\$0
2Q 2014	\$475,153,874	\$0	(\$4,634,341,225)	\$475,153,874	(\$4,159,187,351)	(\$4,159,187,351)	\$0	(\$4,159,187,351)	\$0	\$0
3Q 2014	\$486,751,737	\$0	(\$4,159,187,351)	\$486,751,737	(\$3,672,435,614)	(\$3,672,435,614)	\$0	(\$3,672,435,614)	\$0	\$0
4Q 2014	\$498,205,197	\$0	(\$3,672,435,614)	\$498,205,197	(\$3,174,230,417)	(\$3,174,230,417)	\$0	(\$3,174,230,417)	\$0	\$0
1Q 2015	\$619,298,501	\$0	(\$3,174,230,417)	\$619,298,501	(\$2,554,931,917)	(\$2,554,931,917)	\$0	(\$2,554,931,917)	\$0	\$0
2Q 2015	\$622,378,296	\$0	(\$2,554,931,917)	\$622,378,296	(\$1,932,553,621)	(\$1,932,553,621)	\$0	(\$1,932,553,621)	\$0	\$0
3Q 2015	\$628,472,666	\$0	(\$1,932,553,621)	\$628,472,666	(\$1,304,080,955)	(\$1,304,080,955)	\$0	(\$1,304,080,955)	\$0	\$0
4Q 2015	\$635,792,765	\$0	(\$1,304,080,955)	\$635,792,765	(\$668,288,191)	(\$668,288,191)	\$0	(\$668,288,191)	\$0	\$0
1Q 2016	\$645,247,279	\$0	(\$668,288,191)	\$645,247,279	(\$23,040,912)	(\$23,040,912)	\$0	(\$23,040,912)	\$0	\$0
2Q 2016	\$652,240,638	\$0	(\$23,040,912)	\$23,040,912	\$0	\$0	\$0	\$0	\$629,199,727	\$38,465,713
3Q 2016	\$659,288,020	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$659,288,020	\$40,305,141
4Q 2016	\$666,389,866	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$666,389,866	\$40,739,308
1Q 2017	\$721,968,421	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$721,968,421	\$44,137,066
2Q 2017	\$730,148,577	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$730,148,577	\$44,637,155
3Q 2017	\$738,399,505	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$738,399,505	\$45,141,570
4Q 2017	\$746,721,840	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$746,721,840	\$45,650,350
1Q 2018	\$833,909,813	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$833,909,813	\$50,980,530
2Q 2018	\$842,407,086	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$842,407,086	\$51,500,005
3Q 2018	\$850,978,655	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$850,978,655	\$52,024,022
4Q 2018	\$859,625,199	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$859,625,199	\$52,552,623
1Q 2019	\$868,239,794	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$868,239,794	\$53,079,271
2Q 2019	\$876,863,578	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$876,863,578	\$53,606,480
3Q 2019	\$885,562,035	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$885,562,035	\$54,138,255
4Q 2019	\$894,335,847	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$894,335,847	\$54,674,636
1Q 2020	\$903,319,320	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$903,319,320	\$55,223,835

TABLE J - PART 2: COMPUTATION OF STATE TAX LIABILITY - TAXABLE INCOME

(Road Property)

Time Period	Taxable Income B/4 NOL's <u>IRR 1/</u>	Net Operating Losses <u>Generated 2/</u>	NOL's Generated Plus <u>Carryforward 3/</u>	Carryforward <u>Utilized 4/</u>	Carryforward <u>Remaining 5/</u>	Carryback <u>Available 6/</u>	Carryback <u>Utilized 7/</u>	Carryback <u>Remaining 8/</u>	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2Q 2020	\$912,446,106	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$912,446,106	\$55,781,795
Future	\$52,899,491,860	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$52,899,491,860	\$3,233,975,773

1/ Table I Column (3) - Table E Columns (2),(4) & (6) - Table G, Column (14) ÷ 4 - Table J - Part 2, Column (11). Values for 2008 from Table D, Sum of Column (10).

2/ Column (2) if less than zero, otherwise zero.

3/ Cumulative total of Column (2).

4/ If Column (2) is greater than zero, and (Column (2) + Column (4) is less than zero, then Column (2), otherwise Column (4).

5/ Column (4) + Column (5) + Column (8).

6/ Previous period Column (9) + current period Column (3) - current period Column (5).

7/ If previous Column (10) is greater than zero, and previous Column (10) is less than current Column (7), then previous Column (10), otherwise zero.

8/ Column (7) + Column (8).

9/ If Column (2) is greater than zero, then Column (2) - Column (5) - Column (8), otherwise zero.

10/ Column (10) times applicable route mile weighted State Statutory Tax Rates.

TABLE K - PART 1: TPIRR OPERATING EXPENSES

<u>Item</u> (1)	<u>2010</u> (2)	<u>2011</u> (3)	<u>2012</u> (4)	<u>2013</u> (5)	<u>2014</u> (6)	<u>2015</u> (7)	<u>2016</u> (8)	<u>2017</u> (9)	<u>2018</u> (10)	<u>2019</u> (11)	<u>2020</u> (12)
1. Train & Engine Personnel	\$394,890,521	\$402,558,191	\$394,987,382	\$413,013,869	\$423,689,648	\$442,756,038	\$464,193,879	\$473,633,104	\$491,779,365	\$511,695,630	\$533,457,628
2. Locomotive Lease Expense	\$82,794,414	\$84,402,050	\$82,814,722	\$86,594,231	\$88,832,560	\$92,830,100	\$97,324,848	\$99,303,916	\$103,108,538	\$107,284,266	\$111,846,978
3. Locomotive Maintenance Expense	\$113,244,860	\$115,443,759	\$113,272,638	\$118,442,189	\$121,503,740	\$126,971,510	\$133,119,354	\$135,826,291	\$141,030,191	\$146,741,684	\$152,982,488
4. Locomotive Operating Expense	\$860,576,649	\$877,286,641	\$860,787,734	\$900,072,480	\$923,337,983	\$964,888,966	\$1,011,608,004	\$1,032,178,710	\$1,071,724,478	\$1,115,127,576	\$1,162,553,044
5. Railcar Lease Expense	\$217,410,818	\$221,632,328	\$217,464,145	\$227,388,803	\$233,266,457	\$243,763,643	\$255,566,455	\$260,763,312	\$270,753,913	\$281,719,006	\$293,700,286
6. Material & Supply Operating	\$4,776,446	\$4,776,446	\$4,776,446	\$4,776,446	\$4,776,446	\$4,776,446	\$4,776,446	\$4,776,446	\$4,776,446	\$4,776,446	\$4,776,446
7. Ad Valorem Tax	\$41,285,015	\$41,285,015	\$41,285,015	\$41,285,015	\$41,285,015	\$41,285,015	\$41,285,015	\$41,285,015	\$41,285,015	\$41,285,015	\$41,285,015
8. Operating Managers	\$96,020,806	\$96,020,806	\$96,020,806	\$96,020,806	\$96,020,806	\$96,020,806	\$96,020,806	\$96,020,806	\$96,020,806	\$96,020,806	\$96,020,806
9. General & Administration	\$91,637,089	\$93,977,836	\$93,977,836	\$93,977,836	\$93,977,836	\$93,977,836	\$93,977,836	\$93,977,836	\$93,977,836	\$93,977,836	\$93,977,836
10. Loss and Damage	\$8,838,241	\$9,009,855	\$8,840,409	\$9,243,868	\$9,482,808	\$9,909,543	\$10,389,354	\$10,600,618	\$11,006,758	\$11,452,514	\$11,939,580
11. Trackage Rights	\$23,579,788	\$24,037,642	\$23,585,572	\$24,661,973	\$25,299,448	\$26,437,944	\$27,718,045	\$28,281,682	\$29,365,235	\$30,554,480	\$31,853,937
12. Intermodal Lift Costs	\$67,174,231	\$68,478,566	\$67,190,708	\$70,257,166	\$72,073,207	\$75,316,561	\$78,963,320	\$80,569,013	\$83,655,846	\$87,043,771	\$90,745,672
13. Motor Vehicle Cost	\$22,800,460	\$23,243,181	\$22,806,052	\$23,846,878	\$24,463,284	\$25,564,152	\$26,801,945	\$27,346,953	\$28,394,694	\$29,544,633	\$30,801,143
14. Insurance 1.36%	\$30,477,226	\$30,983,483	\$30,515,139	\$31,630,289	\$32,290,711	\$33,470,190	\$34,796,371	\$35,380,298	\$36,502,857	\$37,734,911	\$39,081,145
15. Maintenance of Way	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>	<u>\$209,816,525</u>
16. Total Operating Expenses	\$2,265,323,088	\$2,302,952,323	\$2,268,141,129	\$2,351,028,374	\$2,400,116,473	\$2,487,785,275	\$2,586,358,203	\$2,629,760,525	\$2,713,198,504	\$2,804,775,100	\$2,904,838,530
17. Expense Per Quarter	\$566,330,772	\$575,738,081	\$567,035,282	\$587,757,094	\$600,029,118	\$621,946,319	\$646,589,551	\$657,440,131	\$678,299,626	\$701,193,775	\$726,209,633

TABLE K - PART 2: TPIRR OPERATING EXPENSES INDEXED

<u>Period</u> (1)	<u>Quarter</u> (2)	<u>Hybrid Index 1/</u> (3)	<u>Operating Expense Indexed For Inflation 2/</u> (4)
1	3Q 2010	100.000	\$585,837,003
2	4Q 2010	103.359	\$604,859,054
3	1Q 2011	102.318	\$608,588,215
4	2Q 2011	110.066	\$653,197,604
5	3Q 2011	112.849	\$649,715,095
6	4Q 2011	113.102	\$651,169,681
7	1Q 2012	109.416	\$620,425,631
8	2Q 2012	110.974	\$629,261,715
9	3Q 2012	109.563	\$621,259,532
10	4Q 2012	113.062	\$641,100,797
11	1Q 2013	112.696	\$662,378,520
12	2Q 2013	113.677	\$668,146,182
13	3Q 2013	110.386	\$648,799,985
14	4Q 2013	110.101	\$647,126,831
15	1Q 2014	110.605	\$663,661,132
16	2Q 2014	110.561	\$663,395,667
17	3Q 2014	111.401	\$668,437,474
18	4Q 2014	112.348	\$674,119,193
19	1Q 2015	113.303	\$704,681,986
20	2Q 2015	112.793	\$701,510,918
21	3Q 2015	113.272	\$704,492,339
22	4Q 2015	114.450	\$711,819,059
23	1Q 2016	114.610	\$741,056,236
24	2Q 2016	114.770	\$742,090,617
25	3Q 2016	114.930	\$743,126,442
26	4Q 2016	115.079	\$744,089,621
27	1Q 2017	115.816	\$761,417,804
28	2Q 2017	116.557	\$766,290,213
29	3Q 2017	117.303	\$771,193,802
30	4Q 2017	118.040	\$776,043,571
31	1Q 2018	118.852	\$806,170,793
32	2Q 2018	119.669	\$811,713,273
33	3Q 2018	120.492	\$817,293,859
34	4Q 2018	121.301	\$822,782,579
35	1Q 2019	122.129	\$856,359,679
36	2Q 2019	122.963	\$862,205,640
37	3Q 2019	123.802	\$868,091,509
38	4Q 2019	124.629	\$873,889,919
39	1Q 2020	125.385	\$910,555,646
40	2Q 2020	126.145	\$916,077,676

1/ 3Q10 equals 100.0, all other quarters equal Quarterly Inflation Indexes for the Hybrid Index from Table B.

2/ Quarterly expense from Table K, Page 18, for the applicable time period x Column (3) ÷ 3Q10. Start-up costs have been distributed over the first 12 months in periods 1 - 4.

TABLE L: TPIRR STAND-ALONE COSTS AND REVENUES

Revenue Requirements to Cover Total Stand-Alone Costs

<u>Period</u>	<u>Quarter</u>	<u>Quarterly Capital Requirement Road Property</u>	<u>Quarterly Operating Expense</u>	<u>Annual Stand-Alone Requirement</u>	<u>Annual Stand-Alone Revenues</u>	<u>Overpayments Or Shortfalls In Revenues</u>	<u>PV Difference</u>	<u>Cumulative PV Difference</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	3Q 2010	\$804,063,860	\$585,837,003					
2	4Q 2010	\$820,413,993	\$604,859,054	\$2,815,173,911	\$3,152,087,973	\$336,914,062	\$336,914,062	\$336,914,062
3	1Q 2011	\$819,944,986	\$608,588,215					
4	2Q 2011	\$820,009,036	\$653,197,604					
5	3Q 2011	\$843,453,953	\$649,715,095					
6	4Q 2011	\$853,648,201	\$651,169,681	\$5,899,726,771	\$6,831,542,442	\$931,815,670	\$835,216,424	\$1,172,130,486
7	1Q 2012	\$856,866,827	\$620,425,631					
8	2Q 2012	\$879,255,658	\$629,261,715					
9	3Q 2012	\$882,331,262	\$621,259,532					
10	4Q 2012	\$877,955,797	\$641,100,797	\$6,008,457,219	\$6,850,693,987	\$842,236,768	\$678,196,102	\$1,850,326,588
11	1Q 2013	\$879,921,521	\$662,378,520					
12	2Q 2013	\$874,658,980	\$668,146,182					
13	3Q 2013	\$892,410,328	\$648,799,985					
14	4Q 2013	\$887,735,750	\$647,126,831	\$6,161,178,096	\$7,300,676,008	\$1,139,497,912	\$828,326,335	\$2,678,652,923
15	1Q 2014	\$893,485,803	\$663,661,132					
16	2Q 2014	\$900,523,368	\$663,395,667					
17	3Q 2014	\$912,121,231	\$668,437,474					
18	4Q 2014	\$923,574,691	\$674,119,193	\$6,299,318,559	\$7,670,634,217	\$1,371,315,658	\$896,302,653	\$3,574,955,576
19	1Q 2015	\$932,752,179	\$704,681,986					
20	2Q 2015	\$935,831,974	\$701,510,918					
21	3Q 2015	\$941,926,344	\$704,492,339					
22	4Q 2015	\$949,246,443	\$711,819,059	\$6,582,261,243	\$8,138,932,009	\$1,556,670,766	\$914,836,173	\$4,489,791,749
23	1Q 2016	\$956,186,220	\$741,056,236					
24	2Q 2016	\$963,179,579	\$742,090,617					
25	3Q 2016	\$970,226,961	\$743,126,442					
26	4Q 2016	\$977,328,807	\$744,089,621	\$6,837,284,484	\$8,719,658,935	\$1,882,374,452	\$994,676,575	\$5,484,468,324
27	1Q 2017	\$985,438,824	\$761,417,804					
28	2Q 2017	\$993,618,980	\$766,290,213					
29	3Q 2017	\$1,001,869,907	\$771,193,802					
30	4Q 2017	\$1,010,192,243	\$776,043,571	\$7,066,065,345	\$9,122,098,838	\$2,056,033,494	\$976,866,840	\$6,461,335,164
31	1Q 2018	\$1,018,615,893	\$806,170,793					
32	2Q 2018	\$1,027,113,167	\$811,713,273					
33	3Q 2018	\$1,035,684,736	\$817,293,859					
34	4Q 2018	\$1,044,331,279	\$822,782,579	\$7,383,705,580	\$9,721,148,000	\$2,337,442,421	\$998,562,875	\$7,459,898,039
35	1Q 2019	\$1,052,881,063	\$856,359,679					
36	2Q 2019	\$1,061,504,846	\$862,205,640					
37	3Q 2019	\$1,070,203,304	\$868,091,509					
38	4Q 2019	\$1,078,977,115	\$873,889,919	\$7,724,113,076	\$10,422,109,310	\$2,697,996,234	\$1,036,346,882	\$8,496,244,921
39	1Q 2020	\$1,088,025,401	\$910,555,646					
40	2Q 2020	\$1,097,152,187	\$916,077,676	\$4,011,810,910	\$5,587,198,472	\$1,575,387,562	\$573,807,042	\$9,070,051,963

