



SIDLEY AUSTIN LLP  
1501 K STREET, N.W.  
WASHINGTON, D.C. 20005  
+1 202 736 8000  
+1 202 736 8711 FAX

hchouest@sidley.com  
+1 202 736 8395

BEIJING  
BOSTON  
BRUSSELS  
CENTURY CITY  
CHICAGO  
DALLAS  
GENEVA

HONG KONG  
HOUSTON  
LONDON  
LOS ANGELES  
MUNICH  
NEW YORK  
PALO ALTO

SAN FRANCISCO  
SHANGHAI  
SINGAPORE  
SYDNEY  
TOKYO  
WASHINGTON, D.C.

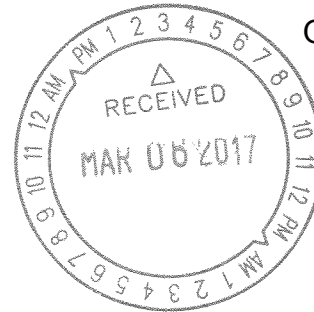
FOUNDED 1866

242742

March 6, 2017

**By Hand Delivery**

Cynthia T. Brown  
Chief, Section of Administration  
Surface Transportation Board  
395 E Street, SW  
Washington, DC 20423-0001



ENTERED  
Office of Proceedings  
March 6, 2017  
Part of  
Public Record

Re: Consumers Energy Co. v. CSX Transp. Inc., STB Docket No. 42142

Dear Ms. Brown:

Enclosed for filing in the above-referenced matter is Defendant CSX Transportation, Inc.'s ("CSXT's") Supplemental Reply Evidence. The filing includes:

- 1) An original and ten copies of the Highly Confidential version of CSXT's Supplemental Reply, consisting of one volume: Narrative Sections I, III-A through III-H (excluding III-E), V; and Exhibits. Double braces (e.g., "{{}}") signify material designated Highly Confidential pursuant to the Board's March 17, 2015 Protective Order ("Protective Order"), and single braces (e.g., "{") designate Confidential material.
- 2) An original and ten copies of the Public version of CSXT's Supplemental Reply. Material that is designated Highly Confidential or Confidential pursuant to the Board's Protective Order is redacted from the Public version.
- 3) Three sets of disks containing the highly confidential and public version of the Supplemental Reply Evidence in searchable pdf format;
- 4) One disk containing the Highly Confidential Version of the Supplemental Reply Evidence in Word format;
- 5) One hard drive containing the workpapers supporting the Supplemental Reply Evidence. Workpapers that are new or

Cynthia T. Brown  
March 6, 2017  
Page 2

revised for this Supplemental Reply are highlighted in green on the workpaper index included on the hard drive: "CSXT Supp Reply WP Index.xls." CSXT's workpapers are designated Highly Confidential pursuant to the Protective Order. Certain CSXT workpapers are also Sensitive Security Information ("SSI") that is controlled under 49 C.F.R. Parts 15 and 1520.<sup>1</sup>

Because several of the workpapers contain SSI, the hard drive of workpapers is encrypted. We have submitted a separate letter containing the password that is required to open these files. Please let us know if you need any assistance with opening or accessing the files.

Please date-stamp the extra copies and return them to our messenger. Thank you for your assistance in this matter. If you have any questions, please contact the undersigned.

Sincerely,



Hanna M. Chouest

HC:

Enclosures

cc: Kelvin J. Dowd

---

<sup>1</sup> The enclosed workpaper hard drive contains Sensitive Security Information that is controlled under 49 C.F.R. Parts 15 and 1520. No part of the records contained on 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 of 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.



**BEFORE THE  
SURFACE TRANSPORTATION BOARD**

**Defendant.**

Docket No. NOR 42142

**Raymond A. Atkins**  
**G. Paul Moates**  
**Matthew J. Warren**  
**Terence M. Hynes**  
**Hanna M. Chouest**  
**Marc A. Korman**  
**Sidley Austin LLP**  
**1501 K Street, N.W.**  
**Washington, D.C. 20005**  
**(202) 736-8000**  
**(202) 736-8711 (fax)**

**Filing Contains Color Images**

## TABLE OF CONTENTS

|                                                     | Page    |
|-----------------------------------------------------|---------|
| I. COUNSEL'S ARGUMENT AND SUMMARY OF EVIDENCE ..... | I-1     |
| A. Traffic Group .....                              | I-1     |
| B. Bridge Costs .....                               | I-10    |
| C. Equity Flotation Costs .....                     | I-11    |
| CONCLUSION .....                                    | I-16    |
| III. STAND ALONE COST .....                         | III-A-1 |
| A. TRAFFIC AND REVENUE OVERVIEW .....               | III-A-1 |
| 1. CERR Traffic Group .....                         | III-A-2 |
| 2. Volumes (Historical and Projected) .....         | III-A-4 |
| 3. Revenues (Historical and Projected) .....        | III-A-5 |
| III. STAND ALONE COST .....                         | III-B-1 |
| B. STAND-ALONE RAILROAD SYSTEM .....                | III-B-1 |
| 1. Routes and Mileage .....                         | III-B-1 |
| 2. Track Miles and Weight of Track .....            | III-B-2 |
| 3. Yards .....                                      | III-B-3 |
| 4. Other .....                                      | III-B-3 |
| a. Joint Facilities .....                           | III-B-3 |
| b. Turnouts, FEDs, and AEI Scanners .....           | III-B-3 |
| c. RTC Model Simulation of CERR Configuration ..... | III-B-3 |
| III. STAND-ALONE COST .....                         | III-C-1 |
| C. OPERATING PLAN .....                             | III-C-1 |
| 1. Introduction .....                               | III-C-2 |

|      |                                          |          |
|------|------------------------------------------|----------|
| 2.   | General Parameters.....                  | III-C-4  |
| 3.   | Results of the RTC Model Simulation..... | III-C-9  |
| III. | STAND-ALONE COST .....                   | III-D-1  |
| D.   | OPERATING EXPENSES.....                  | III-D-1  |
| 1.   | Locomotives .....                        | III-D-3  |
| 2.   | Railcars.....                            | III-D-7  |
| 3.   | Operating Personnel .....                | III-D-8  |
| a.   | Train/Switch Crew Personnel.....         | III-D-8  |
| b.   | Non-Train Operating.....                 | III-D-10 |
| c.   | General and Administrative .....         | III-D-13 |
| 4.   | Maintenance of Way .....                 | III-D-19 |
| 5.   | Leased Facilities .....                  | III-D-21 |
| 6.   | Loss and Damage .....                    | III-D-22 |
| 7.   | Insurance .....                          | III-D-22 |
| 8.   | Ad Valorem Tax .....                     | III-D-22 |
| III. | STAND-ALONE COST .....                   | III-F-1  |
| F.   | ROAD PROPERTY INVESTMENT.....            | III-F-1  |
| 1.   | Land.....                                | III-F-2  |
| 2.   | Roadbed Preparation .....                | III-F-2  |
| 3.   | Track Construction .....                 | III-F-4  |
| 4.   | Tunnels.....                             | III-F-4  |
| 5.   | Bridges.....                             | III-F-5  |
| 6.   | Signals and Communications .....         | III-F-10 |
| 7.   | Buildings and Facilities.....            | III-F-10 |

|      |                                                                                                                                                 |          |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 8.   | Public Improvements.....                                                                                                                        | III-F-11 |
| 9.   | Mobilization.....                                                                                                                               | III-F-11 |
| 10.  | Engineering.....                                                                                                                                | III-F-11 |
| 11.  | Contingencies .....                                                                                                                             | III-F-12 |
| 12.  | Construction Schedule .....                                                                                                                     | III-F-12 |
| III. | STAND ALONE COST.....                                                                                                                           | III-G-1  |
| G.   | DISCOUNTED CASH FLOW ANALYSIS .....                                                                                                             | III-G-1  |
| 1.   | Cost of Capital.....                                                                                                                            | III-G-1  |
| a.   | A Separate Equity Flotation Cost for the CERR Is Not<br>Only Warranted, But Required. ....                                                      | III-G-1  |
| b.   | CSXT's Evidence Solidly Supports an Equity Flotation<br>Cost for a CERR IPO of Approximately Six Percent.....                                   | III-G-4  |
| c.   | Consumers Significantly Understates the CERR's Total<br>Cost to Raise the Needed Capital.....                                                   | III-G-6  |
| d.   | Consumers' Argument that it Would Purchase a Ten-<br>Percent Share of a CERR Private Placement Violates SAC<br>Theory and Must Be Rejected..... | III-G-8  |
| III. | STAND-ALONE COST .....                                                                                                                          | III-H-1  |
| H.   | RESULTS OF SAC ANALYSIS .....                                                                                                                   | III-H-1  |
| 1.   | Results of SAC DCF Analysis.....                                                                                                                | III-H-1  |
| a.   | Cost of Capital.....                                                                                                                            | III-H-1  |
| g.   | Average Annual Inflation in Asset Prices .....                                                                                                  | III-H-2  |
| k.   | Summary of SAC Analysis.....                                                                                                                    | III-H-2  |
| 2.   | Maximum Rate Calculations .....                                                                                                                 | III-H-4  |

**V. WITNESS QUALIFICATIONS AND VERIFICATION**

|                             |       |
|-----------------------------|-------|
| Baranowski, Michael R. .... | V- 1  |
| Brown, Richard.....         | V- 2  |
| Chakrabarti, Kaustuv .....  | V- 3  |
| Cornell, Bradford.....      | V- 4  |
| Fisher, Benton .....        | V- 16 |
| Hughes, David.....          | V- 17 |
| Matelis, Michael.....       | V- 18 |
| Tobias, Glenn.....          | V- 19 |
| Wheeler, David R. ....      | V- 20 |
| Zebrowski, Nathaniel.....   | V- 21 |

## SHORT FORMS FOR FREQUENTLY CITED CASES

The following short form case citations are used herein:

|                                |                                                                                                                                 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <i>Duke/NS</i>                 | <i>Duke Energy Corp. v. Norfolk Southern Railway Co.</i> , 7 S.T.B. 89 (2003)                                                   |
| <i>DuPont</i>                  | <i>E.I. DuPont de Nemours &amp; Co. v. Norfolk Southern Railway Co.</i> , STB Docket No. 42125 (served Mar. 24, 2014)           |
| <i>FMC</i>                     | <i>FMC Wyoming Corp. v. Union Pacific Railroad Co.</i> , 4 S.T.B. 699 (2000)                                                    |
| <i>SunBelt 2014</i>            | <i>SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Co.</i> , STB Docket No. 42130 (served June 20, 2014)           |
| <i>Sunbelt Reconsideration</i> | <i>Sunbelt Chlor Alkali Partnership v. Norfolk Southern Railway Co.</i> , STB Docket No. 42130 (served June 30, 2016)           |
| <i>TPI</i>                     | <i>Total Petrochemicals &amp; Refining USA, Inc. v. CSX Transportation, Inc.</i> , STB Docket No. 42121 (served Sept. 14, 2016) |
| <i>Xcel</i>                    | <i>Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington Northern &amp; Santa Fe Railway Co.</i> , 7 S.T.B. 589 (2004) |



## ACRONYMS

|      |                                              |
|------|----------------------------------------------|
| AEI  | Automatic Equipment Identification           |
| ATC  | Average Total Cost                           |
| BNSF | Burlington Northern Santa Fe Railway Company |
| BOCT | Baltimore & Ohio Chicago Terminal Railroad   |
| BRC  | Belt Railway of Chicago                      |
| CAPM | Capital Asset Pricing Model                  |
| CERR | Consumers Energy Railroad                    |
| CP   | Canadian Pacific Railway                     |
| CSX  | CSX Corporation                              |
| CSXT | CSX Transportation, Inc.                     |
| CY   | Cubic Yards                                  |
| DCF  | Discounted Cash Flow                         |
| EIA  | Energy Information Administration            |
| FED  | Failed Equipment Detector                    |
| FSC  | Fuel Surcharges                              |
| G&A  | General & Administrative                     |
| IHB  | Indiana Harbor Belt Railway                  |
| IPO  | Initial Public Offering                      |
| IT   | Information Technology                       |
| MGT  | Million Gross Ton                            |
| MMM  | Maximum Markup Methodology                   |
| MOW  | Maintenance-of-Way                           |
| NS   | Norfolk Southern Railway Company             |

|      |                                      |
|------|--------------------------------------|
| NPV  | Net Present Value                    |
| OTM  | Other Track Materials                |
| RAPB | Railroad Accounting Principles Board |
| RCAF | Rail Coal Adjustment Factor          |
| RTC  | Rail Traffic Controller              |
| SAC  | Stand-Alone Cost                     |
| SARR | Stand-Alone Railroad                 |
| T&E  | Train & Engine                       |
| TIH  | Toxic-by-Inhalation Hazard           |
| UP   | Union Pacific Railroad Company       |
| URCS | Uniform Rail Costing System          |



**TABLE OF CONTENTS**

|                                                    | <b><u>Page</u></b> |
|----------------------------------------------------|--------------------|
| I. COUNSEL’S ARGUMENT AND SUMMARY OF EVIDENCE..... | I-1                |
| A. Traffic Group .....                             | I-1                |
| B. Bridge Costs.....                               | I-10               |
| C. Equity Flotation Costs.....                     | I-11               |
| CONCLUSION.....                                    | I-16               |

## I. COUNSEL'S ARGUMENT AND SUMMARY OF EVIDENCE

CSX Transportation, Inc. ("CSXT") respectfully submits this Supplemental Reply evidence in response to the Supplemental Opening evidence filed by Consumers Energy Company ("Consumers") on January 23, 2017. Together with the enclosed electronic workpapers, this submission shows how CSXT's Reply evidence is affected by excluding certain merchandise trains from the traffic group and provides supplemental evidence on bridge and equity flotation costs consistent with the Board's Decision of December 9, 2016. *Consumers Energy Co. v. CSXT*, Docket No. NOR 42142, (STB served Dec. 9, 2016) ("*December 9 Decision*").

This Counsel's Argument focuses on three issues: (1) whether Consumers properly complied with the Board's *December 9 Decision*, (2) whether Consumers has met its burden of proof to demonstrate that CSXT did not pay for certain bridges needed to serve the selected traffic group; and (3) whether Consumers combined equity flotation cost estimates from *private* investments with the Board's return of equity calculations for *public* investments in a way that understates the "all-in" cost of raising equity for the Consumers Energy Railroad ("CERR").

### A. Traffic Group

In its *December 9 Decision*, the Board concluded that Consumers' treatment of merchandise traffic "exceeds a complainant's allowable discretion and is inconsistent with the realities of real-world railroading." *Id.* at 19. In so doing, the Board described three core principles for the proper selection of traffic in a Stand-Alone Cost ("SAC") analysis:

- **Customers Matter:** First, the Board observed that under Consumers' traffic selection, the CERR would accept a merchandise customer's railcar on one day, but reject it the next if that railcar arrived on a train including Toxic-by-Inhalation Hazard ("TIH") traffic or requiring switching in Chicago. The Board properly observed that "[n]o real world customer would contract with a railroad on such restrictive terms." *Id.*
- **Operations Must Be Feasible:** Second, in the unlikely event that a customer were to agree to "such restrictive terms," the Board noted that "it would be extremely difficult, if not impossible, for the CERR to operate in such a manner. In particular, there is no way for the CERR to know on a daily basis what level of equipment and manpower will be necessary to serve the selected merchandise traffic." *Id.*
- **Assumed Efficiencies Must Be Achievable:** Third, putting aside the operating difficulties, the Board cautioned that the novel traffic selection by Consumers "takes the goals of the SAC test—of maximizing efficiency and minimizing costs—beyond what is possible in real-world railroading." *Id.* The Board explained that the SAC test cannot permit a complainant to submit traffic groups "composed of only the most profitable trains while rejecting less profitable trains of the same sort without any realistic basis for doing so." *Id.* If permitted, "complainants could obtain from the Board reparations and rate prescriptions based on efficiencies that no defendant could feasibly capture in the real world." *Id.*

Consumers' merchandise traffic selection violated each of these principles because it was "intended specifically to exclude the costs of adding Positive Train Control ("PTC") to its system and the costs of on-SARR blocking and classification." *Id.* The Board made it clear that a realistic traffic selection could satisfy these three core principles if it were based on reasonable criteria such as commodity type.

Consumers was provided plain and explicit instructions: "In revising its traffic group, Consumers can either exclude all merchandise traffic, or accept merchandise traffic pursuant to the above standard and include the necessary costs to handle that traffic (*e.g.*, PTC costs)." *Id.* at 20. The agency explained that "once a

SARR elects to serve a certain subset of traffic—by customer, commodity, route, service type, or some combination thereof—the SARR must serve all of that subset of traffic consistently and without regard to how it is tendered.” *Id.* at 19.

Consumers did not follow these instructions. It did remove 897 merchandise trains, but its Supplemental Opening evidence still includes 283 merchandise trains. *See* Consumers Supp. Op. Ex. III-A-1 (lines 3, 7, 18). Consumers again chose which merchandise trains to include or exclude based on the internal CSXT train symbol and whether trains with those symbols required any switching (and carried any TIH traffic) in Chicago during 2014 (the Base Year). *See* Consumers Supp. Op. III-A-12. For example, if in the Base Year all merchandise trains associated with Symbol X avoided any switching on the CERR (or included no TIH traffic), then those merchandise trains were included. However, if any merchandise train associated with Symbol Y required switching during the Base Year (or included any TIH traffic), then all merchandise trains with that symbol were excluded. Applying this selection criteria, Consumers reports that Base Year merchandise trains that either require switching at Barr Yard or contained TIH shipments moved under 21 train symbols. Table I-1 lists the merchandise train symbols that Consumers chose to drop or retain.



**Table I-1**  
**Merchandise Train Symbols**

{

}

Consumers therefore excluded 897 merchandise trains corresponding to 21 train symbols from its traffic group, and it included 283 merchandise trains corresponding to 15 train symbols.

As a result, Consumers' revised traffic group suffers from many of the same problems as its original traffic group, albeit on a smaller scale. For example, the Board observed that under the original traffic group, the CERR would "accept a merchandise customer's railcar on one day, but reject it the next if that railcar arrived on a train including TIH traffic or required switching in Chicago." *December 9 Decision* at 19. Once again, however, the CERR would accept a merchandise customer's railcar on Monday if it arrived on a train with a favored train symbol, and refuse to handle the same customer's traffic on Tuesday if the railcar arrived on a train with one of the 21 prohibited symbols. As shown in Table I-2 below, several CERR customers would find their merchandise traffic split between trains that the CERR would handle and those it would refuse to handle to avoid the expense of switching or handling TIH traffic.

**Table I-2**  
**Customers Split Between Retained and Dropped Merchandise Trains<sup>1</sup>**

| <b>Commodity</b> | <b>Freight Payer</b> | <b>Carloads on Dropped Trains</b> | <b>Carloads on Retained Trains</b> |
|------------------|----------------------|-----------------------------------|------------------------------------|
| {{ }}            | {{ }}                | 265                               | 102                                |
| {{ }}            | {{ }}                | 128                               | 24                                 |
| {{ }}            | {{ }}                | 43                                | 100                                |
| {{ }}            | {{ }}                | 418                               | 49                                 |
| {{ }}            | {{ }}                | 32                                | 58                                 |
| {{ }}            | {{ }}                | 66                                | 229                                |
| {{ }}            | {{ }}                | 68                                | 131                                |
| {{ }}            | {{ }}                | 173                               | 120                                |
| {{ }}            | {{ }}                | 48                                | 37                                 |
| {{ }}            | {{ }}                | 32                                | 44                                 |
| {{ }}            | {{ }}                | 23                                | 50                                 |
| {{ }}            | {{ }}                | 35                                | 20                                 |
| {{ }}            | {{ }}                | 165                               | 21                                 |
| {{ }}            | {{ }}                | 24                                | 24                                 |
| {{ }}            | {{ }}                | 27                                | 23                                 |

<sup>1</sup> See CSXT Supp. Reply WP “CERR Supplemental Split Customers.xlsx.” This workpaper includes details at the individual lane level (*i.e.*, including CSXT origin and destination) for the shipments on CERR merchandise trains from Consumers’ Rebuttal evidence and identifies the shipments on trains that Consumers dropped and those from trains that Consumers retained for its Supplemental evidence.

As the Board observed, “[n]o real world customer would contract with a railroad on such restrictive terms.” *December 9 Decision* at 19 (quoting CSXT Reply III-A-8). And it is by no means clear from Consumers’ narrative that during the 10 years of the SAC analysis period only merchandise trains with these 21 particular train symbols would require switching at Barr Yard or contain carloads of highly hazardous materials.

Consumers’ justification for including some merchandise trains while excluding others is a mystery. Consumers recounts the standards announced by the Board but then offers no explanation for how it revised its traffic group “pursuant to the above standard.” Consumers Supp. Op. III-A-5. As best as CSXT can fathom, Consumers believes that because its “original train data-based traffic selection process identified CERR traffic by route and service type” (*id.*) that it was then free to select merchandise traffic based on whether the trains moving under a particular CSXT train symbol required any switching at Barr Yard or contained any TIH traffic in the Base Year. This is a far cry from the consistent treatment of merchandise traffic that the Board directed. *See December 9 Decision* at 19 (“Because Consumers chose to include merchandise traffic, but does not serve all of that merchandise traffic consistently, its traffic group selection is inappropriate in this case.”).

Traffic group selection based on train symbols may seem administratively convenient and might sometimes result in a proper traffic group. For example, if CSXT uses a particular train symbol to identify coal trains, then using that train



symbol as a selection criterion may be the equivalent of choosing a particular commodity for the Stand-Alone Railroad (“SARR”) to handle. Indeed, of the 283 merchandise trains kept by Consumers, two train symbols {{ }} represent 208 merchandise trains of apples, oranges, and onions bound for a single customer in {{ }}. But this seems to have been sheer serendipity. Consumers is not justifying the inclusion of these merchandise trains because of a deliberate choice to include all apples, oranges, and onions traffic moving to that customer; rather, Consumers’ sole justification for the included merchandise trains is—once again—whether the trains with that particular symbol required any switching at Barr Yard or contained any TIH traffic in the base year.

The 75 other merchandise trains kept by Consumers all have the characteristic flaws that concerned the Board in the *December 9 Decision*. For example, Consumers includes 50 merchandise trains that move westbound over the Grand Rapid Subdivision, but not all the merchandise trains moving over that corridor. Again, those with train symbols that ever required switching at Barr Yard (or that contained TIH traffic) were excluded. As a result, some customers would have their freight moved by CERR on certain days but rejected by CERR on days when their shipments were in merchandise trains that the CERR excluded.

In addition, Consumers *failed to service its own issue traffic*. Consumers’ own coal carloads that are bad-ordered during transit over Burlington Northern Santa Fe Railway Company (“BNSF”) are removed by BNSF from unit-train service, repaired, and then delivered separately to CSXT at Clearing Yard, not where the

loaded or empty unit trains are interchanged.<sup>2</sup> To handle these bad-order cars in the real world, CSXT builds a merchandise train at Barr Yard that includes these repaired bad-order cars, so that they can be transported eastbound through Chicago and delivered to the Campbell plant. Yet those merchandise trains do not meet Consumers' rigid desire to avoid any switching in Chicago and thus they were not selected to be part of the CERR traffic group. As a result, the CERR failed to capture those movements or provide any way for the CERR to deliver those bad-order railcars to Campbell.

Despite Consumers' failure to comport with either the letter or the spirit of the Board's order, CSXT will contest this issue no further. Removing the problematic 75 merchandise trains (excluding the 208 apples, oranges, and onions trains) is unlikely to be material to the outcome of this case. And if CSXT chose to nonetheless argue for the exclusion of these 75 trains, it would need to submit six different operating plans to ensure that the Board had operating evidence to match the traffic group ultimately selected by the agency.<sup>3</sup> There is simply no time for such an endeavor, and even if there were, submitting so many alternatives could substantially complicate the record. Moreover, the three-year deadline to resolve this case will expire on January 13, 2018. *See* 49 U.S.C. § 11701(c). Continued

---

<sup>2</sup> *See* CSXT Reply III-C-40 through III-C-43.

<sup>3</sup> As described below, CSXT is including three alternative presentations in this evidence to ensure that the Board has a SAC analysis that matches whatever traffic group the Board chooses to select. Contesting the 75 merchandise trains that Consumers ought to have dropped from its group would require three additional presentations.

debate over the proper traffic group may cause the Board to issue a second compliance order or otherwise jeopardize its ability to meet this looming statutory deadline. Mindful of the statutory deadline, and sensitive to the Board's limited resources, CSXT believes that the case should proceed on the current supplemental record and should not become bogged down by further traffic selection disputes over 75 merchandise trains.<sup>4</sup>

To guarantee that the Board has a SAC presentation from CSXT that comports with whatever traffic group is ultimately selected by the agency, CSXT provides three alternative SAC analyses in its electronic workpapers included in this Supplemental Reply presentation.

A. Base Case: The primary presentation described in the narrative section is based on a traffic group that matches the group submitted by Consumers in its Supplemental Opening evidence, except it excludes, as CSXT did on Reply,<sup>5</sup> certain merchandise trains (including 19 peak period trains) traversing CERR segments that Consumers' Supplemental Opening RTC simulation continues to show fail to meet the CSXT historical service standard over those segments (the "Deficient Service Trains"); and 114 petroleum coke trains (including two peak period trains) that did not traverse the lines replicated by the CERR (the "Coke Trains").

B. Alternative 1: The first alternative provides CSXT's Supplemental Reply evidence with a traffic group that matches the traffic group submitted by Consumers in its Supplemental Opening evidence, except that it excludes the Coke Trains.

---

<sup>4</sup> CSXT's decision not to challenge Consumers' refusal to comply with the Board's order to either drop all the merchandise traffic or serve all that traffic consistently is not a concession that Consumers' traffic selection methodology is appropriate, and CSXT reserves its right to object to any similar tactic in a future rate dispute.

<sup>5</sup> See CSXT Reply III-A-11 through III-A-15.



C. Alternative 2: The final alternative provides CSXT's Supplemental Reply evidence that matches precisely the traffic group submitted by Consumers in its Supplemental Opening evidence.

CSXT strongly maintains that its Base Case is the appropriate traffic group to use in this case. But it is providing complete workpapers for both alternative scenarios so that the Board will have the evidence necessary to expeditiously resolve this case *regardless* of the traffic group ultimately selected.

### **B. Bridge Costs**

In Section III-F, CSXT responds to Consumers' Rebuttal evidence on the Calumet Sag and Chicago Sanitary Channel bridges, in accordance with the Board's *December 9 Decision* permitting CSXT to do so. *See December 9 Decision* at 16. Consumers' new Rebuttal evidence does not meet its burden to justify its complete omission of construction costs for bridges over which the CERR would operate. On the contrary, the historical record shows that any public funds expended for these bridges were for the replacement of preexisting railroad bridges built over a navigable canal constructed decades before the railroad existed. The SAC test therefore requires that Consumers' SAC model account for the capital costs of the bridges.

For the Chicago Sanitary Canal bridge, Consumers' new Rebuttal evidence shows only that there were public funds spent for some bridge construction items along the Sanitary Canal. This document does not add any useful information to the record, which already indicated that the Chicago Sanitary District expended public funds to replace a railroad-built fixed bridge with a movable span bridge. Given these facts, the SAC analysis should only assume that public funds would cover the

movable span of the bridge. The SARR still should be responsible for a less expensive fixed span bridge like that the railroad built. For the Calumet Sag Channel bridge, Consumers simply has no evidence of public funding being applied to the specific bridge at issue.

Consumers' claim that "any pre-existing bridges would be insignificant in size" is also wrong.<sup>6</sup> A navigable canal existed at the location of the Calumet Sag Bridge long before a railroad was constructed. The new railroad would have been required to pay for its bridge over the pre-existing canal without disturbing canal navigation or other activities at present or in the future. The CERR stepping into the railroad's shoes should have to do the same.

In short, Consumers has not justified its failure to account for the costs of these two bridges, and they should be included in the CERR's construction costs (except for the movable span of the Chicago Sanitary Canal bridge).

### **C. Equity Flotation Costs**

Consumers filed a petition to supplement the record on the issue of equity flotation costs. In that petition, Consumers claimed that it "did not present specific evidence concerning an alternate calculation of equity flotation costs, as the prevailing rule was that they should be excluded entirely." Consumers Pet. for Leave to File Supplemental Evidence of Equity Flotation Costs, *Consumers Energy Co. v. CSX Transp. Inc.*, STB Docket No. 42142 (filed July 14, 2016) at 2, ¶2. After the Board announced the *Sunbelt 2014* decision, Consumers "request[ed] leave to

---

<sup>6</sup> See Consumers Reb. III-F-99 through III-F-100.



make a supplemental evidentiary filing, *strictly limited* to the issue of the proper calculation of hypothetical equity flotation costs for the hypothetical CERR.” *Id.* at 4, ¶6 (emphasis added). Paradoxically, the Board denied this request because Consumers had not met the demanding standard for supplementing the record, but then *sua sponte* found “good cause” to allow Consumers to present “evidence on equity flotation costs.” *December 9 Decision* at 22. While that sequence of events is unique, there is no indication that the Board intended to broaden the scope of supplemental evidence beyond that sought by Consumers.

Consumers did not deliver the promised supplemental submission that was “strictly limited” to offering an alternate calculation of equity flotation costs. The first 7 pages of the 18-page submission are devoted to a renewed assault on the Board’s decision to reflect any flotation costs in the SAC analysis. After wading through those pages, Consumers finally observes that: “In compliance with the *December 9 Decision*, however, Consumers will presume for the balance of this Part III-G. that the Board’s intent was to accurately identify the flotation cost that the CERR would incur if it were required to pay someone to raise its equity.” Consumers Supp. Op. III-G-7. CSXT agrees. But in any event, as discussed in Section III-G, Consumers’ renewed assault on the Board’s precedent lacks any merit.

Turning to the alternative evidence submitted by Consumers, its core argument is that the equity flotation costs should be based on a private placement. *See id.* at III-G-7 through III-G-13. This position is not inherently unreasonable. It

is consistent with general SAC theory to assume a hypothetical SARR would raise capital using the most cost effective means, assuming the same means are available to the defendant railroad. (If the defendant railroad were unable itself to enjoy the same efficiencies as the hypothetical SARR, then any Board reparations and rate prescriptions would again be “based on efficiencies that no defendant could feasibly capture in the real world.” *December 9 Decision* at 19.) And it may be true that the *direct* costs of raising equity capital through a private placement would be lower than the *direct* costs of raising the same equity capital in a public IPO. But Consumers’ position is fundamentally incomplete and misleading because it ignores the *total* cost of raising capital through a private placement.

A SARR can raise equity one of two ways: it can turn to the private market or the public markets. The one-time flotation costs of raising equity in the private market may indeed be lower than the more complex approach of raising money with an IPO. But the “cost of equity” demanded by those different investors is fundamentally different. As detailed in Section III-G, and supported by Professor Bradford Cornell and Mr. Glenn Tobias, it is well established in the economic literature and empirical studies that investors in private placement demand a *higher* return on equity. The investors demand this higher return in part to compensate for the lack of liquidity of the investment and the asymmetric information involved in all private placements. Indeed, even Consumers acknowledges “the benefits that the IPO provides for the marketability and liquidity of shares.” Consumers Supp. Op. III-G-16. Yet Consumers overlooks this known

phenomena, seeking instead to cobble together the fixed cost of raising equity in a private placement and the cost of equity calculated by the Board for public investors. This mixture of apples and oranges is fundamentally flawed.

Even just a slight increase in the cost of equity required by investors in a private placement eliminates the difference in the direct costs—*i.e.*, bankers' and lawyers' fees—between private and public offerings. As Professor Cornell and Mr. Tobias explain, the equity flotation cost is a one-time fixed expense of raising capital. In contrast, the cost of equity has a compounding effect. As such, if a complainant wishes to assume its SARR will raise needed equity capital through a private placement, then it must also take on the daunting task of estimating the equity premium those private investors would demand to hold an illiquid investment in the CERR. But it cannot mix apples and oranges by combining the (low) cost of equity for public placements with the (low) direct cost of raising that equity through a private placement.

The Board need not travel down the treacherous path invited by this private placement proposal. It is perfectly reasonable to estimate the “all in” costs of raising equity for a hypothetical railroad by assuming a public offering. The STB has already done the hard part. Through a series of contested rulemakings, it has settled on a reasonable methodology to estimate the cost of equity for public companies. And there is also accurate and readily available information about the one-time flotation costs of raising equity through a public offering. Neither is true of estimating the total, “all-in” cost of raising equity through a private placement.



Encouraging parties to assume the SARR will raise capital in a private placement will invite chaos, complexity, and never-ending debates over the proper “all-in” cost of raising this capital in this way—debates that will resist easy solutions. The SAC analysis is complex enough already.

\* \* \*

The subsequent sections of CSXT’s Supplemental Reply evidence explain the changes to CSXT’s March 7, 2016 Reply presentation that resulted from Consumers’ amended traffic group. Consistent with the limited scope of Supplemental Evidence, CSXT has not reiterated arguments made in its March 7, 2016 Reply or included additional arguments except as authorized by the December 9, 2016 Decision.<sup>7</sup> CSXT has only included sections that have changed in some way; thus, this Supplemental Reply does not include a Section II (Market Dominance), a Section III-E (Non-Road Property Investment), or a Section IV (Revenue Adequacy). In some instances the changes explained in this Supplemental Reply affect tables or exhibits that CSXT submitted in its Reply; in those instances CSXT has provided updated tables or exhibits.

The additional evidence that the *December 9 Decision* authorized on bridge evidence and equity flotation costs is included in the appropriate sections of CSXT’s Supplemental Reply; specifically, CSXT’s response to Consumers’ Rebuttal evidence on the Calumet Sag and Chicago Sanitary Canal bridges is in Section III-F-5, and

---

<sup>7</sup> CSXT adheres to all the arguments and evidence it made in its March 7, 2016 Reply except to the extent that any argument or evidence is specifically amended by this Supplemental Reply.



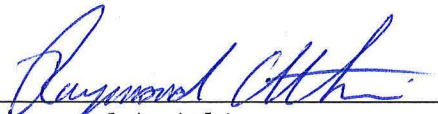
its response to Consumers' Supplemental Opening evidence on equity flotation costs is in Section III-G.

### CONCLUSION

For the reasons summarized above and detailed in this Supplemental Reply evidence and in CSXT's March 7, 2016 Reply evidence, the Board should find that Consumers' SAC presentation fails to demonstrate that the challenged rates are unreasonable because the CERR's stand-alone costs well exceed its revenues. And as detailed in CSXT's March 7, 2016 Reply evidence, Consumers has failed to demonstrate that CSXT possesses market dominance over the issue traffic or that Consumers is entitled to any relief under a revenue adequacy constraint.

Peter J. Shudtz  
Paul R. Hitchcock  
John P. Patelli  
CSX Transportation, Inc.  
500 Water Street  
Jacksonville, FL 32202

Respectfully submitted,

  
Raymond A. Atkins  
G. Paul Moates  
Matthew J. Warren  
Terence M. Hynes  
Hanna M. Chouest  
Marc A. Korman  
Sidley Austin LLP  
1501 K Street, N.W.  
Washington, D.C. 20005  
(202) 736-8000  
(202) 736-8711 (fax)

*Counsel to CSX Transportation, Inc.*

Dated: March 6, 2017

## CERTIFICATE OF SERVICE

I hereby certify that on this 6th day of March, 2017, I caused a copy of the foregoing Supplemental Reply evidence of CSX Transportation, Inc., including Narrative, Exhibits, and electronic workpapers, to be served by hand delivery upon:

Kelvin J. Dowd  
Slover & Loftus LLP  
1224 Seventeenth Street, N.W.  
Washington, D.C. 20036

  
Alec Weingart

## **TABLE OF CONTENTS**

|                                              | <b><u>Page</u></b> |
|----------------------------------------------|--------------------|
| III. STAND ALONE COST.....                   | III-A-1            |
| A. TRAFFIC AND REVENUE OVERVIEW .....        | III-A-1            |
| 1. CERR Traffic Group.....                   | III-A-2            |
| 2. Volumes (Historical and Projected).....   | III-A-4            |
| 3. Revenues (Historical and Projected) ..... | III-A-5            |

### III. STAND ALONE COST

#### A. TRAFFIC AND REVENUE OVERVIEW

In response to the Board's *December 9 Decision*, Consumers modified the traffic selection process it followed in previous rounds of evidence to generate its Supplemental Opening evidence. Specifically, Consumers modified its operating plan by removing all trains with a train symbol that either performed switching activities at Barr Yard or carried TIH traffic on any day throughout the base year. This modification removed 897 carload merchandise trains from its 2014 base year operating plan. After removing these trains from the operating plan, Consumers identified the CSXT traffic carried by the remaining trains on the CERR to establish the CERR traffic group for its Supplemental Opening evidence.<sup>1</sup>

For this Supplemental Reply, CSXT began with Consumers' modified carload traffic base from its Supplemental Opening evidence and made the same adjustments to that traffic base that CSXT made on Reply. Specifically, CSXT removed the same two traffic groups from Consumers' traffic base that it removed on Reply.<sup>2</sup> CSXT also used the same methodology to forecast carload volumes and revenues that it used in its Reply evidence.<sup>3</sup>

---

<sup>1</sup> As discussed above in Section I, Consumers' traffic selection process for Supplemental evidence did not comply with the Board's *December 9 Decision*, but CSXT has elected not to contest the traffic selection issue any further. *See supra* I-8 to I-9.

<sup>2</sup> *See* CSXT Reply III-A-11 through III-A-15.

<sup>3</sup> *See* CSXT Reply III-A-16 through III-A-55.



## **1. CERR Traffic Group**

In its Supplemental Reply, CSXT uses the proposed traffic group in Consumers Supplemental Opening, and applies the same two modifications that CSXT incorporated on Reply. First, Consumers included 114 petroleum coke trains in 2014 that in the real world did not traverse the lines replicated by the SARR.<sup>4</sup> As it did on Reply, CSXT excludes shipments on these trains from its Supplemental Reply evidence. Second, Consumers' traffic group includes trains traversing CERR segments that Consumers' own evidence demonstrated do not meet the CSXT service standard over those segments. On Opening, Consumers purported to show that its operating plan would provide the same or superior service to all customers in the traffic group.<sup>5</sup> CSXT accepts the test posited by Consumers that the SARR must submit an operating plan that provides the same or superior level of service as that provided by CSXT in the real world. On Reply, CSXT found that Consumers had miscalculated CSXT's real-world transit time and failed to properly account for train delays in its comparison.<sup>6</sup> When the comparison is corrected, it is clear that the CERR provides inferior service.<sup>7</sup> CSXT had therefore eliminated those trains from the traffic group. CSXT confirmed that these trains in the Supplemental Opening evidence still fail to meet that service standard.<sup>8</sup> In its Supplemental Reply

---

<sup>4</sup> See CSXT Reply III-A-11.

<sup>5</sup> See Consumers Op. WP "5.1 Transit Times Comparison Hist v. RTC.xlsx."

<sup>6</sup> See CSXT Reply III-A-12 through III-A-15.

<sup>7</sup> See CSXT Reply WP "RTC CSXT Actual Calumet Park.xlsx."

<sup>8</sup> See CSXT Supp. Reply WP "RTC CSXT Actual Calumet Park\_Supp\_Reply.xlsx."

evidence, CSXT removes the 535 base year trains traversing these segments and their associated traffic, nearly all of which are automotive and ethanol unit trains (non-merchandise).<sup>9</sup>

In addition, CSXT has included workpapers for two alternative scenarios that include variations of the carload traffic groups in dispute. Alternative 1 supplements the Alternative scenario that CSXT submitted with its Reply evidence<sup>10</sup> by adjusting the traffic group to remove the merchandise trains that Consumers eliminated for its Supplemental Opening. For that scenario, CSXT added back those shipments on trains that failed to meet the service standard.<sup>11</sup> CSXT also provides a second Alternative scenario with this Supplemental Reply evidence. Alternative 2 includes the additional shipments from Alternative 1 and also adds back those shipments on the coke trains that did not traverse the lines replicated by the CERR.<sup>12</sup> With the addition of these two traffic groups, the traffic base for Alternative 2 is identical to Consumers' Supplemental Opening traffic base. In each of these scenarios, CSXT forecasts volumes and calculates revenue divisions using the same methodologies it used on Reply.

---

<sup>9</sup> See CSXT Supp. Reply WP "CERR Base Year Trains\_Supp\_Reply.xlsx," Tab "Trains," Cells AH10291:AJ10318.

<sup>10</sup> See CSXT Reply III-C-73, n.158.

<sup>11</sup> See CSXT Supp. Reply WPs "CERR Car Traffic Forecast\_Supp\_Reply\_Alt1.xlsx," "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply\_Alt1.xlsx."

<sup>12</sup> See CSXT Supp. Reply WPs "CERR Car Traffic Forecast\_Supp\_Reply\_Alt2.xlsx," "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply\_Alt2.xlsx."

## 2. Volumes (Historical and Projected)

Using its revised traffic base as described above, CSXT followed the same methodology that it used in its Reply evidence to forecast general freight traffic and coal traffic not destined to its Campbell plant.<sup>13</sup> Because the CERR's issue coal and intermodal volumes were not affected by the Board's *December 9 Decision*, CSXT submits the same volumes for this traffic as it did in its Reply.

The revised Table III-A-2 below summarizes the parties' CERR volumes from Supplemental Opening and Supplemental Reply.

**Table III-A-2**  
**CERR Volumes**  
**(Carloads and Containers in 000s)**

| <b>Year</b> | <b>Consumers<br/>Supplemental<br/>Opening <sup>14</sup></b> | <b>CSXT<br/>Supplemental<br/>Reply <sup>15</sup></b> | <b>Difference</b> |
|-------------|-------------------------------------------------------------|------------------------------------------------------|-------------------|
| 2015        | 758.8                                                       | 733.4                                                | -25.4             |
| 2016        | 762.0                                                       | 698.9                                                | -63.1             |
| 2017        | 839.9                                                       | 714.9                                                | -125.0            |
| 2018        | 867.1                                                       | 727.0                                                | -140.1            |
| 2019        | 903.0                                                       | 761.9                                                | -141.1            |
| 2020        | 951.1                                                       | 780.4                                                | -170.7            |
| 2021        | 998.3                                                       | 793.4                                                | -204.9            |
| 2022        | 1,052.6                                                     | 811.4                                                | -241.1            |
| 2023        | 1,105.2                                                     | 824.7                                                | -280.6            |
| 2024        | 1,171.0                                                     | 846.0                                                | -324.9            |

---

<sup>13</sup> See CSXT Supp. Reply WP "CERR Car Traffic Forecast\_Supp\_Reply.xlsx," Tabs "CAR\_Forecast" and "CP\_Forecast."

<sup>14</sup> See CSXT Supp. Reply WP "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply.xlsx," Tab "Summary\_Vol\_Rev," Cells M11:20.

<sup>15</sup> See CSXT Supp. Reply WP "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply.xlsx," Tab "Summary\_Vol\_Rev," Cells M25:34.



### 3. Revenues (Historical and Projected)

In this Supplemental Reply, CSXT calculates revenues for the modified traffic base in a similar manner as it did on Reply.<sup>16</sup> CSXT adjusted its Average Total Cost (“ATC”) calculations for merchandise traffic to reflect the revised traffic group.<sup>17</sup> The ATC methodology that CSXT used to calculate CERR revenues for its Supplemental Reply included the same adjustments that CSXT explained were necessary to align the allocation of revenues with Consumers’ proposed SARR traffic selection and operating plan and to correct errors in Consumers’ revenue calculations.<sup>18</sup> CSXT followed a similar process to calculate ATC divisions for the Alternative 1 and Alternative 2 scenarios to reflect the revised traffic groups.<sup>19</sup>

---

<sup>16</sup> To make both parties’ evidence more consistent, CSXT used the Rail Coal Adjustment Factor (“RCAF”) and Energy Information Administration (“EIA”) fuel forecasts that Consumers submitted in its Rebuttal evidence and also used for its Opening Supplemental filing. See CSXT Supp. Reply WP “CERR\_TRAFFIC\_CONTRACTS\_RATEADJ\_FSC\_Supp\_Reply.xlsx,” Tabs “RATE\_ADJ” and “CSXT\_FSC.”

<sup>17</sup> In this filing, CSXT also corrects a technical error in its Reply revenue forecast spreadsheet that inadvertently hard-coded the ATC percentage for certain traffic. Compare CSXT Reply WP “CERR Car Traffic Forecast\_Reply.xlsx,” Tab “CAR\_Forecast,” Cells BF3285:BF8355 with CSXT Supp. Reply WP “CERR Car Traffic Forecast\_Supp\_Reply.xlsx,” Tab “CAR\_Forecast,” Cells BF3021:BF8491.

<sup>18</sup> CSXT Reply III-A-28 through III-A-54. These modifications include costing each merchandise shipment as a trainload movement with an adjusted empty-loaded ratio, adjusting the CERR fixed cost allocation to include only those fixed costs attributable to the line haul functionality that the CERR replicates, adjusting the empty/load ratio for unit trains to reflect the routing of empty unit trains away from Chicago, and correcting significant errors in the fixed costs for certain segments. See CSXT Supp. Reply WP “CERR Divisions\_Supp\_Reply.xlsx.”

<sup>19</sup> See CSXT Supp. Reply WPs “CERR Divisions\_Supp\_Reply\_Alt1.xlsx”; “CERR Divisions\_Supp\_Reply\_Alt2.xlsx.”



Issue coal and intermodal revenues were not affected by the Board's *December 9 Decision*. There are slight variances from revenues submitted in Reply for this traffic, which are due to CSXT's adoption of the same RCAF and fuel indices that Consumers incorporated in its Rebuttal and Supplemental Opening evidence.

The revised Table III-A-5 below summarizes the parties' CERR revenues in their Supplemental Opening and Supplemental Reply filings. Exhibit III-A-1, which provides a more detailed presentation of the impacts of CSXT's corrections and adjustments to Consumers' calculation of CERR revenues, also has been updated.

**Table III-A-5**  
**CERR Revenues**  
**(\$ in Millions)**

| <b>Year</b> | <b>Consumers<br/>Supplemental<br/>Opening <sup>20</sup></b> | <b>CSXT<br/>Supplemental<br/>Reply <sup>21</sup></b> | <b>Difference</b> |
|-------------|-------------------------------------------------------------|------------------------------------------------------|-------------------|
| 2015        | \$136.5                                                     | \$102.8                                              | -\$33.7           |
| 2016        | \$118.7                                                     | \$86.9                                               | -\$31.8           |
| 2017        | \$152.7                                                     | \$104.7                                              | -\$48.0           |
| 2018        | \$153.3                                                     | \$100.7                                              | -\$52.6           |
| 2019        | \$158.0                                                     | \$104.6                                              | -\$53.4           |
| 2020        | \$173.4                                                     | \$113.9                                              | -\$59.5           |
| 2021        | \$179.9                                                     | \$115.5                                              | -\$64.3           |
| 2022        | \$193.7                                                     | \$123.4                                              | -\$70.3           |
| 2023        | \$194.7                                                     | \$118.9                                              | -\$75.8           |
| 2024        | \$215.2                                                     | \$131.6                                              | -\$83.5           |

<sup>20</sup> See CSXT Supp. Reply WP "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply.xlsx," Tab "Summary\_Vol\_Rev," Cells N11:20.

<sup>21</sup> See CSXT Supp. Reply WP "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply.xlsx," Tab "Summary\_Vol\_Rev," Cells N25:34.

## TABLE OF CONTENTS

|                                                     | <u>Page</u> |
|-----------------------------------------------------|-------------|
| III. STAND ALONE COST .....                         | III-B-1     |
| B. STAND-ALONE RAILROAD SYSTEM .....                | III-B-1     |
| 1. Routes and Mileage .....                         | III-B-1     |
| 2. Track Miles and Weight of Track .....            | III-B-2     |
| 3. Yards .....                                      | III-B-3     |
| 4. Other .....                                      | III-B-3     |
| a. Joint Facilities .....                           | III-B-3     |
| b. Turnouts, FEDs, and AEI Scanners .....           | III-B-3     |
| c. RTC Model Simulation of CERR Configuration ..... | III-B-3     |

### **III. STAND ALONE COST**

#### **B. STAND-ALONE RAILROAD SYSTEM**

In its Supplemental Opening evidence, Consumers performed a Rail Traffic Controller ("RTC") simulation on its revised base year traffic group and concluded that the reduced volume of SARR merchandise traffic made it appropriate to remove a 2.22 mile yard track from CERR's Barr Yard. CSXT's RTC simulation confirms that this 2.22 mile track can be removed, and CSXT removes it in this Supplemental Reply evidence. In addition, CSXT's Supplemental Reply evidence removes the Cottage Grove overpass that CSXT had proposed on Reply, because the revised traffic group does not contain the trains whose length made the overpass necessary in the original traffic group.

##### **1. Routes and Mileage**

Although CSXT continues to accept Consumers' proposed 2.2 mile interchange track at Dolton going north to CSXT, the Cottage Grove overpass is no longer necessary to facilitate train movements at the Dolton Interchange. In its Reply, CSXT explained that certain trains in the original CERR traffic group were too long to hold during the 30 minute interchange without fouling the CERR main line or vehicular traffic on Cottage Grove Avenue.<sup>1</sup> Therefore an overpass was needed to provide sufficient clearing length for these trains. However, the revised traffic group does not contain any trains using this interchange that are longer than 7,400 feet. Trains of this length can be held on the interchange track between Cottage Grove Avenue and Paxton Avenue without blocking either the CERR main

---

<sup>1</sup> See CSXT Reply III-B-5; CSXT Reply WP "Cottage Grove Grade Separation.pdf."

line or Cottage Grove Avenue, and thus an overpass is unnecessary. CSXT has removed the costs associated with the overpass from its Supplemental Reply evidence.

## 2. Track Miles and Weight of Track

The below table is updated to show the effects of removing the 2.22 mile track at Barr Yard.

**Table III-B-2**  
**CSXT Reply CERR Constructed Track Miles<sup>2</sup>**

|                                                              | Supplemental<br>Opening | Supplemental<br>Reply | Difference  |
|--------------------------------------------------------------|-------------------------|-----------------------|-------------|
| Main line track –<br>Single first main<br>track <sup>3</sup> | 168.65                  | 168.65                | 0.00        |
| – Other main track <sup>4</sup>                              | <u>41.38</u>            | <u>43.38</u>          | <u>2.00</u> |
| Total main line track                                        | 210.03                  | 212.03                | 2.00        |
| Interchange Tracks                                           | 10.06                   | 10.66                 | 0.60        |
| Setout tracks                                                | 2.00                    | 2.00                  | 0.00        |
| Yard tracks <sup>5</sup>                                     | 9.07                    | 9.21                  | 0.14        |
|                                                              |                         |                       |             |
| <b>Total track miles</b>                                     | <b>231.16</b>           | <b>233.90</b>         | <b>2.74</b> |
|                                                              |                         |                       |             |

<sup>2</sup> See CSXT Reply WP “CERR Route Miles\_Supp\_Reply,” Tab “Tables.”

<sup>3</sup> Single first main track miles equal total constructed route miles, including the lead track to the Campbell Plant and the Dolton Interchange track. This also includes 8.13 route miles of the Belt Railway of Chicago (“BRC”) but does not include the 6.4 route miles of Indiana Harbor Belt Railway (“IHB”) in Reply, which, as discussed below, are included in the two Alternative scenarios.

<sup>4</sup> Other main track equals total miles for constructed second main tracks/passing sidings including the BRC segment but not the IHB segment.

<sup>5</sup> Includes all tracks in the Barr Yard.



### **3. Yards**

As discussed above, CSXT removed a 2.22 mile yard track at Barr Yard.

### **4. Other**

#### **a. Joint Facilities**

As discussed in Part III-A, CSXT's Supplemental Reply evidence also presents the calculations for two Alternative scenarios. For these two scenarios, the costs include the road property investment for the IHB lines used by CERR trains. Calculations for these scenarios are included in the workpapers.<sup>6</sup>

#### **b. Turnouts, FEDs, and AEI Scanners**

In conjunction with removing the 2.22 mile yard track, CSXT removes the associated two turnouts.

#### **c. RTC Model Simulation of CERR Configuration**

CSXT performed an RTC Model simulation on its revised traffic group that indicated the revised CERR configuration was appropriate.

---

<sup>6</sup> For convenience, in its Supplemental Reply evidence CSXT provides a set of workpapers for these two scenarios that include costs for the IHB and remove the costs for the Cottage Grove overpass and the 2.2 mile yard track at Barr Yard.

**TABLE OF CONTENTS**

|                                             | <b><u>Page</u></b> |
|---------------------------------------------|--------------------|
| III. STAND-ALONE COST .....                 | III-C-1            |
| C. OPERATING PLAN .....                     | III-C-1            |
| 1. Introduction.....                        | III-C-2            |
| 2. General Parameters.....                  | III-C-4            |
| 3. Results of the RTC Model Simulation..... | III-C-9            |

### III. STAND-ALONE COST

#### C. OPERATING PLAN

In response to the *December 9 Decision*, Consumers' Supplemental Opening evidence adjusted its Rebuttal operating plan by removing 897 Base Year 2014 and 210 1Q2015 merchandise trains that moved under 21 train symbols from the SARR traffic group.<sup>1</sup> Consumers also re-ran its RTC simulation after removing 24 trains that moved under those train symbols during the peak period from its Rebuttal RTC Model, and removing the third yard track at Barr Yard.<sup>2</sup>

CSXT's Supplemental Reply evidence follows a similar approach. CSXT adjusted its Reply operating plan and RTC Model by removing those peak period merchandise trains that correspond to the merchandise traffic that Consumers eliminated from its Supplemental evidence. Specifically, CSXT removed 859 Base Year merchandise trains<sup>3</sup> from its Reply operating plan and 25 peak period merchandise trains from its Reply RTC Model.<sup>4</sup> CSXT also accepted Consumers'

---

<sup>1</sup> See Consumers Supp. Op. III-A-12; Consumers Supp. Op. Ex. III-A-2.

<sup>2</sup> See Consumers Supp. Op. III-A-13.

<sup>3</sup> Of the 897 base year trains removed by Consumers, CSXT had already excluded 38 trains in its Reply evidence because those trains did not meet the real-world CSXT service standard, based on Consumers' own RTC simulation. See CSXT Reply III-A-12 to III-A-15.

<sup>4</sup> The number of peak period merchandise trains removed by CSXT from its Reply RTC Model (25 trains) is one more than the number removed by Consumers from its Rebuttal RTC Model (24 trains). See Consumers Supp. Op. III-C-1. This difference is attributable to (1) CSXT's removal from its Reply RTC Model of 4 peak period trains due to their failure to meet CSXT service standards, and (2) CSXT's addition to its Reply RTC Model of 5 growth trains that would be required to handle the CERR's peak period traffic. See CSXT Reply III-C-37 to III-C-40. Those adjustments resulted in a net difference of one peak period train in CSXT's Reply RTC Model

proposal to remove the third yard track at Barr Yard. As was the case with Consumers' Supplemental Opening evidence, the removal of 25 peak period trains from CSXT's Supplemental Reply RTC Model had certain "flow through" impacts on the operating statistics generated by that Model.

In the following sections, CSXT summarizes the changes to certain elements of its Supplemental Reply operating plan that result from the adjustment to Base Year merchandise trains posited by Consumers.<sup>5</sup>

## **1. Introduction**

CSXT's Reply evidence identified a total of 347 "En Route Train Delays" experienced by the real-world CSXT trains selected by Consumers for the CERR (and reflected in Consumers' workpapers) at foreign line crossings and the northern terminus of the CERR system. *See* CSXT Reply III-C-13, Table III-C-1. As Table III-C-1 below shows, removing the merchandise trains dropped by Consumers in its Supplemental Opening evidence from the analysis reduces the number of En Route Train Delays associated with CERR trains from 347 delay events to 304 delay events.

---

operating under the train symbols removed by Consumers from its Supplemental evidence.

<sup>5</sup> The summary tables set forth in this Supplemental Reply evidence are numbered to correspond to the tables set forth in CSXT's Reply evidence, to facilitate cross-referencing between the two rounds of evidence.



**Table III-C-1**  
**Enroute Train Delays To SARR Trains at Certain CERR Locations<sup>6</sup>**

| <b>Delay Reporting Locations</b>                                                                                                        | <b>10-15<br/>Mins</b> | <b>15-60<br/>Mins</b> | <b>1+<br/>Hour</b> | <b>Total</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|--------------------|--------------|
| At/Near Northern Terminus of<br>CERR (where CERR would operate<br>to BNSF or UP, <i>e.g.</i> Brighton Park,<br>22 <sup>nd</sup> Street) | 19                    | 70                    | 37                 | 126          |
| At/Near Foreign RR Grade<br>Crossings ( <i>e.g.</i> , State Line, Dolton)                                                               | 36                    | 109                   | 33                 | 178          |
| <b>Total</b>                                                                                                                            | <b>55</b>             | <b>179</b>            | <b>70</b>          | <b>304</b>   |

CSXT's Reply RTC Model conservatively incorporated a total of 113 En Route Train Delays: 77 events that occurred at foreign railroad crossings and 36 delays to CERR trains exiting the CERR network at 22<sup>nd</sup> Street or Brighton Park. *See* CSXT Reply III-C-23 to III-C-27.<sup>7</sup> A total of 20 of those 113 delay events, which affected peak period trains operating under train symbols dropped by Consumers in its Supplemental Opening evidence, were removed from CSXT's Supplemental Reply RTC Model.<sup>8</sup> By contrast, Consumers' Opening and Rebuttal RTC Models included only 22 en route delay events. *See* Consumers Op. III-C-73 to III-C-74; Consumers Reb. III-C-43 to III-C-44. Consumers' Supplemental Opening RTC

---

<sup>6</sup> *See* CSXT Supp. Reply WP "Delay\_Data\_CERR\_Trains\_Supp\_Reply.xlsx," Tab "Consumers WP Delays."

<sup>7</sup> CSXT also included in its RTC Model the same 17 "random failures" posited by Consumers in its Opening RTC simulation. *See* CSXT Reply III-C-26.

<sup>8</sup> *See* CSXT Supp. Reply WPs "Trainsheet Delays for RTC\_22ndOffSARR\_Supp\_Reply.xlsx," Tab "input to CSXT Reply RTC"; "Trainsheet Delays for RTC\_RR Crossings\_Supp\_Reply.xlsx," Tab "input to CSXT Reply RTC."

Model removed one of those 22 events, resulting in a total of only 21 such delay events in its Supplemental Opening RTC Model.<sup>9</sup>

## **2. General Parameters**

In CSXT's Reply, Figure III-C-5 presented the number of CERR trains, and average cars per train, in the Base Year and Peak Year, for the 15 major merchandise train symbols included in Consumers' Opening operating plan. The adjustment in merchandise traffic posited by Consumers in its Supplemental Opening evidence results in the elimination of 8 of those train symbols. Accordingly, CSXT updates Table III-C-5 to include only those trains that remain in Consumers' Supplemental Opening evidence.

---

<sup>9</sup> See Consumers Supp. Op. WP "Foreign Line Delays WORK RTC 54pct.xlsx."

**Table III-C-5**  
**Major CERR Merchandise Train Symbols:**  
**To Handle {{        }} Growth Carloads in the Peak Year,**  
**Consumers Added 2 Trains<sup>10</sup>**

{{

}}

Table III-C-7 in CSXT's Reply evidence identified the differences in the number of Base Year unit, intermodal and general freight trains included in CSXT's Reply operating plan and Consumers' Opening operating plan, based on the adjustments to CERR's traffic group posited by CSXT's Reply evidence. *See* CSXT Reply III-C-45, Table III-C-7. Table III-C-7 below updates that table to reflect the elimination of the 897 merchandise trains dropped by Consumers in its Supplemental Opening evidence.

---

<sup>10</sup> *See* CSXT Supp. Reply WP "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF Supplemental.xlsx," Tab "Cerr Trn Stats," Columns W, AG, BK, BT, BU, BW, and CF.

**Table III-C-7  
Base Year Train Volumes**

| <b>Train Type</b> | <b>Consumers<br/>Supplemental<br/>Opening<sup>11</sup></b> | <b>CSXT<br/>Adjustments</b> | <b>CSXT<br/>Supplemental<br/>Reply<sup>12</sup></b> |
|-------------------|------------------------------------------------------------|-----------------------------|-----------------------------------------------------|
| Unit              | 5,107                                                      | -264                        | 4,843                                               |
| Intermodal        | 3,593                                                      | 0                           | 3,593                                               |
| General           | 681                                                        | -385                        | 296                                                 |
| Local             | 6                                                          | 0                           | 6                                                   |
| <b>CERR Total</b> | <b>9,387</b>                                               | <b>-649</b>                 | <b>8,738</b>                                        |

Table III-C-9 in CSXT's Reply evidence identified the average number of locomotives on trains received by the CERR at on-SARR interchange locations (based on CSXT's real-world data for the specific trains selected by Consumers). *See* CSXT Reply III-C-52, Table III-C-9. Table III-C-9 below updates that table by removing from the calculation those merchandise trains dropped by Consumers in its Supplemental Opening evidence.

---

<sup>11</sup> *See* Consumers Supp. Op. WP "Base Unit Merch Trains v6\_Statistics\_Supplemental.xlsx," Tab "2014 Full Base Year Unit Merch," Cells "AG9400:AG9406."

<sup>12</sup> *See* CSXT Supp. Reply WP "CERR Base Year Trains\_Supp\_Reply.xlsx," Tab "Trains," Cells "AL10298:AL10304."



**Figure III-C-9**  
**Actual Locomotives at On-SARR Interchanges**  
**or CERR Base Year Trains<sup>13</sup>**

|             | Avg.<br>Locos | Avg. HP | Increase to<br>Consumers |
|-------------|---------------|---------|--------------------------|
| Unit        | 2.30          | 9,770   | 11%                      |
| Intermodal  | 2.20          | 9,361   | 6%                       |
| Merchandise | 2.57          | 10,722  | 22%                      |

Table III-C-10 in CSXT's Reply evidence summarized the difference in locomotive requirements posited by Consumers and CSXT based upon their respective operating plans and RTC simulations. See CSXT Reply III-C-54, Table III-C-10. Table III-C-10 below updates that table to reflect the number of locomotives posited by Consumers and CSXT based upon their respective Supplemental operating plans and RTC simulations.<sup>14</sup>

<sup>13</sup> See CSXT Supp. Reply WP "Received Locomotive Consists\_Supp\_Reply.xlsx," Tab "Avg\_Loco\_HP."

<sup>14</sup> In the first three rounds of evidence (Opening, Reply, Rebuttal), Consumers and CSXT followed the same approach in calculating the additional locomotives and locomotive-unit miles required to account for the need to reposition units due to traffic imbalances across the CERR network. See CSXT Reply III-D- 23; Consumers Reb. WP "Base Unit Merch Trains v6\_Statistics\_Rebuttal.xlsx," Tab "Crew and Loco Balancing," Cells X33 and X38. In its Supplemental Opening evidence, Consumers zeroed out that adjustment, without explanation. See Consumers Supp. Op. WP "Base Unit Merch Trains v6\_Statistics\_Supplemental.xlsx" Tab "Crew and Loco Balancing" Cells X34 and X39. It is not clear whether the omission of the repositioning adjustment was inadvertent or intentional. If the latter, the removal of the repositioning adjustment in Consumers' Supplemental evidence is not permissible, because CSXT adopted Consumers' proposed methodology on Reply. See, e.g., *FMC Wyoming Corp. v. Union Pacific Railroad. Co.*, 4 S.T.B. 699, 790 (2000) ("*FMC*") (complainant's proposal of triple track segment on Opening that was accepted by defendant in Reply could not be modified on Rebuttal); *Duke Energy Corp. v. Norfolk Southern Railway Co.*, 7 S.T.B. 89, 101, n.18 (2003) ("*Duke/NS*");

**Table III-C-10**  
**CERR Would Require More Locomotives**  
**than Consumers Estimated for the Base Year**

|                                                 | Road<br>Engines | Helper<br>Engines | Yard<br>Engines | <b>Total</b> |
|-------------------------------------------------|-----------------|-------------------|-----------------|--------------|
| Consumers Supplemental<br>Opening <sup>15</sup> | 13              | 2                 | 1               | <b>16</b>    |
| CSXT Supplemental<br>Reply <sup>16</sup>        | 15              | 2                 | 2               | <b>19</b>    |
| <b>Difference</b>                               | <b>2</b>        | <b>0</b>          | <b>1</b>        | <b>3</b>     |

Table III-C-11 in CSXT's Reply evidence summarized the difference in the train and engine (T&E) crew personnel posited by Consumers and CSXT based upon their respective operating plans and RTC simulations. See CSXT Reply III-C-71, Table III-C-11. Table III-C-11 below updates that table to reflect the T&E staffing required as a result of Consumers' decision to drop 897 merchandise trains in its Supplemental Opening evidence.

---

*Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington Northern & Santa Fe Railway Co.*, 7 S.T.B. 589, 683-84 (2004) ("Xcel").

<sup>15</sup> See Consumers Supp. Op. WP "CERR Operating Statistics\_Supplemental.xlsx."

<sup>16</sup> See CSXT Supp. Reply WP "CERR Operating Statistics\_Supp\_Reply.xlsx."