Railroad Industry Debt between 1998 to 2009**(\$ in Thousands)**

<u>Railroad</u>	<u>Bonds</u>	<u>ETC</u>	<u>CSA</u>	<u>Other</u>	<u>Total</u>
(1)	(2)	(3)	(4)	(5)	(6)
<u>1998</u>					
1. BNSF	\$3,567,245	\$384,003	\$0	\$1,465,800	\$5,417,048
2. Conrail	1,315,232	164,531	0	486,888	1,966,651
3. CSX	4,751,927	606,877	165,555	1,167,181	6,691,540
4. NS	5,553,302	382,253	0	2,196,875	8,132,430
5. UP	<u>6,083,074</u>	<u>374,485</u>	<u>121,483</u>	<u>1,856,527</u>	<u>8,435,569</u>
6. Total	\$21,270,780	\$1,912,149	\$287,038	\$7,173,271	\$30,643,238
<u>1999</u>					
7. BNSF	\$3,788,968	\$434,180	\$0	\$1,633,315	\$5,856,463
8. CSX	4,646,421	675,181	150,904	1,235,278	6,707,784
9. NS	5,586,787	411,447	0	2,096,136	8,094,370
10. UP	<u>6,400,711</u>	<u>324,661</u>	<u>95,627</u>	<u>1,835,651</u>	<u>8,656,650</u>
11. Total	\$20,422,887	\$1,845,469	\$246,531	\$6,800,380	\$29,315,267
<u>2000</u>					
12. BNSF	\$3,874,165	\$479,450	\$0	\$1,616,226	\$5,969,841
13. CSX	4,301,219	722,600	130,993	777,661	5,932,473
14. NS	5,303,625	399,607	0	1,880,779	7,584,011
15. UP	<u>5,900,352</u>	<u>264,294</u>	<u>72,433</u>	<u>1,900,215</u>	<u>8,137,294</u>
16. Total	\$19,379,361	\$1,865,951	\$203,426	\$6,174,881	\$27,623,619
<u>2001</u>					
17. BNSF	\$4,753,585	\$477,866	\$0	\$1,491,266	\$6,722,717
18. CSX	5,322,289	757,043	130,975	268,512	6,478,819
19. NS	6,830,019	506,733	0	356,197	7,692,949
20. UP	<u>5,923,562</u>	<u>237,954</u>	<u>54,863</u>	<u>1,775,176</u>	<u>7,991,555</u>
21. Total	\$22,829,455	\$1,979,596	\$185,838	\$3,891,151	\$28,886,040
<u>2002</u>					
22. BNSF	\$5,346,700	\$431,510	\$0	\$1,271,585	\$7,049,795
23. CSX	5,398,556	608,004	124,985	675,212	6,806,757
24. NS	7,059,667	338,868	0	506,454	7,904,989
25. UP	<u>6,038,802</u>	<u>187,827</u>	<u>32,287</u>	<u>1,711,672</u>	<u>7,970,588</u>
26. Total	\$23,843,725	\$1,566,209	\$157,272	\$4,164,923	\$29,732,129
<u>2003</u>					
27. BNSF	\$5,718,153	\$386,023	\$0	\$1,098,941	\$7,203,117
28. CSX	5,237,473	490,636	115,990	174,600	6,018,699
29. NS	6,952,242	293,619	0	939,125	8,184,986
30. UP	<u>6,332,851</u>	<u>168,355</u>	<u>2,773</u>	<u>2,019,969</u>	<u>8,523,948</u>
31. Total	\$24,240,719	\$1,338,633	\$118,763	\$4,232,635	\$29,930,750

Railroad Industry Debt between 1998 to 2009**(\$ in Thousands)**

<u>Railroad</u>	<u>Bonds</u>	<u>ETC</u>	<u>CSA</u>	<u>Other</u>	<u>Total</u>
(1)	(2)	(3)	(4)	(5)	(6)
<u>2004</u>					
32. BNSF	\$5,444,619	\$324,213	\$0	\$790,901	\$6,559,733
33. CSX	6,418,995	427,920	159,558	136,431	7,142,904
34. NS	6,911,770	246,784	0	784,506	7,943,060
35. UP	<u>6,132,695</u>	<u>247,642</u>	<u>0</u>	<u>1,301,462</u>	<u>7,681,799</u>
36. Total	\$24,908,079	\$1,246,559	\$159,558	\$3,013,300	\$29,327,496
<u>2005</u>					
37. BNSF	\$5,464,515	\$368,458	\$0	\$1,195,009	\$7,027,982
38. CSX	5,062,299	366,722	142,197	306,737	5,877,955
39. NS	6,787,492	195,483	0	326,245	7,309,220
40. UP	<u>5,812,182</u>	<u>208,593</u>	<u>0</u>	<u>1,251,308</u>	<u>7,272,083</u>
41. Total	\$23,126,488	\$1,139,256	\$142,197	\$3,079,299	\$27,487,240
<u>2006</u>					
42. BNSF	\$5,948,542	\$315,007	\$0	\$1,472,626	\$7,736,175
43. CSX	4,637,108	287,070	74,489	293,002	5,291,669
44. NS	6,409,527	157,391	0	147,213	6,714,131
45. UP	<u>5,966,313</u>	<u>169,828</u>	<u>0</u>	<u>1,166,408</u>	<u>7,302,549</u>
46. Total	\$22,961,490	\$929,296	\$74,489	\$3,079,249	\$27,044,524
<u>2007</u>					
47. BNSF	\$6,194,580	\$262,421	\$0	\$1,201,743	\$7,658,744
48. CSX	4,959,289	221,209	63,389	230,126	5,474,013
49. NS	6,034,279	131,643	0	286,067	6,451,989
50. UP	<u>4,931,853</u>	<u>189,350</u>	<u>0</u>	<u>1,140,434</u>	<u>6,261,637</u>
51. Total	\$22,120,001	\$804,623	\$63,389	\$2,858,370	\$25,846,383
<u>2008</u>					
52. BNSF	\$7,098,663	\$227,997	\$0	\$1,443,114	\$8,769,774
53. CSX	6,785,450	192,631	54,389	179,534	7,212,004
54. NS	5,860,071	112,996	0	273,935	6,247,002
55. UP	<u>6,142,454</u>	<u>233,118</u>	<u>0</u>	<u>1,468,746</u>	<u>7,844,318</u>
56. Total	\$25,886,638	\$766,742	\$54,389	\$3,365,329	\$30,073,098
<u>2009</u>					
57. BNSF	\$7,915,817	\$236,659	\$0	\$1,554,082	\$9,706,558
58. CSX	7,657,784	158,159	43,349	78,462	7,937,754
59. NS	6,685,553	97,756	0	124,709	6,908,018
60. UP	<u>7,288,352</u>	<u>215,499</u>	<u>0</u>	<u>2,075,919</u>	<u>9,579,770</u>
61. Total	\$29,547,506	\$708,073	\$43,349	\$3,833,172	\$34,132,100

Sources: STB Ex Parte No. 558 - Railroad Cost of Capital.

TPIRR Maximum Markup Methodology R/VC Ratios

	<u>Year</u> (1)	<u>MMM Revenue to Variable Cost Ratio</u> (2)
1.	July -Dec 2010	223.6%
2.	2011	179.5%
3.	2012	174.3%
4.	2013	160.2%
5.	2014	149.7%
6.	2015	145.6%
7.	2016	137.8%
8.	2017	135.5%
9.	2018	131.3%
10.	2019	126.9%
11.	Jan-Jun 2020	122.2%

Source: e-workpaper "MMM Results V07.xlsx."

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 3Q10**

Origin 1/ (1)	Destination (2)	Railroad(s) (3)	Commodity (4)	3Q2010						
				Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
Exhibit A										
2. Clinton	IN	Atherton	IN	CSXT	2821139	\$2,727	\$549	\$988	\$1,227	\$1,227
Exhibit B										
1. Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,473	\$1,100	\$1,980	\$2,460	\$2,460
2. Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$4,884	\$1,098	\$1,977	\$2,456	\$2,456
3. New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$5,977	\$1,393	\$2,508	\$3,116	\$3,116
4. Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,719	\$624	\$1,123	\$1,395	\$1,395
5. New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,157	\$2,541	\$4,574	\$5,683	\$5,683
6. Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,036	\$923	\$1,661	\$2,064	\$2,064
7. New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$5,976	\$1,382	\$2,487	\$3,090	\$3,090
8. New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,049	\$1,555	\$2,800	\$3,479	\$3,479
9. New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$5,983	\$1,433	\$2,579	\$3,204	\$3,204
10. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,020	\$598	\$1,076	\$1,337	\$1,337
11. New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,320	\$971	\$1,747	\$2,171	\$2,171
12. New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$7,921	\$1,968	\$3,543	\$4,402	\$4,402
13. Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,045	\$997	\$1,794	\$2,228	\$2,228
15. Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,580	\$2,133	\$3,839	\$4,769	\$4,769
16. New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,048	\$2,255	\$4,059	\$5,043	\$5,043
17. Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,894	\$771	\$1,388	\$1,724	\$1,724
18. Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,578	\$1,019	\$1,835	\$2,279	\$2,279
19. Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$4,884	\$1,099	\$1,978	\$2,458	\$2,458
20. Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,513	\$1,499	\$2,699	\$3,353	\$3,353
21. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,767	\$1,721	\$3,099	\$3,850	\$3,850
22. Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$4,946	\$1,124	\$2,024	\$2,514	\$2,514
25. Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,031	\$679	\$1,223	\$1,519	\$1,519
26. New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,034	\$1,657	\$2,983	\$3,706	\$3,706
28. New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$5,988	\$1,273	\$2,291	\$2,846	\$2,846
29. Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,433	\$1,709	\$3,076	\$3,822	\$3,822
30. East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,738	\$1,581	\$2,846	\$3,536	\$3,536
32. Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,618	\$701	\$1,262	\$1,568	\$1,568
33. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,780	\$1,089	\$1,960	\$2,434	\$2,434
34. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,577	\$1,909	\$3,436	\$4,269	\$4,269
35. New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$5,977	\$1,383	\$2,489	\$3,092	\$3,092
37. New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,250	\$1,432	\$2,578	\$3,203	\$3,203
38. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,633	\$2,051	\$3,691	\$4,586	\$4,586
39. New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$5,977	\$1,385	\$2,492	\$3,096	\$3,096
43. New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$5,977	\$1,391	\$2,503	\$3,110	\$3,110
44. East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,131	\$1,150	\$2,071	\$2,573	\$2,573
46. New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$7,907	\$2,091	\$3,764	\$4,677	\$4,677
48. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$5,972	\$1,342	\$2,416	\$3,002	\$3,002
51. Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,458	\$1,252	\$2,253	\$2,799	\$2,799
52. Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,499	\$889	\$1,600	\$1,988	\$1,988
53. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,020	\$598	\$1,076	\$1,337	\$1,337
54. New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,535	\$1,457	\$2,623	\$3,258	\$3,258
55. New Orleans	LA	Anslley	MS	CN NEWOR CSXT	2821140	\$5,457	\$416	\$931	\$931	\$931
56. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,780	\$1,089	\$1,960	\$2,434	\$2,434
57. Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,036	\$929	\$1,672	\$2,077	\$2,077
58. New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,633	\$2,043	\$3,677	\$4,568	\$4,568
60. New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$9,738	\$2,775	\$4,994	\$6,205	\$6,205
61. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,577	\$1,909	\$3,436	\$4,269	\$4,269
62. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,393	\$1,851	\$3,331	\$4,138	\$4,138
63. Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$4,874	\$1,047	\$1,884	\$2,341	\$2,341
64. New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$5,768	\$1,796	\$3,233	\$4,016	\$4,016
67. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$4,935	\$1,036	\$1,866	\$2,318	\$2,318
70. New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,840	\$1,568	\$2,823	\$3,507	\$3,507
71. New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$5,848	\$1,628	\$2,931	\$3,641	\$3,641
72. New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$5,844	\$1,603	\$2,885	\$3,584	\$3,584
74. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,020	\$598	\$1,076	\$1,337	\$1,337
75. Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,440	\$1,099	\$1,978	\$2,457	\$2,457
76. Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,079	\$1,302	\$2,343	\$2,911	\$2,911
77. New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,169	\$1,082	\$1,947	\$2,419	\$2,419
78. New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,203	\$1,281	\$2,306	\$2,865	\$2,865
79. New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$5,977	\$1,383	\$2,489	\$3,092	\$3,092
80. New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,382	\$2,792	\$5,025	\$6,243	\$6,243
81. Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$3,995	\$769	\$1,385	\$1,721	\$1,721
83. Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,399	\$1,394	\$2,509	\$3,117	\$3,117
84. Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,088	\$1,246	\$2,243	\$2,786	\$2,786
86. New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,049	\$1,765	\$3,177	\$3,947	\$3,947
89. Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,338	\$998	\$1,797	\$2,233	\$2,233
93. Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,066	\$1,102	\$1,983	\$2,464	\$2,464
96. Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,160	\$620	\$1,116	\$1,386	\$1,386
97. New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,021	\$1,707	\$3,072	\$3,816	\$3,816
98. New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,021	\$1,704	\$3,068	\$3,812	\$3,812
101. Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,045	\$996	\$1,792	\$2,227	\$2,227
102. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$5,972	\$1,342	\$2,416	\$3,002	\$3,002
103. New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,034	\$1,655	\$2,979	\$3,701	\$3,701
104. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,630	\$2,020	\$3,636	\$4,517	\$4,517

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 3Q10**

				3Q2010						
<u>Origin 1/</u>	<u>Destination</u>			<u>Railroad(s)</u>	<u>Commodity</u>	<u>Tariff Rate 1/</u>	<u>Phase III Cost 1/</u>	<u>Jurisdictional Threshold 1/</u>	<u>SAC Rate 2/</u>	<u>STB Maximum Rate 3/</u>
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,767	\$1,721	\$3,099	\$3,850	\$3,850
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,767	\$1,723	\$3,101	\$3,853	\$3,853
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$4,935	\$1,036	\$1,866	\$2,318	\$2,318
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,094	\$1,285	\$2,312	\$2,873	\$2,873
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,094	\$1,285	\$2,312	\$2,873	\$2,873
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,830	\$1,511	\$2,719	\$3,378	\$3,378
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,393	\$1,851	\$3,331	\$4,138	\$4,138
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$3,995	\$769	\$1,384	\$1,720	\$1,720
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,303	\$367	\$660	\$821	\$821
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,332	\$592	\$1,066	\$1,325	\$1,325
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,335	\$624	\$1,123	\$1,396	\$1,396
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,931	\$869	\$1,564	\$1,943	\$1,943
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$5,976	\$1,379	\$2,482	\$3,084	\$3,084