**Table III-C-11**  
**The CERR Would Require Significantly More Crewpersons**  
**Than Consumers Estimated for the Base Year**

|                                                 | Road<br>Crews | Yard<br>Crews | Helper<br>Crews | <b>Total</b> |
|-------------------------------------------------|---------------|---------------|-----------------|--------------|
| Consumers Supplemental<br>Opening <sup>17</sup> | 41            | 3             | 3               | <b>47</b>    |
| CSXT Supplemental<br>Reply <sup>18</sup>        | 58            | 4             | 3               | <b>65</b>    |
| <b>Difference</b>                               | <b>17</b>     | <b>1</b>      | <b>0</b>        | <b>18</b>    |

### 3. Results of the RTC Model Simulation<sup>19</sup>

Figure III-C-12 in CSXT's Reply evidence summarized the difference in the train transit times generated by Consumers' Opening and CSXT's Reply RTC simulations. *See* CSXT Reply III-C-74, Figure III-C-12. Figure III-C-12 below sets

<sup>17</sup> *See* Consumers Supp. Op. WP "CERR Operating Statistics\_Supplemental.xlsx."

<sup>18</sup> *See* CSXT Supp. Reply WP "CERR Operating Statistics\_Supp\_Reply.xlsx."

<sup>19</sup> On Reply, CSXT submitted two RTC simulations. CSXT's Reply "Base Case" RTC simulation excluded from the Model two (2) peak period coke trains because those trains did not operate on lines replicated by the CERR (*see* CSXT Reply Part III-A). CSXT also excluded nineteen (19) merchandise trains that did not meet the real-world CSXT service standard based on Consumers' Opening RTC simulation. CSXT's Reply "Alternative" RTC simulation added back the 19 trains excluded from the Base Case RTC simulation for failing to meet CSXT's real-world service standard. *See* CSXT Reply III-C-73, n. 158. CSXT's Supplemental Reply evidence updates both CSXT's Base and Alternative RTC simulations by removing those peak period trains that are among the 897 merchandise trains dropped by Consumers in its Supplemental evidence. *See* CSXT Reply Supp. workpaper files with the suffix "\_Alt1," Supp. Reply WP "CSXT Supp Reply WP Index.xls," e.g., "CERR Base Year Trains\_Supp\_Reply\_Alt1.xlsx." In the interest of providing the Board with an RTC simulation (and operating statistics) based on the same group of trains that Consumers includes in its Supplemental Opening RTC simulation, CSXT is submitting a "Second Alternative" RTC simulation that also adds back the two (2) coke trains that CSXT excluded from its Reply RTC Model (*see* CSXT Reply Supp. workpaper files with the suffix "\_Alt2," Supp. Reply WP "CSXT Supp Reply WP Index.xls," e.g., "CERR Base Year Trains\_Supp\_Reply\_Alt2.xlsx."



forth the train transit times generated by the parties' Supplemental RTC simulations (from which both parties removed peak period merchandise trains operating under those train symbols dropped by Consumers in its Supplemental Opening evidence). Specifically, Figure III-C-12 below compares the train transit times generated by Consumers' Supplemental Opening RTC simulation and CSXT's Supplemental Reply "Base Case" RTC simulation.<sup>20</sup>

---

<sup>20</sup> As discussed above, in addition to the peak period trains operating under train symbols dropped by Consumers, CSXT's Base Case RTC Model excludes 2 peak period coke trains and 19 peak period trains that failed to meet CSXT's real-world service standards in Consumers' Opening RTC simulation. CSXT's Supplemental "Alternative 1" RTC simulation adds back the 19 peak period trains that failed CSXT's service standards, and CSXT's Supplemental "Alternative 2" RTC simulation adds back both those 19 trains and the 2 coke trains excluded from CSXT's Base Case RTC simulation.



**Figure III-C-12**  
**Comparison of Train Transit Times<sup>21</sup>**

| <b>RTC Route</b> | <b>On-SARR</b> | <b>Off-SARR</b>   | <b>Consumers Supplemental Opening</b> | <b>CSXT Supplemental Reply</b> | <b>Difference</b> |
|------------------|----------------|-------------------|---------------------------------------|--------------------------------|-------------------|
| C22CUR           | 22nd Street    | Curtis            | 2:55                                  | 3:12                           | 9%                |
| C59CUR           | 59th Street    | Curtis            | 2:26                                  | 2:14                           | -8%               |
| C59DOS           | 59th Street    | Dolton            | 2:04                                  | 1:46                           | -14%              |
| BARCUR           | Chicago-Barr   | Curtis            | 1:42                                  | 1:47                           | 5%                |
| DOECUR           | Dolton         | Curtis            | 1:37                                  | 1:32                           | -4%               |
| DOSC59           | Dolton         | 59th Street       | 1:53                                  | 1:51                           | -2%               |
| DOSCUR           | Dolton         | Curtis            | 1:42                                  | 1:41                           | -2%               |
| DOSOGD           | Dolton         | Ogden Jct.        | 3:38                                  | 3:26                           | -5%               |
| CALCUR           | Calumet Park   | Curtis            | 0:57                                  | Dropped                        |                   |
| CURBLU           | Curtis         | Blue Island Conn. | 3:30                                  | 3:16                           | -7%               |
| CURBRI           | Curtis         | Brighton Park     | 2:39                                  | 2:37                           | -1%               |
| CURC22           | Curtis         | 22nd Street       | 3:14                                  | 3:15                           | 1%                |
| CURC59           | Curtis         | 59th Street       | 2:45                                  | 2:52                           | 4%                |
| CURCAL           | Curtis         | Calumet Park      | 0:58                                  | Dropped                        |                   |
| CURDOE           | Curtis         | Dolton            | 1:29                                  | Dropped                        |                   |
| CUROGD           | Curtis         | Ogden Jct.        | 4:33                                  | 4:47                           | 5%                |

<sup>21</sup> See CSXT Supp. Reply WP "RTC Output Time Comparisons\_Supp\_Reply.xlsx," Tab "summary."

**TABLE OF CONTENTS**

|                                      | <b><u>Page</u></b> |
|--------------------------------------|--------------------|
| III. STAND-ALONE COST .....          | III-D-1            |
| D. OPERATING EXPENSES.....           | III-D-1            |
| 1. Locomotives .....                 | III-D-3            |
| 2. Railcars.....                     | III-D-7            |
| 3. Operating Personnel .....         | III-D-8            |
| a. Train/Switch Crew Personnel ..... | III-D-8            |
| b. Non-Train Operating.....          | III-D-10           |
| c. General and Administrative .....  | III-D-13           |
| 4. Maintenance of Way .....          | III-D-19           |
| 5. Leased Facilities .....           | III-D-21           |
| 6. Loss and Damage .....             | III-D-22           |
| 7. Insurance .....                   | III-D-22           |
| 8. Ad Valorem Tax .....              | III-D-22           |

### III. STAND-ALONE COST

#### D. OPERATING EXPENSES

This section identifies the adjustments that CSXT made to the operating expenses set forth in Part III-D of its Reply evidence to reflect the removal from its Supplemental Reply operating plan of 859 merchandise trains operating under the 21 train symbols that Consumers dropped from its traffic group. Some of the adjustments are “flow through” changes to operating expense items that are based on the revised train operating statistics generated by CSXT’s Supplemental Reply RTC Model. In other areas, such as non-operating and General and Administrative (“G&A”) personnel, CSXT eliminated certain staff positions to account for the reduced staffing needs of a SARR with a lower volume of merchandise traffic.

In the following sections, CSXT identifies the changes to certain elements of its Supplemental Reply operating expense calculations that resulted from the reduction in base year and peak period merchandise trains posited by Consumers.<sup>1</sup>

Table III-D-1 below summarizes the parties’ CERR annual operating expenses, at 1Q 2015 levels, based upon their respective Supplemental operating plans and RTC simulations.<sup>2</sup>

---

<sup>1</sup> The summary tables set forth in this Supplemental Reply evidence are numbered to correspond to the tables set forth in CSXT’s Reply evidence, to facilitate cross-referencing between the two rounds of evidence.

<sup>2</sup> As explained in Section III-C above, on Reply CSXT submitted a “Base Case” that excluded from its RTC Model (1) certain coke trains (because those trains did not operate on lines replicated by the CERR (*See* CSXT Reply Part III-A)), and (2) certain trains that did not meet the real-world CSXT service standard based on Consumers’ Opening RTC simulation. CSXT also submitted an “Alternative” RTC simulation that added back the trains excluded from the “Base Case” RTC



**Table III-D-1**  
**CERR 2015 Operating Expenses (1Q 2015 Levels)**  
**(\$ in Millions)**

|                             | <b>Consumers<br/>Supp. Opening<sup>3</sup></b> | <b>CSXT Supp.<br/>Reply<sup>4</sup></b> | <b>Difference</b> |
|-----------------------------|------------------------------------------------|-----------------------------------------|-------------------|
| Locomotive Ownership        | { }                                            | { }                                     | \$0.3             |
| Locomotive Maintenance      | { }                                            | { }                                     | 0.5               |
| Locomotive Operations       | { }                                            | { }                                     | (0.2)             |
| Railcar Lease               | 5.0                                            | 4.6                                     | (0.4)             |
| Material & Supply Operating | 0.6                                            | 0.6                                     | 0.0               |
| Train and Engine Personnel  | 6.4                                            | 8.2                                     | 1.8               |
| Operating Managers          | 5.1                                            | 6.3                                     | 1.3               |
| General & Administrative    | 7.0                                            | 10.4                                    | 3.4               |
| Loss & Damage               | { }                                            | { }                                     | 0.0               |
| Ad Valorem Tax              | { }                                            | { }                                     | (0.8)             |
| Maintenance-of-Way          | 8.8                                            | 13.5                                    | 4.7               |
| Joint Facilities            | 1.7                                            | 4.3                                     | 2.6               |
| Intermodal Lift and Ramp    | 5.9                                            | 0.0                                     | (5.9)             |
| Insurance                   | 2.0                                            | 2.3                                     | 0.3               |
| Startup and Training        | 2.5                                            | 3.1                                     | 0.6               |
| <b>Total Annual Costs</b>   | <b>\$54.7</b>                                  | <b>\$62.9</b>                           | <b>\$8.2</b>      |

simulation for failing to meet CSXT's real-world service standards. *See* CSXT Reply III-C-73, n.158. CSXT's Supplemental Reply evidence updates both CSXT's "Base Case" and "Alternative" RTC simulations, by removing those peak period trains that are among the 897 merchandise trains dropped by Consumers in its Supplemental evidence. *See* CSXT Supp. Reply WPs "RTC\_Case\_Supp\_Reply.zip;" "RTC\_Case\_Supp\_Reply\_Alt1.zip." CSXT submits with this Supplemental Reply the CERR operating expenses corresponding with both its Supplemental "Base Case" and "Alternative" scenarios. In addition, for the convenience of the Board, CSXT also submits an RTC simulation for a "Second Alternative" case that also adds back the coke trains that CSXT excluded from its Reply "Base Case" RTC Model. *See* CSXT Supp. Reply WP "RTC\_Case\_Supp\_Reply\_Alt2.zip." Thus, CSXT's "Second Alternative" operating expenses are based upon the same base year CERR traffic group that Consumers used in developing its Supplemental Opening evidence. *See* CSXT Supp. Reply WPs "CERR Operating Expense\_Supp\_Reply.xlsx;" "CERR Operating Expense\_Supp\_Reply\_Alt1.xlsx;" "CERR Operating Expense\_Supp\_Reply\_Alt2.xlsx."

<sup>3</sup> *See* Consumers Supp. Op. WP "CERR Operating Expense\_Supplemental.xlsx," Tab "DCF Transfer."

<sup>4</sup> *See* CSXT Supp. Reply WP "CERR Operating Expense\_Supp\_Reply.xlsx," Tab "DCF Transfer."



## 1. Locomotives

In its Reply, CSXT “examined the historical trainsheet and equipment records to identify the specific locomotives and corresponding horsepower that were actually on each train at the location where the CERR would receive it.”<sup>5</sup> Based on that analysis, Table III-D-2 in CSXT’s Reply evidence identified the average number of locomotives on trains received by the CERR at on-SARR interchange locations (based on CSXT’s real-world experience). *See* CSXT Reply III-D-15, Table III-D-2. Table III-D-2 below updates that table by removing from the calculation those merchandise trains dropped by Consumers in its Supplemental Opening evidence (and by CSXT in this Supplemental Reply evidence).

**Table III-D-2**  
**Average Locomotive Consist Size for CERR Trains<sup>6</sup>**

|             | <b>Avg.<br/>Locos</b> | <b>Average<br/>Horsepower</b> | <b>Increase to<br/>Consumers</b> |
|-------------|-----------------------|-------------------------------|----------------------------------|
| Unit        | 2.30                  | 9,770                         | 11%                              |
| Intermodal  | 2.20                  | 9,361                         | 6%                               |
| Merchandise | 2.57                  | 10,722                        | 22%                              |

Peaking Factor. Figure III-D-3 in CSXT’s Reply evidence compared the peaking factors applied by Consumers and CSXT, respectively, in calculating the CERR’s locomotive expenses. *See* CSXT Reply III-D-19, Table III-D-3. Table III-D-3

<sup>5</sup> *See* CSXT Reply III-D-15.

<sup>6</sup> *See* CSXT Supp. Reply WP “Received Locomotive Consists\_Supp\_Reply.xlsx,” Tab “Avg\_Loco\_HP.”

below updates that table to reflect the peaking factors proposed by the parties based upon their Supplemental operating plans.<sup>7</sup>

**Figure III-D-3  
CERR Peaking Factors<sup>8</sup>**

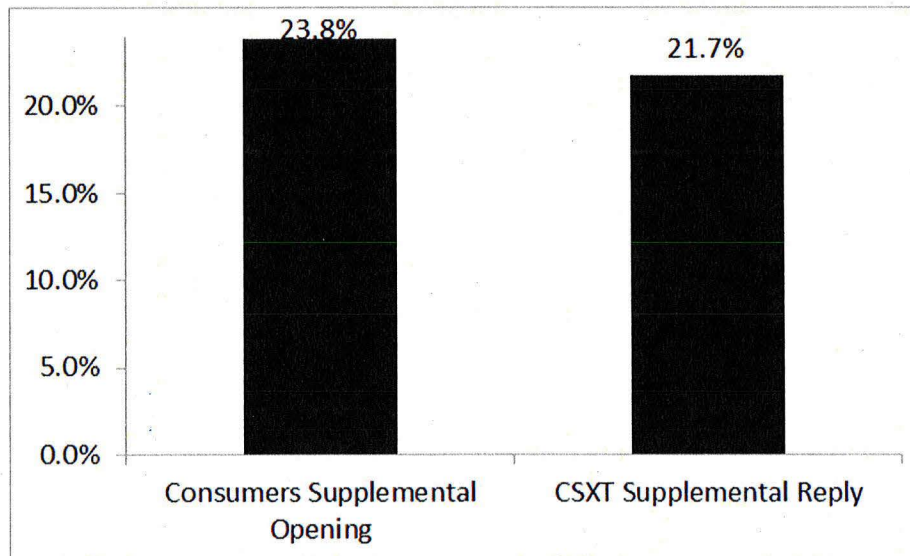


Table III-D-5 in CSXT's Reply evidence summarized the difference in locomotive requirements posited by Consumers and CSXT based upon their respective operating plans and RTC simulations. *See* CSXT Reply III-D-24, Table III-D-5. Table III-D-5 below updates that table to reflect the number of locomotives posited by Consumers and CSXT based upon their respective Supplemental operating plans and RTC simulations (from which both parties removed the 897 merchandise trains dropped by Consumers in its Supplemental Opening evidence).

<sup>7</sup> On Rebuttal, Consumers restated its Opening peaking factor. *See* Consumers Reb. III-C-109 through III-C-110.

<sup>8</sup> Consumers Supp. Op. WP "CERR Operating Statistics\_Supplemental.xlsx;" CSXT Supp. Reply WP "CERR Operating Statistics\_Supp\_Reply.xlsx."

**Table III-D-5**  
**The CERR Would Require More Locomotives**  
**Than Consumers Estimated for the Base Year**

|                                                | Road<br>Engines | Helper<br>Engines | Yard<br>Engines | Total    |
|------------------------------------------------|-----------------|-------------------|-----------------|----------|
| Consumers Supplemental<br>Opening <sup>9</sup> | 13              | 2                 | 1               | 16       |
| CSXT Supplemental Reply <sup>10</sup>          | 15              | 2                 | 2               | 19       |
| <b>Difference</b>                              | <b>2</b>        | <b>0</b>          | <b>1</b>        | <b>3</b> |

The difference between the parties' Supplemental locomotive counts is driven primarily by a number of evidentiary disputes that are unrelated to their respective RTC simulations (and resulting operating statistics):

First, as discussed above (at III-C-7, n.14), Consumers removed from its Supplemental Opening locomotive calculations the additional locomotives and locomotive-unit miles required to account for the need to reposition units due to traffic imbalances across the CERR.<sup>11</sup> CSXT's Reply adopted Consumers' approach to calculating such repositioning costs, and Consumers retained that approach in its Rebuttal evidence.<sup>12</sup> To the extent that Consumers' removal of the repositioning adjustment in its Supplemental Opening evidence is intentional, it constitutes an

<sup>9</sup> See Consumers Supp. Op. WP "CERR Operating Statistics\_Supplemental.xlsx."

<sup>10</sup> See CSXT Supp. Reply WP "CERR Operating Statistics\_Supp\_Reply.xlsx."

<sup>11</sup> Compare Consumers Reb. WP "Base Unit Merch Trains v6\_Statistics\_Rebuttal.xlsx," Tab "Crew and Loco Balancing," Cells X33 and X38 with Consumers Supp. Op. WP "Base Unit Merch Trains v6\_Statistics\_Supplemental.xlsx," Tab "Crew and Loco Balancing," Cells X34 and X39.

<sup>12</sup> See CSXT Reply III-D-23; Consumers Reb. WP "Base Unit Merch Trains v6\_Statistics\_Rebuttal.xlsx," Tab "Crew and Loco Balancing," Cells X33 and X38.



impermissible change to Consumers' methodology after CSXT had adopted it. *See* CSXT Supp. Reply III-C-7, n. 14 (and cases cited therein).

Second, as CSXT demonstrated on Reply, Consumers failed to account for the cost of the third locomotive on certain trains received by the CERR in interchange. *See* CSXT Reply III-C-50 to III-C-51; III-D-13 through III-D-16. Consumers takes the position that, because such locomotives are not physically required to power the trains while on the CERR's lines, it should not be required to compensate the owning carrier for the time they spend on the CERR network. *See* Consumers Reb. III-C-104. Consumers' position is inconsistent with the terms of the CSXT locomotive run-through agreements that the CERR purports to adopt.<sup>13</sup>

Third, Consumers posits that the CERR would require only one yard locomotive at its Barr Yard. *See* Consumers Op. III-C-30. CSXT takes the position that the CERR would need to have two SD-40 yard locomotives at that location, in order to avoid a disruption of yard operations when the first locomotive unit moves off-site for repairs or required periodic maintenance. CSXT Reply III-C-52 through III-C-54.

CSXT's Reply evidence calculated the CERR's road locomotive fuel consumption rate based on the share of unit-miles by train type across the CERR network, rather than across CSXT system-wide. *See* CSXT Reply III-D-30 through III-D-31. Figure III-D-6 in CSXT's Reply evidence compared the mix of trains in

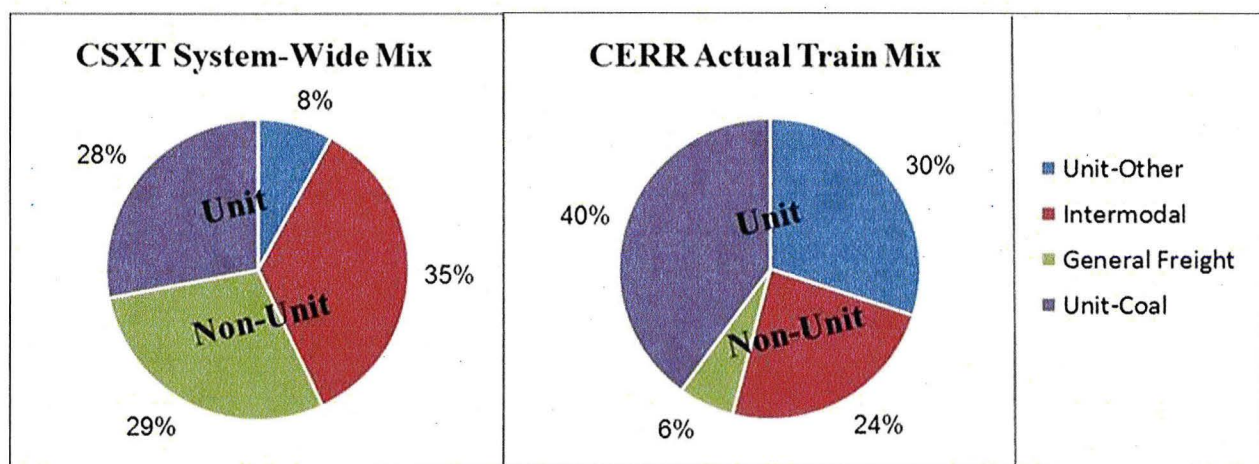
---

<sup>13</sup> *See* Consumers Op. WP "CSXT-BNSF Consumers Run-Through Agreement.pdf," Section 1.1; CSXT Reply WP "2014 03 BNSF-CSX.xlsx," Tab "BNSF on CSXT," Rows 418-420.



CSXT's system-wide data with the train mix for the narrower group of trains selected by Consumers for inclusion in its SARR. *See* CSXT Reply III-D-31, Figure III-D-6. Figure III-D-6 below updates that Figure to reflect the mix of CERR trains in Consumers' Supplemental Opening evidence, from which 897 merchandise trains included in its prior evidence have been removed.

**Figure III-D-6**  
**Traffic Mix for Fuel Consumption<sup>14</sup>**



## 2. Railcars

The CERR's railcar expenses are calculated in part based on the operating statistics generated by the parties' respective RTC simulations. CSXT's Supplemental Reply evidence updates the CERR's rail car expenses based on the revised set of trains contained in CSXT's Supplemental Reply RTC evidence.<sup>15</sup>

<sup>14</sup> *See* CSXT Supp. Reply WP "ERAD 2014\_Supp\_Reply.xlsx."

<sup>15</sup> *See* CSXT Supp. Reply WP "CERR Car Costs\_Supp\_Reply.xlsx."

### 3. Operating Personnel

#### a. Train/Switch Crew Personnel

Table III-D-8 in CSXT's Reply evidence summarized the difference in Base Year train crew requirements posited by Consumers and CSXT based upon their respective operating plans and RTC simulations. *See* CSXT Reply III-D-45, Table III-D-8. Table III-D-8 below updates the parties' Base Year road crew requirements for the CERR, based on the reduced number of merchandise trains in their Supplemental operating plans.

**Table III-D-8**  
**The CERR Would Require Significantly More Crewpersons**  
**Than Consumers Estimated for the Base Year**

|                                                    | Road<br>Crews | Yard<br>Crews | Helper<br>Crews | Total     |
|----------------------------------------------------|---------------|---------------|-----------------|-----------|
| Consumers<br>Supplemental<br>Opening <sup>16</sup> | 41            | 3             | 3               | 47        |
| CSXT<br>Supplemental<br>Reply <sup>17</sup>        | 58            | 4             | 3               | 65        |
| <b>Difference</b>                                  | <b>17</b>     | <b>1</b>      | <b>0</b>        | <b>18</b> |

The difference between the parties' Supplemental train crew counts is driven by certain evidentiary disputes that are unrelated to their respective RTC simulations (and resulting operating statistics):

First, Consumers' crew calculations assume that virtually every CERR train crew can complete two train assignments in a single shift, every day, without

---

<sup>16</sup> *See* Consumers Supp. Op. WP "CERR Operating Statistics\_Supplemental.xlsx."

<sup>17</sup> *See* CSXT Supp. Reply WP "CERR Operating Statistics\_Supp\_Reply.xlsx."

exceeding their permitted hours of service. *See* Consumers Op. III-C-80. Indeed, Consumers asserted on Rebuttal that “one crew could handle *up to four trips in a day* over most of the shorter moves.” *See* Consumers Reb. III-D-20 (emphasis added). CSXT takes the position that Consumers’ assumption is inconsistent with the realities of real-world transportation, given the well-documented delays encountered by trains operating through the Chicago terminal area, the imbalance in eastbound and westbound CERR train movements, and the time required to taxi crews between assignments. *See* CSXT Reply III-C-69 through III-C-71; III-D-34 through III-D-39. CSXT’s Reply assumed (conservatively) that 25% of CERR crews would not be able to complete multiple train movements during a single shift.

Second, as CSXT’s Reply shows, Consumers’ calculations ignore the impact of changes to the Hours of Service Law, which limit both the number of consecutive days that a crewperson may work without rest, and the total number of times that a crewperson may work during any calendar month. *See* CSXT Reply III-D-40 to III-D-44.

Third, Consumers’ calculations assume that the CERR would never be required to re-crew a train at the West Olive plant. As CSXT demonstrated on Reply, this assumption ignores the reality that loaded coal trains must sometimes be held in sidings along the Grand Rapids Subdivision because Consumers is unable to receive them, often resulting in the need to re-crew such trains. *See* CSXT Reply III-D-39 through III-D-40.

**b. Non-Train Operating**

CSXT updates Table III-D-10, which summarizes the differences in the parties' proposals for Non-Train Operating Personnel.



**Table III-D-10**  
**Differences in the Parties' Non-Train Operating Staffing**

| <b>Operating Personnel</b>                         | <b>Consumers<br/>Supp. Opening<sup>18</sup></b> | <b>CSXT Supp.<br/>Reply<sup>19</sup></b> | <b>Differ-<br/>ence</b> |
|----------------------------------------------------|-------------------------------------------------|------------------------------------------|-------------------------|
| <b><u>Operations</u></b>                           |                                                 |                                          |                         |
| VP Operations                                      | 1                                               | 1                                        | 0                       |
| Director of Operations Control                     | 1                                               | 1                                        | 0                       |
| Manager of Operating Rules,<br>Safety and Training | 1                                               | 1                                        | 0                       |
| <b>Subtotal Operations</b>                         | <b>3</b>                                        | <b>3</b>                                 | <b>0</b>                |
| <b><u>Transportation</u></b>                       |                                                 |                                          |                         |
| Manager - Train Operations                         | 3                                               | 4                                        | 1                       |
| Assistant Manager - Train<br>Operations            | 3                                               | 4                                        | 1                       |
| Manager - Locomotive Operations                    | 1                                               | 1                                        | 0                       |
| Assistant Manager - Locomotive<br>Operations       |                                                 | 1                                        | 1                       |
| <b>Subtotal Transportation</b>                     | <b>7</b>                                        | <b>10</b>                                | <b>3</b>                |
| <b><u>Mechanical</u></b>                           |                                                 |                                          |                         |
| Chief Engineer                                     | 1                                               | 1                                        | 0                       |
| Manager of Mechanical Operation                    | 1                                               | 1                                        | 0                       |
| Inspectors                                         | 10                                              | 10                                       | 0                       |
| <b>Subtotal Mechanical</b>                         | <b>12</b>                                       | <b>12</b>                                | <b>0</b>                |
| <b><u>Dispatch &amp; Data Control</u></b>          |                                                 |                                          |                         |
| Director Crew, Dispatch and Data<br>Control        |                                                 |                                          |                         |
| Manager Crew and dispatch                          |                                                 | 5                                        | 5                       |
| Crew Callers                                       | 5                                               | 5                                        | 0                       |
| Dispatchers                                        | 9                                               | 9                                        | 0                       |
| Manager Customer Service and<br>Support            |                                                 |                                          |                         |
| Customer Service Managers                          | 2                                               | 2                                        | 0                       |
| <b>Subtotal Dispatch &amp; Data<br/>Control</b>    | <b>16</b>                                       | <b>21</b>                                | <b>5</b>                |
|                                                    |                                                 |                                          |                         |
| <b>Total Non-Train Operating</b>                   | <b>38</b>                                       | <b>46</b>                                | <b>8</b>                |

<sup>18</sup> See Consumers Supp. Op. WP "CERR Operating Expense\_Supplemental.xlsx," Tab "Operating-G&A."

<sup>19</sup> See CSXT Supp. Reply WP "CERR Operating Expense\_Supp\_Reply.xlsx," Tab "Operating-G&A."

In Reply, CSXT added two equipment inspector positions to provide on-call coverage at Barr Yard.<sup>20</sup> Because of the reduced merchandise traffic levels of the Supplemental traffic groups, CSXT eliminates these two positions as well as the two carts used by these inspectors. CSXT updates Table III-D-11, which compares the parties' assignments of inspector staffing and equipment.

**Table III-D-11  
CERR Inspection Staffing & Equipment**

| Job Assignment    | # of Jobs | Consumers Supp. Opening Staffing <sup>21</sup> | Consumers Supp. Opening Carts <sup>22</sup> | CSXT Supp. Reply Staffing <sup>23</sup> | CSXT Supp. Reply Carts <sup>24</sup> |
|-------------------|-----------|------------------------------------------------|---------------------------------------------|-----------------------------------------|--------------------------------------|
| Barr Yard 24/7    | 2         | 9                                              | 2                                           | 9                                       | 2                                    |
| Barr Yard On Call | 2         | 0                                              | 2                                           | 0                                       | 0                                    |
| West Olive        | 1         | 1                                              | 0                                           | 1                                       | 1                                    |
| <b>Total</b>      |           | <b>10</b>                                      | <b>4</b>                                    | <b>10</b>                               | <b>3</b>                             |

CSXT added the Director – Dispatch Control position in Reply to provide direction and focus to the CERR's Dispatch and Data Control team and provide added support during peak times.<sup>25</sup> For its Supplemental Reply evidence, CSXT

<sup>20</sup> See CSXT Reply III-D-56 through III-D-58.

<sup>21</sup> See Consumers Supp. Op. WP "CERR Operating Expense\_Supp.xlsx," Worksheet "Operating-G&A."

<sup>22</sup> See Consumers Supp. Op. WP "CERR Operating Expense\_Supp.xlsx," Worksheet "Summary," Cell F196.

<sup>23</sup> See CSXT Supp. Reply WP "CERR Operating Expense\_Supp\_Reply.xlsx," Worksheet "Operating-G&A."

<sup>24</sup> See CSXT Supp. Reply WP "CERR Operating Expense\_Supp\_Reply.xlsx," Worksheet "Summary," Cell F196.

<sup>25</sup> See CSXT Reply III-D-58.

eliminates the position to account for the smaller workload resulting from reduced merchandise traffic.

CSXT added a Manager – Customer Service and Data Control in Reply to handle and oversee freight claims and collect data to help assist in damage prevention efforts.<sup>26</sup> Given the reduction in merchandise traffic, CSXT eliminates this position from its Supplemental Reply evidence.

**c. General and Administrative**

The reduction of merchandise traffic in the Supplemental traffic groups eliminates the need for some of the G&A staff who would have been required to perform tasks to serve that traffic. In particular, certain marketing, financial, and asset protection staff that CSXT proposed on Reply would not be required to serve the CERR's supplemental traffic group. CSXT below describes the G&A staff that it is eliminating for its Supplemental Reply presentation. CSXT also explains other changes in G&A costs that result from differences in metrics like CERR revenue and overall headcount.

CSXT has only replicated headings and subheadings from its Reply for sections with different costs or staffing.

**1. Staffing Requirements**

**(c) Marketing Department**

On Opening, Consumers proposed four Marketing Managers. On Reply, CSXT proposed two additional Marketing Managers to address Rule 11 traffic and

---

<sup>26</sup> See CSXT Reply III-D-63.



the need to develop new rates for a shifting merchandise traffic base.<sup>27</sup> Because of the reduction in merchandise traffic proposed by Consumers, CSXT eliminates those positions.

**(d) Finance and Accounting Department**

CSXT proposed several additional Finance and Accounting staff on Reply, which would allow the staff proposed by Consumers to focus on revenue accounting, the most important function within Finance and Accounting. One of the three positions was the Manager of Disbursements who would handle the accounts payable function, payroll responsibilities, and any required reporting.<sup>28</sup> CSXT eliminates the Manager of Disbursements because the other additional employees added on Reply are sufficient for the complexity of the CERR.

**(e) Law and Administration Department**

**(i) Law**

Most of the CERR's legal spending is outsourced and calculated based on the SARR's revenue. The outside counsel cost is adjusted for CSXT's proposed revenue figure.<sup>29</sup>

**(iii) Asset Protection**

On Reply, CSXT proposed eight additional Police Agents to protect the intermodal facility and intermodal tracks in Chicago.<sup>30</sup> The elimination of the

---

<sup>27</sup> See CSXT Reply III-D-78.

<sup>28</sup> See CSXT Reply III-D-83.

<sup>29</sup> CSXT also corrects the outsourced legal expense calculation error described by Consumers at Rebuttal III-D-79 through III-D-81.

<sup>30</sup> See CSXT Reply III-D-95.



merchandise traffic should slightly reduce security requirements. Therefore, CSXT proposes to reduce the number of Police Agents by one.