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 4Q10**

					4Q2010						
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
Exhibit A											
2.	Clinton	IN	Atherton	IN	CSXT	2821139	\$2,727	\$559	\$1,006	\$1,249	\$1,249
Exhibit B											
1.	Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,473	\$1,120	\$2,015	\$2,504	\$2,504
2.	Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$4,884	\$1,118	\$2,012	\$2,500	\$2,500
3.	New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$5,977	\$1,418	\$2,553	\$3,171	\$3,171
4.	Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,719	\$635	\$1,143	\$1,420	\$1,420
5.	New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,157	\$2,587	\$4,656	\$5,784	\$5,784
6.	Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,036	\$940	\$1,691	\$2,101	\$2,101
7.	New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$5,976	\$1,406	\$2,532	\$3,145	\$3,145
8.	New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,049	\$1,583	\$2,850	\$3,541	\$3,541
9.	New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$5,983	\$1,458	\$2,625	\$3,261	\$3,261
10.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,020	\$608	\$1,095	\$1,361	\$1,361
11.	New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,320	\$988	\$1,779	\$2,210	\$2,210
12.	New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$7,921	\$2,004	\$3,607	\$4,481	\$4,481
13.	Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,045	\$1,014	\$1,826	\$2,268	\$2,268
15.	Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,580	\$2,171	\$3,907	\$4,854	\$4,854
16.	New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,048	\$2,295	\$4,132	\$5,133	\$5,133
17.	Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,894	\$785	\$1,413	\$1,755	\$1,755
18.	Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,578	\$1,038	\$1,868	\$2,320	\$2,320
19.	Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$4,884	\$1,119	\$2,014	\$2,502	\$2,502
20.	Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,513	\$1,526	\$2,747	\$3,413	\$3,413
21.	New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,767	\$1,752	\$3,154	\$3,919	\$3,919
22.	Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$4,946	\$1,144	\$2,060	\$2,559	\$2,559
25.	Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,031	\$691	\$1,245	\$1,546	\$1,546
26.	New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,034	\$1,687	\$3,037	\$3,773	\$3,773
28.	New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$5,988	\$1,295	\$2,332	\$2,897	\$2,897
29.	Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,433	\$1,740	\$3,131	\$3,890	\$3,890
30.	East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,738	\$1,609	\$2,897	\$3,599	\$3,599
32.	Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,618	\$714	\$1,285	\$1,596	\$1,596
33.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,780	\$1,108	\$1,995	\$2,478	\$2,478
34.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,577	\$1,943	\$3,498	\$4,345	\$4,345
35.	New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$5,977	\$1,407	\$2,533	\$3,148	\$3,148
37.	New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,250	\$1,458	\$2,624	\$3,260	\$3,260
38.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,633	\$2,088	\$3,758	\$4,668	\$4,668
39.	New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$5,977	\$1,409	\$2,537	\$3,152	\$3,152
43.	New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$5,977	\$1,416	\$2,548	\$3,166	\$3,166
44.	East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,131	\$1,171	\$2,108	\$2,619	\$2,619
46.	New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$7,907	\$2,129	\$3,832	\$4,760	\$4,760
48.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$5,972	\$1,366	\$2,459	\$3,055	\$3,055
51.	Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,458	\$1,274	\$2,293	\$2,849	\$2,849
52.	Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,499	\$905	\$1,628	\$2,023	\$2,023
53.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,020	\$608	\$1,095	\$1,361	\$1,361
54.	New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,535	\$1,483	\$2,670	\$3,317	\$3,317
55.	New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,457	\$424	\$763	\$948	\$948
56.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,780	\$1,108	\$1,995	\$2,478	\$2,478
57.	Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,036	\$945	\$1,702	\$2,114	\$2,114
58.	New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,633	\$2,079	\$3,743	\$4,650	\$4,650
60.	New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$9,738	\$2,824	\$5,084	\$6,316	\$6,316
61.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,577	\$1,943	\$3,498	\$4,345	\$4,345
62.	Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,393	\$1,884	\$3,391	\$4,213	\$4,213
63.	Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$4,874	\$1,065	\$1,918	\$2,382	\$2,382
64.	New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$5,768	\$1,828	\$3,291	\$4,088	\$4,088
67.	Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$4,935	\$1,055	\$1,899	\$2,359	\$2,359
70.	New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,840	\$1,596	\$2,874	\$3,570	\$3,570
71.	New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$5,848	\$1,657	\$2,983	\$3,706	\$3,706
72.	New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$5,844	\$1,631	\$2,936	\$3,648	\$3,648
74.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,020	\$608	\$1,095	\$1,360	\$1,360
75.	Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,440	\$1,118	\$2,013	\$2,501	\$2,501
76.	Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,079	\$1,325	\$2,385	\$2,963	\$2,963
77.	New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,169	\$1,101	\$1,982	\$2,462	\$2,462
78.	New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,203	\$1,304	\$2,347	\$2,916	\$2,916
79.	New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$5,977	\$1,407	\$2,533	\$3,148	\$3,148
80.	New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,382	\$2,842	\$5,115	\$6,355	\$6,355
81.	Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$3,995	\$783	\$1,410	\$1,752	\$1,752
83.	Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,399	\$1,419	\$2,554	\$3,173	\$3,173
84.	Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,088	\$1,268	\$2,283	\$2,836	\$2,836
86.	New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,049	\$1,797	\$3,234	\$4,018	\$4,018
89.	Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,338	\$1,016	\$1,829	\$2,273	\$2,273
93.	Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,066	\$1,122	\$2,019	\$2,508	\$2,508
96.	Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,160	\$631	\$1,136	\$1,411	\$1,411
97.	New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,021	\$1,737	\$3,127	\$3,885	\$3,885
98.	New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,021	\$1,735	\$3,123	\$3,880	\$3,880
101.	Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,045	\$1,013	\$1,824	\$2,266	\$2,266
102.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$5,972	\$1,366	\$2,459	\$3,055	\$3,055
103.	New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,034	\$1,685	\$3,033	\$3,768	\$3,768
104.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,630	\$2,056	\$3,701	\$4,598	\$4,598

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 4Q10**

				4Q2010						
<u>Origin 1/</u>	<u>Destination</u>			<u>Railroad(s)</u>	<u>Commodity</u>	<u>Tariff Rate 1/</u>	<u>Phase III Cost 1/</u>	<u>Jurisdictional Threshold 1/</u>	<u>SAC Rate 2/</u>	<u>STB Maximum Rate 3/</u>
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,767	\$1,752	\$3,154	\$3,919	\$3,919
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,767	\$1,754	\$3,157	\$3,922	\$3,922
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$4,935	\$1,055	\$1,899	\$2,359	\$2,359
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,094	\$1,308	\$2,354	\$2,924	\$2,924
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,094	\$1,308	\$2,354	\$2,924	\$2,924
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,830	\$1,538	\$2,768	\$3,439	\$3,439
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,393	\$1,884	\$3,391	\$4,213	\$4,213
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$3,995	\$783	\$1,409	\$1,751	\$1,751
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,303	\$373	\$672	\$835	\$835
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,332	\$603	\$1,086	\$1,349	\$1,349
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,335	\$635	\$1,144	\$1,421	\$1,421
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,931	\$884	\$1,592	\$1,978	\$1,978
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$5,976	\$1,404	\$2,527	\$3,139	\$3,139

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 1Q11**

Origin 1/ (1)		Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)	
Exhibit A											
2.	Clinton	IN	Atherton	IN	CSXT	2821139	\$2,727	\$568	\$1,023	\$1,020	\$1,023
Exhibit B											
1.	Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,507	\$1,212	\$2,182	\$2,175	\$2,182
2.	Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$4,912	\$1,191	\$2,144	\$2,138	\$2,144
3.	New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$6,015	\$1,520	\$2,735	\$2,727	\$2,735
4.	Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,729	\$665	\$1,196	\$1,193	\$1,196
5.	New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,233	\$2,792	\$5,025	\$5,010	\$5,025
6.	Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,057	\$997	\$1,794	\$1,789	\$1,794
7.	New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$6,013	\$1,507	\$2,712	\$2,704	\$2,712
8.	New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,100	\$1,717	\$3,091	\$3,082	\$3,091
9.	New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$6,023	\$1,562	\$2,812	\$2,804	\$2,812
10.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,037	\$655	\$1,179	\$1,175	\$1,179
11.	New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,343	\$1,051	\$1,892	\$1,887	\$1,892
12.	New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$7,988	\$2,174	\$3,914	\$3,902	\$3,914
13.	Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,068	\$1,079	\$1,942	\$1,936	\$1,942
15.	Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,645	\$2,337	\$4,207	\$4,194	\$4,207
16.	New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,112	\$2,460	\$4,428	\$4,415	\$4,428
17.	Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,910	\$828	\$1,491	\$1,486	\$1,491
18.	Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,603	\$1,103	\$1,986	\$1,980	\$1,986
19.	Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$4,912	\$1,192	\$2,146	\$2,140	\$2,146
20.	Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,556	\$1,635	\$2,944	\$2,935	\$2,944
21.	New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,826	\$1,880	\$3,384	\$3,373	\$3,384
22.	Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$4,975	\$1,220	\$2,195	\$2,189	\$2,195
25.	Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,051	\$746	\$1,342	\$1,338	\$1,342
26.	New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,082	\$1,812	\$3,262	\$3,252	\$3,262
28.	New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$6,029	\$1,404	\$2,527	\$2,519	\$2,527
29.	Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,483	\$1,868	\$3,363	\$3,353	\$3,363
30.	East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,779	\$1,716	\$3,090	\$3,080	\$3,090
32.	Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,631	\$751	\$1,352	\$1,348	\$1,352
33.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,807	\$1,180	\$2,124	\$2,118	\$2,124
34.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,643	\$2,108	\$3,794	\$3,783	\$3,794
35.	New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$6,015	\$1,507	\$2,712	\$2,704	\$2,712
37.	New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,297	\$1,580	\$2,845	\$2,836	\$2,845
38.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,695	\$2,247	\$4,045	\$4,033	\$4,045
39.	New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$6,015	\$1,509	\$2,716	\$2,708	\$2,716
43.	New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$6,015	\$1,516	\$2,729	\$2,720	\$2,729
44.	East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,161	\$1,249	\$2,248	\$2,241	\$2,248
46.	New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$7,970	\$2,293	\$4,127	\$4,115	\$4,127
48.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$6,009	\$1,462	\$2,632	\$2,624	\$2,632
51.	Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,491	\$1,362	\$2,451	\$2,444	\$2,451
52.	Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,526	\$978	\$1,761	\$1,755	\$1,761
53.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,037	\$655	\$1,179	\$1,176	\$1,179
54.	New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,575	\$1,589	\$2,861	\$2,852	\$2,861
55.	New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,460	\$436	\$785	\$782	\$785
56.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,807	\$1,180	\$2,124	\$2,118	\$2,124
57.	Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,058	\$1,003	\$1,806	\$1,800	\$1,806
58.	New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,695	\$2,238	\$4,029	\$4,017	\$4,029
60.	New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$9,827	\$3,049	\$5,488	\$5,472	\$5,488
61.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,643	\$2,108	\$3,794	\$3,783	\$3,794
62.	Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,448	\$2,025	\$3,644	\$3,633	\$3,644
63.	Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$4,898	\$1,134	\$2,042	\$2,036	\$2,042
64.	New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$5,818	\$1,952	\$3,514	\$3,503	\$3,514
67.	Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$4,960	\$1,122	\$2,020	\$2,014	\$2,020
70.	New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,885	\$1,713	\$3,083	\$3,074	\$3,083
71.	New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$5,894	\$1,779	\$3,202	\$3,193	\$3,202
72.	New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$5,889	\$1,751	\$3,151	\$3,142	\$3,151
74.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,037	\$655	\$1,179	\$1,175	\$1,179
75.	Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,467	\$1,192	\$2,145	\$2,139	\$2,145
76.	Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,112	\$1,417	\$2,551	\$2,544	\$2,551
77.	New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,196	\$1,173	\$2,111	\$2,105	\$2,111
78.	New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,237	\$1,394	\$2,509	\$2,502	\$2,509
79.	New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$6,015	\$1,507	\$2,712	\$2,704	\$2,712
80.	New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,479	\$3,087	\$5,556	\$5,539	\$5,556
81.	Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,010	\$827	\$1,488	\$1,483	\$1,488
83.	Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,437	\$1,518	\$2,733	\$2,725	\$2,733
84.	Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,121	\$1,355	\$2,438	\$2,431	\$2,438
86.	New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,100	\$1,931	\$3,476	\$3,465	\$3,476
89.	Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,362	\$1,081	\$1,946	\$1,940	\$1,946
93.	Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,101	\$1,213	\$2,184	\$2,178	\$2,184
96.	Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,170	\$660	\$1,189	\$1,185	\$1,189
97.	New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,071	\$1,866	\$3,359	\$3,349	\$3,359
98.	New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,071	\$1,863	\$3,354	\$3,344	\$3,354
101.	Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,068	\$1,077	\$1,939	\$1,939	\$1,939
102.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$6,009	\$1,462	\$2,632	\$2,624	\$2,632
103.	New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,082	\$1,809	\$3,256	\$3,246	\$3,256
104.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,691	\$2,213	\$3,983	\$3,971	\$3,983

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 1Q11**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)		<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	1Q2011					
					<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)	
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,826	\$1,880	\$3,384	\$3,373	\$3,384
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,826	\$1,882	\$3,387	\$3,377	\$3,387
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$4,960	\$1,122	\$2,020	\$2,014	\$2,020
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,129	\$1,397	\$2,515	\$2,508	\$2,515
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,129	\$1,397	\$2,515	\$2,508	\$2,515
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,872	\$1,648	\$2,967	\$2,958	\$2,967
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,448	\$2,025	\$3,644	\$3,633	\$3,644
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,010	\$826	\$1,487	\$1,482	\$1,487
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,304	\$383	\$689	\$687	\$689
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,341	\$633	\$1,139	\$1,136	\$1,139
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,345	\$668	\$1,203	\$1,199	\$1,203
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,950	\$939	\$1,690	\$1,685	\$1,690
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$6,013	\$1,503	\$2,705	\$2,697	\$2,705

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 2Q11**

				2Q2011						
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)	
Exhibit A										
2. Clinton	IN	Atherton	IN	CSXT	2821139	\$2,728	\$592	\$1,065	\$1,062	\$1,065
Exhibit B										
1. Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,581	\$1,262	\$2,272	\$2,265	\$2,272
2. Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$4,971	\$1,240	\$2,233	\$2,226	\$2,233
3. New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$6,097	\$1,582	\$2,848	\$2,840	\$2,848
4. Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,752	\$692	\$1,246	\$1,242	\$1,246
5. New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,396	\$2,907	\$5,233	\$5,217	\$5,233
6. Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,103	\$1,038	\$1,869	\$1,863	\$1,869
7. New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$6,094	\$1,569	\$2,824	\$2,816	\$2,824
8. New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,211	\$1,788	\$3,219	\$3,209	\$3,219
9. New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$6,108	\$1,627	\$2,928	\$2,919	\$2,928
10. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,074	\$682	\$1,228	\$1,224	\$1,228
11. New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,392	\$1,095	\$1,971	\$1,965	\$1,971
12. New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,133	\$2,264	\$4,076	\$4,064	\$4,076
13. Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,120	\$1,123	\$2,022	\$2,016	\$2,022
15. Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,785	\$2,434	\$4,381	\$4,367	\$4,381
16. New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,250	\$2,562	\$4,611	\$4,597	\$4,611
17. Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,944	\$862	\$1,552	\$1,548	\$1,552
18. Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,657	\$1,149	\$2,068	\$2,062	\$2,068
19. Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$4,971	\$1,242	\$2,235	\$2,228	\$2,235
20. Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,646	\$1,703	\$3,065	\$3,056	\$3,065
21. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,951	\$1,957	\$3,523	\$3,513	\$3,523
22. Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,037	\$1,270	\$2,286	\$2,279	\$2,286
25. Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,093	\$777	\$1,398	\$1,394	\$1,398
26. New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,184	\$1,887	\$3,397	\$3,387	\$3,397
28. New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$6,117	\$1,462	\$2,631	\$2,623	\$2,631
29. Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,590	\$1,946	\$3,502	\$3,492	\$3,502
30. East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,867	\$1,787	\$3,217	\$3,208	\$3,217
32. Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,660	\$782	\$1,408	\$1,403	\$1,408
33. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,866	\$1,229	\$2,212	\$2,205	\$2,212
34. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,783	\$2,195	\$3,951	\$3,939	\$3,951
35. New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$6,096	\$1,569	\$2,825	\$2,816	\$2,825
37. New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,399	\$1,646	\$2,962	\$2,953	\$2,962
38. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,827	\$2,340	\$4,212	\$4,200	\$4,212
39. New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$6,097	\$1,571	\$2,828	\$2,820	\$2,828
43. New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$6,097	\$1,579	\$2,841	\$2,833	\$2,841
44. East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,225	\$1,300	\$2,341	\$2,334	\$2,341
46. New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,106	\$2,388	\$4,298	\$4,285	\$4,298
48. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$6,088	\$1,522	\$2,740	\$2,732	\$2,740
51. Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,562	\$1,418	\$2,552	\$2,545	\$2,552
52. Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,586	\$1,018	\$1,833	\$1,828	\$1,833
53. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,074	\$682	\$1,228	\$1,224	\$1,228
54. New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,661	\$1,655	\$2,979	\$2,970	\$2,979
55. New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,466	\$454	\$817	\$815	\$817
56. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,866	\$1,229	\$2,212	\$2,205	\$2,212
57. Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,104	\$1,045	\$1,880	\$1,875	\$1,880
58. New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,828	\$2,331	\$4,196	\$4,183	\$4,196
60. New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,019	\$3,175	\$5,715	\$5,698	\$5,715
61. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,783	\$2,195	\$3,951	\$3,939	\$3,951
62. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,566	\$2,108	\$3,795	\$3,783	\$3,795
63. Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$4,951	\$1,181	\$2,126	\$2,120	\$2,126
64. New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$5,926	\$2,033	\$3,659	\$3,648	\$3,659
67. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,015	\$1,169	\$2,104	\$2,097	\$2,104
70. New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,980	\$1,784	\$3,210	\$3,201	\$3,210
71. New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$5,994	\$1,853	\$3,335	\$3,325	\$3,335
72. New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$5,987	\$1,823	\$3,282	\$3,272	\$3,282
74. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,074	\$682	\$1,228	\$1,224	\$1,228
75. Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,527	\$1,241	\$2,234	\$2,227	\$2,234
76. Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,184	\$1,476	\$2,657	\$2,649	\$2,657
77. New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,256	\$1,221	\$2,199	\$2,192	\$2,199
78. New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,310	\$1,452	\$2,613	\$2,605	\$2,613
79. New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$6,096	\$1,569	\$2,825	\$2,816	\$2,825
80. New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,689	\$3,214	\$5,786	\$5,768	\$5,786
81. Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,043	\$861	\$1,549	\$1,545	\$1,549
83. Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,520	\$1,581	\$2,846	\$2,838	\$2,846
84. Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,192	\$1,411	\$2,539	\$2,531	\$2,539
86. New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,211	\$2,011	\$3,619	\$3,608	\$3,619
89. Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,413	\$1,126	\$2,026	\$2,020	\$2,026
93. Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,177	\$1,264	\$2,274	\$2,268	\$2,274
96. Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,192	\$688	\$1,238	\$1,234	\$1,238
97. New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,179	\$1,944	\$3,498	\$3,488	\$3,498
98. New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,179	\$1,940	\$3,493	\$3,482	\$3,493
101. Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,120	\$1,122	\$2,020	\$2,014	\$2,020
102. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$6,088	\$1,522	\$2,740	\$2,732	\$2,740
103. New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,184	\$1,884	\$3,391	\$3,381	\$3,391
104. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,822	\$2,304	\$4,148	\$4,135	\$4,148