**Table III-D-19**  
**Total G&A Staff Comparison**

| <b>Position</b>                       | <b>Consumers Supplemental Opening <sup>31</sup></b> | <b>CSXT Supplemental Reply <sup>32</sup></b> | <b>Difference</b> |
|---------------------------------------|-----------------------------------------------------|----------------------------------------------|-------------------|
| President and CEO                     | 1                                                   | 1                                            | 0                 |
| Administrative Assistants             | 1                                                   | 1                                            | 0                 |
| Manager of Communications             | 0                                                   | 1                                            | 1                 |
| Director of Marketing                 | 1                                                   | 1                                            | 0                 |
| Marketing Manager                     | 4                                                   | 4                                            | 0                 |
| Manager Marketing Services            | 0                                                   | 1                                            | 1                 |
| Market Manager                        | 0                                                   | 0                                            | 0                 |
| Manager Accounts                      | 0                                                   | 1                                            | 1                 |
| Vice President-Finance and Accounting | 1                                                   | 1                                            | 0                 |
| Administrative Assistant              | 1                                                   | 1                                            | 0                 |
| Treasurer                             | 1                                                   | 1                                            | 0                 |
| Cash Manager                          | 0                                                   | 1                                            | 1                 |
| Controller                            | 1                                                   | 1                                            | 0                 |
| Assistant Controller/Manager Revenue  | 1                                                   | 1                                            | 0                 |
| Manager Disbursements                 | 0                                                   | 0                                            | 0                 |
| Revenue Accounting Managers           | 2                                                   | 2                                            | 0                 |
| Director Planning and Support         | 0                                                   | 1                                            | 1                 |
| Manager of Budgets/Purchasing         | 1                                                   | 1                                            | 0                 |
| Manager Tax and Financial Reporting   | 0                                                   | 1                                            | 1                 |
| Vice President-Law and Administration | 1                                                   | 1                                            | 0                 |
| General Attorney                      | 1                                                   | 1                                            | 0                 |
| Director-Human Resources              | 1                                                   | 1                                            | 0                 |
| Manager Human Resources               | 0                                                   | 1                                            | 1                 |
| Chief of Security/Police              | 1                                                   | 1                                            | 0                 |

<sup>31</sup> See Consumers Supp. Op. WP "CERR Operating Expense\_Supplemental.xlsx," Tab "Operating-G&A."

<sup>32</sup> See CSXT Supp. Reply WP "CERR Operating Expense\_Supp\_Reply.xlsx," Tab "Operating-G&A."

|                                            |           |           |           |
|--------------------------------------------|-----------|-----------|-----------|
| Assistant Chief                            | 1         | 1         | 0         |
| Security Agents                            | 3         | 10        | 7         |
| Director Asset Protection                  | 0         | 1         | 1         |
| Manager Environmental Control              | 0         | 1         | 1         |
| Administrative Assistant/Claims Specialist | 0         | 1         | 1         |
| Director-Information Technology            | 1         | 1         | 0         |
| IT Specialists                             | 5         | 8         | 3         |
| <b>Total</b>                               | <b>29</b> | <b>49</b> | <b>20</b> |

## **2. Materials, Supplies & Equipment**

CSXT adjusts its various material and supplies proposals—including vehicles and office supplies—to account for changes in headcount.

## **3. Other**

### **a. IT Systems**

The total amount of computer equipment necessary to operate the SARR is contingent on the total staff figure. CSXT adjusts the equipment necessary for the workforce it proposes.

### **b. Other Out-Sourced Functions**

On Reply, CSXT agreed with many of Consumers' proposed outsourcing costs. To the extent those costs are driven by headcount or revenue, the totals are updated.

### **c. Start-up and Training Costs**

CSXT adjusts its proposed start-up and training costs for the CERR's new headcount.

**Table III-D-20  
Training**

|                      | <b>Consumers<br/>Supplemental<br/>Opening<sup>33</sup></b> |                           | <b>CSXT<br/>Supplemental<br/>Reply<sup>34</sup></b> |                           | <b>Difference</b> |                           |
|----------------------|------------------------------------------------------------|---------------------------|-----------------------------------------------------|---------------------------|-------------------|---------------------------|
|                      | <b>No.</b>                                                 | <b>Total<br/>Training</b> | <b>No.</b>                                          | <b>Total<br/>Training</b> | <b>No.</b>        | <b>Total<br/>Training</b> |
| Engineers            | 24                                                         | \$1,125,690               | 31                                                  | \$1,484,953               | 32%               | 32%                       |
| Conductors           | 24                                                         | \$525,848                 | 31                                                  | \$ 693,672                | 32%               | 32%                       |
| Train Dispatchers    | 9                                                          | \$201,389                 | 9                                                   | \$ 201,389                | 0%                | 0%                        |
| Maintenance of way   | 41                                                         | \$254,594                 | 41                                                  | \$ 254,594                | 0%                | 0%                        |
| Equipment Inspectors | 10                                                         | \$74,698                  | 10                                                  | \$74,698                  | 0%                | 0%                        |
| Executives           | 12                                                         | \$299,614                 | 14                                                  | \$337,502                 | 17%               | 13%                       |
| All other Employees  | 36                                                         | \$38,700                  | 62                                                  | \$66,650                  | 72%               | 72%                       |
| <b>Total</b>         | <b>155</b>                                                 | <b>\$2,520,533</b>        | <b>198</b>                                          | <b>\$3,113,457</b>        | <b>28%</b>        | <b>24%</b>                |

<sup>33</sup> See Consumers Supp. Op. WP “CERR Operating Expense\_Supplemental.xlsx,” Tab “Training.”

<sup>34</sup> See CSXT Supp. Reply WP “CERR Operating Expense\_Supp\_Reply.xlsx,” Tab “Training.”

**Table III-D-21  
Restaffing**

|                         | <b>Consumers<br/>Supplemental<br/>Opening<sup>35</sup></b> |                  | <b>CSXT Supplemental<br/>Reply<sup>36</sup></b> |                  | <b>Difference</b> |
|-------------------------|------------------------------------------------------------|------------------|-------------------------------------------------|------------------|-------------------|
|                         | <b>Attrition</b>                                           | <b>Cost</b>      | <b>Attrition</b>                                | <b>Cost</b>      | <b>Cost</b>       |
| Engineers               | 5.8%                                                       | \$64,918         | 9.1%                                            | \$135,297        | \$70,379          |
| Conductors              | 5.8%                                                       | \$30,325         | 9.1%                                            | \$63,202         | \$32,877          |
| Train Dispatchers       | 3.3%                                                       | \$6,717          | 7.4%                                            | \$14,930         | \$8,213           |
| Maintenance of way      | 3.3%                                                       | \$8,491          | 6.0%                                            | \$15,289         | \$6,798           |
| Equipment<br>Inspectors | 3.3%                                                       | \$2,491          | 7.9%                                            | \$5,903          | \$3,412           |
| Executives              | 3.9%                                                       | \$11,599         | 7.3%                                            | \$24,655         | \$13,055          |
| All other Employees     | 3.9%                                                       | \$1,498          | 7.3%                                            | \$4,869          | \$3,371           |
| <b>Total</b>            |                                                            | <b>\$126,040</b> |                                                 | <b>\$264,144</b> | <b>\$138,105</b>  |

**d. Travel**

As described above, CSXT's Supplemental Reply removes several G&A positions that were included in CSXT's Reply evidence. The travel budget has been adjusted to account for these eliminated positions.

<sup>35</sup> See Consumers Supp. Op. WP "CERR Operating Expense\_Supplemental.xlsx," Tab "Training."

<sup>36</sup> See CSXT Supp. Reply WP "CERR Operating Expense\_Supp\_Reply.xlsx," Tab "Training."



**Table III-D-23**  
**Total G&A Cost Comparison**

| <b>G&amp;A Category</b>         | <b>Consumers<br/>Supplemental<br/>Opening <sup>37</sup></b> | <b>CSXT<br/>Supplemental<br/>Reply <sup>38</sup></b> | <b>Difference</b>  |
|---------------------------------|-------------------------------------------------------------|------------------------------------------------------|--------------------|
| Salaries Compensation           | \$5,520,633                                                 | \$ 8,321,313                                         | \$2,800,680        |
| Materials, Supplies & Equipment | \$1,495,904                                                 | \$2,081,115                                          | \$585,211          |
| <b>Total</b>                    | <b>\$7,016,537</b>                                          | <b>\$ 10,402,428</b>                                 | <b>\$3,385,891</b> |

#### **4. Maintenance of Way**

The removal of certain merchandise traffic from the CERR's traffic group resulted in a reduction of gross tons traveling over portions of the SARR. Because gross tonnages are a factor in calculating rail grinding costs, rail grinding costs have been recalculated to account for Supplemental Reply gross tonnages.<sup>39</sup>

CSXT also updated the track miles that Consumers submitted in Supplemental Opening, which CSXT uses to calculate unit costs for geometry testing.<sup>40</sup>

Below CSXT provides updated versions of four tables from its maintenance of way evidence that are affected by the above-described changes. First, CSXT updates

---

<sup>37</sup> See Consumers Supp. Op. WP "CERR Operating Expense\_Supplemental.xlsx," Tab "Training."

<sup>38</sup> See CSXT Supp. Reply WP "CERR Operating Expense\_Supp\_Reply.xlsx," Tab "Training."

<sup>39</sup> See CSXT Supp. Reply WP "CERR MOW Costs\_Supp\_Reply.xlsx," Tab "Rail Grinding Costs," Cells G8:G20. This update also corrects a technical error in CSXT's Reply filing, which linked the rail grinding costs to Consumers' Opening gross tons.

<sup>40</sup> See CSXT Supp. Reply WP "CERR MOW Costs\_Supp\_Reply.xlsx," Tab "Annual MOW Expenses," Cells A44:A45. This update also corrects a technical error in CSXT's Reply filing, which caused geometry costs to be negative.

Table III-D-24, which summarizes the differences in the characteristics of the CERR's Urban and Rural Segments.

**Table III-D-24**  
**Comparison of Maintenance Workload per Mile and Train Traffic<sup>41</sup>**

| Activity Indicator        | 22nd St. - Curtis | Porter - West Olive | 22nd St. - Curtis as % of Porter - West Olive |
|---------------------------|-------------------|---------------------|-----------------------------------------------|
| Track Miles/Rt. Mile      | 2.4               | 1.1                 | 228%                                          |
| Avg. MGT/Mi./Yr.          | 52.6              | 7.5                 | 705%                                          |
| Bridges/Rt. Mile          | 1.1               | 0.3                 | 367%                                          |
| Switches/Rt. Mile         | 1.7               | 0.2                 | 805%                                          |
| Protected Crossings/Mile  | 1.3               | 1.2                 | 106%                                          |
| % Curved Track            | 0.5               | 0.2                 | 237%                                          |
| Traffic Control Equipment | CTC               | None                | -                                             |
| Surrounding territory     | Urban             | Rural               | -                                             |
| <b>Average Trains/Yr.</b> | <b>7,696</b>      | <b>674</b>          | <b>1,142%</b>                                 |

Second, CSXT updates Table III-D-25, which summarizes the mileage differences between the CERR's Urban and Rural Segments.

**Table III-D-25**  
**CERR Maintained Miles<sup>42</sup>**

|                                           | Main Track   | Route        |
|-------------------------------------------|--------------|--------------|
| 22nd St to Pine Jct. & Dolton Wye (Urban) | 84.2         | 36.5         |
| Porter - West Olive (Rural)               | 132.2        | 122.2        |
| <b>Total Miles Maintained</b>             | <b>216.4</b> | <b>158.7</b> |

<sup>41</sup> See CSXT Supp. Reply WP "Inventories for MOW\_Supp\_Reply.xlsx," Tab "Summary," Cells G89:J98.

<sup>42</sup> See CSXT Supp. Reply WP "Inventories for MOW\_Supp\_Reply.xlsx," Tab "Summary," Cells G70:I73.

Third, CSXT updates Table III-D-26, which shows the relevant maintenance metrics for the Urban Segment.

**Table III-D-26**  
**Important Maintenance Metrics for Urban Segment<sup>43</sup>**

| Route Miles | Track Miles | Avg. MGT/Mi /Yr | Bridges | Switches | Crossings | Miles of Curved Track | Average Trains/Yr |
|-------------|-------------|-----------------|---------|----------|-----------|-----------------------|-------------------|
| 37          | 84          | 53              | 35      | 57       | 43        | 16.4                  | 7,696             |

Lastly, CSXT updates Table III-D-27, which shows the relevant maintenance metrics for the Rural Segment.

**Table III-D-27**  
**Important Maintenance Metrics for Rural Segment<sup>44</sup>**

| Route Miles | Track Miles | Avg. MGT/Mi/Yr | Bridges | Switches | Protected Crossings | % Curved Track | Average Trains/Yr |
|-------------|-------------|----------------|---------|----------|---------------------|----------------|-------------------|
| 122         | 130         | 7.5            | 35      | 26       | 145                 | 21%            | 674               |

## 5. Leased Facilities

The CERR's leased facility expenses are calculated in part based on the CERR's operating statistics. CSXT's Supplemental Reply updates these expenses to account for the revised SARR traffic group.<sup>45</sup>

<sup>43</sup> See CSXT Supp. Reply WP "Inventories for MOW\_Supp\_Reply.xlsx," Tab "Summary," Cells G101:N102.

<sup>44</sup> See CSXT Supp. Reply WP "Inventories for MOW\_Supp\_Reply.xlsx," Tab "Summary," Cells G104:N105.



## 6. Loss and Damage

The CERR's loss and damage expenses are calculated in part based on the CERR's operating statistics. CSXT's Supplemental Reply updates these expenses to account for the revised SARR traffic group.<sup>46</sup>

## 7. Insurance

The parties agreed to an insurance ratio of 3.75% of operating expenses.<sup>47</sup> CSXT applies that ratio to the proposed operating expense in this supplemental evidence.

## 8. Ad Valorem Tax

The CERR's ad valorem expenses are calculated from the CERR's revenues, operating expenses, and operating statistics. CSXT has updated these expenses for its Supplemental Reply.<sup>48</sup>

---

<sup>45</sup> See CSXT Supp. Reply WP

"Open\_ConsumersJointFacCharges2014\_Supp\_Reply.xlsx." On Reply CSXT explained that its elimination of certain trains for failing to meet CSXT's service standard resulted in no CERR trains using the IHB trackage rights. See CSXT Reply III-D-141 through III-D-142. As CSXT adds back those trains for both alternative scenarios, CSXT also includes the corresponding trackage rights expense that the CERR would incur to operate those trains over IHB lines.

<sup>46</sup> See CSXT Supp. Reply WP "CERR FCD1\_by\_STCC\_Supp\_Reply.xlsx."

<sup>47</sup> See CSXT Reply III-D-157 through III-D-158.

<sup>48</sup> See CSXT Supp. Reply WP "CERR Ad Valorem Taxes\_Supp\_Reply.xlsx."



## TABLE OF CONTENTS

|                                     | <u>Page</u> |
|-------------------------------------|-------------|
| III. STAND-ALONE COST.....          | III-F-1     |
| F. ROAD PROPERTY INVESTMENT .....   | III-F-1     |
| 1. Land.....                        | III-F-2     |
| 2. Roadbed Preparation .....        | III-F-3     |
| 3. Track Construction.....          | III-F-4     |
| 4. Tunnels. ....                    | III-F-4     |
| 5. Bridges. ....                    | III-F-5     |
| 6. Signals and Communications ..... | III-F-10    |
| 7. Buildings and Facilities. ....   | III-F-10    |
| 8. Public Improvements.....         | III-F-11    |
| 9. Mobilization .....               | III-F-11    |
| 10. Engineering.....                | III-F-11    |
| 11. Contingencies .....             | III-F-12    |
| 12. Construction Schedule.....      | III-F-12    |

### III. STAND-ALONE COST

#### F. ROAD PROPERTY INVESTMENT

This section of CSXT's Supplemental Reply addresses the minor changes in CSXT's Reply road property evidence that result from the changes to the CERR traffic group. As Section III-B above explained, CSXT agrees to Consumers' removal of a 2.22-mile track at Barr Yard, and CSXT also removes the Cottage Grove overpass that it had proposed on Reply. CSXT has adjusted its III-F Reply evidence to account for these changes, which include adjustments to roadbed preparation (III-F-2), track construction (III-F-3), bridges (III-F-5), and buildings and facilities (III-F-7) investment costs, as well as corresponding effects on mobilization, engineering, and contingency additives.

This section also responds to the Board's instruction in its *December 9 Decision* that CSXT use its Supplemental Reply to respond to the new Rebuttal evidence Consumer submitted to support its failure to include any costs for constructing the Calumet-Sag Channel bridge or Chicago Sanitary Canal bridge. CSXT's response to that new Rebuttal evidence is included in the bridge subsection III-F-5.

CSXT also has made minor technical corrections to two of its Reply workpapers.<sup>1</sup>

---

<sup>1</sup> Specifically, CSXT corrects a few "triggers" used to facilitate review of the workpapers that had referred to the wrong line descriptions of the changes being implemented. See CSXT Supp. Reply WP "2015 Ballast & subballast Worksheet\_Supp\_Reply.xlsx" at Tab "Rail Type By Subdivision," Cells D45, E45, H45, I45, L45:O45, and T45; Tab "INTERCHANEGES," Cells E20 and F32; Tab "Barr – PINE TO NS CONN," Cell B4; and Tab "IHB Calumet Park to CP Harvey,"

The below updated tables include the effects on CERR Road Property investment of all changes.

**Table III-F-1<sup>2</sup>**  
**CERR Road Property Investment**

| <b>CSXT Reply CERR Road Property Investment Costs (\$Millions)</b> |                          |                                       |                                |                   |
|--------------------------------------------------------------------|--------------------------|---------------------------------------|--------------------------------|-------------------|
|                                                                    | <b>Item</b>              | <b>Consumers Supplemental Opening</b> | <b>CSXT Supplemental Reply</b> | <b>Difference</b> |
| 1.                                                                 | Land                     | \$120.6                               | \$131.7                        | \$11.0            |
| 2.                                                                 | Roadbed Preparation      | \$36.7                                | \$80.6                         | \$43.9            |
| 3.                                                                 | Track                    | \$208.6                               | \$249.8                        | \$41.2            |
| 4.                                                                 | Tunnels                  | \$0.0                                 | \$0.0                          | \$0.0             |
| 5.                                                                 | Bridges                  | \$72.5                                | \$164.0                        | \$91.5            |
| 6.                                                                 | Signals and              | \$42.0                                | \$46.5                         | \$4.6             |
| 7.                                                                 | Buildings and Facilities | \$11.8                                | \$25.9                         | \$14.0            |
| 8.                                                                 | Public Improvements      | \$3.4                                 | \$11.1                         | \$7.7             |
| 9.                                                                 | Subtotal                 | \$495.6                               | \$709.6                        | \$214.0           |
| 10.                                                                | Mobilization             | \$10.1                                | \$35.9                         | \$25.7            |
| 11.                                                                | Engineering              | \$37.5                                | \$57.8                         | \$20.3            |
| 12.                                                                | Contingencies            | \$42.3                                | \$67.2                         | \$24.9            |
| 13.                                                                | Total Road Property      | <b>\$585.5</b>                        | <b>\$870.4</b>                 | <b>\$284.9</b>    |

### 1. Land

There are no changes from CSXT's Reply evidence.

---

Cell C16. *See also* CSXT Supp. Reply WP "Rail Worksheet - 2015\_Supp\_Reply.xls" at Tab "Rail Type Summary," Cells C6, D7, C11, and E11; and at Tab "136 & 115 Rail Cost Summary," Cells G19, C39, and D39. CSXT notes that Consumers also used its Supplemental Opening evidence to correct minor workpaper errors.

<sup>2</sup> *See* CSXT Supp. Reply WP "III-F TOTAL – 2015\_Supp\_Reply.xlsx."

## 2. Roadbed Preparation

The below updated tables include the effects on roadbed preparation investment of removing the 2.22 mile yard track and utility relocation costs for the Cottage Grove overpass.

**Table III-F-6**  
**CERR Roadbed Preparation Costs (\$Thousands)<sup>3</sup>**

|    | Category                   | Consumers<br>Supplemental<br>Opening | CSXT<br>Supplemental<br>Reply | Difference      |
|----|----------------------------|--------------------------------------|-------------------------------|-----------------|
| 1  | Clearing & Grubbing        | \$2,358                              | \$2,149                       | -\$210          |
| 2  | Earthwork                  |                                      |                               |                 |
|    | a) Common                  | \$11,310                             | \$26,177                      | \$14,867        |
|    | b) Loose Rock              | \$66                                 | \$69                          | \$3             |
|    | c) Solid Rock              | \$295                                | \$303                         | \$8             |
|    | d) Borrow                  | \$12,674                             | \$28,030                      | \$15,356        |
|    | e) Land for Waste          | \$0                                  | \$7,687                       | \$7,687         |
|    | f) Total                   | \$24,345                             | \$62,265                      | \$37,920        |
| 3  | Drainage                   |                                      |                               |                 |
|    | a) Lateral Drainage        | \$203                                | \$203                         | \$0             |
| 4  | Culverts                   | \$1,179                              | \$2,725                       | \$1,546         |
| 5  | Retaining Walls            | \$6,627                              | \$11,247                      | \$4,620         |
| 6  | Rip Rap                    | \$283                                | \$283                         | \$0             |
| 7  | Relocation of Utilities    | \$40                                 | \$40                          | \$0             |
| 8  | Topsoil Placement /        | \$27                                 | \$27                          | \$0             |
| 9  | Surfacing for Detour Roads | \$199                                | \$199                         | \$0             |
| 10 | Environmental Compliance   | \$48                                 | \$48                          | \$0             |
| 11 | Fine Grading               | \$1,419                              | \$1,461                       | \$41            |
|    |                            |                                      |                               |                 |
| 12 | <b>Total</b>               | <b>\$36,728</b>                      | <b>\$80,646</b>               | <b>\$43,918</b> |

<sup>3</sup> See CSXT Supp. Reply WP "CERR Grading\_Supp\_Reply.xlsm," Tab "Reply Summary."



**Table III-F-7  
Roadbed Preparation Quantities<sup>4</sup>**

| Item |                       | Consumers<br>Supplemental<br>Opening CY | CSXT<br>Supplemental<br>Reply CY | Difference |
|------|-----------------------|-----------------------------------------|----------------------------------|------------|
| 1    | Common Excavation     | 4,510,824                               | 4,525,213                        | 14,388     |
| 2    | Loose Rock Excavation | 5,246                                   | 5,274                            | 29         |
| 3    | Solid Rock Excavation | 18,072                                  | 18,169                           | 97         |
| 4    | Borrow                | 1,224,039                               | 1,254,240                        | 30,201     |

### 3. Track Construction

The below updated table includes the effects on track construction investment of removing the 2.22 mile yard track, including adjustments for removing two associated turnouts, switch stands, switch heaters, geotextile fabric and propane tanks consistent with Consumers' Supplemental Opening evidence.

**Table III-F-12  
CERR Track Construction Cost Comparison<sup>5</sup>**

| Category |                      | Consumers<br>Supplemental<br>Opening | CSXT<br>Supplemental<br>Reply | Difference   |
|----------|----------------------|--------------------------------------|-------------------------------|--------------|
| 1        | Ballast & Subballast | \$43,484,880                         | \$67,477,867                  | \$23,992,987 |
| 2        | Rail, OTM, & Other   | \$71,302,723                         | \$85,381,646                  | \$14,078,923 |
| 3        | Ties                 | \$50,247,638                         | \$52,284,900                  | \$2,037,261  |
| 4        | Track Labor          | \$43,553,769                         | \$44,678,294                  | \$1,124,525  |

### 4. Tunnels.

There are no tunnels on the CERR.

<sup>4</sup> See CSXT Supp. Reply WP "CERR Grading\_Supp\_Reply.xlsm," Tab "Reply Summary."

<sup>5</sup> See CSXT Supp. Reply WP "III - F TOTAL – 2015\_Supp\_Reply.xlsx."

**5. Bridges.**

**(a) Effects of Removing Cottage Grove Overpass**

The below updated table includes the effects on bridge investment of removing the Cottage Grove overpass.

**Table III-F-14  
CERR Bridge and Overpass Cost Comparison<sup>6</sup>**

|                   | <b>Consumers<br/>Supplemental<br/>Opening</b> | <b>CSXT<br/>Supplemental<br/>Reply</b> | <b>Difference</b> |
|-------------------|-----------------------------------------------|----------------------------------------|-------------------|
| <b>Bridges</b>    | \$64,340,913                                  | \$153,299,834                          | \$88,958,920      |
| <b>Overpasses</b> | \$8,134,557                                   | \$10,694,010                           | \$2,559,453       |
| <b>Total</b>      | \$72,475,470                                  | \$163,993,843                          | \$91,518,373      |

**(b) Consumers' New Rebuttal Evidence Does Not Justify Its Omission of Construction Costs for the Chicago Sanitary Canal and Calumet Sag Bridges<sup>7</sup>**

Consumers has now had two opportunities to present evidence to support its theory that the CERR does not need to account for a penny of the cost of the Calumet Sag Channel Bridge at milepost DC 15.2 ("Calumet Sag Bridge") or the Chicago Sanitary Canal Bridge at milepost DC 28.1 ("Sanitary Bridge") because those bridges supposedly were not built by CSXT or its predecessors and instead were constructed with public funds for the railroad's benefit. But neither the single

---

<sup>6</sup> See CSXT Supp. Reply WP "Bridge Costs\_Supp\_Reply.xlsx," Tab "Reply Summary."

<sup>7</sup> This section of CSXT's evidence responds to Consumers' Rebuttal evidence on the Calumet Sag and Chicago Sanitary Channel Bridges, in accordance with the Board's *December 9 Decision* permitting CSXT to do so. See *December 9 Decision* at 16.

magazine article it presented on Opening nor the “additional research” it produced on Rebuttal can support that claim. On the contrary, the historical record is clear that any bridges constructed with public funds were not newly built for the railroad’s benefit but rather that they replaced preexisting railroad bridges built over a navigable canal constructed decades before the railroad. The SAC test therefore requires that Consumers’ SAC model account for the capital costs of the bridges.

On Opening, Consumers did not include costs for the Calumet Sag Channel and Chicago Sanitary Canal Bridges because it claimed they were constructed with public funds. For support, Consumers cited a 1910 article from the Railway Gazette discussing a movable span bridge being constructed over the Chicago Sanitary Canal by the Chicago Sanitary District.<sup>8</sup> But as CSXT explained on Reply, this single workpaper did not even mention the Calumet Sag Bridge and could provide no basis for excluding the costs of that bridge.<sup>9</sup> Moreover, the Railway Gazette article confirmed that the movable span bridge over the Sanitary Canal was replacing a preexisting fixed span bridge; indeed, the article even had a picture of the prior bridge.<sup>10</sup> Because the evidence does show that the movable replacement bridge was constructed with public funds, CSXT’s Reply evidence did not propose that the SARR should have to account for the costs of a movable Sanitary Channel

---

<sup>8</sup> See Consumers Op. III-F-63; Consumers Op. WP “Bascule Bridge Over CSSC Railway Gazette indicating that the Sanitary district paid.pdf.”

<sup>9</sup> See CSXT Reply III-F-89; Consumers Op. WP “Bascule Bridge Over CSSC Railway Gazette indicating that the Sanitary district paid.pdf” at 2 Figure 2.

<sup>10</sup> See CSXT Reply III-F-90.



Bridge. Instead, the CERR should only have to pay for a less expensive fixed span bridge like the one replaced by the movable bridge.<sup>11</sup>

On Rebuttal, Consumers adhered to its position that the CERR need not account for either bridge and claimed to have “additional research” to support its claims. This additional research consisted only of pictures of the bridges currently in place<sup>12</sup> and three pages of documents showing that some of the expenditures made by the Sanitary District of Chicago included bridge expenses.<sup>13</sup> These documents do not add any new facts to the record and do not question the fundamental fact that the bridge built by the Chicago Sanitary District replaced an existing fixed span bridge.

For the Chicago Sanitary Canal bridge, Consumers’ Rebuttal workpaper only shows that there were public funds spent for some bridge construction items along the Sanitary Canal (without specifying whether these funds were attributable to the specific CERR bridge at issue or some other bridge). This document does not add any useful information to the record, which already indicated that the Chicago Sanitary District expended public funds to replace a railroad-built fixed bridge with a movable span bridge. The most appropriate way to address these facts in the SAC analysis continues to be to make the SARR responsible for what the railroad paid for—a less expensive fixed span bridge—but not to charge the SARR with

---

<sup>11</sup> See CSXT Reply III-F-90.

<sup>12</sup> See Consumers Reb. WPs “Cal-Sag Bridges Aerial.jpg,” “Cal-Sag Bridges #3-#7.jpg,” “Cal-Sag Bridges #5- #7.JPG.”

<sup>13</sup> See Consumers Reb. WP “Sanitary District of Chicago\_Calumet\_Sag Bridge Construction.pdf.”



replicating the movable span built with public funds. That is exactly what CSXT proposed on Reply.<sup>14</sup>

For the Calumet Sag Channel Bridge, Consumers still has no evidence of public funding. Consumers' Rebuttal claim to have evidence for the public funding of the Calumet Sag Channel Bridge appears to be a single line-item expenditure of \$9,528 through December 31, 1911 for "Bridge construct'n, Calumet-Sag channel."<sup>15</sup> But Consumers has produced zero evidence that this small expenditure was directed toward the railroad bridge at issue here. The Calumet-Sag Channel is and was at least 16 miles long,<sup>16</sup> and multiple roads and railroads over the length of the canal require bridges. Indeed, there are at least nine bridges located within a mile of the bridge in question.<sup>17</sup> Consumers has provided no evidence that the small amount of funding noted in its Rebuttal workpaper was applied to the specific bridge in question. Consumers' further claim that the Cal Sag bridges must have

---

<sup>14</sup> In an analogous context, the Board has made clear that the hypothetical availability of public funding for replacements to railroad-built bridges cannot remove a SARR's obligation to account for the costs of bridges that were originally built by railroads. *See Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc.*, STB Docket No. 42121 (served Sept. 14, 2016) ("*TPF*") at 165, *SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Co.*, STB Docket No. 42130 (served June 20, 2014) ("*Sunbelt 2014*") at 142, and *E.I. DuPont de Nemours & Co. v. Norfolk Southern Railway Co.*, STB Docket No. 42125 (served Mar. 24, 2014) ("*DuPont*") at 223.

<sup>15</sup> *See* Consumers Reb. WP "Sanitary District of Chicago\_Calumet\_Sag Bridge Construction.pdf" at 2.

<sup>16</sup> *See* Consumers Reb. WP "Sanitary District of Chicago\_Calumet\_Sag Bridge Construction.pdf" at 2-3 (reporting length of canal as 16 and 22 miles).

<sup>17</sup> *See* CSXT Supp. Reply WP "Calumet Sag Channel Maps.pdf."

been paid for with public funds because they look alike is mere guesswork.<sup>18</sup> It is just as likely the bridges look alike because the railroads coordinated their design or jointly contracted the project.

Consumers also asserts—with zero evidence—that “any pre-existing bridges would be insignificant in size” because they would have been over “minor canal[s].”<sup>19</sup> Once again, Consumers makes an assertion in its narrative that does not square with its workpapers. The images of the original fixed span Sanitary Channel Bridge and the publicly funded replacement moveable span bridge are of comparable dimensions.<sup>20</sup> And Consumers’ claim does not square with the historical evidence that a navigable canal existed at the location of the Calumet Sag Bridge long before the predecessor railroad was constructed. Specifically, the Calumet Sag Channel, which Consumers’ evidence indicates began construction in 1911,<sup>21</sup> is itself a modification to the original Calumet Feeder Canal, which was in use by 1851 as part of the Illinois and Michigan Canal system.<sup>22</sup> The American Canal

---

<sup>18</sup> See Consumers Reb. III-F-99.

<sup>19</sup> See Consumers Reb. III-F-99 through III-F-100.

<sup>20</sup> See CSXT Reply III-F-90. See Consumers Op. WP “Bascule Bridge Over CSSC Railway Gazette indicating that the Sanitary district paid.pdf.” Specifically compare figure 1 on page 1 with figure 2 on page 2.

<sup>21</sup> See Consumers Reb. WP “Sanitary District of Chicago\_Calumet\_Sag Bridge Construction.pdf.”

<sup>22</sup> See CSXT Supp. Reply WPs “Calumet Feeder Information from American Canal Society.pdf” and “Blue Island History Excerpt.pdf” (1935 publication noting that route of Calumet Sag Channel is “almost identical with that of the old feeder canal which was built more than 70 years ago”).

Society's research records show that this original canal was "navigable," contrary to Consumers unfounded suggestion that it was "minor."<sup>23</sup>

The original predecessor railroad to CSXT along this portion of the CERR did not form until the late 1880s, over three decades after the navigable canal was in place.<sup>24</sup> The newly constructed railroad would have been required to pay for its bridge over the pre-existing canal without disturbing canal navigation or other activities at present or in the future.

Consumers has not met its burden of proof for removing costs for these two bridges, and in fact has provided no evidence related to public funding of either of the original bridges. CSXT acknowledges there should be no costs for the replacement moveable span bridge over the Chicago Sanitary Canal, but the SAC test requires that the CERR account for the original railroads' investment in fixed span bridges at both locations.

## **6. Signals and Communications**

There are no changes from CSXT's Reply evidence.

## **7. Buildings and Facilities.**

The below updated table includes the effects on facilities investment of removing the 2.22-mile yard track, including associated siteworks.

---

<sup>23</sup> See CSXT Supp. Reply WP "Calumet Feeder Information from American Canal Society.pdf."

<sup>24</sup> See CSXT Supp. Reply WP "BOCT Predecessor History.pdf." Specifically, page 4 of this document describes how "[t]hree shortline railroads in the Calumet District were incorporated between July, 1886, and February, 1887, but undertook no construction . . . [and] were consolidated in 1888 to form the Chicago & Calumet Terminal Railway Company," which eventually become part of BOCT, CSXT's predecessor for this line.



**Table III-F-16**  
**Comparison of Consumers' Supplemental Opening and CSXT**  
**Supplemental Reply Consumers Facilities Investment<sup>25</sup>**  
**(\$ thousands)**

| Section                                   | Consumers<br>Supplemental<br>Opening | CSXT<br>Supplemental<br>Reply | Difference          |
|-------------------------------------------|--------------------------------------|-------------------------------|---------------------|
| 1. Headquarters Building                  | \$2,142,321                          | \$2,724,806                   | \$582,485           |
| 2. Locomotive Shop & Office               | \$2,486,955                          | \$6,308,759                   | \$3,821,804         |
| 3. Roadway Buildings (Crew,               | \$1,426,823                          | \$8,723,935                   | \$7,297,112         |
| 4. Yard Site Costs                        | \$5,792,828                          | \$8,112,033                   | \$2,319,204         |
| <b>Total Buildings and<br/>Facilities</b> | <b>\$11,848,927</b>                  | <b>\$25,869,533</b>           | <b>\$14,020,606</b> |

#### **8. Public Improvements.**

There are no changes from CSXT's Reply evidence. CSXT notes that its Reply evidence inadvertently included an at-grade crossing at Cottage Grove, so removing the overpass here does not warrant adding another grade crossing.

#### **9. Mobilization**

The percentage additive for mobilization has not been changed. The overall mobilization total has been updated to account for the above changes in total road property investment costs.

#### **10. Engineering**

The percentage additive for engineering costs has not been changed. The overall engineering total has been updated to account for the above changes in total road property investment costs.

---

<sup>25</sup> See CSXT Supp. Reply WP "2015 Buildings\_Supp\_Reply.xlsx," Tab "Reply Summary."



## **11. Contingencies**

The percentage additive for contingencies has not been changed. The overall contingencies total has been updated to account for the above changes in total road property investment costs.

## **12. Construction Schedule**

There are no changes from CSXT's Reply evidence.

## TABLE OF CONTENTS

|                                                                                                                                                    | <u>Page</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| III. STAND-ALONE COST.....                                                                                                                         | III-G-1     |
| G. DISCOUNTED CASH FLOW ANALYSIS.....                                                                                                              | III-G-1     |
| 1. Cost of Capital.....                                                                                                                            | III-G-1     |
| a. A Separate Equity Flotation Cost for the CERR Is Not<br>Only Warranted, But Required. ....                                                      | III-G-1     |
| b. CSXT's Evidence Solidly Supports an Equity Flotation<br>Cost for a CERR IPO of Approximately Six Percent. ....                                  | III-G-4     |
| c. Consumers Significantly Understates the CERR's Total<br>Cost to Raise the Needed Capital. ....                                                  | III-G-6     |
| d. Consumers' Argument that it Would Purchase a Ten-<br>Percent Share of a CERR Private Placement Violates SAC<br>Theory and Must Be Rejected..... | III-G-8     |

### III. STAND-ALONE COST

#### G. DISCOUNTED CASH FLOW ANALYSIS

##### 1. Cost of Capital

##### a. A Separate Equity Flotation Cost for the CERR Is Not Only Warranted, But Required.

Despite finding that Consumers did not meet the standard for having its motion to supplement the record on the issue of equity flotation costs granted, the Board nonetheless held that it believed that it would be “fundamentally unfair” to preclude the Complainant from presenting supplemental evidence “based on an unforeseen change to [Board] precedent.” *December 9 Decision* at 22. However, despite the Board’s detailed explanation of how its decisions in recent rate cases resulted in “changed Board precedent regarding equity flotation costs in SAC cases” (*id.* at 23), both accepting the need to include such costs and clarifying the kind of evidence that would be required to support them, Consumers doggedly persists in arguing that a separate equity flotation cost is “unwarranted.” Consumers Supp. Op. III-G-1 through III-G-3.

The Board need not pause long over this now discredited argument. As it correctly noted in its *Sunbelt Reconsideration Decision*, its prior rationale that equity flotation costs had been included in its industry-wide cost of capital determinations no longer applied because “such costs had not been included in the Board’s 2006 through 2011 railroad industry-wide-cost-of-capital determinations.” *December 9 Decision* at 23. In short, the CAPM and MSDCF formulae used since the 2006 cost of capital determination do not include variables for previously-incurred

flotation costs, so a separately calculated equity flotation cost for the CERR is not only “warranted,” but in fact required. Moreover, because there have been no direct equity flotation costs included in the annual industry-wide cost of capital determinations for decades, there is no merit to Consumers’ claim that separately including them here would constitute a “double-count.” Consumers Supp. Op. III-G-3.

Consumers cannot rely on 1980s cost of capital decisions to resurrect the now firmly discredited notion that equity flotation costs are hidden somewhere within the cost of equity estimate. *See* Consumers Supp. Op. III-G-2 through III-G-3. Those decisions addressed an entirely different issue. In the early 1980s, the AAR was advocating “for a perpetual flotation cost adjustment on the grounds that a one time only adjustment (in the year the stock is issued) will only partially compensate stockholders for the difference between the initial market value of their investment and the net increment in railroad book values.” *Railroad Cost of Capital—1984*, 1 I.C.C.2d 989, 998 (1985). As presented, the AAR proposal would add its perpetual flotation cost adjustment *in addition to* any actual flotation costs incurred by the railroads in issuing stock. The ICC disagreed. It dismissed claims for a perpetual adjustment with the observation that “[b]ecause any impact of previously incurred flotation costs would be reflected in current stock prices and current investor return expectations, so too would such impact be reflected in the cost of equity capital for those years.” *Id.* at 998. The rejection of a perpetual adjustment was abbreviated



but repeated in the next year's cost of capital decision. *Railroad Cost of Capital – 1985*, 3 I.C.C.2d 625, 635-36 (1987).

These twin decisions offer no support whatsoever for the idea that equity flotation costs are *today* reflected in the cost of equity estimate. First, the Board was only addressing the claim that some lingering impact required a perpetual adjustment. Second, if the ICC believed that equity flotation costs were already reflected in the cost of equity estimate, it never would have added those costs again when incurred by a railroad. Regardless, the outdated ICC finding is irrelevant. The cost of equity is a forward-looking concept, reflecting the return investors demand to continue to invest in the railroad industry. As Consumers' Supplemental Opening acknowledges, the Class I railroads included in the composite sample have issued shares only twice in the 37 years that the Board or the ICC has calculated a current cost of equity, the most recent occurring in 1991. As such, any residual effects of those equity flotation costs on the current railroad industry cost of equity are long gone. It is simply implausible to suggest that the ICC somehow concluded that the current, forward-looking cost of equity reflects equity flotation costs incurred decades earlier.

Consumers also erroneously argues that “[t]he Board’s approach to determining flotation costs in *Sunbelt* and *Total* imposes an adjustment that is a substantial multiple of the additive that would result if the objective is to reflect the average of the actual flotation costs that CSXT or any other single railroad has incurred over time, including during the SARR’s construction period.” Consumers

Supp. Op. III-G-5. This argument completely misses the purpose of including equity flotation costs in the SAC analysis. It is not to identify an estimate of flotation costs that CSXT or any other railroad incurred in the past, but rather to reflect the costs that the CERR as a new, stand-alone entrant into the railroad industry would incur to raise the necessary capital to finance its own construction and operation. As the Board held in *Sunbelt 2014*, “the flotation cost is a fee that is specific to the hypothetical scenario of having to raise \$1.4 billion in equity capital.” *Sunbelt 2014* at 184. It has nothing to do with the level of flotation costs the incumbent or any other railroad may or may not have paid to raise capital for their own operations in the past few decades. Diluting the cost of acquiring equity by spreading the cost across other Class I railroads or to account for the infrequency of railroad equity raises would improperly shift costs away from the CERR.

**b. CSXT’s Evidence Solidly Supports an Equity Flotation Cost for a CERR IPO of Approximately Six Percent.**

CSXT’s Reply evidence contained a comprehensive analysis of the equity flotation fees paid in 535 Initial Public Offerings (“IPOs”) of \$100 million or more that came to market over the prior decade, and the evidence supporting that analysis demonstrated that the average of those fees was approximately 6.3%, which CSXT’s expert Glenn Tobias of FTI Capital Advisors LLC rounded down to 6%.<sup>1</sup> See CSXT Reply at III-G-5. In its Supplemental evidence, Consumers contends

---

<sup>1</sup> This 6% is multiplied by the amount of equity that the CERR needs to raise. It is a one-time fee added to the SAC analysis. See CSXT Supp. Reply WP “Exhibit III-H-1\_Supp\_Reply.xlsm,” Tab “Investment SAC,” Cell G10.

that a 6% fee for an IPO is “unwarranted” (Consumers Supp. Op. III-G-13 through III-G-17), primarily because Mr. Tobias’ analysis was based on “a simple average of various IPOs of \$100 million or more” but “made no apparent effort to consider the details of those individual IPOs,” noting that “none of those listed is identified as a railroad or transportation company.” *Id.* at III-G-14. But as the Board held in *Sunbelt Reconsideration* and explained in its *December 9 Decision*, “although the ideal evidence for equity flotation costs would be a fee in a recent railroad IPO of comparable size, such evidence did not exist.” *December 9 Decision* at 23. In other words, Consumers seeks to have probative evidence from many hundreds of sizable IPO transactions disregarded because they do not precisely parallel the CERR’s situation. But the data compiled by Mr. Tobias include transactions in a wide variety of industry sectors across the entire economy, and they reflect a clear picture of equity flotation fees for most of those transactions in a range of 5–7%, with an average for the entire data set of approximately 6%.

In point of fact, Mr. Tobias’ supporting Reply Exhibit III-G-1 included two transactions involving the financing of a railroad. Specifically, transaction numbers 157 and 165, shown on the sixth page of that Exhibit, were for Fortress Transportation and Infrastructure Investors LLC and for RailAmerica, Inc., respectively. The Fortress transaction raised \$340 million with a gross spread of 6.25% and the RailAmerica transaction raised \$330 million and had a gross spread of 6.50%—both values clearly supporting the 6% average identified by Mr. Tobias.



Mr. Tobias has updated his gross spread analysis for purposes of CSXT's Supplemental Reply evidence by bringing forward the 10-year "look back" period for IPOs of \$100 million or more to the period 1-1-2006 through 1-31-2017. The results of that update are being submitted herewith as Appendix A to CSXT Supplemental Reply Exhibit III-G-2 (consisting of 19 pages listing 494 qualifying transactions, plus a one-page Summary of those transactions, grouped by the amount of the gross proceeds raised). This updated Appendix demonstrates that the 6% flotation cost figure offered by CSXT and Mr. Tobias in the railroad's Reply evidence remains a conservative one, with the average spread for transactions generating gross proceeds of at least \$100 million to be 6.3%. *See* Supplemental Reply Ex. III-G-2 at 1 (V.S. Tobias).

CSXT's evidence of the flotation costs for a CERR IPO is well-supported and constitutes the best evidence of record on that issue.

**c. Consumers Significantly Understates the CERR's Total Cost to Raise the Needed Capital.**

Despite its dogged determination to continue arguing that the Board has erred in recognizing the propriety of including an appropriate equity flotation cost in its calculation of SAC, Consumers' Supplemental Opening evidence contains an argument that such costs should be based on a private placement of CERR securities and that such a private placement "is feasible, and would be accomplished at a cost of less than 1%." Consumers Supp. Op. III-G-9. In support of this new argument, Consumers submitted a Verified Statement from David Maughan of Navigant Consulting, Inc. who contends that an IPO "presents a poor fit for raising



the SARR's equity." Maughan V.S. at 2. Rather, he concludes, "an M&A-type private placement fee of 0.95%" is all that would be required. *Id.* at 18.

CSXT strongly disagrees with Mr. Maughan's conclusion, and it offers in support of this Supplemental Reply evidence the Verified Statements of Glenn Tobias, an experienced investment banker, and of Professor Bradford Cornell, a distinguished expert in Finance and Financial Economics and a Senior Consultant to Compass Lexecon, an international consulting firm. See CSXT Supp. Reply Exs. III-G-1 (V.S. Cornell) and III-G-2 (V.S. Tobias). Both of these experts make the fundamental point—never mentioned by Mr. Maughan—that simply estimating the direct fees for private securities issuances overlooks the very significant fact that the indirect cost—the return that investors in a private placement would demand—is greater for private offerings. When both the direct cost of fees to investment bankers and underwriters on the one hand, and the indirect cost in the form of a higher cost of equity on the other are considered, academic literature and the experience of Mr. Tobias and Professor Cornell supports the conclusion that "all-in costs—both the direct and indirect costs—are roughly equal for the two markets, and sometimes even greater for private markets." Ex. III-G-1 at 4; Ex. III-G-2 at 3. Stated simply, Consumers cannot assume both low direct flotation costs from a private placement and the relatively low industry-wide cost of capital, which is based on public markets, in the SAC analysis. The evidence supports a finding that the CERR could be feasibly financed via an IPO with associated equity flotation costs of approximately 6%, or via a private placement whose direct and indirect

costs would be essentially equivalent to those for the IPO, if not somewhat higher.<sup>2</sup> To remain consistent with the cost of capital used in the SAC analysis, the Board should use equity flotation costs that are based on public markets, which are approximately 6%.

**d. Consumers' Argument that it Would Purchase a Ten-Percent Share of a CERR Private Placement Violates SAC Theory and Must Be Rejected.**

Based on the opinion of Consumers' witness Mr. Maughan, the Complainant states that it would purchase a ten-percent share of a hypothetical private placement of securities to finance the CERR's construction. Consumers Supp. Op. III-G-10 through III-G-14. That assumption violates fundamental SAC theory because it amounts to nothing less than the Complainant – Consumers Energy Company – absorbing properly recognized costs of its SARR, the CERR; and by doing so, Consumers would distort the calculation of the stand-alone costs which the CERR itself must pay. Analytically, Consumers' assumption that it would invest between \$44-50 million to help finance the CERR is no different than if it claimed that it would pay the costs of building bridges or buying rail for the SARR. In either case, it would be removing properly recognizable stand-alone costs, costs essential to the construction of the CERR, and thereby distorting the analysis of the costs needed to provide the service that it proposes that the CERR would provide.

---

<sup>2</sup> Moreover, as Professor Cornell explains, it would be a significant mistake to attempt to use the cost of capital developed by the Board, which is based upon data regarding publicly traded railroad companies, with the direct bankers' fee costs associated with private placements. Ex. III-G-1 at 11-13.

The Board's predecessor long ago clearly rejected attempts to attribute tax benefits to be generated by a SARR to its corporate parent, and in doing so embraced the "entity principle" adopted by the Railroad Accounting Principles Board ("RAPB"):

The purpose of the SAC test is to determine the costs which an efficient competitor would face if it entered the transportation industry and competed with the incumbent for a defined group of traffic. The resultant costs and estimated maximum rates should reflect only the economic costs of the hypothetical SARR and should not be influenced by an assumed parent corporation. Recognizing the financial condition of the parent corporation in the calculation of SAC would incorrectly change the test to one which measures the relative merits of different corporate owners.

*Bituminous Coal—Hiawatha, UT to Moapa, NV*, 6 I.C.C.2d 1, 74 (1989). Similarly, in *Coal Trading Corp., et al. v. B&O Railroad Co., et al.*, 6 I.C.C.2d 361, 433 (1990), the ICC held:

Intermingling the finances of the SARRs and their parent corporation in the calculation of SAC would incorrectly change the test from a measure of the least economic cost of service to one which measures the relative merits of different corporate owners. We are supported by the RAPB in this view. With regard to maximum rates it stated: "The entity for SAC is the transportation network required by the new hypothetical competitor."

Consumers' proposal constitutes an obvious violation of the entity principle and must be rejected. That proposal is nothing less than an artifice for eliminating a significant portion of the costs that the CERR would incur to finance itself through a private placement.

## TABLE OF CONTENTS

|                                                   | <u>Page</u> |
|---------------------------------------------------|-------------|
| III. STAND-ALONE COST.....                        | III-H-1     |
| H. RESULTS OF SAC ANALYSIS .....                  | III-H-1     |
| 1. Results of SAC DCF Analysis .....              | III-H-1     |
| a. Cost of Capital .....                          | III-H-1     |
| g. Average Annual Inflation in Asset Prices ..... | III-H-2     |
| k. Summary of SAC Analysis .....                  | III-H-2     |
| 2. Maximum Rate Calculations .....                | III-H-4     |



### **III. STAND-ALONE COST**

#### **H. RESULTS OF SAC ANALYSIS**

In this Section, CSXT discusses the results of its SAC Discounted Cash Flow (“DCF”) analysis and the application of the Board’s Maximum Markup Methodology (“MMM”) in reply to Consumers’ Supplemental evidence.

##### **1. Results of SAC DCF Analysis**

In this Supplemental Reply evidence, CSXT has incorporated the changes discussed in the previous sections III-A through III-G into its Reply DCF model. All relevant data inputs, such as traffic volumes, revenues, operating expenses and construction costs, have been updated based on the revised traffic group.<sup>1</sup>

##### **a. Cost of Capital**

CSXT makes an adjustment to the cost of capital in its Supplemental Reply DCF model. To make both parties’ evidence more consistent, CSXT used the 2015 railroad cost of equity that Consumers added in its Rebuttal evidence, which it filed in May 2016.<sup>2</sup> The 2015 data were not available when CSXT filed its Reply evidence.

---

<sup>1</sup> As explained in Section III-C, on Reply CSXT submitted an RTC simulation that included the trains it had removed for not meeting CSXT’s real-world service standard, and updates that alternative to reflect Consumers’ modifications to the SARR traffic group for the Supplemental evidence. *See* CSXT Reply III-C-73, n. 158; *supra* Section III-C. CSXT submits with this Supplemental Reply the SAC DCF results corresponding with that alternative scenario, and also provides its calculation of DCF results for the CERR traffic group that Consumers selected for its Supplemental evidence. *See* CSXT Supp. Reply WP “Exhibit III-H-1\_Supp\_Reply\_Alt1.xlsm” and “Exhibit III-H-1\_Supp\_Reply\_Alt2.xlsm.xlsx.”

<sup>2</sup> *See* CSXT Supp. Reply WP “Exhibit III-H-1\_Supp\_Reply.xlsm,” Tab “Cost of Capital,” Row 13.

As discussed in Section III-G, CSXT maintains its position that a 6% equity flotation fee is required to raise the necessary capital for the CERR.

**g. Average Annual Inflation in Asset Prices**

To make both parties' evidence more consistent, CSXT used the RCAF forecasts that Consumers submitted in its Rebuttal evidence and also used for its Supplemental Opening filing.<sup>3</sup>

**k. Summary of SAC Analysis**

CSXT's updated stand-alone costs and revenues for the CERR are presented in Table L of Exhibit III-H-1 on a quarterly and annual basis and summarized in Table III-H-2 below.

---

<sup>3</sup> See CSXT Supp. Reply WP "Exhibit III-H-1\_Supp\_Reply.xlsm," Tab "Inputs RCAF\_RCR."

**Table III-H-2**  
**CSXT Supplemental Reply CERR SAC Results (\$ millions)**

| <b>Year</b>                         | <b>SARR<br/>Revenue<br/>Requirement</b> | <b>SARR<br/>Revenues</b> | <b>Overpayments<br/>(Shortfalls)</b> | <b>Present<br/>Value</b> |
|-------------------------------------|-----------------------------------------|--------------------------|--------------------------------------|--------------------------|
| <b>2015</b>                         | \$156.4                                 | \$102.8                  | (\$53.7)                             | (\$51.2)                 |
| <b>2016</b>                         | \$148.7                                 | \$86.9                   | (\$61.8)                             | (\$53.0)                 |
| <b>2017</b>                         | \$156.0                                 | \$104.7                  | (\$51.3)                             | (\$39.7)                 |
| <b>2018</b>                         | \$161.0                                 | \$100.7                  | (\$60.3)                             | (\$42.1)                 |
| <b>2019</b>                         | \$167.9                                 | \$104.6                  | (\$63.3)                             | (\$39.9)                 |
| <b>2020</b>                         | \$175.6                                 | \$113.9                  | (\$61.7)                             | (\$35.1)                 |
| <b>2021</b>                         | \$182.3                                 | \$115.5                  | (\$66.8)                             | (\$34.3)                 |
| <b>2022</b>                         | \$189.8                                 | \$123.4                  | (\$66.4)                             | (\$30.8)                 |
| <b>2023</b>                         | \$195.2                                 | \$118.9                  | (\$76.3)                             | (\$31.9)                 |
| <b>2024</b>                         | \$203.4                                 | \$131.6                  | (\$71.8)                             | (\$27.1)                 |
| <b>Cumulative Net Present Value</b> |                                         |                          |                                      | <b>(\$385)</b>           |

The results in Table III-H-2 show that the revenues available to the SARR are not sufficient to cover the full SAC costs of the SARR over the ten-year analysis period.<sup>4</sup> In fact, the CERR would experience a cumulative revenue shortfall of over \$385 million. Thus, Consumers has failed to demonstrate that the challenged rates are unreasonably high.

---

<sup>4</sup> The SAC results for the alternative scenarios included in CSXT's Supplemental Reply workpapers are each within 3 percent of the cumulative Net Present Value ("NPV") results presented in Table III-H-2, which indicated that the overall impact of the traffic selection differences between the parties is not large, and that the outcome of the case is driven by other differences between the parties' evidence. See CSXT Supp. Reply WP "Exhibit III-H-1\_Supp\_Reply\_Alt1.xlsm," Tab "Summary" and "Exhibit III-H-1\_Supp\_Reply\_Alt2.xlsm.xlsx," Tab "Summary."

## 2. Maximum Rate Calculations

CSXT's Reply evidence shows that the Board should have no reason to apply the MMM, because the challenged rates do not exceed a maximum reasonable level and no rate prescription is warranted. However, if the Board were to find that under its SAC analysis the CERR's revenues exceed its SAC costs, it should correct Consumers' proposed application of MMM to index URCS costs for future years using RCAF-A.<sup>5</sup> Accordingly, CSXT used the RCAF forecasts that Consumers submitted in its Rebuttal evidence and also used for its Supplemental Opening filing to update the RCAF-A index in its MMM model. CSXT also modified the MMM model to include the new traffic group.<sup>6</sup>

---

<sup>5</sup> See CSXT Suppl. Reply III-H-14 through III-H-18.

<sup>6</sup> See CSXT Suppl. Reply WP "MMM CSXT URCS Index\_Supp\_Reply.xlsx," Tab "CSX Index Forecast," Cells C26:C36.



## V. WITNESS QUALIFICATIONS AND VERIFICATION

|                            |       |
|----------------------------|-------|
| Baranowski, Michael R..... | V- 1  |
| Brown, Richard .....       | V- 2  |
| Chakrabarti, Kaustuv ..... | V- 3  |
| Cornell, Bradford .....    | V- 4  |
| Fisher, Benton .....       | V- 16 |
| Hughes, David.....         | V- 17 |
| Matelis, Michael.....      | V- 18 |
| Tobias, Glenn .....        | V- 19 |
| Wheeler, David R. ....     | V- 20 |
| Zebrowski, Nathaniel ..... | V- 21 |

### **VERIFICATION**

I, Michael R. Baranowski, verify under penalty of perjury that I am the same Michael R. Baranowski whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to the portions of Section III-F, portions of Section III-G, and Section III-H that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

  
Michael R. Baranowski

Executed on March 1, 2017.

**VERIFICATION**

I, Richard Brown, verify under penalty of perjury that I am the same Richard Brown whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to operating equipment, materials and supplies, and general and administrative expenses in Section III-D that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

  
Richard Brown

Executed on March 1, 2017.

**VERIFICATION**

I, Kaustuv Chakrabarti, verify under penalty of perjury that I am the same Kaustuv Chakrabarti whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to the implementation of the SARR operating plan and the calculation of operating expenses in Sections III-C and III-D that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

A handwritten signature in black ink, appearing to read 'Kaustuv Chakrabarti', is written over a horizontal line.

Kaustuv Chakrabarti

Executed on March 1, 2017.



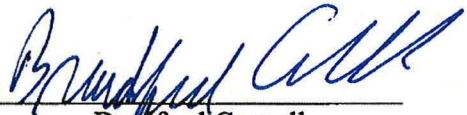
## **BRADFORD CORNELL**

Professor Cornell, who holds a master's degree in Statistics (1974) and a doctorate in Financial Economics (1975) from Stanford University, is a Visiting Professor of Financial Economics at the California Institute of Technology. Professor Cornell is also a Senior Consultant and Advisory Committee member at Compass Lexecon. In this position, Professor Cornell advises business and legal clients on financial economic issues. Professor Cornell has written extensively on topics impacting the stock market, including asset pricing, discounted cash flow analyses and dividend price ratios, and stock returns. Professor Cornell was awarded the Graham and Dodd G&D Scroll Award for research on securities analysis and valuation in both 2006 and 2011, and has been cited as one of the 10 most prolific research authors in the field of finance. Professor Cornell is sponsoring portions of Section III-G related to equity flotation costs of CSX Transportation, Inc.'s Supplemental Reply Evidence.

Professor Cornell previously served as a Senior Consultant at Charles River Associates and as President of FinEcon: Financial Economic Consultant and has held numerous professorships across the United States. Professor Cornell held the position of Professor of Finance and Director of the Bank of America Research Center, Anderson Graduate School of Management, at the University of California, Los Angeles, for 26 years.

## VERIFICATION

I, Bradford Cornell, declare under penalty of perjury that I have read the portions of the Supplemental Reply Evidence of CSX Transportation, Inc. that I have sponsored (as described in the foregoing Statement of Qualifications), that I know the contents thereof, and that the evidence I have sponsored is true and correct. Further, I certify that I am qualified and authorized to file this statement.

  
Bradford Cornell

Executed on March 1, 2017.

## **BRADFORD CORNELL**

Senior Consultant

Compass Lexecon  
55 South Lake Avenue, Suite 650  
Pasadena, CA 91101  
bcornell@compasslexecon.com

Tel: (213) 416-9930

Fax: (213) 416-9945

## **EDUCATION**

Ph.D., Financial Economics, Stanford University

M.S., Statistics, Stanford University

A.B., (Interdepartmental) Physics, Philosophy, and Psychology, Stanford University

## **ACADEMIC AND PROFESSIONAL POSITIONS**

|                       |                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|
| December 2011–Present | <i>Senior Consultant, Compass Lexecon</i>                                                                                     |
| December 2010–Present | <i>Managing Director, San Marino Business Partners</i>                                                                        |
| 1999–December 2011    | <i>Senior Consultant, CRA</i>                                                                                                 |
| 2005–Present          | <i>Visiting Professor of Financial Economics, California Institute of Technology</i>                                          |
| 1987–2005             | <i>Professor of Finance and Director of the Bank of America Research Center, Anderson Graduate School of Management, UCLA</i> |
| 1990–1999             | <i>President, FinEcon: Financial Economic Consulting</i>                                                                      |
| 1988–1990             | <i>Vice-President and Director of the Securities Litigation Group, Economic Analysis Corporation</i>                          |
| 1979–1986             | <i>Assistant and Associate Professor of Finance, UCLA</i>                                                                     |
| 1983–1984             | <i>Visiting Professor of Finance, California Institute of Technology</i>                                                      |
| 1977–1979             | <i>Assistant Professor of Finance, University of Southern California</i>                                                      |
| 1975–1977             | <i>Assistant Professor of Finance, University of Arizona</i>                                                                  |

## **PUBLICATIONS**

### **Books and book chapters**

- “Stock Repurchases: Tradeoffs and Trends,” *Dividends and Dividend Policy*, H. Kent Baker, ed., Blackwell Publishing, New York, 2009.
- “Securities Fraud Damages,” With J. Hirshleifer and J. Haut. *Developments in Litigation Economics*, Vol. 87, P. Gaughan and R. Thornton, eds., Elsevier, Ltd., Oxford, UK, 2005.
- *The Equity Risk Premium and the Long-Run Future of the Stock Market*. John Wiley and Sons, New York, NY, 1999.
- “Corporate Valuation,” *Handbook of Modern Finance*, 3<sup>rd</sup> edition, Dennis Logue, ed., Warren Gorham Lamont, Boston, MA, 1994.
- *Corporate Valuation: Tools for Effective Appraisal and Decision Making*. McGraw-Hill, New York, NY, 1993.

### **Academic articles**

- “Does Past Performance Matter in Investment Manager Selection” With Jason Hsu and David Nanigian, *Journal of Portfolio Management*, forthcoming, 2017.
- “Information Flow and Expected Inflation: An Empirical Analysis,” *Journal of Investing*, forthcoming, 2016.
- “Do Valuation Multiples Reflect a Size Effect,” With Rajiv Gokhale, *Journal of Business Valuation and Economic Loss Analysis*, forthcoming, 2016.
- Accounting Information, Investor Sentiment and Market Pricing, With Wayne R. Landsman and Steven R. Stubben, *Journal of Law, Finance and Accounting*, forthcoming, 2016.
- “An ‘Enhanced’ Corporate Valuation Model: Theory and Empirical Tests,” With Rajiv Gokhale, *Business Valuation Review*, 2016, Vol 35, 2, 52-61.
- “The Tesla Run-up: Follow-up with Investment Implications,” *Journal of Portfolio Management*, Fall 2016, Vol. 43, 1, 1-4.
- “The Self-Fulfilling Prophecy of Popular Asset Pricing Models,” With Jason Hsu, *Journal of Investment Management*, 2016, Vol. 14, 1, 65-74.
- Information and the Oil Price Collapse, *Journal of Portfolio Management Invited Article*, 2015, Vol 42, 1, 1-4.
- “Capital Budgeting: A General Equilibrium Analysis,” *Journal of Financial Perspectives*, 2015, Vol. 3, 1, 1-8.
- “Using Dividend Discount Models to Estimate Expected Returns, *Journal of Investing*, 2015, Vol. 23, 1, 18-22.
- “How Efficient is Sufficient: Securities Litigation Post-Halliburton,” *Bank and Corporate Governance Law Reporter*, 2014, Vol. 53, No. 4, 26-33; December 2014 *Securities Fraud Litigation Reporter*, Vol. 38, No. 3, p. 327; 38 SRALR 327; January 2015 *RICO and Securities Fraud Law Reporter*, Vol. 61, No. 1, p. 13; 61 RSFLR 13.



- “Competition in Portfolio Management: Theory and Experiment,” With Elena Asparouhova, Peter Bossaerts, Jernej Copic, Jaksa Cvitanic and Deborah. Meloso, *Management Science*, 2014, Vol. 61, 8, 1868-1888.
- “Tesla: The Anatomy of a Run-up,” With Aswath Damodaran, *Journal of Portfolio Management*, 2014, Vol. 41, 1, 139-151.
- “Guideline Public Company Valuation and Control Premiums: An Economic Analysis,” *Journal of Business Valuation and Economic Loss Analysis*, 2013, Vol. 8, 1, 53–70.
- “Dividend Price Ratios and Stock Returns: International Evidence,” *Journal of Portfolio Management*, 2013, Vol. 40, 2, 122–127.
- “What Moves Stock Prices: Another Look,” *The Journal of Portfolio Management*, 2013, Vol. 39, 3, 32–38.
- “Discounted Cash Flow and Residual Earnings Valuation: A Comparison in the Context of Valuation Disputes,” *Business Valuation Review*, 2013, Vol. 31, 4, 10–20.
- “Dividend-Price Ratios and Stock Returns: Another Look at the History,” *Journal of Investing*, 2013, Volume 22, 2, 15–22.
- “Demographics, GDP and Future Stock Returns: The Implications of Some Basic Principles,” *The Journal of Portfolio Management*, 2012, Vol. 38, 2, 96–99.
- “Market Efficiency and Securities Litigation: Implications of the Appellate Decision in Thane,” *Virginia Law and Business Review*, 2011, Vol. 6, 2, 237–255.
- “Investment Strategies and Investment Track Records,” invited editorial, *The Journal of Portfolio Management*, 2011, Vol. 37, 4, 3–5.
- “The Intriguing Case of KMP and KMR,” *The Journal of Portfolio Management*, 2011, Vol. 37, 3, 121–127.
- “Warren Buffett, Black-Scholes, and the Valuation of Long-Dated Options,” *The Journal of Portfolio Management*, Summer 2010, Vol. 36, 4, 107–111.
- “Economic Growth and Equity Investing,” *Financial Analysts Journal*, January/February, 2010, Vol. 66, 1, 54–64. Winner Graham and Dodd G&D Scroll Award for 2010.
- “Beliefs Regarding Fundamental Value and Optimal Investing,” With J. Cvitanic and L. Goukasian, *Annals of Finance*, January 2010, Vol. 6, 1, 83–105.
- “Collateral Damages and Securities Litigation,” With J. Rutten. *Utah Law Review*, Vol. 2009, 3, pp. 717–748.
- “The Fundamental Nature of Recessions: A Contracting and Restructuring Approach,” *The Economists Voice*, October 2009, pp. 1–4.
- “The Pricing of Volatility and Skewness,” *Journal of Investing*, Vol. 18, Fall 2009, pp. 27–31.
- “Implications of the Financial Crisis for Financial Education,” *Journal of Financial Education*, Vol. 35, Spring, pp. 1–6.
- “Investment Research: How Much Is Enough?,” *Management Online Review*, Oxford Management Publishing, 2009, <http://www.moreexpertise.com/download.php?id=135>.