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 2Q11**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)		<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	2Q2011					
					<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)	
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,951	\$1,957	\$3,523	\$3,513	\$3,523
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,951	\$1,960	\$3,527	\$3,517	\$3,527
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,015	\$1,169	\$2,104	\$2,097	\$2,104
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,203	\$1,455	\$2,619	\$2,611	\$2,619
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,203	\$1,455	\$2,619	\$2,611	\$2,619
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,962	\$1,716	\$3,089	\$3,080	\$3,089
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,566	\$2,108	\$3,795	\$3,783	\$3,795
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,043	\$860	\$1,548	\$1,544	\$1,548
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,305	\$399	\$718	\$715	\$718
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,360	\$659	\$1,186	\$1,183	\$1,186
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,366	\$696	\$1,252	\$1,249	\$1,252
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,991	\$978	\$1,760	\$1,755	\$1,760
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$6,094	\$1,565	\$2,817	\$2,809	\$2,817

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 3Q11**

				3Q2011							
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
Exhibit A											
2.	Clinton	IN	Atherton	IN	CSXT	2821139	\$2,728	\$590	\$1,062	\$1,059	\$1,062
Exhibit B											
1.	Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,596	\$1,259	\$2,266	\$2,260	\$2,266
2.	Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$4,983	\$1,237	\$2,227	\$2,220	\$2,227
3.	New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$6,113	\$1,579	\$2,841	\$2,833	\$2,841
4.	Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,756	\$690	\$1,243	\$1,239	\$1,243
5.	New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,429	\$2,900	\$5,220	\$5,205	\$5,220
6.	Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,112	\$1,036	\$1,864	\$1,858	\$1,864
7.	New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$6,110	\$1,565	\$2,817	\$2,809	\$2,817
8.	New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,233	\$1,784	\$3,211	\$3,201	\$3,211
9.	New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$6,126	\$1,623	\$2,921	\$2,912	\$2,921
10.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,081	\$680	\$1,225	\$1,221	\$1,225
11.	New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,402	\$1,092	\$1,966	\$1,960	\$1,966
12.	New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,162	\$2,259	\$4,066	\$4,054	\$4,066
13.	Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,130	\$1,121	\$2,017	\$2,011	\$2,017
15.	Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,814	\$2,428	\$4,370	\$4,357	\$4,370
16.	New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,277	\$2,556	\$4,600	\$4,586	\$4,600
17.	Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,951	\$860	\$1,548	\$1,544	\$1,548
18.	Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,668	\$1,146	\$2,063	\$2,057	\$2,063
19.	Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$4,983	\$1,239	\$2,230	\$2,223	\$2,230
20.	Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,665	\$1,699	\$3,058	\$3,049	\$3,058
21.	New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,976	\$1,953	\$3,515	\$3,504	\$3,515
22.	Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,049	\$1,267	\$2,281	\$2,274	\$2,281
25.	Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,102	\$775	\$1,394	\$1,390	\$1,394
26.	New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,205	\$1,883	\$3,389	\$3,379	\$3,389
28.	New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$6,135	\$1,458	\$2,625	\$2,617	\$2,625
29.	Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,612	\$1,941	\$3,494	\$3,483	\$3,494
30.	East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,885	\$1,783	\$3,209	\$3,200	\$3,209
32.	Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,666	\$780	\$1,404	\$1,400	\$1,404
33.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,878	\$1,226	\$2,207	\$2,200	\$2,207
34.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,811	\$2,190	\$3,941	\$3,929	\$3,941
35.	New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$6,113	\$1,565	\$2,818	\$2,809	\$2,818
37.	New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,419	\$1,642	\$2,955	\$2,946	\$2,955
38.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,854	\$2,335	\$4,202	\$4,190	\$4,202
39.	New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$6,113	\$1,568	\$2,822	\$2,813	\$2,822
43.	New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$6,113	\$1,575	\$2,834	\$2,826	\$2,834
44.	East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,238	\$1,297	\$2,335	\$2,328	\$2,335
46.	New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,133	\$2,382	\$4,287	\$4,275	\$4,287
48.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$6,104	\$1,519	\$2,734	\$2,726	\$2,734
51.	Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,576	\$1,414	\$2,546	\$2,538	\$2,546
52.	Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,598	\$1,016	\$1,829	\$1,823	\$1,829
53.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,081	\$680	\$1,225	\$1,221	\$1,225
54.	New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,679	\$1,651	\$2,972	\$2,963	\$2,972
55.	New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,467	\$453	\$815	\$813	\$815
56.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,878	\$1,226	\$2,207	\$2,200	\$2,207
57.	Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,114	\$1,042	\$1,876	\$1,870	\$1,876
58.	New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,855	\$2,325	\$4,186	\$4,173	\$4,186
60.	New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,057	\$3,167	\$5,701	\$5,684	\$5,701
61.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,811	\$2,190	\$3,941	\$3,929	\$3,941
62.	Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,590	\$2,103	\$3,786	\$3,774	\$3,786
63.	Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$4,961	\$1,178	\$2,121	\$2,115	\$2,121
64.	New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$5,948	\$2,028	\$3,650	\$3,639	\$3,650
67.	Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,026	\$1,166	\$2,099	\$2,092	\$2,099
70.	New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,999	\$1,779	\$3,203	\$3,193	\$3,203
71.	New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$6,015	\$1,848	\$3,327	\$3,317	\$3,327
72.	New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$6,006	\$1,819	\$3,274	\$3,264	\$3,274
74.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,081	\$680	\$1,225	\$1,221	\$1,225
75.	Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,539	\$1,238	\$2,228	\$2,222	\$2,228
76.	Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,199	\$1,472	\$2,650	\$2,642	\$2,650
77.	New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,268	\$1,219	\$2,193	\$2,187	\$2,193
78.	New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,325	\$1,448	\$2,607	\$2,599	\$2,607
79.	New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$6,113	\$1,565	\$2,818	\$2,809	\$2,818
80.	New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,731	\$3,207	\$5,772	\$5,754	\$5,772
81.	Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,050	\$859	\$1,546	\$1,541	\$1,546
83.	Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,536	\$1,577	\$2,839	\$2,831	\$2,839
84.	Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,207	\$1,407	\$2,533	\$2,525	\$2,533
86.	New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,233	\$2,006	\$3,610	\$3,600	\$3,610
89.	Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,424	\$1,123	\$2,021	\$2,015	\$2,021
93.	Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,193	\$1,260	\$2,269	\$2,262	\$2,269
96.	Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,196	\$686	\$1,235	\$1,231	\$1,235
97.	New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,201	\$1,939	\$3,490	\$3,479	\$3,490
98.	New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,201	\$1,936	\$3,484	\$3,474	\$3,484
101.	Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,130	\$1,119	\$2,015	\$2,009	\$2,015
102.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$6,104	\$1,519	\$2,734	\$2,726	\$2,734
103.	New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,205	\$1,879	\$3,383	\$3,372	\$3,383
104.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,849	\$2,299	\$4,138	\$4,125	\$4,138

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 3Q11**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)		<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	3Q2011					
					<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)	
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,976	\$1,953	\$3,515	\$3,504	\$3,515
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,976	\$1,955	\$3,519	\$3,508	\$3,519
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,026	\$1,166	\$2,099	\$2,092	\$2,099
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,218	\$1,452	\$2,613	\$2,605	\$2,613
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,218	\$1,452	\$2,613	\$2,605	\$2,613
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,980	\$1,712	\$3,082	\$3,073	\$3,082
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,590	\$2,103	\$3,786	\$3,774	\$3,786
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,050	\$858	\$1,545	\$1,540	\$1,545
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,306	\$398	\$716	\$714	\$716
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,364	\$657	\$1,183	\$1,180	\$1,183
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,370	\$694	\$1,249	\$1,246	\$1,249
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$5,000	\$975	\$1,756	\$1,750	\$1,756
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$6,110	\$1,561	\$2,810	\$2,802	\$2,810

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 4Q11**

						4Q2011					
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
Exhibit A											
2.	Clinton	IN	Atherton	IN	CSXT	2821139	\$2,728	\$586	\$1,055	\$1,052	\$1,055
Exhibit B											
1.	Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,576	\$1,250	\$2,251	\$2,244	\$2,251
2.	Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$4,967	\$1,229	\$2,212	\$2,205	\$2,212
3.	New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$6,091	\$1,568	\$2,822	\$2,813	\$2,822
4.	Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,750	\$686	\$1,234	\$1,231	\$1,234
5.	New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,385	\$2,880	\$5,184	\$5,169	\$5,184
6.	Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,100	\$1,028	\$1,851	\$1,846	\$1,851
7.	New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$6,088	\$1,554	\$2,798	\$2,790	\$2,798
8.	New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,203	\$1,772	\$3,189	\$3,179	\$3,189
9.	New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$6,103	\$1,612	\$2,901	\$2,892	\$2,901
10.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,071	\$676	\$1,216	\$1,213	\$1,216
11.	New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,388	\$1,085	\$1,952	\$1,946	\$1,952
12.	New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,123	\$2,243	\$4,038	\$4,026	\$4,038
13.	Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,116	\$1,113	\$2,003	\$1,997	\$2,003
15.	Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,776	\$2,411	\$4,340	\$4,327	\$4,340
16.	New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,240	\$2,538	\$4,568	\$4,555	\$4,568
17.	Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,941	\$854	\$1,538	\$1,533	\$1,538
18.	Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,653	\$1,138	\$2,049	\$2,043	\$2,049
19.	Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$4,967	\$1,230	\$2,214	\$2,208	\$2,214
20.	Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,640	\$1,687	\$3,037	\$3,028	\$3,037
21.	New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,943	\$1,939	\$3,491	\$3,480	\$3,491
22.	Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,033	\$1,258	\$2,265	\$2,258	\$2,265
25.	Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,091	\$769	\$1,385	\$1,381	\$1,385
26.	New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,177	\$1,870	\$3,365	\$3,355	\$3,365
28.	New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$6,111	\$1,448	\$2,607	\$2,599	\$2,607
29.	Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,583	\$1,928	\$3,470	\$3,459	\$3,470
30.	East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,861	\$1,771	\$3,187	\$3,178	\$3,187
32.	Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,658	\$775	\$1,395	\$1,390	\$1,395
33.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,862	\$1,217	\$2,191	\$2,185	\$2,191
34.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,773	\$2,174	\$3,914	\$3,902	\$3,914
35.	New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$6,091	\$1,555	\$2,798	\$2,790	\$2,798
37.	New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,392	\$1,630	\$2,935	\$2,926	\$2,935
38.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,819	\$2,318	\$4,173	\$4,161	\$4,173
39.	New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$6,091	\$1,557	\$2,802	\$2,794	\$2,802
43.	New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$6,091	\$1,564	\$2,815	\$2,807	\$2,815
44.	East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,221	\$1,288	\$2,319	\$2,312	\$2,319
46.	New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,097	\$2,365	\$4,258	\$4,245	\$4,258
48.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$6,083	\$1,508	\$2,715	\$2,707	\$2,715
51.	Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,557	\$1,405	\$2,528	\$2,521	\$2,528
52.	Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,582	\$1,009	\$1,816	\$1,811	\$1,816
53.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,071	\$676	\$1,216	\$1,213	\$1,216
54.	New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,656	\$1,640	\$2,952	\$2,943	\$2,952
55.	New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,465	\$450	\$809	\$807	\$809
56.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,862	\$1,217	\$2,191	\$2,185	\$2,191
57.	Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,101	\$1,035	\$1,863	\$1,857	\$1,863
58.	New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,819	\$2,309	\$4,157	\$4,144	\$4,157
60.	New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,006	\$3,146	\$5,662	\$5,645	\$5,662
61.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,773	\$2,174	\$3,914	\$3,902	\$3,914
62.	Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,558	\$2,089	\$3,760	\$3,748	\$3,760
63.	Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$4,947	\$1,170	\$2,106	\$2,100	\$2,106
64.	New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$5,919	\$2,014	\$3,625	\$3,614	\$3,625
67.	Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,011	\$1,158	\$2,084	\$2,078	\$2,084
70.	New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,974	\$1,767	\$3,180	\$3,171	\$3,180
71.	New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$5,988	\$1,835	\$3,304	\$3,294	\$3,304
72.	New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$5,980	\$1,806	\$3,251	\$3,241	\$3,251
74.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,071	\$676	\$1,216	\$1,213	\$1,216
75.	Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,523	\$1,229	\$2,213	\$2,206	\$2,213
76.	Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,179	\$1,462	\$2,632	\$2,624	\$2,632
77.	New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,252	\$1,210	\$2,178	\$2,172	\$2,178
78.	New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,305	\$1,438	\$2,589	\$2,581	\$2,589
79.	New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$6,091	\$1,555	\$2,798	\$2,790	\$2,798
80.	New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,675	\$3,184	\$5,732	\$5,715	\$5,732
81.	Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,041	\$853	\$1,535	\$1,530	\$1,535
83.	Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,514	\$1,566	\$2,820	\$2,811	\$2,820
84.	Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,188	\$1,397	\$2,515	\$2,508	\$2,515
86.	New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,203	\$1,992	\$3,586	\$3,575	\$3,586
89.	Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,410	\$1,115	\$2,007	\$2,001	\$2,007
93.	Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,172	\$1,252	\$2,253	\$2,247	\$2,253
96.	Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,190	\$681	\$1,226	\$1,223	\$1,226
97.	New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,172	\$1,925	\$3,466	\$3,455	\$3,466
98.	New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,172	\$1,922	\$3,460	\$3,450	\$3,460
101.	Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,116	\$1,112	\$2,001	\$1,995	\$2,001
102.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$6,083	\$1,508	\$2,715	\$2,707	\$2,715
103.	New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,177	\$1,866	\$3,359	\$3,349	\$3,359
104.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,814	\$2,283	\$4,109	\$4,097	\$4,109