- “Luck, Skill, and Investment Performance,” *The Journal of Portfolio Management*, Vol. 35, Winter 2009, pp. 85–89. Winner Bernstein/Fabozzi Award for 2009.
- “The Basic Speed Law for Capital Market Returns,” *CFA Magazine*, November/December 2008, pp. 10–11. Also published electronically by *Real Capital Markets*, October 24, 2008, [http://www.realclearmarkets.com/articles/2008/10/the\\_basic\\_speed\\_law\\_for\\_capita\\_1.html](http://www.realclearmarkets.com/articles/2008/10/the_basic_speed_law_for_capita_1.html).
- “The Impact of Analysts’ Forecast Errors and Forecast Revisions on Stock Prices,” With W. Beaver, W. Landsman, and S. Stubben. *Journal of Business Finance and Accounting*, Vol. 35, No. 5/6, 2008, pp. 709–740.
- “Market Efficiency, Crashes, and Securities Litigation,” With J. Rutten. *Tulane Law Review*, Vol. 81, No. 2, 2006.
- “Accounting and Valuation: How Helpful Are Recent Accounting Rule Changes?,” With W. Landsman, *Journal of Applied Corporate Finance*, Fall 2006, Vol. 18, No. 4.
- “Dividends, Stock Repurchases, and Valuation,” *Journal of Applied Finance*, Vol. 15, No. 2, 2005, pp. 13–24.
- “How Do Analysts’ Recommendations Respond to Major News?,” With J. Conrad, W. Landsman, and B. Roundtree. *Journal of Financial and Quantitative Analysis*, Vol. 41, No. 1, 2006, pp. 39–68.
- “A Delegated Agent Asset Pricing Model,” With R. Roll. *Financial Analysts Journal*, Vol. 61, No. 1, 2005, pp. 57–69. Winner Graham and Dodd G&D Scroll Award for 2006.
- “Co-movement as an Investment Tool,” *The Journal of Portfolio Management*, Vol. 30, Spring 2004, pp. 1–5.
- “Compensation and Recruiting: Private Universities vs. Private Corporations,” *Journal of Corporate Finance*, Vol. 10, No. 1, 2004, pp. 37–52.
- “Accounting and Valuation: Is the Quality of Earnings an Issue?,” With W. Landsman. *Financial Analysts Journal*, Vol. 59, No. 6, 2003, pp. 20–28.
- “The Information that Boards Really Need,” *Sloan Management Review*, Vol. 44, Spring 2003, pp. 71–76.
- “When is Bad News Really Bad News?,” With J. Conrad and W. Landsman. *The Journal of Finance*, Vol. 57, December 2002, pp. 2507–2532.
- “The Parent Company Puzzle: When is the Whole Worth Less than the Sum of the Parts?,” With Q. Liu. *Journal of Corporate Finance*, Vol. 4, December 2001, pp. 341–366.
- “Is the Response of Analysts to Information Consistent with Fundamental Valuation? The Case of Intel,” *Financial Management*, Vol. 30, Spring 2001, pp. 113–136.
- “Equity Duration, Growth Options, and Asset Pricing,” *The Journal of Portfolio Management*, Fall 2000, pp. 171–180.
- “Risk, Duration, and Capital Budgeting: New Evidence on Some Old Questions,” *Journal of Business*, Vol. 2, April 1999, pp. 183–200.
- “The Term Structure, the CAPM, and the Market Risk Premium: An Interesting Puzzle,” *Journal of Fixed Income*, Vol. 4, December 1998, pp. 85–89.



- “Cash Settlement when the Underlying Securities are Thinly Traded: A Case Study,” *Journal of Futures Markets*, Vol. 17, No. 8, 1997, pp. 855–871.
- “Estimating the Cost of Equity Capital,” With J. Hirshleifer and E. James. *Contemporary Finance Digest*, Vol. 1, Fall 1997, pp. 5–26.
- “The Valuation of Complex Derivatives by Major Investment Firms: Empirical Evidence,” With A. Bernardo. *The Journal of Finance*, Vol. 52, June 1996, pp. 785–798.
- “Culture, Information, and Screening Discrimination,” With I. Welch. *Journal of Political Economy*, Vol. 104, June 1996, pp. 542–571.
- “Throwing Good Money after Bad? Cash Infusions and Distressed Real Estate,” With F. Longstaff and E. Schwartz. *Journal of the American Real Estate and Urban Economics Association*, Vol. 24, 1996, pp. 23–41.
- “An Hypothesis Regarding the Origins of Ethnic Discrimination,” *Rationality and Society*, Vol. 7, January 1995, pp. 4–29.
- “Change Reinforces Use of DCF Method,” *Natural Gas*, Vol. 11, October 1994, pp. 5–15.
- “Adverse Selection, Squeezes, and the Bid-Ask Spread on Treasury Securities,” *Journal of Fixed Income*, Vol. 3, June 1993, pp. 39–47.
- “The Reaction of Investors and Stock Prices to Insider Trading,” With E. Sirri. *The Journal of Finance*, Vol. 47, July 1992, pp. 1031–1059.
- “Liquidity and the Pricing of Low-grade Bonds,” *Financial Analysts Journal*, Vol. 48, January/February 1992, pp. 63–68.
- “Measuring the Investment Performance of Low-grade Bond Funds,” With K. Green. *The Journal of Finance*, Vol. 66, March 1991, pp. 29–48.
- “Using Finance Theory to Measure Damages in Fraud on the Market Cases,” With G. Morgan. *UCLA Law Review*, Vol. 37, No. 2, 1990, pp. 883–924.
- “The Incentive to Sue: An Option Pricing Approach,” *Journal of Legal Studies*, Vol. 17, No. 1, 1990, pp. 173–188.
- “Volume and  $R^2$ ,” *Journal of Financial Research*, Vol. 13, No. 13, 1990, pp. 1–7.
- “Measuring the Term Premium: An Empirical Note,” *Journal of Economics and Business*, Vol. 42, No. 1, 1990, pp. 89–93.
- “Cross Sectional Regularities in the Reaction of Stock Prices to Bond Rating Changes,” With W. Landsman and A. Shapiro. *Journal of Accounting, Auditing, and Finance*, Vol. 4, No. 4, 1989, pp. 460–479.
- “The Mispricing of US Treasury Bonds: A Case Study,” With A. Shapiro. *The Review of Financial Studies*, Vol. 2, No. 3, 1989, pp. 297–310.
- “The Impact of Data Errors on Measurement of the Foreign Exchange Risk Premium,” *Journal of International Money and Finance*, Vol. 8, 1989, pp. 147–157.
- “Security Price Response to Quarterly Earnings Announcements and Analyst Forecast Revisions,” With W. Landsman. *The Accounting Review*, Vol. 64, October 1989, pp. 680–692.

- “Financing Corporate Growth,” With A. Shapiro. *Journal of Applied Corporate Finance*, Vol. 1, summer 1988, pp. 6–22.
- “Measuring the Cost of Corporate Litigation: Five Case Studies,” With K. Engelmann. *Journal of Legal Studies*, Vol. 17, June 1988, pp. 135–162.
- “Corporate Stakeholders and Corporate Finance,” With A. Shapiro. *Financial Management*, Vol. 16, Spring 1987, pp. 5–14.
- “The Impact on Bank Stock Prices of Regulatory Responses to the International Debt Crisis,” With A. Shapiro and W. Landsman. *Journal of Banking and Finance*, Vol. 3, 1987, pp. 161–178.
- “Pricing Interest Rate Swaps: Theory and Empirical Evidence,” *Proceeding of Conference on Swaps and Hedges*, Salomon Brothers Center, New York University, 1987.
- “Forecasting the Eleventh District Cost of Funds,” *Housing Finance Review*, Vol. 6, Summer 1987, pp. 123–135.
- “Commodity Own Rates, Real Interest Rates, and Money Supply Announcements,” With K. French. *Journal of Monetary Economics*, Vol. 18, July 1986, pp. 3–20.
- “The Reaction of Bank Stock Prices to the International Debt Crisis,” With A. Shapiro. *Journal of Banking and Finance*, Vol. 10, 1986, pp. 55–73.
- “Inflation Measurement, Inflation Risk, and the Pricing of Treasury Bills,” *Journal of Financial Research*, Vol. 9, Fall 1985, pp. 193–202.
- “Interest Rates and Exchange Rates: Some New Empirical Evidence,” With A. Shapiro. *Journal of International Money and Finance*, Vol. 4, 1985, pp. 431–442.
- “The Weekly Pattern in Stock Returns: Cash versus Futures,” *The Journal of Finance*, Vol. 40, June 1985, pp. 583–588.
- “The Income Approach to Valuation,” *Proceedings of the Wichita State University Conference on the Appraisal of Railroads and Public Utilities*, 1985.
- “The Value of Rate Base Options in the Eurocredit Market,” With O. Sand. *Journal of Bank Research*, Vol. 16, Spring 1985, pp. 22–28.
- “The Money Supply Announcements Puzzle: Review and Interpretation,” *American Economic Review*, Vol. 73, September 1983, pp. 644–658.
- “The Money Supply Announcements Puzzle: Reply,” *American Economic Review*, Vol. 75, June 1985, pp. 565–566.
- “Taxes and the Pricing of Stock Index Futures,” With K. French. *The Journal of Finance*, Vol. 38, June 1983, pp. 675–695; reprinted in *Proceedings of the Seminar for the Analysis of Securities Prices*, University of Chicago Press, 1983.
- “Money Supply Announcements and Interest Rates: Another View,” *Journal of Business*, Vol. 56, January 1983, pp. 1–25; reprinted in *Proceedings of the Seminar for the Analysis of Securities Prices*, University of Chicago Press, 1983.
- “Monetary Policy and the Daily Behavior of Interest Rates,” *Journal of Business and Economics*, Vol. 35, 1983, pp. 189–203.



- “Managing Exchange Risk,” With A. Shapiro. *Midland Corporate Financial Journal*, Vol. 1, Fall 1983, pp. 16–31; reprinted in *New Developments in International Finance*, J. Stern and D. Chew, eds., Basil Blackwell, New York, 1988.
- “The Pricing of Stock Index Futures,” With K. French. *Journal of Futures Markets*, Vol. 3, Fall 1983, pp. 1–14; reprinted in *Readings in Futures Markets*, Vol. 5 and in *Selected Writings on Futures Markets: Explorations in Financial Futures*; both published by the Chicago Board of Trade, 1984.
- “Money Supply Announcements, Interest Rates, and Foreign Exchange,” *Journal of International Money and Finance*, Vol. 1, 1982, pp. 201–208.
- “Forward versus Futures Prices: Evidence from the Foreign Exchange Markets,” With M. Reinganum. *The Journal of Finance*, Vol. 36, December 1981, pp. 1035–1046.
- “Taxation and the Pricing of Treasury Bill Futures,” *The Journal of Finance*, Vol. 36, December 1981, pp. 1169–1176.
- “The Relationship between Volume and Price Variability in Futures Markets,” *Journal of Futures Markets*, Vol. 1, Fall 1981, pp. 303–316.
- “Relative vs. Absolute Price Changes: An Empirical Study,” *Economic Inquiry*, Vol. 16, April 1981, pp. 302–309.
- “The Consumption Based Asset Pricing Model: A Note on Potential Tests and Applications,” *Journal of Financial Economics*, Vol. 9, March 1981, pp. 103–110.
- “Strategies for Pairwise Competitions in Markets and Organizations,” With R. Roll. *Bell Journal of Economics*, Vol. 12, Spring 1981, pp. 201–216.
- “What is the Future for Floating Rate Bonds?,” *Chase Financial Quarterly*, Vol. 1, Fall 1981, pp. 27–38.
- “The Denomination of Foreign Trade Contracts Once Again,” *Journal of Financial and Quantitative Analysis*, Vol. 5, November 1980, pp. 933–945.
- “Inflation, Relative Price Changes, and Exchange Risk,” *Financial Management*, Vol. 9, Spring 1980, pp. 30–35.
- “Asymmetric Information and Investment Performance Measurement,” *Journal of Financial Economics*, Vol. 7, December 1979, pp. 381–390.
- “Treasury Bill Pricing in the Spot and Futures Markets,” With D. Capozza. *Review of Economics and Statistics*, Vol. 61, November 1979, pp. 513–520; reprinted in *Interest Rate Futures: Concepts and Issues*, Robert Dame International, 1981.
- “A Variance Forecasting Test of the Option Pricing Model,” With D. Capozza. *Financial Review*, Vol. 7, 1979, pp. 381–390.
- “Relative Price Changes and Deviations from Purchasing Power Parity,” *Journal of Banking and Finance*, Vol. 3, 1979, pp. 263–279.
- “A Note on Capital Asset Pricing and the Theory of Indexed Bonds,” *Southern Journal of Economics*, Vol. 45, 1979, pp. 1239–1247.
- “Do Money Supply Announcements Affect Short-term Interest Rates?,” *Journal of Money, Credit, and Banking*, Vol. 11, February 1979, 80–86.

- “Risk, Currency Substitution, and the Exchange Rate,” *Proceedings of the Fall 1978 Conference*, Federal Reserve Bank of San Francisco, 1978.
- “Determinants of the Bid-Ask Spread on Forward Foreign Exchange Contracts Under Floating Exchange Rates,” *Journal of International Business Studies*, Vol. 9, Fall 1978, pp. 33–41.
- “Using the Option Pricing Model to Measure the Uncertainty Producing Effect of Major Announcements,” *Financial Management*, Vol. 7, Spring 1978, pp. 54–59.
- “Price as a Signal of Quality: Some Additional Experimental Results,” *Economic Inquiry*, Vol. 16, April 1978, pp. 302–309.
- “Mean Absolute Deviation versus Least-Square Regression Estimation of Beta Coefficients,” With J. Dietrich. *Journal of Financial and Quantitative Analysis*, Vol. 13, March 1978, pp. 123–131.
- “Monetary Policy, Inflation Forecasting, and the Term Structure of Interest Rates,” *The Journal of Finance*, Vol. 33, March 1978, pp. 117–127.
- “The Efficiency of the Market for Foreign Exchange Under Floating Exchange Rates,” With J. Dietrich. *Review of Economics and Statistics*, Vol. 60, February 1978, pp. 111–120.
- “Option Pricing in Bear and Bull Markets,” *The Journal of Portfolio Management*, Vol. 4, Summer 1978, pp. 30–32.
- “Spot Rates, Forward Rates, and Exchange Market Efficiency,” *Journal of Financial Economics*, Vol. 5, August 1977, pp. 55–65; reprinted in *Frontiers in International Financial Management*, D. Lessard and J. Wiley, Eds., 1979, and in *International Finance: Concepts and Issues*, R. Kalb and G. Gay, Eds., Robert F. Dame, 1982.
- “Measuring the Informational Content of Consumer Price Announcements,” *Nebraska Journal of Economics and Business*, Vol. 16, Summer 1977, pp. 57–64.
- “Which Inflation Rate Affects Interest Rates?,” *Business Economics*, Vol. 12, May 1977, pp. 22–25. Reprinted in *Certified Financial Analysts Digest*, 1977.
- “Are Deep Discount Convertibles Underpriced?,” *The Journal of Portfolio Management*, Vol. 3, Spring 1977, pp. 55–57.
- “Using the Goldsmith-Nagan Survey to Estimate the Liquidity Premium,” *Journal of Economics and Business*, Vol. 2, February 1977, pp. 148–151.
- “Managing Money in a Competitive Securities Market,” *Arizona Review*, Vol. 25, September 1976, pp. 1–5.
- “Asset Pricing Under Uncertain Inflation: A Note on the Work of Long and Roll,” *Intermountain Economic Review*, Vol. 7, Spring 1976, pp. 85–91.
- “The Arizona Retirement System 1956–1975: An Investment Analysis,” *Arizona Review*, Vol. 25, March 1976, pp. 1–9.



### **Book reviews and discussion comments**

- “Statistical Analysis of Price and Basis Behavior: October 12–6, 1987,” *The Stock Market: Bubbles, Volatility, and Chaos*, E. Dwyer and R. Hafer, eds., Kluwer Academic Publishers, 1990.
- Review of *Futures Markets*, *Journal of Monetary Economics*, M. Streit, ed., Vol. 16, July 1985, pp. 133–135.
- Review of “Exchange Rates and International Macroeconomics,” *Journal of International Money and Finance*, J. Frenkel, ed., Vol. 4, 1985, pp. 212–214.
- Review of “Exchange Rate Policy,” by Ray A. Batchelor and Geoffrey Wood, *Journal of Economic Literature*, Vol. 21, 1983, pp. 1027–1029.

### **Working papers**

- “Assessing the Risk of Securities Lending Transactions,” 1999.
- *Social Decoding and Ethnic Discrimination*, 1996, book-length manuscript.
- “Using the DCF Method to Estimate the Cross-Sectional Variation of Expected Returns,” With S. Cheng, 1995.
- “Testing the Tax Timing Option Theory: A New Approach,” 1984.
- “Determinants of Corporate Capital Structure: An Empirical Analysis,” With J. Dietrich, 1979.

### **AWARDS AND HONORS**

- Bernstein Fabozzi/Jacobs Levy Award for outstanding research from *The Journal of Portfolio Management*, 2015
- Graham and Dodd G&D Scroll Award for research on securities analysis and valuation, 2011
- Bernstein Fabozzi/Jacobs Levy Award for outstanding research from *The Journal of Portfolio Management*, 2010
- Graham and Dodd G&D Scroll Award for research on securities analysis and valuation (with Richard Roll), 2006
- I/B/E/S award for research in empirical finance (with W. Landsman and J. Conrad), 1999
- Cited as one of the 10 most prolific research authors in the field of finance in “Most Frequent Contributors to the Finance Literature” by Jean Louis Heck and Phillip L. Cooley, *Financial Management*, Autumn 1988
- Financial Management Association Prize for Applied Research, 1987
- Institute for Quantitative Research in Finance, Research Grant, 1984
- Center for the Study of Futures Markets, Research Grant, 1983

- Center for the Study of Futures Markets, Research Grant, 1981
- Chicago Mercantile Exchange, Research Grant, 1979
- Phi Beta Kappa, Stanford University, 1970

#### **MEMBERSHIPS IN PROFESSIONAL SOCIETIES**

|                                  |              |
|----------------------------------|--------------|
| American Finance Association     | 1973–Present |
| Western Finance Association      | 1973–Present |
| Member of Board of Directors     | 1982–1985    |
| Vice-President                   | 1987         |
| American Economic Association    | 1973–Present |
| American Statistical Association | 1992–Present |

#### **SELECTED BOARD AND COMMITTEE MEMBERSHIPS**

|                                                                                       |              |
|---------------------------------------------------------------------------------------|--------------|
| Board of Advisors, Research Affiliates LLC                                            | 2013–Present |
| Chairman, Mayor Riordan’s Blue Ribbon Commission on Los Angeles Municipal Investments |              |
| Pension Policy Board, The Aerospace Corporation                                       | 1985–2002    |
| Board of Directors, Forms Engineering Corporation                                     | 1976–1989    |
| Trustee, Kellow Trust                                                                 | 1982–1991    |

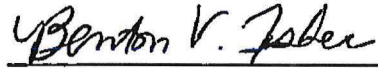
#### **SPECIAL EDUCATION PROGRAMS**

|                                                                          |             |
|--------------------------------------------------------------------------|-------------|
| The U.S. Business School in Prague – Special Finance Program             | Summer 1991 |
| The Nissan Program for Historically Black Colleges, Director             | Summer 1989 |
| The Lead Program for Business Education of Minority High School Students | 1987–2004   |



**VERIFICATION**

I, Benton V. Fisher, verify under penalty of perjury that I am the same Benton V. Fisher whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to the implementation of the SARR operating plan and the calculation of operating expenses in Sections III-C and III-D that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

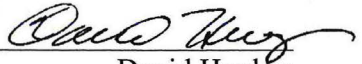


Benton V. Fisher

Executed on March 1, 2017.

**VERIFICATION**

I, David Hughes, verify under penalty of perjury that I am the same David Hughes whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to Maintenance of Way in Section III-D that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

  
David Hughes

Executed on March 1<sup>st</sup>. 2017.

**VERIFICATION**

I, Michael Matelis, verify under penalty of perjury that I am the same Michael Matelis whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to the identification of the SARR traffic group and the implementation of the SARR operating plan in Sections III-A and III-C that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Michael Matelis

Executed on March 1, 2017.

**VERIFICATION**

I, Glenn Tobias, verify under penalty of perjury that I am the same Glenn Tobias whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to equity flotation costs in Section III-G that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

A handwritten signature in blue ink, consisting of a stylized 'G' followed by a horizontal line.

Glenn Tobias

Executed on March 2, 2017.



### **VERIFICATION**

I, David R. Wheeler, verify under penalty of perjury that I am the same David R. Wheeler whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to the RTC Simulation in Section III-C that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

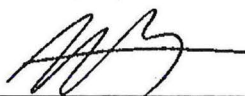
A handwritten signature in black ink, appearing to read 'DWL', is written over a horizontal line.

David R. Wheeler

Executed on March 1, 2017.

**VERIFICATION**

I, Nathaniel Zebrowski, verify under penalty of perjury that I am the same Nathaniel Zebrowski whose Statement of Qualifications appears in Part V of the Narrative portion of CSX Transportation Inc.'s Reply Evidence in this proceeding; that I have read the Reply Supplemental Evidence relating to the portions of Sections III-A, III-B and III-F that I am sponsoring, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

  
\_\_\_\_\_  
Nathaniel Zebrowski

Executed on March 1, 2017.

## **EXHIBITS**

### **III-A-Stand-Alone Traffic Group**

| <b><u>Exhibit No.</u></b> | <b><u>Description</u></b>                               |
|---------------------------|---------------------------------------------------------|
| III-A-1                   | Impact of CSXT Volume and Revenue Adjustments           |
| III-A-2                   | CERR Base Year Trains Removed for Supplemental Evidence |

### **III-B-Stand-Alone Railroad System**

| <b><u>Exhibit No.</u></b> | <b><u>Description</u></b> |
|---------------------------|---------------------------|
| III-B-1                   | CERR Stick Diagrams       |

### **III-G – Discounted Cash Flow Analysis**

| <b><u>Exhibit No.</u></b> | <b><u>Description</u></b>              |
|---------------------------|----------------------------------------|
| III-G-1                   | Verified Statement of Bradford Cornell |
| III-G-2                   | Verified Statement of Glenn Tobias     |

### **III-H – Results of SAC Analysis**

| <b><u>Exhibit No.</u></b> | <b><u>Description</u></b>     |
|---------------------------|-------------------------------|
| III-H-1                   | Discounted Cash Flow Analysis |

# **Exhibit III-A-1**

**To**

**SUPPLEMENTAL REPLY EVIDENCE  
OF CSX TRANSPORTATION, INC.**

---

**Docket No. NOR 42121**



**Impact of CSXT Volume and Revenue Adjustments**  
**(CERR Revenues in \$mil)**

|             |        | Adjustments         |                      |                           |                           |                   | CSXT                         |                   |
|-------------|--------|---------------------|----------------------|---------------------------|---------------------------|-------------------|------------------------------|-------------------|
|             |        | <u>Consumers</u>    |                      | <u>Internal Crude Oil</u> |                           |                   | <u>Supplemental</u>          |                   |
| <u>Year</u> |        | <u>Supplemental</u> | <u>Issue Coal</u>    | <u>Forecast -3/</u>       | <u>Intermodal ATC -4/</u> | <u>Other - 5/</u> | <u>Total Difference - 6/</u> | <u>Reply - 7/</u> |
| [1]         |        | <u>Opening - 1/</u> | <u>Tonnages - 2/</u> | <u>Forecast -3/</u>       | <u>Intermodal ATC -4/</u> | <u>Other - 5/</u> | <u>Total Difference - 6/</u> | <u>Reply - 7/</u> |
|             |        | [2]                 | [3]                  | [4]                       | [5]                       | [6]               | [7]                          | [8]               |
| 1.          | 2015   | \$136.5             | -\$1.6               | \$0.0                     | -\$18.0                   | -\$14.0           | -\$33.7                      | \$102.8           |
| 2.          | 2016   | \$118.7             | -\$0.1               | -\$3.2                    | -\$19.0                   | -\$9.5            | -\$31.8                      | \$86.9            |
| 3.          | 2017   | \$152.7             | -\$6.5               | -\$8.1                    | -\$21.7                   | -\$11.7           | -\$48.0                      | \$104.7           |
| 4.          | 2018   | \$153.3             | -\$7.4               | -\$9.4                    | -\$23.8                   | -\$12.0           | -\$52.6                      | \$100.7           |
| 5.          | 2019   | \$158.0             | -\$4.8               | -\$9.7                    | -\$26.4                   | -\$12.5           | -\$53.4                      | \$104.6           |
| 6.          | 2020   | \$173.4             | -\$6.7               | -\$10.0                   | -\$27.8                   | -\$15.1           | -\$59.5                      | \$113.9           |
| 7.          | 2021   | \$179.9             | -\$6.7               | -\$10.2                   | -\$29.1                   | -\$18.4           | -\$64.3                      | \$115.5           |
| 8.          | 2022   | \$193.7             | -\$7.2               | -\$10.4                   | -\$30.7                   | -\$22.1           | -\$70.3                      | \$123.4           |
| 9.          | 2023   | \$194.7             | -\$6.8               | -\$10.6                   | -\$32.3                   | -\$26.2           | -\$75.8                      | \$118.9           |
| 10.         | 2024   | \$215.2             | -\$7.6               | -\$10.8                   | -\$34.1                   | -\$31.0           | -\$83.5                      | \$131.6           |
| 11.         | Totals | \$1,676.0           | -\$55.4              | -\$82.4                   | -\$262.8                  | -\$172.5          | -\$573.0                     | \$1,103.0         |

1/ - "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply.xlsx", sheet "Summary\_Vol\_Rev", cells N11:N22.

2/ - "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply.xlsx", sheet "Summary\_Vol\_Rev", cells E39:E50.

3/ - Calculated from "CERR Car Traffic Forecast\_Supp\_Reply.xlsx" by reverting to Consumers' Supplemental Opening calculations in columns AL:AO and measuring the impact on net revenues in cells DC8496:DL8496.

4/ - Calculated from "CERR Container Traffic Forecast\_Supp\_Reply.xlsx" by reverting to ATC calculations in columns BD:BF to pull from Consumers' Supplemental Opening WP "CERR Divisions\_Rebuttal.xlsx" and measuring the impact on net revenues in cells DB41073:DK41073.

5/ - [6] = [8]-[2]-[3]-[4]-[5].

6/ - [7] = [3]+[4]+[5]+[6].

7/ - "Summary of CERR Traffic Volumes and Revenues\_Supp\_Reply.xlsx", sheet "Summary\_Vol\_Rev", cells N25:N36.

# **Exhibit III-A-2**

**To**

**SUPPLEMENTAL REPLY EVIDENCE  
OF CSX TRANSPORTATION, INC.**

---

**Docket No. NOR 42121**

**Confidential Version Redacted**

# **Exhibit III-B-1**

**To**

**SUPPLEMENTAL REPLY EVIDENCE  
OF CSX TRANSPORTATION, INC.**

---

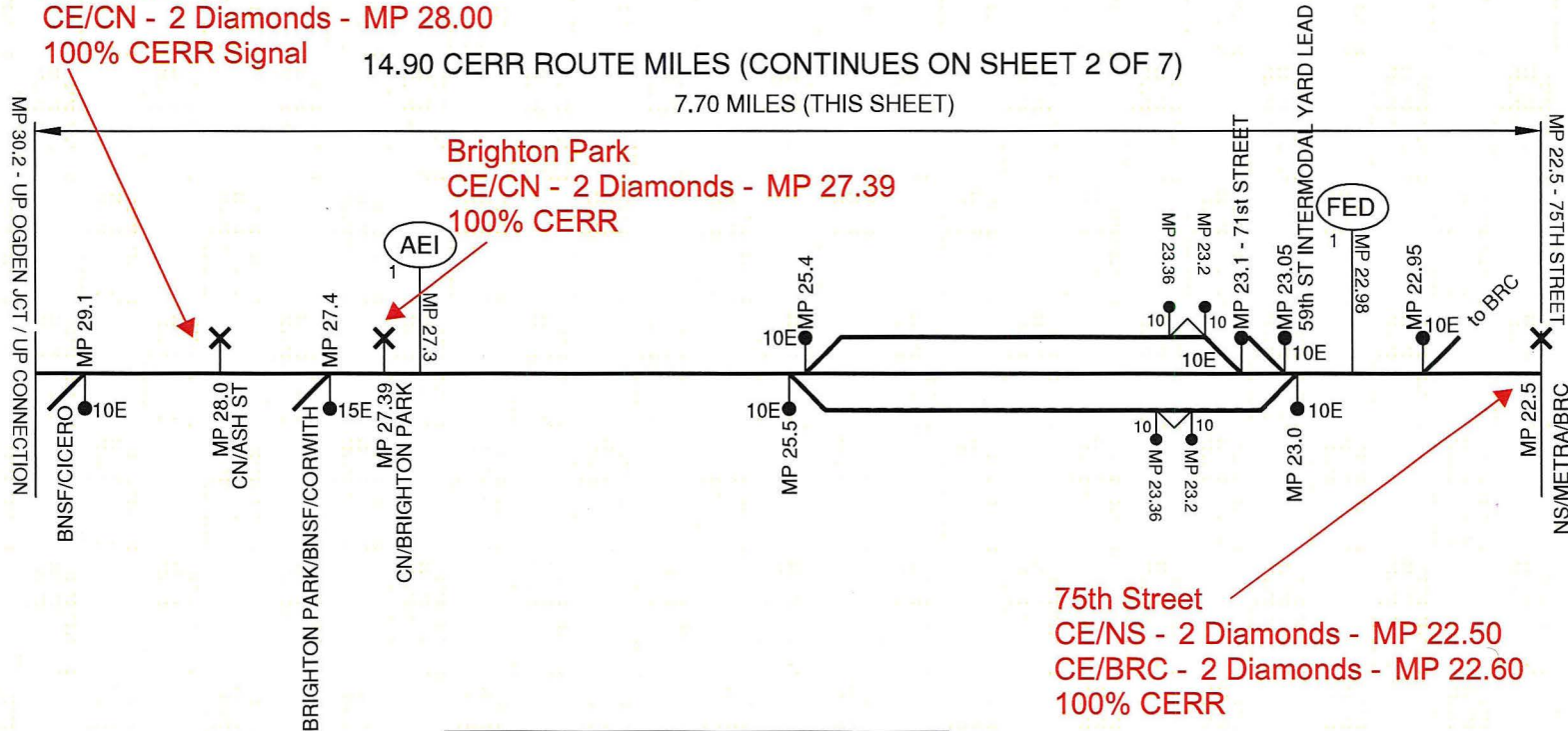
**Docket No. NOR 42121**

Ash Street  
CE/CN - 2 Diamonds - MP 28.00  
100% CERR Signal

14.90 CERR ROUTE MILES (CONTINUES ON SHEET 2 OF 7)  
7.70 MILES (THIS SHEET)

Brighton Park  
CE/CN - 2 Diamonds - MP 27.39  
100% CERR

75th Street  
CE/NS - 2 Diamonds - MP 22.50  
CE/BRC - 2 Diamonds - MP 22.60  
100% CERR



| WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION |       |
|---------------------------------------------------------|-------|
| DESCRIPTION                                             | COUNT |
| COMP. WELDS                                             | 8     |
| DERAILS                                                 | 4     |
| WHEEL STOPS                                             | 0     |
| MP SIGN 1                                               | 0     |
| MP SIGN 2                                               | 8     |
| MP SIGN 3                                               | 0     |

| TURNOUTS, FED & AEI COUNTS PER SUBDIVISION |       |
|--------------------------------------------|-------|
| DESCRIPTION                                | COUNT |
| #10H TURNOUTS                              | 4     |
| #10E TURNOUTS                              | 7     |
| #15E TURNOUTS                              | 1     |
| FED                                        | 1     |
| AEI                                        | 1     |
| CROSSOVER                                  | 0     |
| DIAMOND                                    | 8     |

100% CERR

PAGE 1 OF 7

SUBDIVISION: **BLUE ISLAND**

FROM: **UP OGDEN JCT**  
TO: **75TH STREET**

MP: **30.2**  
MP: **22.5**

DATE: **10/26/15**

NOT TO SCALE

**LEGEND:**

— 136# STANDARD CWR  
— 115# CWR

(FED)<sub>1</sub> FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED  
HB = HOT BEARING DETECTOR  
DE OR DED = DRAGGING EQUIPMENT DETECTOR  
HW = HOT WHEEL DETECTOR  
(AEI)<sub>1</sub> AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

✕ = DIAMOND CROSSING  
● 20 = TURNOUT TYPE\*

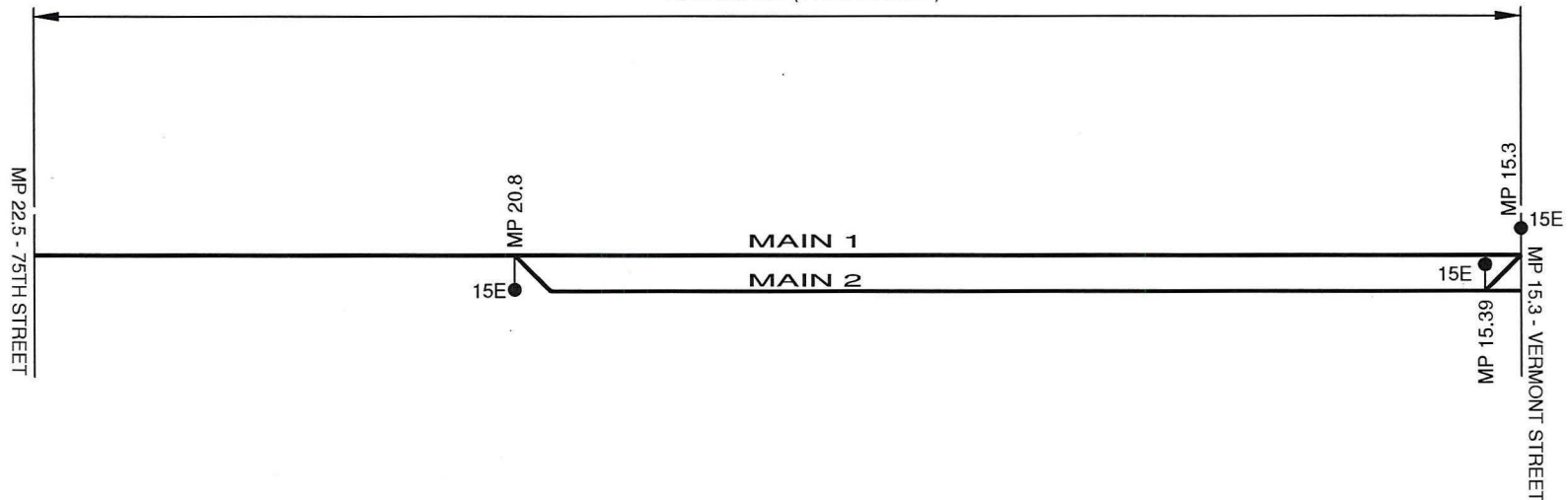
\* TURNOUT TYPES  
20 - #20 ELECTRIC  
15E - #15 ELECTRIC  
15- #15 HAND-THROWN  
10S- #10 SPRING  
10- #10 HAND-THROWN  
10E- #10 ELECTRIC

EXHIBIT:  
**III-B-1**



14.90 CERR ROUTE MILES

7.20 MILES (THIS SHEET)



WELDS, DERAILS, WHEELSTOPS AND MP SIGNS  
PER SUBDIVISION

| DESCRIPTION | COUNT |
|-------------|-------|
| COMP. WELDS | 0     |
| DERAILS     | 0     |
| WHEEL STOPS | 0     |
| MP SIGN 1   | 0     |
| MP SIGN 2   | 8     |
| MP SIGN 3   | 0     |

TURNOUTS, FED & AEI COUNTS PER SUBDIVISION

| DESCRIPTION   | COUNT |
|---------------|-------|
| #10H TURNOUTS | 0     |
| #10E TURNOUTS | 0     |
| #15E TURNOUTS | 1     |
| FED           | 0     |
| AEI           | 0     |
| CROSSOVER     | 1     |
| DIAMOND       | 0     |

PAGE 2 OF 7

SUBDIVISION: **BLUE ISLAND**

FROM: **75TH STREET**

TO: **VERMONT STREET**

MP: **22.5**

MP: **15.3**

DATE: **10/26/15**

NOT TO SCALE

LEGEND:

— - 136# STANDARD CWR  
— - 115# CWR

✕ = DIAMOND CROSSING  
● = TURNOUT TYPE\*

(FED)<sub>1</sub> FAILED EQUIPMENT DETECTOR WITH  
NUMBER OF TRACKS COVERED

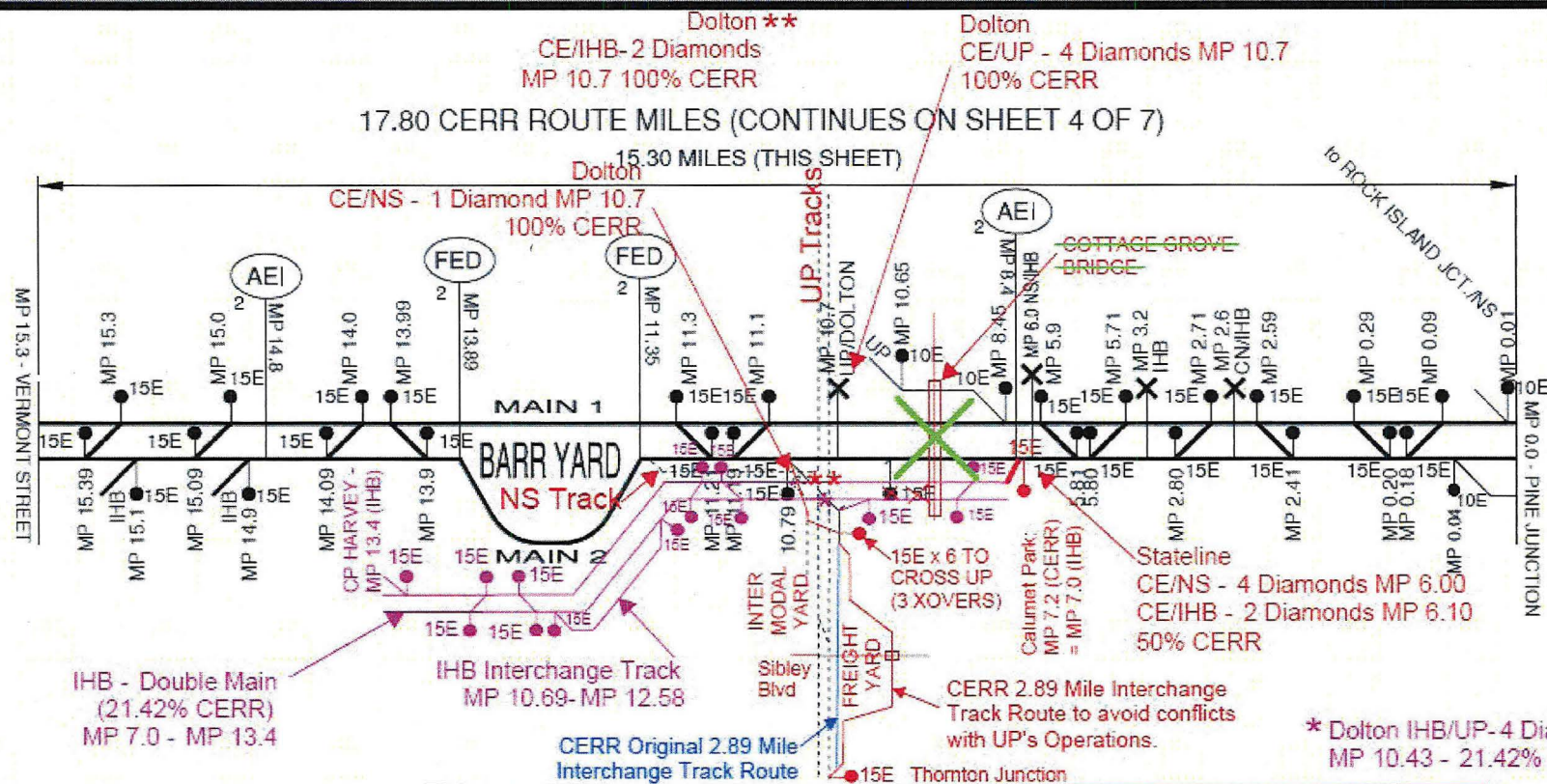
HB = HOT BEARING DETECTOR  
DE OR DED = DRAGGING EQUIPMENT DETECTOR  
HW = HOT WHEEL DETECTOR

(AEI)<sub>1</sub> AUTOMATIC EQUIPMENT IDENTIFICATION  
SCANNER WITH NUMBER OF TRACKS COVERED

\* TURNOUT TYPES

20 - #20 ELECTRIC  
15E- #15 ELECTRIC  
15- #15 HAND-THROWN  
10S- #10 SPRING  
10- #10 HAND-THROWN  
10E- #10 ELECTRIC

EXHIBIT:  
**III-B-1**



\* Dolton IHB/UP-4 Diamonds MP 10.43 - 21.42% CERR

| WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION |       |
|---------------------------------------------------------|-------|
| DESCRIPTION                                             | COUNT |
| COMP. WELDS                                             | 8     |
| DERAILS                                                 | 0     |
| WHEEL STOPS                                             | 0     |
| MP SIGN 1                                               | 10    |
| MP SIGN 2                                               | 6     |
| MP SIGN 3                                               | 0     |

| TURNOUTS, FED & AEI COUNTS PER SUBDIVISION |             |           |          |              |
|--------------------------------------------|-------------|-----------|----------|--------------|
| DESCRIPTION                                | TOTAL COUNT | CE (100%) | CE (50%) | ON UP (100%) |
| #10H TURNOUTS                              | 0           |           |          |              |
| #10E TURNOUTS                              | 4           | 4         |          |              |
| #15E TURNOUTS                              | 9           | 4         |          | 1            |
| FED                                        | 4           |           |          |              |
| AEI                                        | 4           |           |          |              |
| CROSSOVER                                  | 20          | 12        |          | 3            |
| DIAMOND                                    | 17          | 7         | 6        |              |

PAGE 3 OF 7

SUBDIVISION: **BARR**

FROM: **VERMONT STREET**  
TO: **PINE JUNCTION**

MP: **15.3**  
MP: **0.00**

DATE: **2/27/17**

NOT TO SCALE

#### LEGEND:

— 136# STANDARD CWR  
— 115# CWR

(FED) FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED  
HB = HOT BEARING DETECTOR  
DE OR DED = DRAGGING EQUIPMENT DETECTOR  
HW = HOT WHEEL DETECTOR  
(AEI) AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

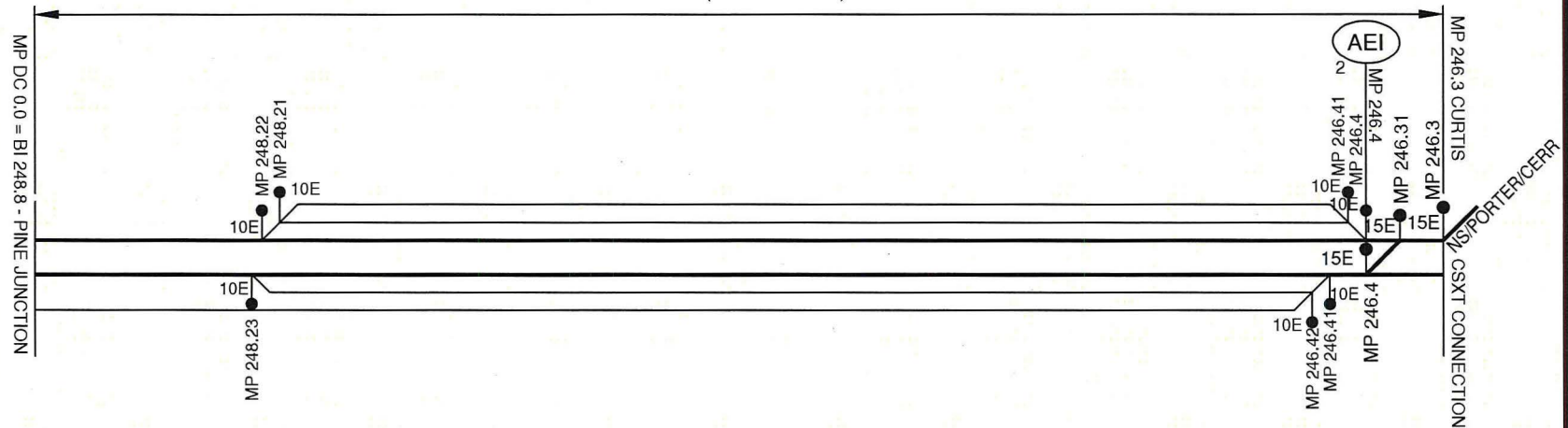
✕ = DIAMOND CROSSING  
• 20 = TURNOUT TYPE\*

\* TURNOUT TYPES  
20 - #20 ELECTRIC  
15E - #15 ELECTRIC  
15- #15 HAND-THROWN  
10S- #10 SPRING  
10- #10 HAND-THROWN  
10E- #10 ELECTRIC

EXHIBIT:  
**III-B-1**



2.50 MILES (THIS SHEET)



| WELDS, DERAILS, WHEELSTOPS AND MP SIGNS<br>PER SUBDIVISION |              |
|------------------------------------------------------------|--------------|
| <u>DESCRIPTION</u>                                         | <u>COUNT</u> |
| COMP. WELDS                                                | 8            |
| DERAILS                                                    | 0            |
| WHEEL STOPS                                                | 0            |
| MP SIGN 1                                                  | 0            |
| MP SIGN 2                                                  | 0            |
| MP SIGN 3                                                  | 2            |

| TURNOUTS, FED & AEI COUNTS PER SUBDIVISION |              |
|--------------------------------------------|--------------|
| <u>DESCRIPTION</u>                         | <u>COUNT</u> |
| #10H TURNOUTS                              | 0            |
| #10E TURNOUTS                              | 7            |
| #15E TURNOUTS                              | 1            |
| FED                                        | 0            |
| AEI                                        | 2            |
| CROSSOVER                                  | 1            |
| DIAMOND                                    | 0            |

PAGE 4 OF 7

NOT TO SCALE

\_\_\_\_\_ - 136# STANDARD CWR  
 \_\_\_\_\_ - 115# CWR

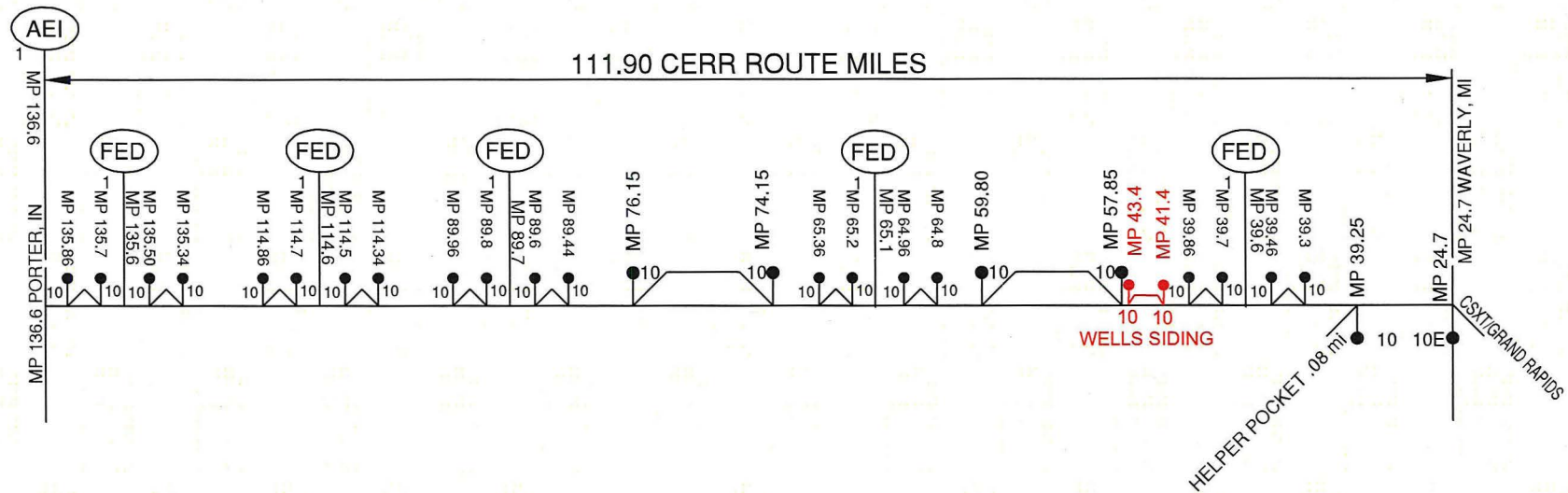
✕ = DIAMOND CROSSING  
● 20 = TURNOUT TYPE\*

20 - #20 ELECTRIC  
15E- #15 ELECTRIC  
15- #15 HAND-THROWN  
10S- #10 SPRING  
10- #10 HAND-THROWN  
10E- #10 ELECTRIC

**FED**  
1  
FAILED EQUIPMENT DETECTOR WITH  
NUMBER OF TRACKS COVERED  
HB = HOT BEARING DETECTOR  
DE OR DED = DRAGGING EQUIPMENT DETECTOR  
HW = HOT WHEEL DETECTOR

AEI 1 AUTOMATIC EQUIPMENT IDENTIFICATION  
SCANNER WITH NUMBER OF TRACKS COVERED

**EXHIBIT:  
III-B-1**



| WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION |       |
|---------------------------------------------------------|-------|
| DESCRIPTION                                             | COUNT |
| COMP. WELDS                                             | 0     |
| DERAILS                                                 | 21    |
| WHEEL STOPS                                             | 1     |
| MP SIGN 1                                               | 0     |
| MP SIGN 2                                               | 75    |
| MP SIGN 3                                               | 36    |

| TURNOUTS, FED & AEI COUNTS PER SUBDIVISION |                  |
|--------------------------------------------|------------------|
| DESCRIPTION                                | COUNT            |
| #10H TURNOUTS                              | <del>25</del> 27 |
| #10E TURNOUTS                              | 1                |
| #15E TURNOUTS                              | 0                |
| FED                                        | 5                |
| AEI                                        | 1                |
| CROSSOVER                                  | 0                |
| DIAMOND                                    | 0                |

PAGE 5 OF 7

SUBDIVISION: **GRAND RAPIDS**

FROM: **PORTER**

TO: **WAVERLY, MI**

MP: **136.6**

MP: **24.7**

DATE: **10/26/15**

NOT TO SCALE

#### LEGEND:

— 136# STANDARD CWR  
— 115# CWR

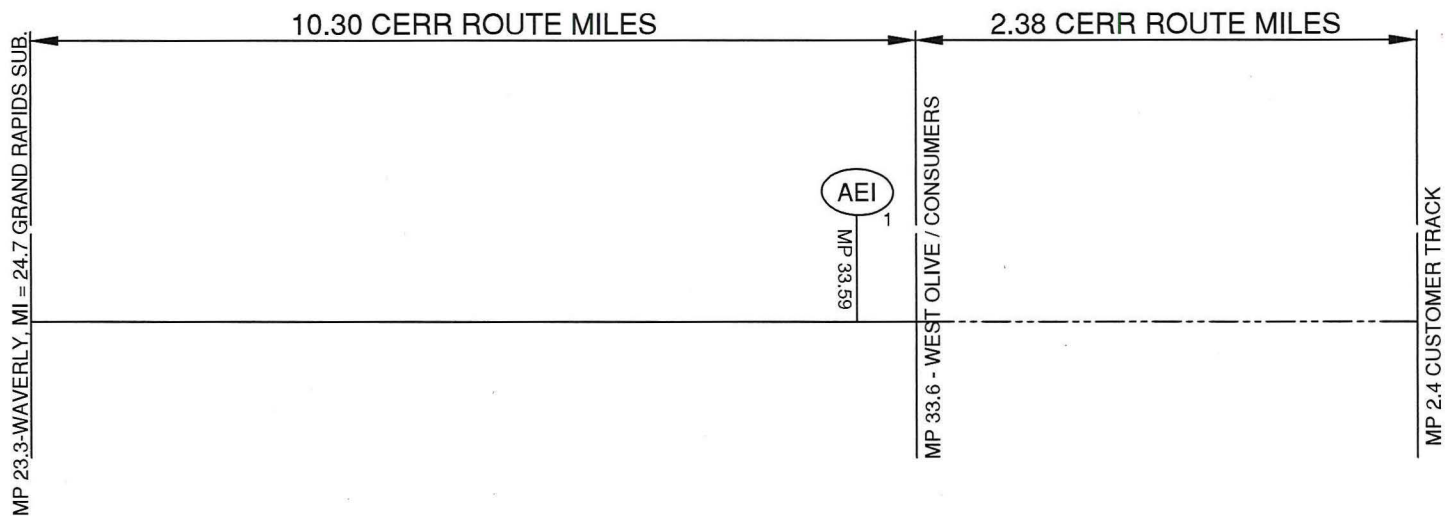
(FED)<sub>1</sub> FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED  
HB = HOT BEARING DETECTOR  
DE OR DED = DRAGGING EQUIPMENT DETECTOR  
HW = HOT WHEEL DETECTOR  
(AEI)<sub>1</sub> AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

✕ = DIAMOND CROSSING  
● 20 = TURNOUT TYPE\*

\* TURNOUT TYPES  
20 - #20 ELECTRIC  
15E - #15 ELECTRIC  
15- #15 HAND-THROWN  
10S- #10 SPRING  
10- #10 HAND-THROWN  
10E- #10 ELECTRIC

EXHIBIT:  
**III-B-1**





| WELDS, DERAILS, WHEELSTOPS AND MP SIGNS<br>PER SUBDIVISION |       |
|------------------------------------------------------------|-------|
| DESCRIPTION                                                | COUNT |
| COMP. WELDS                                                | 0     |
| DERAILS                                                    | 0     |
| WHEEL STOPS                                                | 0     |
| MP SIGN 1                                                  | 3     |
| MP SIGN 2                                                  | 10    |
| MP SIGN 3                                                  | 0     |

| TURNOUTS, FED & AEI COUNTS PER SUBDIVISION |       |
|--------------------------------------------|-------|
| DESCRIPTION                                | COUNT |
| #10H TURNOUTS                              | 0     |
| #10E TURNOUTS                              | 0     |
| #15E TURNOUTS                              | 0     |
| FED                                        | 0     |
| AEI                                        | 1     |
| CROSSOVER                                  | 0     |
| DIAMOND                                    | 0     |

PAGE 6 OF 7

SUBDIVISION: **FREMONT**

FROM: **WAVERLY, MI**

MP: **23.3**

TO: **WEST OLIVE / CONSUMERS** MP: **33.6**

DATE: **10/26/15**

NOT TO SCALE

**LEGEND:**

— - 136# STANDARD CWR  
— - 115# CWR

(FED)<sub>1</sub> FAILED EQUIPMENT DETECTOR WITH  
NUMBER OF TRACKS COVERED  
HB = HOT BEARING DETECTOR  
DE OR DED = DRAGGING EQUIPMENT DETECTOR  
HW = HOT WHEEL DETECTOR

(AEI)<sub>1</sub> AUTOMATIC EQUIPMENT IDENTIFICATION  
SCANNER WITH NUMBER OF TRACKS COVERED

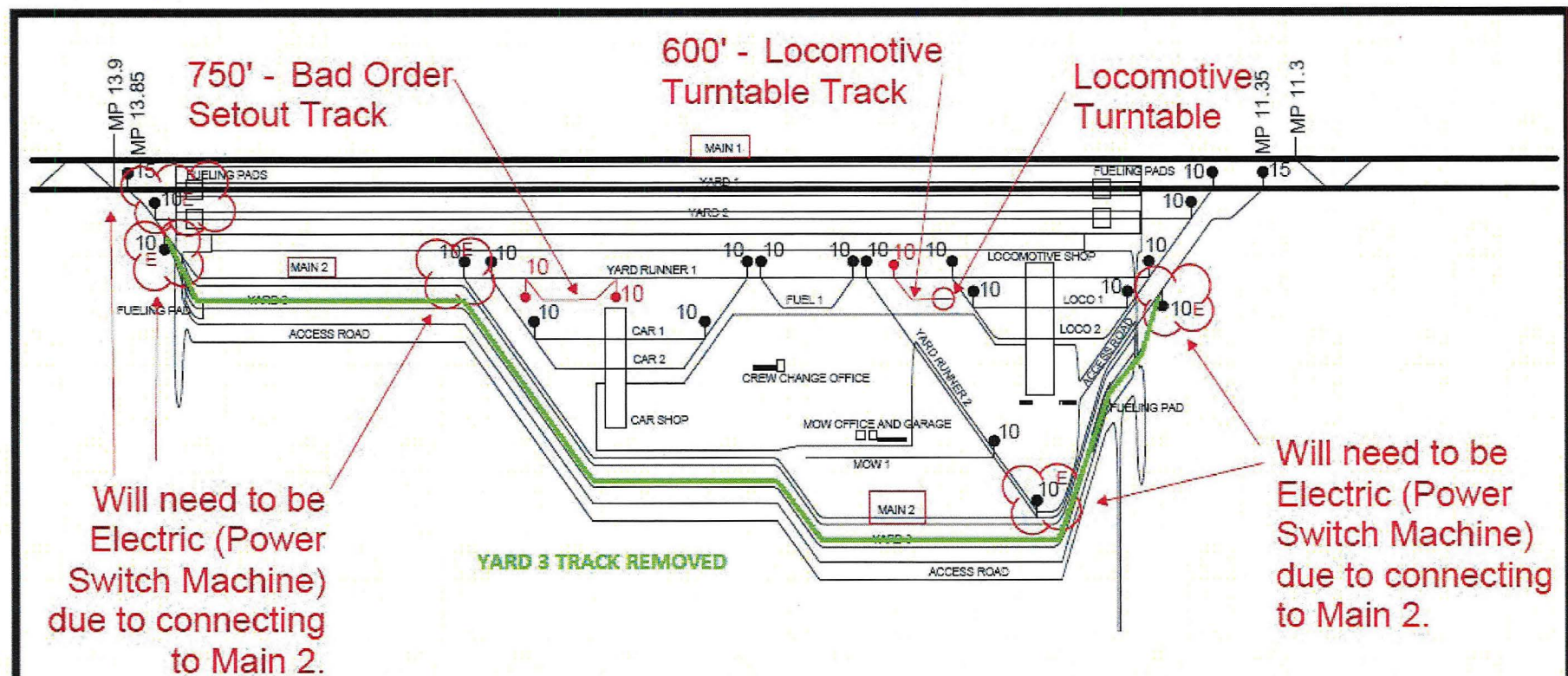
✕ = DIAMOND CROSSING

• 20 = TURNOUT TYPE\*

**\* TURNOUT TYPES**

20 - #20 ELECTRIC  
15E- #15 ELECTRIC  
15- #15 HAND-THROWN  
10S- #10 SPRING  
10- #10 HAND-THROWN  
10E- #10 ELECTRIC

EXHIBIT:  
**III-B-1**



| WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION |       |
|---------------------------------------------------------|-------|
| DESCRIPTION                                             | COUNT |
| COMP. WELDS                                             | 4     |
| DERAILS                                                 | 2     |
| WHEEL STOPS                                             | 1     |
| MP SIGN 1                                               | 0     |
| MP SIGN 2                                               | 0     |
| MP SIGN 3                                               | 0     |

| TURNOUTS, FED & AEI COUNTS PER SUBDIVISION |                  |
|--------------------------------------------|------------------|
| DESCRIPTION                                | COUNT            |
| #10H TURNOUTS                              | <del>19</del> 15 |
| #10E TURNOUTS                              | <del>0</del> 5   |
| #15E TURNOUTS                              | 2                |
| FED                                        | 0                |
| AEI                                        | 0                |
| CROSSOVER                                  | 0                |
| DIAMOND                                    | 0                |

Handthrow (100% CERR)  
Power (Switch Machine) (100% CERR)

PAGE 7 OF 7

SUBDIVISION: **BARR YARD**

FROM:  
TO:

MP: 13.9  
MP: 11.3

DATE: 10/26/15

NOT TO SCALE

**LEGEND:**

— 136# STANDARD CWR  
— 115# CWR

(FED)

FAILED EQUIPMENT DETECTOR WITH  
NUMBER OF TRACKS COVERED  
HB = HOT BEARING DETECTOR  
DE OR DED = DRAGGING EQUIPMENT DETECTOR  
HW = HOT WHEEL DETECTOR

(AEI)

AUTOMATIC EQUIPMENT IDENTIFICATION  
SCANNER WITH NUMBER OF TRACKS COVERED

✕ = DIAMOND CROSSING  
• 20 = TURNOUT TYPE\*

**\* TURNOUT TYPES**

20 - #20 ELECTRIC  
15E - #15 ELECTRIC  
15- #15 HAND-THROWN  
10S- #10 SPRING  
10- #10 HAND-THROWN  
10E- #10 ELECTRIC

EXHIBIT:  
**III-B-1**

# **Exhibit III-G-1**

**To**

**SUPPLEMENTAL REPLY EVIDENCE  
OF CSX TRANSPORTATION, INC.**

---

**Docket No. NOR 42121**

Verified Statement of

Bradford Cornell  
Compass Lexecon  
55 South Lake Avenue, Suite 650  
Pasadena, CA 91101

In the Matter of

CONSUMERS ENERGY COMPANY

v.

CSX TRANSPORTATION, INC.  
STB Docket No. NOR 42142



|                                                                                                                                                                                     |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| I. Qualifications .....                                                                                                                                                             | 1  |
| II. Background .....                                                                                                                                                                | 2  |
| III. Assignment and Summary of Conclusions .....                                                                                                                                    | 3  |
| IV. All-in Costs Are Roughly Similar, if Not Greater, for Private Markets than for Public Markets.....                                                                              | 4  |
| A. Public and Private Markets Compete with Each Other for Capital.....                                                                                                              | 4  |
| B. Differences in the One-Time Direct Costs that Mr. Maughan Considers May Be Completely Offset by the Differences in Annually Compounded Indirect Costs that He Ignores.....       | 6  |
| C. Utilizing Private Markets Increases Indirect Costs Due to Illiquidity and Asymmetric Information.....                                                                            | 7  |
| V. Using Public Markets to Estimate both Direct and Indirect Costs Is More Reasonable than Using Private Markets.....                                                               | 9  |
| A. Mr. Maughan's Proposal to Estimate Direct Costs Based on Private Markets Contradicts the STB's Long-Standing Use of Public Markets to Estimate Indirect Costs.....               | 9  |
| B. Use of Public Markets to Make Cost Estimates Is the More Reasonable Choice Due in Part to the Abundance of Data for Public Markets and Scarcity of Data for Private Markets..... | 9  |
| VI. Conclusion.....                                                                                                                                                                 | 11 |

## **I. Qualifications**

1. I am currently a Visiting Professor of Financial Economics at the California Institute of Technology ("Caltech"). Previously, I was a Professor of Finance and Director of the Bank of America Research Center at the Anderson Graduate School of Management at the University of California, Los Angeles for 26 years.

2. I earned a master's degree in Statistics from Stanford University in 1974 and earned my doctorate in Financial Economics from Stanford in 1975. I have served as an editor of numerous journals relating to business and finance and have written more than 100 articles and two books on finance and securities, including *Corporate Valuation: Tools For Effective Appraisal and Decision Making* (1993), published by McGraw-Hill, and *The Equity Risk Premium and the Long-Run Future of the Stock Market* (1999), published by John Wiley and Sons. To complement my academic writing, I have also authored articles for *The Wall Street Journal* and the *Los Angeles Times*.