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 4Q11**

				4Q2011						
<u>Origin 1/</u>	<u>Destination</u>			<u>Railroad(s)</u>	<u>Commodity</u>	<u>Tariff Rate 1/</u>	<u>Phase III Cost 1/</u>	<u>Jurisdictional Threshold 1/</u>	<u>SAC Rate 2/</u>	<u>STB Maximum Rate 3/</u>
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,943	\$1,939	\$3,491	\$3,480	\$3,491
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,943	\$1,941	\$3,495	\$3,484	\$3,495
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,011	\$1,158	\$2,084	\$2,078	\$2,084
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,198	\$1,442	\$2,595	\$2,587	\$2,595
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,198	\$1,442	\$2,595	\$2,587	\$2,595
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,956	\$1,700	\$3,061	\$3,051	\$3,061
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,558	\$2,089	\$3,760	\$3,748	\$3,760
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,041	\$852	\$1,534	\$1,529	\$1,534
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,305	\$395	\$711	\$709	\$711
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,359	\$653	\$1,175	\$1,172	\$1,175
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,364	\$689	\$1,241	\$1,237	\$1,241
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,989	\$969	\$1,744	\$1,738	\$1,744
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$6,088	\$1,551	\$2,791	\$2,783	\$2,791

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 1Q12**

Origin 1/ (1)	Destination (2)	Railroad(s) (3)	Commodity (4)	1Q2012						
				Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
Exhibit A										
2. Clinton	IN	Atherton	IN	CSXT	2821139	\$2,728	\$590	\$1,062	\$1,029	\$1,062
Exhibit B										
1. Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,586	\$1,270	\$2,287	\$2,214	\$2,287
2. Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$4,975	\$1,245	\$2,241	\$2,170	\$2,241
3. New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$6,102	\$1,588	\$2,858	\$2,768	\$2,858
4. Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,753	\$695	\$1,251	\$1,211	\$1,251
5. New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,407	\$2,917	\$5,250	\$5,083	\$5,250
6. Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,106	\$1,042	\$1,876	\$1,816	\$1,876
7. New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$6,099	\$1,574	\$2,834	\$2,744	\$2,834
8. New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,218	\$1,798	\$3,236	\$3,134	\$3,236
9. New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$6,114	\$1,633	\$2,939	\$2,846	\$2,939
10. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,076	\$688	\$1,239	\$1,200	\$1,239
11. New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,395	\$1,099	\$1,978	\$1,915	\$1,978
12. New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,142	\$2,276	\$4,096	\$3,967	\$4,096
13. Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,123	\$1,127	\$2,030	\$1,965	\$2,030
15. Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,795	\$2,442	\$4,396	\$4,256	\$4,396
16. New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,259	\$2,571	\$4,628	\$4,481	\$4,628
17. Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,946	\$866	\$1,558	\$1,509	\$1,558
18. Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,660	\$1,153	\$2,076	\$2,010	\$2,076
19. Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$4,975	\$1,246	\$2,243	\$2,172	\$2,243
20. Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,652	\$1,709	\$3,076	\$2,979	\$3,076
21. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,959	\$1,965	\$3,537	\$3,425	\$3,537
22. Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,041	\$1,275	\$2,295	\$2,222	\$2,295
25. Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,096	\$783	\$1,410	\$1,365	\$1,410
26. New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,191	\$1,894	\$3,409	\$3,301	\$3,409
28. New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$6,123	\$1,470	\$2,647	\$2,563	\$2,647
29. Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,597	\$1,952	\$3,514	\$3,403	\$3,514
30. East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,873	\$1,794	\$3,229	\$3,127	\$3,229
32. Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,662	\$785	\$1,413	\$1,369	\$1,413
33. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,870	\$1,233	\$2,220	\$2,150	\$2,220
34. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,792	\$2,206	\$3,971	\$3,845	\$3,971
35. New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$6,102	\$1,575	\$2,835	\$2,745	\$2,835
37. New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,405	\$1,655	\$2,979	\$2,885	\$2,979
38. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,836	\$2,348	\$4,227	\$4,093	\$4,227
39. New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$6,102	\$1,577	\$2,839	\$2,749	\$2,839
43. New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$6,102	\$1,584	\$2,851	\$2,761	\$2,851
44. East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,229	\$1,305	\$2,349	\$2,275	\$2,349
46. New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,115	\$2,396	\$4,312	\$4,176	\$4,312
48. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$6,093	\$1,528	\$2,750	\$2,663	\$2,750
51. Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,567	\$1,423	\$2,561	\$2,480	\$2,561
52. Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,590	\$1,026	\$1,847	\$1,788	\$1,847
53. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,076	\$689	\$1,239	\$1,200	\$1,239
54. New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,667	\$1,661	\$2,990	\$2,895	\$2,990
55. New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,466	\$456	\$821	\$795	\$821
56. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,870	\$1,233	\$2,220	\$2,150	\$2,220
57. Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,107	\$1,049	\$1,888	\$1,828	\$1,888
58. New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,837	\$2,339	\$4,210	\$4,077	\$4,210
60. New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,031	\$3,186	\$5,735	\$5,553	\$5,735
61. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,792	\$2,206	\$3,971	\$3,845	\$3,971
62. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,574	\$2,116	\$3,808	\$3,687	\$3,808
63. Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$4,954	\$1,185	\$2,134	\$2,066	\$2,134
64. New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$5,933	\$2,041	\$3,673	\$3,557	\$3,673
67. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,019	\$1,173	\$2,112	\$2,045	\$2,112
70. New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,986	\$1,790	\$3,222	\$3,119	\$3,222
71. New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$6,001	\$1,859	\$3,346	\$3,240	\$3,346
72. New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$5,993	\$1,830	\$3,293	\$3,189	\$3,293
74. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,076	\$688	\$1,239	\$1,200	\$1,239
75. Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,531	\$1,246	\$2,242	\$2,171	\$2,242
76. Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,189	\$1,481	\$2,666	\$2,582	\$2,666
77. New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,260	\$1,226	\$2,207	\$2,137	\$2,207
78. New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,315	\$1,457	\$2,622	\$2,539	\$2,622
79. New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$6,102	\$1,575	\$2,835	\$2,745	\$2,835
80. New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,703	\$3,229	\$5,812	\$5,628	\$5,812
81. Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,046	\$864	\$1,555	\$1,506	\$1,555
83. Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,525	\$1,587	\$2,856	\$2,766	\$2,856
84. Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,197	\$1,416	\$2,548	\$2,468	\$2,548
86. New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,218	\$2,018	\$3,632	\$3,517	\$3,632
89. Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,417	\$1,130	\$2,034	\$1,969	\$2,034
93. Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,182	\$1,272	\$2,289	\$2,217	\$2,289
96. Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,193	\$691	\$1,243	\$1,204	\$1,243
97. New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,186	\$1,950	\$3,511	\$3,399	\$3,511
98. New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,186	\$1,947	\$3,505	\$3,394	\$3,505
101. Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,123	\$1,126	\$2,027	\$1,963	\$2,027
102. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$6,093	\$1,528	\$2,750	\$2,663	\$2,750
103. New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,191	\$1,890	\$3,403	\$3,295	\$3,403
104. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,831	\$2,312	\$4,162	\$4,030	\$4,162

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 1Q12**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)		<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	1Q2012					
					<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)	
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,959	\$1,965	\$3,537	\$3,425	\$3,537
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,959	\$1,967	\$3,541	\$3,429	\$3,541
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,019	\$1,173	\$2,112	\$2,045	\$2,112
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,208	\$1,460	\$2,629	\$2,545	\$2,629
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,208	\$1,460	\$2,629	\$2,545	\$2,629
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,968	\$1,722	\$3,100	\$3,002	\$3,100
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,574	\$2,116	\$3,808	\$3,687	\$3,808
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,046	\$864	\$1,554	\$1,505	\$1,554
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,305	\$400	\$721	\$698	\$721
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,361	\$662	\$1,191	\$1,153	\$1,191
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,367	\$698	\$1,257	\$1,217	\$1,257
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,994	\$981	\$1,766	\$1,710	\$1,766
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$6,099	\$1,571	\$2,827	\$2,738	\$2,827

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 2Q12**

					2Q2012					
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)	
Exhibit A										
2. Clinton	IN	Atherton	IN	CSXT	2821139	\$2,728	\$599	\$1,078	\$1,044	\$1,078
Exhibit B										
1. Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,606	\$1,289	\$2,319	\$2,246	\$2,319
2. Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$4,990	\$1,263	\$2,273	\$2,201	\$2,273
3. New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$6,124	\$1,611	\$2,899	\$2,807	\$2,899
4. Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,759	\$705	\$1,269	\$1,229	\$1,269
5. New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,451	\$2,959	\$5,325	\$5,157	\$5,325
6. Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,118	\$1,057	\$1,903	\$1,842	\$1,903
7. New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$6,121	\$1,597	\$2,875	\$2,784	\$2,875
8. New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,248	\$1,824	\$3,283	\$3,179	\$3,283
9. New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$6,137	\$1,656	\$2,981	\$2,887	\$2,981
10. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,086	\$698	\$1,257	\$1,217	\$1,257
11. New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,408	\$1,115	\$2,006	\$1,943	\$2,006
12. New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,181	\$2,309	\$4,155	\$4,024	\$4,155
13. Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,137	\$1,144	\$2,059	\$1,994	\$2,059
15. Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,832	\$2,477	\$4,459	\$4,318	\$4,459
16. New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,295	\$2,608	\$4,694	\$4,546	\$4,694
17. Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,955	\$878	\$1,581	\$1,531	\$1,581
18. Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,675	\$1,170	\$2,106	\$2,039	\$2,106
19. Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$4,990	\$1,264	\$2,275	\$2,203	\$2,275
20. Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,677	\$1,734	\$3,121	\$3,022	\$3,121
21. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,993	\$1,994	\$3,588	\$3,475	\$3,588
22. Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,057	\$1,293	\$2,328	\$2,254	\$2,328
25. Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,108	\$794	\$1,430	\$1,385	\$1,430
26. New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,218	\$1,921	\$3,458	\$3,348	\$3,458
28. New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$6,147	\$1,492	\$2,685	\$2,600	\$2,685
29. Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,626	\$1,981	\$3,565	\$3,452	\$3,565
30. East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,897	\$1,820	\$3,276	\$3,172	\$3,276
32. Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,669	\$796	\$1,434	\$1,388	\$1,434
33. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,885	\$1,251	\$2,252	\$2,181	\$2,252
34. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,829	\$2,238	\$4,028	\$3,901	\$4,028
35. New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$6,123	\$1,597	\$2,875	\$2,784	\$2,875
37. New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,433	\$1,679	\$3,022	\$2,926	\$3,022
38. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,872	\$2,382	\$4,288	\$4,152	\$4,288
39. New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$6,124	\$1,600	\$2,879	\$2,788	\$2,879
43. New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$6,124	\$1,607	\$2,892	\$2,801	\$2,892
44. East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,247	\$1,324	\$2,383	\$2,308	\$2,383
46. New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,151	\$2,430	\$4,374	\$4,236	\$4,374
48. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$6,114	\$1,550	\$2,790	\$2,701	\$2,790
51. Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,585	\$1,443	\$2,598	\$2,516	\$2,598
52. Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,605	\$1,041	\$1,873	\$1,814	\$1,873
53. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,086	\$698	\$1,257	\$1,217	\$1,257
54. New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,690	\$1,685	\$3,033	\$2,937	\$3,033
55. New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,468	\$462	\$832	\$806	\$832
56. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,885	\$1,251	\$2,252	\$2,181	\$2,252
57. Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,120	\$1,064	\$1,915	\$1,854	\$1,915
58. New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,872	\$2,373	\$4,271	\$4,135	\$4,271
60. New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,083	\$3,232	\$5,817	\$5,633	\$5,817
61. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,829	\$2,238	\$4,028	\$3,901	\$4,028
62. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,606	\$2,146	\$3,863	\$3,741	\$3,863
63. Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$4,968	\$1,203	\$2,165	\$2,096	\$2,165
64. New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$5,962	\$2,070	\$3,726	\$3,608	\$3,726
67. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,033	\$1,190	\$2,142	\$2,074	\$2,142
70. New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$6,012	\$1,816	\$3,268	\$3,164	\$3,268
71. New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$6,028	\$1,886	\$3,394	\$3,287	\$3,394
72. New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$6,019	\$1,856	\$3,341	\$3,235	\$3,341
74. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,086	\$698	\$1,257	\$1,217	\$1,257
75. Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,547	\$1,264	\$2,274	\$2,202	\$2,274
76. Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,208	\$1,502	\$2,704	\$2,619	\$2,704
77. New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,276	\$1,244	\$2,239	\$2,168	\$2,239
78. New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,335	\$1,478	\$2,660	\$2,576	\$2,660
79. New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$6,123	\$1,597	\$2,875	\$2,784	\$2,875
80. New Orleans	LA	Green Spring	VA	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,758	\$3,275	\$5,896	\$5,709	\$5,896
81. Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,054	\$877	\$1,578	\$1,528	\$1,578
83. Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,547	\$1,610	\$2,897	\$2,806	\$2,897
84. Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,216	\$1,436	\$2,585	\$2,503	\$2,585
86. New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,248	\$2,047	\$3,684	\$3,567	\$3,684
89. Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,576	\$1,146	\$2,063	\$1,997	\$2,063
93. Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,203	\$1,290	\$2,322	\$2,249	\$2,322
96. Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,199	\$700	\$1,261	\$1,221	\$1,261
97. New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,215	\$1,978	\$3,561	\$3,448	\$3,561
98. New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,215	\$1,975	\$3,555	\$3,443	\$3,555
101. Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,137	\$1,142	\$2,056	\$1,991	\$2,056
102. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$6,114	\$1,550	\$2,790	\$2,701	\$2,790
103. New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,218	\$1,918	\$3,452	\$3,342	\$3,452
104. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,866	\$2,346	\$4,222	\$4,088	\$4,222
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,993	\$1,994	\$3,588	\$3,475	\$3,588
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,993	\$1,996	\$3,592	\$3,479	\$3,592

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 2Q12**

Origin 1/ (1)	Destination (2)	Railroad(s) (3)	Commodity (4)	2Q2012						
				Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,033	\$1,190	\$2,142	\$2,074	\$2,142
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,228	\$1,481	\$2,667	\$2,582	\$2,667
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,228	\$1,481	\$2,667	\$2,582	\$2,667
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,991	\$1,747	\$3,145	\$3,045	\$3,145
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,606	\$2,146	\$3,863	\$3,741	\$3,863
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,054	\$876	\$1,577	\$1,527	\$1,577
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,306	\$406	\$731	\$708	\$731
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,367	\$671	\$1,208	\$1,170	\$1,208
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,373	\$708	\$1,275	\$1,235	\$1,275
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$5,005	\$995	\$1,792	\$1,735	\$1,792
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$6,121	\$1,593	\$2,868	\$2,777	\$2,868

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 3Q12**

Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	3Q2012					
					Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)	
Exhibit A										
2. Clinton	IN	Atherton	IN	CSXT	2821139	\$2,728	\$590	\$1,062	\$1,028	\$1,062
Exhibit B										
1. Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,576	\$1,270	\$2,286	\$2,213	\$2,286
2. Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$5,058	\$1,244	\$2,240	\$2,169	\$2,240
3. New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$6,292	\$1,587	\$2,857	\$2,767	\$2,857
4. Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,750	\$695	\$1,251	\$1,211	\$1,251
5. New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,385	\$2,916	\$5,248	\$5,082	\$5,248
6. Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,222	\$1,042	\$1,875	\$1,816	\$1,875
7. New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$6,289	\$1,574	\$2,833	\$2,743	\$2,833
8. New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$7,400	\$1,797	\$3,235	\$3,133	\$3,235
9. New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$6,303	\$1,632	\$2,938	\$2,845	\$2,938
10. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,194	\$688	\$1,239	\$1,200	\$1,239
11. New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$4,523	\$1,098	\$1,977	\$1,914	\$1,977
12. New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,252	\$2,275	\$4,095	\$3,965	\$4,095
13. Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,239	\$1,127	\$2,029	\$1,965	\$2,029
15. Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,776	\$2,441	\$4,394	\$4,255	\$4,394
16. New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,240	\$2,570	\$4,626	\$4,480	\$4,626
17. Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,941	\$866	\$1,558	\$1,509	\$1,558
18. Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,653	\$1,153	\$2,075	\$2,009	\$2,075
19. Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$5,058	\$1,246	\$2,242	\$2,171	\$2,242
20. Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,640	\$1,709	\$3,075	\$2,978	\$3,075
21. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,943	\$1,965	\$3,536	\$3,424	\$3,536
22. Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,033	\$1,274	\$2,294	\$2,221	\$2,294
25. Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,213	\$783	\$1,409	\$1,365	\$1,409
26. New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$7,373	\$1,893	\$3,408	\$3,300	\$3,408
28. New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$6,312	\$1,470	\$2,646	\$2,562	\$2,646
29. Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,583	\$1,952	\$3,513	\$3,402	\$3,513
30. East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$3,971	\$1,793	\$3,228	\$3,126	\$3,228
32. Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$3,722	\$785	\$1,413	\$1,368	\$1,413
33. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,862	\$1,233	\$2,220	\$2,149	\$2,220
34. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,773	\$2,206	\$3,970	\$3,844	\$3,970
35. New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$6,291	\$1,574	\$2,834	\$2,744	\$2,834
37. New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,392	\$1,655	\$2,978	\$2,884	\$2,978
38. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$7,945	\$2,348	\$4,226	\$4,092	\$4,226
39. New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$6,292	\$1,576	\$2,838	\$2,748	\$2,838
43. New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$6,292	\$1,584	\$2,851	\$2,760	\$2,851
44. East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$5,456	\$1,305	\$2,349	\$2,274	\$2,349
46. New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,226	\$2,395	\$4,311	\$4,174	\$4,311
48. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$6,283	\$1,527	\$2,749	\$2,662	\$2,749
51. Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,557	\$1,423	\$2,561	\$2,479	\$2,561
52. Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,582	\$1,026	\$1,846	\$1,788	\$1,846
53. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,194	\$688	\$1,239	\$1,200	\$1,239
54. New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,656	\$1,660	\$2,989	\$2,894	\$2,989
55. New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,465	\$456	\$820	\$794	\$820
56. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,862	\$1,233	\$2,220	\$2,149	\$2,220
57. Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,224	\$1,048	\$1,887	\$1,827	\$1,887
58. New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$7,946	\$2,338	\$4,209	\$4,075	\$4,209
60. New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,006	\$3,185	\$5,733	\$5,551	\$5,733
61. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,773	\$2,206	\$3,970	\$3,844	\$3,970
62. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,558	\$2,115	\$3,807	\$3,686	\$3,807
63. Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$5,038	\$1,185	\$2,133	\$2,066	\$2,133
64. New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$6,090	\$2,040	\$3,672	\$3,556	\$3,672
67. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,011	\$1,173	\$2,111	\$2,044	\$2,111
70. New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,974	\$1,789	\$3,221	\$3,119	\$3,221
71. New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$5,988	\$1,858	\$3,345	\$3,239	\$3,345
72. New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$5,980	\$1,829	\$3,292	\$3,188	\$3,292
74. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,194	\$688	\$1,239	\$1,200	\$1,239
75. Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,523	\$1,245	\$2,241	\$2,170	\$2,241
76. Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,302	\$1,481	\$2,665	\$2,581	\$2,665
77. New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$3,386	\$1,226	\$2,206	\$2,136	\$2,206
78. New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,305	\$1,456	\$2,622	\$2,539	\$2,622
79. New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$6,291	\$1,574	\$2,834	\$2,744	\$2,834
80. New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,675	\$3,228	\$5,810	\$5,626	\$5,810
81. Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,041	\$864	\$1,555	\$1,506	\$1,555
83. Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,514	\$1,586	\$2,855	\$2,765	\$2,855
84. Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,188	\$1,415	\$2,548	\$2,467	\$2,548
86. New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$7,400	\$2,017	\$3,631	\$3,516	\$3,631
89. Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,594	\$1,129	\$2,033	\$1,968	\$2,033
93. Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,172	\$1,271	\$2,289	\$2,216	\$2,289
96. Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,190	\$690	\$1,243	\$1,203	\$1,243
97. New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$6,372	\$1,950	\$3,509	\$3,398	\$3,509
98. New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$6,372	\$1,947	\$3,504	\$3,393	\$3,504
101. Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,239	\$1,126	\$2,027	\$1,962	\$2,027
102. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$6,283	\$1,527	\$2,749	\$2,662	\$2,749
103. New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$7,373	\$1,890	\$3,402	\$3,294	\$3,402
104. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$7,940	\$2,312	\$4,161	\$4,029	\$4,161
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,943	\$1,965	\$3,536	\$3,424	\$3,536
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,943	\$1,967	\$3,540	\$3,428	\$3,540

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 3Q12**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)	<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	3Q2012						
				<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)		
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,011	\$1,173	\$2,111	\$2,044	\$2,111
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,198	\$1,460	\$2,628	\$2,545	\$2,628
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,198	\$1,460	\$2,628	\$2,545	\$2,628
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,956	\$1,722	\$3,099	\$3,001	\$3,099
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,558	\$2,115	\$3,807	\$3,686	\$3,807
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,041	\$863	\$1,554	\$1,505	\$1,554
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,305	\$400	\$720	\$698	\$720
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,359	\$661	\$1,190	\$1,153	\$1,190
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,364	\$698	\$1,257	\$1,217	\$1,257
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,989	\$981	\$1,766	\$1,710	\$1,766
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$6,289	\$1,570	\$2,826	\$2,737	\$2,826

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 4Q12**

					4Q2012					
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)	
Exhibit A										
2. Clinton	IN	Atherton	IN	CSXT	2821139	\$2,728	\$599	\$1,078	\$1,044	\$1,078
Exhibit B										
1. Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,606	\$1,289	\$2,321	\$2,248	\$2,321
2. Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$5,516	\$1,264	\$2,275	\$2,203	\$2,275
3. New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$7,278	\$1,612	\$2,901	\$2,809	\$2,901
4. Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,759	\$706	\$1,270	\$1,230	\$1,270
5. New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,451	\$2,961	\$5,329	\$5,160	\$5,329
6. Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,823	\$1,058	\$1,904	\$1,844	\$1,904
7. New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$7,275	\$1,598	\$2,877	\$2,786	\$2,877
8. New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$8,376	\$1,825	\$3,285	\$3,181	\$3,285
9. New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$7,291	\$1,657	\$2,983	\$2,888	\$2,983
10. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,791	\$699	\$1,258	\$1,218	\$1,258
11. New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$5,181	\$1,115	\$2,008	\$1,944	\$2,008
12. New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,923	\$2,310	\$4,158	\$4,027	\$4,158
13. Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,842	\$1,145	\$2,060	\$1,995	\$2,060
15. Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,832	\$2,479	\$4,462	\$4,321	\$4,462
16. New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,295	\$2,610	\$4,698	\$4,549	\$4,698
17. Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,955	\$879	\$1,582	\$1,532	\$1,582
18. Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,675	\$1,171	\$2,107	\$2,040	\$2,107
19. Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$5,516	\$1,265	\$2,277	\$2,205	\$2,277
20. Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,677	\$1,735	\$3,123	\$3,024	\$3,123
21. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,993	\$1,995	\$3,591	\$3,477	\$3,591
22. Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,057	\$1,294	\$2,329	\$2,255	\$2,329
25. Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,813	\$795	\$1,431	\$1,386	\$1,431
26. New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$8,346	\$1,922	\$3,460	\$3,350	\$3,460
28. New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$7,301	\$1,493	\$2,687	\$2,602	\$2,687
29. Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,626	\$1,982	\$3,567	\$3,454	\$3,567
30. East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$4,112	\$1,821	\$3,278	\$3,174	\$3,278
32. Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$4,035	\$797	\$1,435	\$1,389	\$1,435
33. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,885	\$1,252	\$2,254	\$2,182	\$2,254
34. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,829	\$2,240	\$4,031	\$3,903	\$4,031
35. New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$7,277	\$1,599	\$2,877	\$2,786	\$2,877
37. New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,433	\$1,680	\$3,024	\$2,928	\$3,024
38. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$8,600	\$2,384	\$4,291	\$4,155	\$4,291
39. New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$7,278	\$1,601	\$2,881	\$2,790	\$2,881
43. New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$7,278	\$1,608	\$2,894	\$2,803	\$2,894
44. East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$6,599	\$1,325	\$2,385	\$2,309	\$2,385
46. New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,893	\$2,432	\$4,377	\$4,239	\$4,377
48. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$7,268	\$1,551	\$2,792	\$2,703	\$2,792
51. Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,585	\$1,444	\$2,600	\$2,518	\$2,600
52. Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,605	\$1,041	\$1,875	\$1,815	\$1,875
53. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,791	\$699	\$1,258	\$1,218	\$1,258
54. New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,690	\$1,686	\$3,035	\$2,939	\$3,035
55. New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,468	\$463	\$833	\$807	\$833
56. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,885	\$1,252	\$2,254	\$2,182	\$2,254
57. Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,825	\$1,065	\$1,916	\$1,855	\$1,916
58. New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$8,600	\$2,374	\$4,274	\$4,138	\$4,274
60. New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,083	\$3,234	\$5,821	\$5,637	\$5,821
61. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,829	\$2,239	\$4,031	\$3,903	\$4,031
62. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,606	\$2,148	\$3,866	\$3,743	\$3,866
63. Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$5,494	\$1,203	\$2,166	\$2,097	\$2,166
64. New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$6,297	\$2,071	\$3,729	\$3,610	\$3,729
67. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,033	\$1,191	\$2,143	\$2,076	\$2,143
70. New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$6,012	\$1,817	\$3,270	\$3,167	\$3,270
71. New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$6,028	\$1,887	\$3,397	\$3,289	\$3,397
72. New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$6,019	\$1,857	\$3,343	\$3,237	\$3,343
74. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,791	\$699	\$1,258	\$1,218	\$1,258
75. Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,547	\$1,264	\$2,276	\$2,204	\$2,276
76. Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,913	\$1,503	\$2,706	\$2,620	\$2,706
77. New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$4,048	\$1,245	\$2,240	\$2,169	\$2,240
78. New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,335	\$1,479	\$2,662	\$2,578	\$2,662
79. New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$7,277	\$1,599	\$2,877	\$2,786	\$2,877
80. New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,758	\$3,278	\$5,900	\$5,713	\$5,900
81. Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,054	\$877	\$1,579	\$1,529	\$1,579
83. Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,547	\$1,611	\$2,899	\$2,808	\$2,899
84. Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,216	\$1,437	\$2,587	\$2,505	\$2,587
86. New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$8,376	\$2,048	\$3,687	\$3,570	\$3,687
89. Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,614	\$1,147	\$2,064	\$1,999	\$2,064
93. Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,203	\$1,291	\$2,324	\$2,250	\$2,324
96. Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,199	\$701	\$1,262	\$1,222	\$1,262
97. New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$7,369	\$1,980	\$3,564	\$3,451	\$3,564
98. New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$7,369	\$1,977	\$3,558	\$3,445	\$3,558
101. Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,842	\$1,143	\$2,058	\$1,993	\$2,058
102. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$7,268	\$1,551	\$2,792	\$2,703	\$2,792
103. New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$8,346	\$1,919	\$3,454	\$3,345	\$3,454
104. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$8,594	\$2,347	\$4,225	\$4,091	\$4,225
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,993	\$1,995	\$3,591	\$3,477	\$3,591
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,993	\$1,997	\$3,595	\$3,481	\$3,595

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 4Q12**

<u>Origin 1/</u>		<u>Destination</u>		<u>Railroad(s)</u>	<u>Commodity</u>	<u>4Q2012</u>				
						<u>Tariff Rate 1/</u>	<u>Phase III Cost 1/</u>	<u>Jurisdictional Threshold 1/</u>	<u>SAC Rate 2/</u>	<u>STB Maximum Rate 3/</u>
(1)		(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,033	\$1,191	\$2,143	\$2,076	\$2,143
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,228	\$1,482	\$2,668	\$2,584	\$2,668
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,228	\$1,482	\$2,668	\$2,584	\$2,668
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,991	\$1,748	\$3,147	\$3,047	\$3,147
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,606	\$2,148	\$3,866	\$3,743	\$3,866
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,054	\$877	\$1,578	\$1,528	\$1,578
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,306	\$406	\$731	\$708	\$731
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,367	\$671	\$1,209	\$1,170	\$1,209
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,373	\$709	\$1,276	\$1,236	\$1,276
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$5,005	\$996	\$1,793	\$1,736	\$1,793
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$7,275	\$1,594	\$2,870	\$2,779	\$2,870

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 1Q13**

					1Q2013					
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)	
Exhibit A										
2. Clinton	IN	Atherton	IN	CSXT	2821139	\$2,728	\$595	\$1,071	\$953	\$1,071
Exhibit B										
1. Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,596	\$1,281	\$2,305	\$2,051	\$2,305
2. Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$5,509	\$1,255	\$2,259	\$2,010	\$2,259
3. New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$7,267	\$1,601	\$2,882	\$2,564	\$2,882
4. Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,756	\$701	\$1,261	\$1,122	\$1,261
5. New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,429	\$2,941	\$5,293	\$4,709	\$5,293
6. Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,817	\$1,051	\$1,891	\$1,683	\$1,891
7. New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$7,264	\$1,587	\$2,857	\$2,542	\$2,857
8. New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$8,361	\$1,813	\$3,263	\$2,903	\$3,263
9. New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$7,280	\$1,646	\$2,963	\$2,636	\$2,963
10. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,786	\$694	\$1,249	\$1,112	\$1,249
11. New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$5,175	\$1,108	\$1,994	\$1,774	\$1,994
12. New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,904	\$2,295	\$4,130	\$3,675	\$4,130
13. Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,835	\$1,137	\$2,046	\$1,821	\$2,046
15. Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,814	\$2,462	\$4,432	\$3,943	\$4,432
16. New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,277	\$2,592	\$4,666	\$4,151	\$4,666
17. Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,951	\$873	\$1,571	\$1,398	\$1,571
18. Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,668	\$1,163	\$2,093	\$1,862	\$2,093
19. Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$5,509	\$1,256	\$2,262	\$2,012	\$2,262
20. Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,665	\$1,723	\$3,102	\$2,760	\$3,102
21. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,976	\$1,981	\$3,567	\$3,173	\$3,567
22. Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,049	\$1,285	\$2,314	\$2,058	\$2,314
25. Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,807	\$790	\$1,421	\$1,265	\$1,421
26. New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$8,333	\$1,909	\$3,437	\$3,058	\$3,437
28. New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$7,289	\$1,483	\$2,669	\$2,374	\$2,669
29. Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,612	\$1,969	\$3,543	\$3,153	\$3,543
30. East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$4,100	\$1,809	\$3,256	\$2,897	\$3,256
32. Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$4,032	\$792	\$1,425	\$1,268	\$1,425
33. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,878	\$1,244	\$2,239	\$1,992	\$2,239
34. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,811	\$2,224	\$4,004	\$3,562	\$4,004
35. New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$7,267	\$1,588	\$2,858	\$2,543	\$2,858
37. New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,419	\$1,669	\$3,004	\$2,673	\$3,004
38. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$8,582	\$2,368	\$4,262	\$3,792	\$4,262
39. New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$7,267	\$1,590	\$2,862	\$2,546	\$2,862
43. New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$7,267	\$1,597	\$2,875	\$2,558	\$2,875
44. East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$6,590	\$1,316	\$2,369	\$2,107	\$2,369
46. New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,875	\$2,416	\$4,348	\$3,868	\$4,348
48. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$7,258	\$1,540	\$2,773	\$2,467	\$2,773
51. Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,576	\$1,435	\$2,582	\$2,298	\$2,582
52. Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,598	\$1,034	\$1,862	\$1,657	\$1,862
53. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,786	\$694	\$1,250	\$1,112	\$1,250
54. New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,679	\$1,675	\$3,014	\$2,682	\$3,014
55. New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,467	\$460	\$827	\$736	\$827
56. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,878	\$1,244	\$2,239	\$1,992	\$2,239
57. Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,819	\$1,057	\$1,903	\$1,693	\$1,903
58. New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$8,583	\$2,358	\$4,245	\$3,777	\$4,245
60. New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,057	\$3,212	\$5,782	\$5,144	\$5,782
61. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,811	\$2,224	\$4,004	\$3,562	\$4,004
62. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,590	\$2,133	\$3,840	\$3,416	\$3,840
63. Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$5,487	\$1,195	\$2,151	\$1,914	\$2,151
64. New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$6,283	\$2,057	\$3,703	\$3,295	\$3,703
67. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,026	\$1,183	\$2,129	\$1,894	\$2,129
70. New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$5,999	\$1,805	\$3,248	\$2,890	\$3,248
71. New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$6,015	\$1,874	\$3,374	\$3,002	\$3,374
72. New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$6,006	\$1,845	\$3,320	\$2,954	\$3,320
74. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,786	\$694	\$1,249	\$1,112	\$1,249
75. Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,539	\$1,256	\$2,261	\$2,011	\$2,261
76. Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,904	\$1,493	\$2,688	\$2,392	\$2,688
77. New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$4,040	\$1,236	\$2,225	\$1,980	\$2,225
78. New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,325	\$1,469	\$2,644	\$2,353	\$2,644
79. New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$7,267	\$1,588	\$2,858	\$2,543	\$2,858
80. New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,731	\$3,256	\$5,860	\$5,214	\$5,860
81. Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,050	\$871	\$1,568	\$1,395	\$1,568
83. Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,536	\$1,600	\$2,880	\$2,562	\$2,880
84. Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,207	\$1,427	\$2,569	\$2,286	\$2,569
86. New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$8,361	\$2,034	\$3,662	\$3,258	\$3,662
89. Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,608	\$1,139	\$2,050	\$1,824	\$2,050
93. Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,193	\$1,282	\$2,308	\$2,054	\$2,308
96. Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,196	\$696	\$1,253	\$1,115	\$1,253
97. New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$7,355	\$1,966	\$3,540	\$3,149	\$3,540
98. New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$7,355	\$1,963	\$3,534	\$3,144	\$3,534
101. Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,835	\$1,136	\$2,044	\$1,819	\$2,044
102. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$7,258	\$1,540	\$2,773	\$2,467	\$2,773
103. New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$8,333	\$1,906	\$3,431	\$3,052	\$3,431
104. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$8,577	\$2,331	\$4,196	\$3,734	\$4,196

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 1Q13**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)		<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	1Q2013					
					<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)	
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,976	\$1,981	\$3,567	\$3,173	\$3,567
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,976	\$1,984	\$3,571	\$3,177	\$3,571
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,026	\$1,183	\$2,129	\$1,894	\$2,129
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,218	\$1,472	\$2,650	\$2,358	\$2,650
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,218	\$1,472	\$2,650	\$2,358	\$2,650
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$5,980	\$1,737	\$3,126	\$2,781	\$3,126
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,590	\$2,133	\$3,840	\$3,416	\$3,840
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,050	\$871	\$1,567	\$1,394	\$1,567
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,306	\$404	\$727	\$646	\$727
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,364	\$667	\$1,201	\$1,068	\$1,201
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,370	\$704	\$1,267	\$1,128	\$1,267
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$5,000	\$989	\$1,781	\$1,584	\$1,781
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$7,264	\$1,584	\$2,851	\$2,536	\$2,851

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 2Q13**

				2Q2013							
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
Exhibit A											
2.	Clinton	IN	Atherton	IN	CSXT	2821139	\$2,838	\$591	\$1,064	\$947	\$1,064
Exhibit B											
1.	Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,601	\$1,272	\$2,290	\$2,038	\$2,290
2.	Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$5,512	\$1,247	\$2,245	\$1,997	\$2,245
3.	New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$7,272	\$1,591	\$2,863	\$2,547	\$2,863
4.	Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,757	\$696	\$1,253	\$1,115	\$1,253
5.	New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,440	\$2,922	\$5,259	\$4,679	\$5,259
6.	Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,820	\$1,044	\$1,879	\$1,672	\$1,879
7.	New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$7,269	\$1,577	\$2,839	\$2,526	\$2,839
8.	New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$8,368	\$1,801	\$3,242	\$2,884	\$3,242
9.	New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$7,285	\$1,635	\$2,944	\$2,619	\$2,944
10.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,788	\$690	\$1,241	\$1,104	\$1,241
11.	New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$5,178	\$1,101	\$1,981	\$1,763	\$1,981
12.	New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,913	\$2,280	\$4,103	\$3,651	\$4,103
13.	Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,838	\$1,129	\$2,033	\$1,809	\$2,033
15.	Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,823	\$2,446	\$4,403	\$3,918	\$4,403
16.	New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,286	\$2,575	\$4,636	\$4,124	\$4,636
17.	Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,953	\$867	\$1,561	\$1,389	\$1,561
18.	Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,671	\$1,155	\$2,079	\$1,850	\$2,079
19.	Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$5,512	\$1,248	\$2,247	\$1,999	\$2,247
20.	Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,671	\$1,712	\$3,082	\$2,742	\$3,082
21.	New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,984	\$1,969	\$3,544	\$3,153	\$3,544
22.	Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,053	\$1,277	\$2,299	\$2,045	\$2,299
25.	Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,810	\$785	\$1,412	\$1,256	\$1,412
26.	New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$8,339	\$1,897	\$3,414	\$3,038	\$3,414
28.	New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$7,295	\$1,473	\$2,651	\$2,359	\$2,651
29.	Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,619	\$1,956	\$3,520	\$3,132	\$3,520
30.	East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$4,106	\$1,797	\$3,235	\$2,878	\$3,235
32.	Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$4,033	\$786	\$1,416	\$1,260	\$1,416
33.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,881	\$1,236	\$2,224	\$1,979	\$2,224
34.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,820	\$2,210	\$3,978	\$3,539	\$3,978
35.	New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$7,272	\$1,577	\$2,839	\$2,526	\$2,839
37.	New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,426	\$1,658	\$2,984	\$2,655	\$2,984
38.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$8,591	\$2,352	\$4,234	\$3,767	\$4,234
39.	New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$7,272	\$1,580	\$2,843	\$2,530	\$2,843
43.	New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$7,272	\$1,587	\$2,856	\$2,541	\$2,856
44.	East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$6,594	\$1,307	\$2,353	\$2,094	\$2,353
46.	New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,884	\$2,400	\$4,320	\$3,843	\$4,320
48.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$7,263	\$1,530	\$2,755	\$2,451	\$2,755
51.	Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,581	\$1,425	\$2,566	\$2,283	\$2,566
52.	Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,601	\$1,028	\$1,850	\$1,646	\$1,850
53.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,788	\$690	\$1,241	\$1,105	\$1,241
54.	New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,684	\$1,664	\$2,995	\$2,665	\$2,995
55.	New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,467	\$457	\$822	\$731	\$822
56.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,881	\$1,236	\$2,224	\$1,979	\$2,224
57.	Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,822	\$1,050	\$1,891	\$1,682	\$1,891
58.	New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$8,591	\$2,343	\$4,217	\$3,752	\$4,217
60.	New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,070	\$3,191	\$5,745	\$5,111	\$5,745
61.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,820	\$2,210	\$3,978	\$3,539	\$3,978
62.	Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,598	\$2,119	\$3,815	\$3,394	\$3,815
63.	Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$5,491	\$1,188	\$2,138	\$1,902	\$2,138
64.	New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$6,290	\$2,044	\$3,679	\$3,274	\$3,679
67.	Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,030	\$1,175	\$2,115	\$1,882	\$2,115
70.	New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$6,570	\$1,793	\$3,227	\$2,871	\$3,227
71.	New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$6,586	\$1,862	\$3,352	\$2,982	\$3,352
72.	New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$6,577	\$1,833	\$3,299	\$2,935	\$3,299
74.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,788	\$690	\$1,241	\$1,104	\$1,241
75.	Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,543	\$1,248	\$2,246	\$1,998	\$2,246
76.	Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,908	\$1,484	\$2,671	\$2,376	\$2,671
77.	New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$4,044	\$1,228	\$2,211	\$1,967	\$2,211
78.	New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,330	\$1,459	\$2,627	\$2,337	\$2,627
79.	New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$7,272	\$1,577	\$2,839	\$2,526	\$2,839
80.	New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,744	\$3,234	\$5,822	\$5,180	\$5,822
81.	Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,052	\$866	\$1,558	\$1,386	\$1,558
83.	Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,542	\$1,590	\$2,861	\$2,546	\$2,861
84.	Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,211	\$1,418	\$2,553	\$2,271	\$2,553
86.	New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$8,368	\$2,021	\$3,638	\$3,237	\$3,638
89.	Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,829	\$1,132	\$2,037	\$1,812	\$2,037
93.	Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,198	\$1,274	\$2,293	\$2,040	\$2,293
96.	Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,197	\$692	\$1,245	\$1,108	\$1,245
97.	New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$7,362	\$1,954	\$3,517	\$3,129	\$3,517
98.	New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$7,362	\$1,950	\$3,511	\$3,124	\$3,511
101.	Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,838	\$1,128	\$2,031	\$1,807	\$2,031
102.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$7,263	\$1,530	\$2,755	\$2,451	\$2,755
103.	New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$8,339	\$1,894	\$3,408	\$3,033	\$3,408
104.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$8,585	\$2,316	\$4,169	\$3,710	\$4,169

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 2Q13**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)		<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	2Q2013					
					<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)	
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,984	\$1,969	\$3,543	\$3,153	\$3,543
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,984	\$1,971	\$3,548	\$3,156	\$3,548
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,030	\$1,175	\$2,115	\$1,882	\$2,115
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,223	\$1,463	\$2,633	\$2,343	\$2,633
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,223	\$1,463	\$2,633	\$2,343	\$2,633
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$6,550	\$1,725	\$3,105	\$2,763	\$3,105
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,598	\$2,119	\$3,815	\$3,394	\$3,815
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,052	\$865	\$1,557	\$1,385	\$1,557
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,306	\$401	\$722	\$642	\$722
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,365	\$663	\$1,193	\$1,061	\$1,193
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,371	\$700	\$1,259	\$1,120	\$1,259
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$5,002	\$983	\$1,769	\$1,574	\$1,769
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$7,269	\$1,573	\$2,832	\$2,520	\$2,832

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 3Q13**

Origin 1/ (1)	Destination (2)	Railroad(s) (3)	Commodity (4)	3Q2013						
				Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
Exhibit A										
2. Clinton	IN	Atherton	IN	CSXT	2821139	\$2,892	\$595	\$1,071	\$953	\$1,071
Exhibit B										
1. Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,581	\$1,281	\$2,305	\$2,051	\$2,305
2. Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$5,497	\$1,255	\$2,259	\$2,010	\$2,259
3. New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$7,251	\$1,601	\$2,881	\$2,564	\$2,881
4. Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,752	\$701	\$1,261	\$1,122	\$1,261
5. New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,396	\$2,940	\$5,292	\$4,709	\$5,292
6. Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,808	\$1,050	\$1,891	\$1,682	\$1,891
7. New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$7,248	\$1,587	\$2,857	\$2,542	\$2,857
8. New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$8,339	\$1,813	\$3,263	\$2,903	\$3,263
9. New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$7,262	\$1,646	\$2,962	\$2,636	\$2,962
10. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,779	\$694	\$1,249	\$1,112	\$1,249
11. New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$5,165	\$1,108	\$1,994	\$1,774	\$1,994
12. New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,875	\$2,294	\$4,130	\$3,674	\$4,130
13. Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,825	\$1,137	\$2,046	\$1,820	\$2,046
15. Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,785	\$2,462	\$4,431	\$3,943	\$4,431
16. New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,250	\$2,592	\$4,665	\$4,151	\$4,665
17. Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,944	\$873	\$1,571	\$1,398	\$1,571
18. Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,657	\$1,163	\$2,093	\$1,862	\$2,093
19. Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$5,497	\$1,256	\$2,261	\$2,012	\$2,261
20. Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,646	\$1,723	\$3,101	\$2,759	\$3,101
21. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,951	\$1,981	\$3,566	\$3,173	\$3,566
22. Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,037	\$1,285	\$2,313	\$2,058	\$2,313
25. Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,798	\$790	\$1,421	\$1,264	\$1,421
26. New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$8,312	\$1,909	\$3,436	\$3,057	\$3,436
28. New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$7,271	\$1,482	\$2,668	\$2,374	\$2,668
29. Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,590	\$1,968	\$3,543	\$3,152	\$3,543
30. East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$4,082	\$1,809	\$3,255	\$2,896	\$3,255
32. Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$4,026	\$791	\$1,425	\$1,268	\$1,425
33. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,866	\$1,243	\$2,238	\$1,991	\$2,238
34. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,783	\$2,224	\$4,003	\$3,562	\$4,003
35. New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$7,250	\$1,587	\$2,857	\$2,542	\$2,857
37. New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,399	\$1,669	\$3,003	\$2,672	\$3,003
38. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$8,555	\$2,367	\$4,261	\$3,791	\$4,261
39. New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$7,251	\$1,590	\$2,861	\$2,546	\$2,861
43. New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$7,251	\$1,597	\$2,874	\$2,557	\$2,874
44. East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$6,577	\$1,316	\$2,368	\$2,107	\$2,368
46. New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,848	\$2,415	\$4,347	\$3,868	\$4,347
48. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$7,242	\$1,540	\$2,772	\$2,467	\$2,772
51. Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,562	\$1,434	\$2,582	\$2,297	\$2,582
52. Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,586	\$1,034	\$1,862	\$1,656	\$1,862
53. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,779	\$694	\$1,249	\$1,112	\$1,249
54. New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,661	\$1,674	\$3,014	\$2,681	\$3,014
55. New Orleans	LA	Ansley	MS	CN NEWOR CSXT	2821140	\$5,466	\$460	\$827	\$736	\$827
56. Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,866	\$1,243	\$2,238	\$1,991	\$2,238
57. Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,809	\$1,057	\$1,903	\$1,693	\$1,903
58. New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$8,556	\$2,358	\$4,244	\$3,776	\$4,244
60. New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,019	\$3,212	\$5,781	\$5,144	\$5,781
61. Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,783	\$2,224	\$4,003	\$3,562	\$4,003
62. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,566	\$2,133	\$3,839	\$3,416	\$3,839
63. Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$5,477	\$1,195	\$2,151	\$1,914	\$2,151
64. New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$6,261	\$2,057	\$3,703	\$3,294	\$3,703
67. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,015	\$1,183	\$2,129	\$1,894	\$2,129
70. New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$6,822	\$1,804	\$3,248	\$2,889	\$3,248
71. New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$6,836	\$1,874	\$3,373	\$3,001	\$3,373
72. New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$6,829	\$1,844	\$3,320	\$2,954	\$3,320
74. Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,779	\$694	\$1,249	\$1,111	\$1,249
75. Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,527	\$1,256	\$2,260	\$2,011	\$2,260
76. Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,889	\$1,493	\$2,688	\$2,391	\$2,688
77. New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$4,028	\$1,236	\$2,225	\$1,979	\$2,225
78. New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,310	\$1,469	\$2,644	\$2,352	\$2,644
79. New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$7,250	\$1,587	\$2,857	\$2,542	\$2,857
80. New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,689	\$3,255	\$5,859	\$5,213	\$5,859
81. Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,043	\$871	\$1,568	\$1,395	\$1,568
83. Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,520	\$1,600	\$2,879	\$2,562	\$2,879
84. Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,192	\$1,427	\$2,569	\$2,286	\$2,569
86. New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$8,339	\$2,034	\$3,661	\$3,257	\$3,661
89. Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,923	\$1,139	\$2,050	\$1,824	\$2,050
93. Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,177	\$1,282	\$2,308	\$2,053	\$2,308
96. Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,192	\$696	\$1,253	\$1,115	\$1,253
97. New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$7,333	\$1,966	\$3,539	\$3,149	\$3,539
98. New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$7,333	\$1,963	\$3,533	\$3,144	\$3,533
101. Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,825	\$1,135	\$2,044	\$1,818	\$2,044
102. New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$7,242	\$1,540	\$2,772	\$2,467	\$2,772
103. New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$8,312	\$1,906	\$3,430	\$3,052	\$3,430
104. New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$8,550	\$2,331	\$4,196	\$3,733	\$4,196

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 3Q13**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)		<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	3Q2013					
					<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)	
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,951	\$1,981	\$3,566	\$3,173	\$3,566
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,951	\$1,983	\$3,570	\$3,176	\$3,570
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,015	\$1,183	\$2,129	\$1,894	\$2,129
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,203	\$1,472	\$2,650	\$2,358	\$2,650
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,203	\$1,472	\$2,650	\$2,358	\$2,650
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$6,804	\$1,736	\$3,125	\$2,781	\$3,125
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,566	\$2,133	\$3,839	\$3,416	\$3,839
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,043	\$871	\$1,567	\$1,394	\$1,567
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,305	\$404	\$726	\$646	\$726
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,360	\$667	\$1,200	\$1,068	\$1,200
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,366	\$704	\$1,267	\$1,127	\$1,267
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,991	\$989	\$1,780	\$1,584	\$1,780
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$7,248	\$1,583	\$2,850	\$2,536	\$2,850

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 4Q13**

					4Q2013						
Origin 1/ (1)	Destination (2)		Railroad(s) (3)	Commodity (4)	Tariff Rate 1/ (5)	Phase III Cost 1/ (6)	Jurisdictional Threshold 1/ (7)	SAC Rate 2/ (8)	STB Maximum Rate 3/ (9)		
Exhibit A											
2.	Clinton	IN	Atherton	IN	CSXT	2821139	\$2,892	\$592	\$1,066	\$948	\$1,066
Exhibit B											
1.	Memphis	TN	Social Circle	GA	BNSF MEMPH CSXT SOCIR GRWR	2821139	\$5,591	\$1,274	\$2,294	\$2,041	\$2,294
2.	Memphis	TN	Evansville	IN	BNSF MEMPH CSXT	2821139	\$5,505	\$1,249	\$2,248	\$2,000	\$2,248
3.	New Orleans	LA	Covington	GA	CN NEWOR CSXT	2821140	\$7,262	\$1,593	\$2,867	\$2,551	\$2,867
4.	Chicago	IL	Clinton	IN	BNSF CHGO CSXT	2821139	\$3,755	\$697	\$1,255	\$1,117	\$1,255
5.	New Orleans	LA	Amphill	VA	BNSF NEWOR CSXT	2821142	\$9,418	\$2,926	\$5,266	\$4,685	\$5,266
6.	Memphis	TN	Bowling Green	KY	BNSF MEMPH CSXT	2821139	\$5,814	\$1,045	\$1,882	\$1,674	\$1,882
7.	New Orleans	LA	Conyers	GA	CN NEWOR CSXT	2821140	\$7,259	\$1,579	\$2,843	\$2,529	\$2,843
8.	New Orleans	LA	Barnett	GA	BNSF NEWOR CSXT BRNET GWRC	2821139	\$8,354	\$1,804	\$3,246	\$2,888	\$3,246
9.	New Orleans	LA	Athens	GA	BNSF NEWOR CSXT	2821139	\$7,274	\$1,638	\$2,948	\$2,623	\$2,948
10.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821139	\$5,784	\$691	\$1,243	\$1,106	\$1,243
11.	New Orleans	LA	Hope Hull	AL	CN NEWOR CSXT	2821140	\$5,171	\$1,102	\$1,984	\$1,765	\$1,984
12.	New Orleans	LA	Oneco	FL	BNSF NEWOR CSXT ONECO SGLR	2821139	\$8,894	\$2,283	\$4,109	\$3,656	\$4,109
13.	Memphis	TN	Glasgow	KY	CN MEMPH CSXT	2821140	\$5,832	\$1,131	\$2,036	\$1,811	\$2,036
15.	Chicago	IL	Orangeburg	NY	BNSF CHGO CSXT	2821142	\$7,804	\$2,450	\$4,409	\$3,923	\$4,409
16.	New Orleans	LA	Galloway	FL	CN NEWOR CSXT	2818342	\$7,268	\$2,579	\$4,642	\$4,130	\$4,642
17.	Chicago	IL	Anderson	IN	BNSF CHGO CSXT	2821139	\$3,948	\$868	\$1,563	\$1,391	\$1,563
18.	Chicago	IL	Cincinnati	OH	BNSF CHGO CSXT	2821142	\$4,664	\$1,157	\$2,082	\$1,853	\$2,082
19.	Memphis	TN	Evansville	IN	CN MEMPH CSXT	2821140	\$5,505	\$1,250	\$2,250	\$2,002	\$2,250
20.	Chicago	IL	Cumberland	MD	BNSF CHGO CSXT	2821139	\$6,658	\$1,714	\$3,086	\$2,746	\$3,086
21.	New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821139	\$6,968	\$1,971	\$3,548	\$3,157	\$3,548
22.	Chicago	IL	Mentor	OH	BNSF CHGO CSXT	2821139	\$5,045	\$1,279	\$2,302	\$2,048	\$2,302
25.	Memphis	TN	Guthrie	KY	CN MEMPH CSXT GUTHR RJCM	2821140	\$5,804	\$786	\$1,414	\$1,258	\$1,414
26.	New Orleans	LA	Beech Island	SC	CN NEWOR CSXT	2821140	\$8,326	\$1,900	\$3,419	\$3,042	\$3,419
28.	New Orleans	LA	Social Circle	GA	BNSF NEWOR CSXT SOCIR GRWR	2821139	\$7,283	\$1,475	\$2,655	\$2,362	\$2,655
29.	Memphis	TN	Piqua	OH	CN MEMPH CSXT	2821140	\$6,604	\$1,958	\$3,525	\$3,137	\$3,525
30.	East St. Louis	IL	Painesville	OH	UP ESTL CSXT	2911315	\$4,094	\$1,800	\$3,239	\$2,882	\$3,239
32.	Effingham	IL	Terre Haute	IN	CN EFHAM CSXT	2821140	\$4,030	\$788	\$1,418	\$1,261	\$1,418
33.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821142	\$3,874	\$1,237	\$2,227	\$1,982	\$2,227
34.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821139	\$7,801	\$2,213	\$3,984	\$3,544	\$3,984
35.	New Orleans	LA	Cartersville	GA	BNSF NEWOR CSXT	2821139	\$7,261	\$1,580	\$2,843	\$2,530	\$2,843
37.	New Orleans	LA	Laurens	SC	BNSF NEWOR CSXT LAURN CPDR	2821139	\$7,412	\$1,660	\$2,989	\$2,659	\$2,989
38.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821139	\$8,573	\$2,356	\$4,240	\$3,772	\$4,240
39.	New Orleans	LA	Lawrenceville	GA	BNSF NEWOR CSXT	2821142	\$7,262	\$1,582	\$2,847	\$2,533	\$2,847
43.	New Orleans	LA	Covington	GA	BNSF NEWOR CSXT	2821139	\$7,262	\$1,589	\$2,860	\$2,545	\$2,860
44.	East St. Louis	IL	Sidney	OH	BNSF ESTL CSXT	2821139	\$6,586	\$1,309	\$2,357	\$2,097	\$2,357
46.	New Orleans	LA	Lakeland	FL	CN NEWOR CSXT	2821140	\$8,866	\$2,403	\$4,326	\$3,849	\$4,326
48.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821139	\$7,252	\$1,533	\$2,759	\$2,455	\$2,759
51.	Memphis	TN	Galloway	TN	CN MEMPH CSXT	2821140	\$4,571	\$1,427	\$2,569	\$2,286	\$2,569
52.	Memphis	TN	Bridgeport	AL	CN MEMPH CSXT BRDGL SQVR	2821140	\$5,594	\$1,029	\$1,852	\$1,648	\$1,852
53.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,784	\$691	\$1,243	\$1,106	\$1,243
54.	New Orleans	LA	LaGrange	GA	BNSF NEWOR CSXT	2821139	\$5,673	\$1,666	\$2,999	\$2,668	\$2,999
55.	New Orleans	LA	Anslay	MS	CN NEWOR CSXT	2821140	\$5,467	\$457	\$823	\$732	\$823
56.	Chicago	IL	Terre Haute	IN	BNSF CHGO CSXT	2821139	\$3,874	\$1,237	\$2,227	\$1,982	\$2,227
57.	Memphis	TN	Hopkinsville	KY	BNSF MEMPH CSXT	2821142	\$5,815	\$1,052	\$1,893	\$1,685	\$1,893
58.	New Orleans	LA	Orlando	FL	BNSF NEWOR CSXT	2821142	\$8,574	\$2,346	\$4,223	\$3,758	\$4,223
60.	New Orleans	LA	Baltimore	MD	BNSF NEWOR CSXT	2821142	\$10,044	\$3,196	\$5,753	\$5,118	\$5,753
61.	Chicago	IL	Utica	NY	BNSF CHGO CSXT UTICA MHWA	2821142	\$7,801	\$2,213	\$3,984	\$3,544	\$3,984
62.	Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821139	\$6,582	\$2,122	\$3,820	\$3,399	\$3,820
63.	Memphis	TN	Madisonville	KY	BNSF MEMPH CSXT	2821139	\$5,484	\$1,189	\$2,141	\$1,904	\$2,141
64.	New Orleans	LA	Atlanta	GA	UP NEWOR CSXT	2911315	\$6,275	\$2,047	\$3,685	\$3,278	\$3,685
67.	Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821139	\$5,022	\$1,177	\$2,118	\$1,885	\$2,118
70.	New Orleans	LA	Chattanooga	TN	BNSF NEWOR CSXT	2821139	\$6,835	\$1,795	\$3,232	\$2,875	\$3,232
71.	New Orleans	LA	Eton	GA	BNSF NEWOR CSXT	2821139	\$6,850	\$1,865	\$3,357	\$2,987	\$3,357
72.	New Orleans	LA	Tyner	TN	BNSF NEWOR CSXT	2821139	\$6,842	\$1,835	\$3,303	\$2,939	\$3,303
74.	Memphis	TN	Vine Hill	TN	BNSF MEMPH CSXT VINHI NERR	2821142	\$5,784	\$691	\$1,243	\$1,106	\$1,243
75.	Memphis	TN	Jackson	TN	BNSF MEMPH CSXT	2821139	\$4,535	\$1,249	\$2,249	\$2,001	\$2,249
76.	Memphis	TN	Lewisburg	TN	BNSF MEMPH CSXT	2821139	\$5,899	\$1,486	\$2,674	\$2,379	\$2,674
77.	New Orleans	LA	Evergreen	AL	BNSF NEWOR CSXT	2821142	\$4,036	\$1,230	\$2,214	\$1,970	\$2,214
78.	New Orleans	LA	Helena	AL	BNSF NEWOR CSXT	2821139	\$5,320	\$1,461	\$2,631	\$2,341	\$2,631
79.	New Orleans	LA	Newnan	GA	BNSF NEWOR CSXT	2821139	\$7,261	\$1,580	\$2,843	\$2,530	\$2,843
80.	New Orleans	LA	Green Spring	WV	BNSF NEWOR CSXT GRESP SBVR	2821139	\$9,717	\$3,239	\$5,830	\$5,187	\$5,830
81.	Chicago	IL	Indianapolis	IN	CN CHGO CSXT	2821140	\$4,048	\$867	\$1,560	\$1,388	\$1,560
83.	Chicago	IL	Lockport	NY	BNSF CHGO CSXT	2821139	\$6,531	\$1,592	\$2,865	\$2,549	\$2,865
84.	Chicago	IL	Wapakoneta	OH	BNSF CHGO CSXT	2821139	\$4,202	\$1,420	\$2,556	\$2,274	\$2,556
86.	New Orleans	LA	Thomson	GA	BNSF NEWOR CSXT	2821142	\$8,354	\$2,024	\$3,643	\$3,241	\$3,643
89.	Memphis	TN	Horse Cave	KY	CN MEMPH CSXT	2821140	\$5,930	\$1,133	\$2,040	\$1,815	\$2,040
93.	Chicago	IL	North Vernon	IN	BNSF CHGO CSXT NVERN CMPA	2821142	\$4,187	\$1,276	\$2,296	\$2,043	\$2,296
96.	Chicago	IL	Francesville	IN	BNSF CHGO CSXT	2821142	\$4,195	\$693	\$1,247	\$1,109	\$1,247
97.	New Orleans	LA	Jefferson	GA	CN NEWOR CSXT	2821140	\$7,347	\$1,956	\$3,521	\$3,133	\$3,521
98.	New Orleans	LA	Jefferson	GA	BNSF NEWOR CSXT	2821139	\$7,347	\$1,953	\$3,516	\$3,128	\$3,516
101.	Memphis	TN	Glasgow	KY	BNSF MEMPH CSXT	2821139	\$5,832	\$1,130	\$2,034	\$1,809	\$2,034
102.	New Orleans	LA	Ackerman	GA	BNSF NEWOR CSXT	2821142	\$7,252	\$1,533	\$2,759	\$2,455	\$2,759
103.	New Orleans	LA	Beech Island	SC	BNSF NEWOR CSXT	2821139	\$8,326	\$1,896	\$3,413	\$3,037	\$3,413
104.	New Orleans	LA	De land	FL	BNSF NEWOR CSXT	2821142	\$8,568	\$2,320	\$4,175	\$3,715	\$4,175

**Comparison of CSX Tariff Rates and
Maximum Rates Per Car for TPI Movements - 4Q13**

<u>Origin 1/</u> (1)	<u>Destination</u> (2)		<u>Railroad(s)</u> (3)	<u>Commodity</u> (4)	4Q2013					
					<u>Tariff Rate 1/</u> (5)	<u>Phase III Cost 1/</u> (6)	<u>Jurisdictional Threshold 1/</u> (7)	<u>SAC Rate 2/</u> (8)	<u>STB Maximum Rate 3/</u> (9)	
105. New Orleans	LA	Hamlet	NC	BNSF NEWOR CSXT	2821142	\$6,968	\$1,971	\$3,548	\$3,157	\$3,548
106. New Orleans	LA	Hamlet	NC	CN NEWOR CSXT	2821140	\$6,968	\$1,974	\$3,552	\$3,161	\$3,552
108. Chicago	IL	Akron	OH	BNSF CHGO CSXT	2821142	\$5,022	\$1,177	\$2,118	\$1,885	\$2,118
109. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821142	\$4,213	\$1,465	\$2,637	\$2,346	\$2,637
110. Chicago	IL	Lima	OH	BNSF CHGO CSXT	2821139	\$4,213	\$1,465	\$2,637	\$2,346	\$2,637
112. New Orleans	LA	Dalton	GA	BNSF NEWOR CSXT	2821139	\$6,816	\$1,728	\$3,110	\$2,767	\$3,110
113. Chicago	IL	Clarksburg	WV	BNSF CHGO CSXT	2821142	\$6,582	\$2,122	\$3,820	\$3,399	\$3,820
115. Chicago	IL	Indianapolis	IN	BNSF CHGO CSXT	2821139	\$4,048	\$866	\$1,559	\$1,387	\$1,559
116. Social Circle	GA	Covington	GA	GRWR SOCIR CSXT	2821139	\$3,305	\$402	\$723	\$643	\$723
117. Social Circle	GA	Athens	GA	GRWR SOCIR CSXT	2821139	\$3,363	\$664	\$1,194	\$1,063	\$1,194
118. Social Circle	GA	Conyers	GA	GRWR SOCIR CSXT	2821139	\$3,369	\$700	\$1,261	\$1,122	\$1,261
119. Chicago	IL	Evansville	IN	BRC CHGO CSXT	2821140	\$4,997	\$984	\$1,772	\$1,576	\$1,772
120. New Orleans	LA	Conyers	GA	BNSF NEWOR CSXT	2821139	\$7,259	\$1,576	\$2,836	\$2,523	\$2,836

1/ Source: Opening workpaper "TPI Opening II-A 1-16 Exhibits.xlsx"

2/ MMM Ratio from Exhibit III-H-3 x Column (6)

3/ Greater of Column (7) or Column (8)