3. My research has been widely recognized. In 1988, I was cited by the Financial Management Association as one of the ten most prolific authors in the field of finance. I have received prizes and grants for my research from the Chicago Board of Trade, the Chicago Mercantile Exchange, and the Institute for Quantitative Research in Finance. My article, "Corporate Stakeholders and Corporate Finance," received the 1987 Distinguished Applied Research Award from the Financial Management Association. In 1999, I was awarded the Institutional Brokers' Estimate System ("I/B/E/S") prize for empirical work in finance and accounting (with Wayne Landsman and Jennifer Conrad). I received a Graham and Dodd Scroll Award in 2006 from the Financial Analyst Society with Richard Roll for our work on delegated agent asset pricing theory. I won this award again in 2011 for my work on economic growth and equity investing. My paper entitled "Luck, Skill, and Investment Performance" in *The Journal of Portfolio Management* won an Outstanding Article prize from the 11th Annual Bernstein Fabozzi/Jacobs Levy Awards. I won this award again in 2015 for my article "Tesla: Anatomy of a Run Up" (with Aswath Damodaran).

4. I have also been active in my profession. I have served as a Vice President of the Western Finance Association. I am also a past director of both the American Finance Association and the Western Finance Association. I have served as an associate editor of numerous professional journals including: *The Journal of Finance*, *The Journal of Futures*

Markets, The Journal of Financial Research, and The Journal of International Business Studies. I have served as a reviewer for nearly a dozen other professional journals.

5. My teaching and writing have focused on a number of different financial and economic issues, many of which are relevant to the subject matter of this statement. I currently teach Applied Corporate Finance and Investment Banking at Caltech. Examples of other classes I have taught over the course of my academic career include Corporate Valuation, the Law and Finance of Corporate Acquisitions and Restructurings, Corporate Financial Theory, and Security Valuation and Investments.

6. In addition to my teaching, writing, and research studies, I serve as Senior Consultant to Compass Lexecon, an international consulting firm. In my position as a Senior Consultant, I advise business and legal clients on financial economic issues. Prior to joining Compass Lexecon in December 2011, I served as a Senior Consultant to Charles River Associates from March 1999 through December 2011. Between 1990 and March 1999, I operated FinEcon, a financial economic consulting company, through which I also advised business and legal clients on financial economic issues.

7. I have served as a consultant and have given testimony for both plaintiffs and defendants in a variety of securities, regulatory, and commercial lawsuits. During my many years of experience as an expert witness and consultant, I have provided economic analyses and expert testimony (again, for both plaintiffs and defendants) related to valuation, corporate finance, portfolio management, and damages issues. I have been engaged as a damages expert in numerous high-profile cases which revolved around complex financial and securities transactions.

8. My background is described more fully in my curriculum vitae, which is included in Section V of this Supplemental Reply evidence. A list of my publications may also be found in Section V. A list of sources I relied upon in forming my opinions set forth in this statement may be found in Attachment A to this Exhibit III-G-1.

## **II. Background**

9. Consumers' Supplemental Opening Evidence included a verified statement by David Maughan of Navigant Consulting ("Mr. Maughan's Statement" or "Maughan Statement") in which he contends that the "logical and appropriate means" for a stand-alone,



new entrant railroad to raise \$440 million in equity would be through private placement rather than through an initial public offering (“IPO”).<sup>1</sup> His statement also contends that the direct fees required to raise funds privately would be less than those required to do so publicly and, thus, Mr. Maughan concludes that the private option is not only “logical and appropriate,” it is also less expensive than the public option.<sup>2</sup>

### **III. Assignment and Summary of Conclusions**

10. I have been retained by Defendant CSX Transportation, Inc. to respond to Mr. Maughan’s Statement.

11. Mr. Maughan’s contention that the direct fees required to raise equity funds in private markets would be less than the direct fees for an IPO has limited relevance because it narrowly considers only one part of the all-in costs associated with raising equity capital. In addition to direct fees, all-in costs include indirect costs,<sup>3</sup> by far the most important of which is the expected return on equity, which represents the payouts that investors require to invest their money.<sup>4</sup>

12. Mr. Maughan contends that direct costs are less for private markets, but he neglects to note that the opposite is true of indirect costs. Indeed, academic literature demonstrates that indirect costs are greater for private markets due to illiquidity and information asymmetry in private markets.<sup>5</sup> Because the magnitude of direct and indirect costs move in different directions when switching from public to private markets, they must be netted against each other to determine the overall effect. The literature concludes, and I concur based on my experience and expert judgment, that all-in costs would be roughly equal for the two markets and, to the extent they differ, tend to be greater for private markets.<sup>6</sup>

13. Using public markets to estimate the total all-in costs that a new railroad entrant would incur is, for several reasons, more reasonable than using private markets. First, the

---

<sup>1</sup> Maughan Statement, p. 10.

<sup>2</sup> Mr. Maughan concludes that direct fees would total 0.95% of the total equity raise if the equity is issued to private markets. (Maughan Statement, pp. 2, 18.)

<sup>3</sup> Expected return on capital is an indirect cost in the sense that it does not take the form of a direct payment as occurs with, for example, fees paid to investment bankers. Throughout this statement, I refer to the fees that Mr. Maughan considers as “direct costs” and the cost of capital as “indirect costs.”

<sup>4</sup> From the equity issuer’s perspective, the indirect costs are known as “the cost of equity.”

<sup>5</sup> Detailed in Section IV.C of this statement.

<sup>6</sup> Detailed in Section IV of this statement.



established practice of the Surface Transportation Board (“STB”) is to estimate a railroad’s cost of capital using public markets.<sup>7</sup> Therefore, estimating direct costs based on private markets, as Mr. Maughan suggests, would introduce inconsistent methods. Second, if the STB were to ignore this inconsistency and use an estimate of direct costs based on private markets and indirect costs based on public markets, the estimated all-in costs would be biased downward. This is because it would be using the lower estimate of direct costs (based on private markets) and the lower estimate for indirect costs (based on public markets). Third, using private markets to estimate both direct and indirect costs for the sake of being consistent with Mr. Maughan’s proposal would force the STB to supplant its long-established approach to estimating cost of capital. Such an undertaking would be difficult, controversial, and time consuming. Fourth, dealing with the scarcity of data regarding private markets would complicate the estimation process, assuming that accurate estimation would be feasible at all. In contrast, the abundance of data for public markets allows such calculations to be performed with relative ease.

#### **IV. All-in Costs Are Roughly Similar, if Not Greater, for Private Markets than for Public Markets**

##### **A. Public and Private Markets Compete with Each Other for Capital**

14. Public and private markets compete with each other for participation from businesses that issue equity and investors who purchase equity. Capital raised in public markets is in the form of securities that investors buy and sell on public exchanges.<sup>8</sup> In the U.S., these securities are regulated by the U.S. Congress through the Securities and Exchange Commission (“SEC”).<sup>9</sup> In contrast, investments in private markets are traded directly

---

<sup>7</sup> “The composite railroad includes those Class I carriers that: (1) are listed on either the New York Stock Exchange (NYSE) or the American Stock Exchange (AMEX); (2) paid dividends throughout the year; (3) had rail assets greater than 50% of their total assets; and (4) had a debt rating of at least BBB (Standard & Poor’s) and BAA (Moody’s).” (STB Decision, Railroad Cost of Capital—2015, Docket No. EP 558 (Sub-No. 19), decided on August 3, 2016, p. 3, footnote 5.)

<sup>8</sup> Grinblatt, Mark and Sheridan Titman, *Financial Markets and Corporate Strategy*, 2nd Edition, The McGraw-Hill Companies, Inc., 2002, pp. 6–7.

<sup>9</sup> Grinblatt, Mark and Sheridan Titman, *Financial Markets and Corporate Strategy*, 2nd Edition, The McGraw-Hill Companies, Inc., 2002, pp. 6–7.

between investors and are not subject to the same disclosure requirements that apply to publicly traded securities.<sup>10</sup>

15. Businesses can raise equity capital by utilizing either public or private equity markets.<sup>11</sup> From the issuer's perspective, some advantages associated with raising equity through public instead of private markets are that it provides businesses with better access to capital, founders can diversify their investments, and it can enhance a firm's credibility with customers, employees, and suppliers.<sup>12</sup> Public markets also have some disadvantages, including the fixed costs of registering with the SEC, having to divulge financial metrics to the public, and pressure to meet public expectations.<sup>13</sup> Businesses weigh the pros and cons of each market in deciding how to raise equity.

16. Just as businesses choose between public and private markets for raising equity, investors choose between the markets to invest money. Many investors prefer public markets because such markets provide easy access to audited financial metrics and the ability to trade securities easily and inexpensively.<sup>14</sup> Moreover, public markets allow even small amounts of money to be invested, and analysts provide external monitoring of company management.<sup>15</sup>

17. If the expected returns in one market were to become significantly out of balance with the other market when taking into account all the advantages and disadvantages of each, the rational response would be for participants to shift to the market that offers more favorable terms. Such a shift would force a rebalancing of the relative costs and benefits, because, without such a rebalancing, issuers and investors would all flock to the more favorable market. The fact that both private and public equity markets remain active implies that the markets continue to compete with each other, offering certain benefits to both issuers and investors that are not surpassed by the other.

<sup>10</sup> Grinblatt, Mark and Sheridan Titman, *Financial Markets and Corporate Strategy*, 2nd Edition, The McGraw-Hill Companies, Inc., 2002, p. 7.

<sup>11</sup> "If a company plans to sell stock, the new shares are most often sold in one of at least two ways: 1) through investment bankers to general investors in a public offering, or 2) through a private placement to a single or few buyers." Ferreira, Eurico and Leroy D. Brooks, "On Public versus Private Equity Placements: Pedagogical Illustrations," *Financial Practice and Education*, Fall/Winter 2000, p. 241.

<sup>12</sup> Grinblatt, Mark and Sheridan Titman, *Financial Markets and Corporate Strategy*, 2nd Edition, The McGraw-Hill Companies, Inc., 2002, p. 80.

<sup>13</sup> Grinblatt, Mark and Sheridan Titman, *Financial Markets and Corporate Strategy*, 2nd Edition, The McGraw-Hill Companies, Inc., 2002, p. 80.

<sup>14</sup> Grinblatt, Mark and Sheridan Titman, *Financial Markets and Corporate Strategy*, 2nd Edition, The McGraw-Hill Companies, Inc., 2002, p. 80.

<sup>15</sup> Grinblatt, Mark and Sheridan Titman, *Financial Markets and Corporate Strategy*, 2nd Edition, The McGraw-Hill Companies, Inc., 2002, pp. 7, 79–80.



**B. Differences in the One-Time Direct Costs that Mr. Maughan Considers May Be Completely Offset by the Differences in Annually Compounded Indirect Costs that He Ignores**

18. Mr. Maughan's report focuses exclusively on one-time direct costs: the fees paid to investment bankers and underwriters.<sup>16</sup> Yet these one-time fees constitute only a small portion of the all-in costs of issuing equity. Mr. Maughan's Statement never addresses the indirect costs—the expected return paid to investors in exchange for their investment—even though the effect of even small changes in these costs completely overwhelms the differences in direct costs that are under dispute. Mr. Maughan's narrow focus on only direct costs and neglect of indirect costs raises concern as to how his analysis should be understood and applied.

19. A stylized example illustrates the relative importance of indirect costs as compared to the direct costs that Mr. Maughan addresses. Consider a hypothetical equity raise of \$100 before removal of direct costs. Mr. Maughan contends that one-time direct costs would be roughly 1% of the equity raise based on private markets, and Mr. Tobias contends for 6% based on public markets, a difference of five percentage points.<sup>17</sup> Applying these percentages to the \$100 equity raise would indicate one-time direct costs of \$6 for a public raise and \$1 for a private raise, a total difference of \$5.

20. In contrast to these direct costs, the expected return on equity (an indirect cost) is not a one-time cost but one that compounds annually. As a result of this compounding, even a small increase in the expected rate of return substantially decreases the amount of equity raised. Specifically, using the hypothetical example of a \$100 equity raise, a one-percentage point increase in the expected return on equity would decrease the raise from \$100 to \$86, a \$14 increase in the issuer's indirect costs.<sup>18</sup> This hypothetical example illustrates the net effect of raising equity capital through private markets instead of public markets. Even

<sup>16</sup> Maughan Statement, pp. 15–16.

<sup>17</sup> Maughan Statement, p. 18; Reply Evidence of CSX Transportation, Inc., Narrative Sections III-E through V (Volume 3 of 4), Consumers Energy Company v. CSX Transportation, Inc., Docket No. NOR 42142, March 7, 2016, III-G-4.

<sup>18</sup> This hypothetical example uses the STB's cost of equity estimate for 2015 of roughly 11%, its stage-three growth rate estimate of 4.84%, and the Gordon Growth Model to calculate the cash flows that yield an equity investment worth \$100. The example then keeps all factors constant besides increasing the cost of equity by one percentage point to 12%, which reduces the value of the equity investment to \$86. Specifically,  $\$6.16 / (11\% - 4.84\%) = \$100$ ;  $\$6.16 / (12\% - 4.84\%) = \$86.03$ . (For the STB's estimates of the cost of equity and terminal growth rate for railroad companies, see STB Decision, Railroad Cost of Capital—2015, Docket No. EP 558 (Sub-No. 19), decided on August 3, 2016, pp. 10–13, 15, 19.)

though direct costs decrease by \$5, indirect costs increase by \$14, a net increase of \$9 in all-in costs. This demonstrates that even a small increase in expected return on equity (an indirect cost), which Mr. Maughan's Statement ignores, overwhelms the difference between the direct costs that are in dispute.

### **C. Utilizing Private Markets Increases Indirect Costs Due to Illiquidity and Asymmetric Information**

21. Academic studies demonstrate that investors forego the benefits of public markets and tolerate the inconveniences of private markets because expected returns are higher in private markets. While estimates of the return premium vary,<sup>19</sup> there appears to be near-universal consensus that such a premium exists, resulting in higher indirect costs for a private issuance compared to a public issuance.<sup>20</sup>

22. Academic literature identifies several reasons for the return premium demanded by private investors. The most commonly cited factor is that private markets are less liquid than public markets.<sup>21</sup> Whereas public markets enable investors to easily trade their ownership interests—purchasing them one minute and selling them the next, if desired—private investments have high trading costs and, in many cases, requirements that investments be held for minimum time periods. As one book explains,

The trading costs associated with buying and selling a private business can range from substantial to prohibitive, depending on the size of the business, the

<sup>19</sup> As illustrated in Section IV.B, a higher expected rate of return decreases the value of the investment. "In the United States most studies estimate PIPE [private investment in public equity] discounts at between 9 and 20 percent (Hertzel and Smith 1993; Wu 2004), while Mola and Loughran (2004) estimate discounts at 3 percent for SEOs [seasoned equity offerings]. Chen et al. (2010, Table 2) report larger discounts for PIPEs (12.2 and 14.9 percent when placement agents are involved) than for SEOs (2.9 percent)." [Carpentier, Cécile, Jean-François L'Her, and Jean-Marc Suret, "The Costs of Issuing Private Versus Public Equity for Entrepreneurial Ventures," *The Oxford Handbook of Private Equity*, March 2012 ("Carpentier et al. 2012"), pp. 7–8.]

<sup>20</sup> "PPs [private placements] and SEOs are generally sold at a discount relative to the market price." (Carpentier et al. 2012, p. 7.) "In the sale of private rather than public equity, a discount is given to private investors off the firm's true value." (Ferreira, Eurico and Leroy D. Brooks, "On Public versus Private Equity Placements: Pedagogical Illustrations," *Financial Practice and Education*, Fall/Winter 2000, p. 243.) "For only 0.2% of the SEO firms, indirect cost would have been lower had PIPEs been used; for 99.8% of PIPE firms, indirect cost would have been lower had SEOs been used." (Chen, Hsuan-Chi, Na Dai, and John D. Schatzberg, "The choice of equity selling mechanisms: PIPEs versus SEOs," *Journal of Corporate Finance*, Vol. 16, 2010, p. 113.)

<sup>21</sup> See, e.g., Pratt, Shannon P. and Roger J. Grabowski, *Cost of Capital: Applications and Examples*, 5th Edition, John Wiley & Sons, Inc., 2014, p. 612; Blackstone, "Patient Capital, Private Opportunity: The Benefits and Challenges of Illiquid Alternatives," p. 2; Ljungqvist, Alexander and Matthew Richardson, "The Cash Flow, Return and Risk Characteristics of Private Equity," Working Paper, *National Bureau of Economic Research*, January 2003, p. 28.



composition of its assets, and its profitability. There are relatively few potential buyers, and the search costs (associated with finding these buyers) will be high.<sup>22</sup>

23. Another article explains that “[r]elative to other asset classes, private equity investments are illiquid, in the sense that there is no active secondary market for such investments, investors have little control over how the capital is invested, and the investment profile covers a long horizon.”<sup>23</sup> Investors require a return premium for this lack of liquidity.

24. A second commonly cited reason why private investors demand a higher return is because they have to spend more resources and effort to resolve asymmetric information. Information asymmetry is the gap between what insiders such as managers know about a company as compared to what investors know, and it arises, for example, when the target company does not publicly provide detailed financial metrics. A leading valuation text explains:

Generally, business buyers cannot get financial information regarding closely held businesses—short of a direct approach to the subject business, which they are often reluctant to take and which is often rebuffed. Often, private company sales are initiated by the seller, which may put downward pressure on the price paid for the private company.<sup>24</sup>

25. An academic article adds that “asymmetry of information should be larger when the firms do not issue a prospectus,”<sup>25</sup> which the SEC generally requires of publicly traded companies. Private investors might be able to negotiate with issuers to gain access to the same information that would be made available by a public company, but gaining this access and verifying the information requires substantial additional effort.

---

<sup>22</sup> Damodaran, Aswath, *Damodaran on Valuation: Security Analysis for Investment and Corporate Finance*, 2nd Edition, John Wiley & Sons, Inc., 2006, p. 507.

<sup>23</sup> Ljungqvist, Alexander and Matthew Richardson, “The Cash Flow, Return and Risk Characteristics of Private Equity,” Working Paper, *National Bureau of Economic Research*, January 2003, p. 1.

<sup>24</sup> Pratt, Shannon P. and Alina V. Niculita, *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*, 5th Edition, The McGraw-Hill Companies, Inc., 2008, p. 444.

<sup>25</sup> Carpentier et al. 2012, p. 7.

**V. Using Public Markets to Estimate both Direct and Indirect Costs Is More Reasonable than Using Private Markets**

**A. Mr. Maughan's Proposal to Estimate Direct Costs Based on Private Markets Contradicts the STB's Long-Standing Use of Public Markets to Estimate Indirect Costs**

26. The STB measures a railroad's cost of equity by considering the financial metrics of publicly traded companies.<sup>26</sup> Mr. Maughan's proposal to estimate direct costs based on private markets is inconsistent with the STB's practice. Moreover, such an inconsistency, if adopted, would result in an unreasonable measure of all-in costs.

27. Conceivable combinations for measuring the all-in cost of issuing equity include calculating (i) both direct and indirect costs based on private markets, (ii) both direct and indirect costs based on public markets, (iii) indirect costs based on private markets and direct costs based on public markets, (iv) indirect costs based on public markets and direct costs based on private markets. The fourth option is the one that would be selected by using the STB's current approach to measuring indirect costs based on public markets and Mr. Maughan's proposal to measure direct costs based on private markets. This particular combination not only represents contradictory methods but also results in an artificially low estimate of the all-in cost, because, as discussed above, direct costs are lower for raising equity in private markets and indirect costs are lower for raising equity in public markets. In other words, simply using consistent methods—whether both are based on private markets or both are based on public markets—would result in a higher estimate of all-in costs than the fourth option would indicate.

**B. Use of Public Markets to Make Cost Estimates Is the More Reasonable Choice Due in Part to the Abundance of Data for Public Markets and Scarcity of Data for Private Markets**

28. The most reasonable approach to estimating all-in costs is to obtain all data from public markets (the second option described above) partly due to the realities of data availability. Mr. Maughan's approach to measuring direct issuance costs evidences the lack of available financial data on private companies and transactions. He indirectly estimates

---

<sup>26</sup> STB Decision, Railroad Cost of Capital—2015, Docket No. EP 558 (Sub-No. 19), decided on August 3, 2016, p. 3, footnote 5.



these costs by considering the cost of a merger or acquisition (“M&A”) transaction instead of directly considering the cost of a private placement<sup>27</sup> and remarks that “[m]easures for M&A fees are known in public transactions where a merger proxy is filed, but are unknown if the parties are private.”<sup>28</sup>

29. Mr. Maughan’s conclusion regarding the lack of data on private companies is consistent with what studies of public and private markets have found. One such study remarks that “[a]ny analysis of the private placement market is handicapped by a lack of readily available information. Because the securities are not registered with the SEC, only limited data about transactions are publicly available, and most participants disclose relatively little about their operations.”<sup>29</sup>

30. Lack of data is a serious problem because calculating the expected return on equity is a data-intensive exercise. For a public company, estimating the cost of equity is complex but doable. The STB uses a combination of the capital asset pricing model (“CAPM”) and a multi-stage discounted cash flows (“MSDCF”) model to estimate the cost of equity for railroad companies.<sup>30</sup> Both methods are data intensive and based substantially on stock prices. A key component of CAPM is beta, which measures how the volatility in a company’s stock price correlates with volatility in the market.<sup>31</sup> Likewise, the current market value of the railroad and its future cash flows are key inputs into the MSDCF model.<sup>32</sup> Both approaches to estimating the cost of equity for public companies are thus highly dependent on accurate and readily available pricing data.

31. Estimating the cost of equity for a private placement would be a daunting task. For private companies, trades occur infrequently and the trading prices are seldom known. Absent substantial volumes of trade data, precise and accurate implementation of the CAPM and MSDCF models becomes an impractical exercise. Although it may be acceptable in some contexts to roughly estimate a premium for private companies to add to the estimated

---

<sup>27</sup> Maughan Statement, p. 19.

<sup>28</sup> Maughan Statement, p. 19.

<sup>29</sup> Carey, Mark, Stephen Prowse, John Rea, et al., “The Economics of the Private Placement Market,” *Board of Governors of the Federal Reserve System*, December 1993.

<sup>30</sup> STB Decision, Railroad Cost of Capital—2015, Docket No. EP 558 (Sub-No. 19), decided on August 3, 2016, pp. 7–14.

<sup>31</sup> Pratt, Shannon P. and Roger J. Grabowski, *Cost of Capital: Applications and Examples*, 5th Edition, John Wiley & Sons, Inc., 2014, pp. 190–191.

<sup>32</sup> STB Decision, Railroad Cost of Capital—2015, Docket No. EP 558 (Sub-No. 19), decided on August 3, 2016, pp. 11, 13.

cost of equity for comparable public companies,<sup>33</sup> the correct magnitude of this premium is subject to widely divergent opinions and much controversy.<sup>34</sup>

## VI. Conclusion

32. It would be inappropriate to mix apples and oranges by adopting a method for estimating direct costs that assumes a private placement, which is inconsistent with the STB's long-standing method for estimating indirect costs based on public companies. Not only would these two approaches be inconsistent with each other, they would result in an artificially low estimate of all-in costs by combining the lower estimate of indirect costs (cost of equity) based on public offerings with the lower estimate of direct costs (flotation costs) based on private placements.

33. If the STB were to attempt to use private markets to estimate both direct costs and indirect costs, it would face an arduous undertaking. I understand that through a series of contested rulemakings, the STB has already settled on a reasonable methodology for estimating the cost of equity based on public companies. Devising a proper methodology based on private companies to supplant the STB's established, public-based approach would be difficult, controversial, and time consuming given the substantial absence of data on private company financial performance and private transactions.

34. The STB can retain its established practice for estimating the cost of equity and employ a consistent method for estimating issuance costs by using public data for both measures. Doing so allows the STB to properly utilize the abundant data available from public markets in making its estimates. Moreover, as this statement has demonstrated, an estimate of all-in costs assuming a public offering would be roughly equal to, if not less than, an estimate of the all-in costs assuming a private placement. Therefore, by assuming a public

---

<sup>33</sup> Damodaran, Aswath, *Damodaran on Valuation: Security Analysis for Investment and Corporate Finance*, 2nd Edition, John Wiley & Sons, Inc., 2006, pp. 57–58; Pratt, Shannon P. and Roger J. Grabowski, *Cost of Capital: Applications and Examples*, 5th Edition, John Wiley & Sons, Inc., 2014, pp. 372, 374–376.

<sup>34</sup> For example, estimates of the illiquidity premium vary across academic studies. See, e.g., Blackstone, "Patient Capital, Private Opportunity: The Benefits and Challenges of Illiquid Alternatives," p. 2 ("Recent attempts to quantify an illiquidity premium suggest it may amount to 3% per year or more..."); Ljungqvist, Alexander and Matthew Richardson, "The Cash Flow, Return and Risk Characteristics of Private Equity," Working Paper, *National Bureau of Economic Research*, January 2003, p. 28 ("[W]e document that private equity generates excess returns on the order of five to eight percent per annum relative to the aggregate public equity market. ... One possible interpretation for this magnitude is that it compensates investors for holding a 10-year illiquid investment.").



offering for measuring both direct and indirect costs, the STB would neither adopt inconsistent methods that result in an artificially low estimate nor be forced to grapple with the absence of data available on private companies and private markets.

# **Attachment A**

## **Documents Relied Upon**

### **Pleading:**

- Reply Evidence of CSX Transportation, Inc., Narrative Sections III-E through V (Volume 3 of 4), Consumers Energy Company v. CSX Transportation, Inc., Docket No. NOR 42142, March 7, 2016

### **Verified Statement:**

- Verified Statement of David Maughan in the Matter of Consumers Energy Company v. CSX Transportation, Inc., January 23, 2017

### **STB Decision:**

- STB Decision, Railroad Cost of Capital—2015, Docket No. EP 558 (Sub-No. 19), decided on August 3, 2016

### **Articles:**

- Blackstone, "Patient Capital, Private Opportunity: The Benefits and Challenges of Illiquid Alternatives"
- Carey, Mark, Stephen Prowse, John Rea, et al., "The Economics of the Private Placement Market," Board of Governors of the Federal Reserve System, December 1993
- Carpentier, Cécile, Jean-François L'Her, and Jean-Marc Suret, "The Cost of Issuing Private Versus Public Equity for Entrepreneurial Ventures," *The Oxford Handbook of Private Equity*, March 2012
- Chen, Hsuan-Chi, Na Dai, and John D. Schatzberg, "The choice of equity selling mechanisms: PIPEs versus SEOs," *Journal of Corporate Finance*, Vol. 16, 2010
- Ferreira, Eurico and Leroy D. Brooks, "On Public versus Private Equity Placements; Pedagogical Illustrations," *Financial Practice and Education*, Fall/Winter 2000
- Ljungqvist, Alexander and Matthew Richardson, "The Cash Flow, Return and Risk Characteristics of Private Equity," Working Paper, January 2003

### **Textbooks:**

- Damodaran, Aswath, *Damodaran on Valuation*, 2nd Edition, John Wiley & Sons, Inc., 2006
- Grinblatt, Mark and Sheridan Titman, *Financial Markets and Corporate Strategy*, 2nd Edition, The McGraw-Hill Companies, Inc., 2002
- Pratt, Shannon P. and Alina V. Niculita, *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*, The McGraw-Hill Companies, Inc., 2008

## **Attachment A**

### **Documents Relied Upon**

- Pratt, Shannon P. and Roger J. Grabowski, *Cost of Capital: Applications and Examples*, John Wiley & Sons, Inc., 2014

# **Exhibit III-G-2**

**To**

**SUPPLEMENTAL REPLY EVIDENCE  
OF CSX TRANSPORTATION, INC.**

---

**Docket No. NOR 42121**



**Verified Statement of Glenn Tobias**

I am Glenn Tobias, Chief Executive Officer of FTI Capital Advisors, LLC, the investment banking practice of FTI Consulting, Inc. I sponsored the evidence in CSXT's Reply Evidence in this proceeding on the equity flotation costs that the CERR would incur in raising the approximately \$500 million needed to finance the construction and initial operation of that hypothetical stand-alone railroad. See CSXT Reply at III-G-1 through III-G-5, and CSXT Reply Exhibit III-G-1. That evidence, based on analysis of all initial public offerings ("IPOs") generating \$100 million or more over the preceding decade, showed that the average of equity flotation costs was 6.3%, which I conservatively reduced to 6%. In response to Consumers' contention in its Supplemental Opening Evidence that a 6% flotation fee is "unwarranted" (III-G-13 through III-G-17), I have updated my analysis for the most recent 10-year "look back" period for which such data are available, namely 1-1-2006 through 1-31-2017, consisting of 494 transactions of \$100 million or more that are listed in Attachment A to this Reply Supplemental Exhibit III-G-2. Based on that updated analysis, I find the average spread for transactions generating gross proceeds of at least \$100 million to be 6.3%, which supports my original conclusion.

Consumers criticizes my determination of an average flotation cost of 6% on the grounds that it is based "on a simple average of various IPOs of \$100 million or more taken over the past decade . . . with no apparent effort to consider the details of those individual IPOs." Consumers Supp. Op. at III-G-14. In fact the relevant industry sector for all of the 535 qualifying IPOs listed in CSXT's Reply Exhibit III-G-1 is included, just as they are for the 494 qualifying IPOs included in Attachment A to this Exhibit III-G-2, which I am sponsoring in this filing. If Consumers' criticism is that the particular details of each of those many hundreds of transactions need to be scrutinized in order to somehow validate a 6% flotation fee, such a claim is baseless. The fact is that the 6% average is composed of a relatively narrow band of flotation fees across all of the industry sectors, and indeed the more recent data show a remarkable degree of stability in the range of such fees for transactions of the equivalent size of the CERR's financing. Even if more detailed data on the specifics of each of the many hundreds of transactions included in CSXT's Reply Exhibit III-G-1 and Attachment A to this Supplemental Reply Exhibit III-G-2 could be obtained, it would be an enormous—and fundamentally unnecessary—effort to wade

through that data to confirm that an approximate 6% equity flotation cost was incurred by each industry subcategory of issuers.

Finally, Consumers faults the Reply Exhibit III-G-1 that I sponsored because “none of those [transactions] listed is identified as a railroad or transportation company.” Consumers Supp. Op. at III-G-14, footnote omitted. But Consumers is mistaken. CSXT’s Reply Exhibit III-G-1 included two transactions involving the financing of a railroad. Specifically, transaction numbers 157 and 165, shown on the sixth page of that Exhibit, were for Fortress Transportation and Infrastructure Investors LLC and for RailAmerica, Inc., respectively. That Exhibit shows that the Fortress transaction raised \$340 million with a gross spread of 6.25% and the RailAmerica transaction raised \$330 million and had a gross spread of 6.50%.<sup>1</sup> The fact is that those transactions generated gross proceeds only slightly less than required for the CERR, and with both of those transactions having a gross spread at or above 6.25%, confirms the conservative nature of my 6% figure.

#### **Use of a Private Placement**

Consumers’ witness Mr. Maughan concludes that a “private placement is the logical and appropriate means for the SARR to raise its equity.” Maughan V.S. at 10. Mr. Maughan then proceeds to detail the reasons why he believes a private placement would best suit the CERR; reviews the procedures and mechanisms for raising capital via a private placement; and concludes that “an M&A-type private placement fee of 0.95%” is an appropriate estimate of flotation costs. Maughan V.S. at 18-20. But what Mr. Maughan has estimated is simply the direct fee payable to the placement agent of the private placement, not the true full incremental costs of using a private placement in lieu of an IPO. As he surely knows, investors in private placements demand a higher return on such investments than for IPOs, with such higher return required for numerous reasons including the significant illiquidity of privately sold securities, relatively limited and less certain information disclosure with respect to the Issuer’s business (at inception and post-closing over the course of the investment holding period), and higher transaction costs upon liquidation. Stated plainly, Mr. Maughan’s calculation of an approximate 1% “flotation fee” omits the very significant reality of a higher required return on equity that

---

<sup>1</sup> Consumers’ Supp. Opening witness Maughan confirmed the existence of these transactions. See Maughan V.S. at 7 and footnote 8.



investors in a private placement for the CERR would require over shares of the same company purchased in an IPO. This may be effected in a variety of ways, such as the issuer offering the privately placed shares at a discount from the price that would obtain in a public offering and/or providing the purchasers with a greater proportion of the equity capitalization of the Issuer for the same level of investment. Suggesting that a 1% flotation fee for a private placement is preferable to a 6% flotation fee for a public offering is a false equivalency. The aggregate of the direct issuance cost (bankers' fee) and the higher cost of equity of a private placement will on average exceed the flotation costs for an IPO, in many cases by a significant degree. This is caused by the fact that the additional premium driving the higher required return is not a one time cost like a placement fee, but rather an annual burden impacting the issuer indefinitely. Over time, the cost of the higher required return on equity by private investors will either equal or exceed any savings achieved by having a lower placement fee at closing.<sup>2</sup>

Whether the CERR used an IPO or a private placement, I believe it would incur equity flotation costs of approximately 6% or more when using a benchmark cost of equity for an IPO as the standard by which either is analyzed.

---

<sup>2</sup> There is significant economic and finance literature that supports the point that a higher cost of equity is demanded by investors in private placements. See, e.g., Damodaran, A. *Marketability and Value: Measuring the Illiquidity Discount* (2005), available at <http://people.stern.nyu.edu/adamodar/pdfiles/papers/liquidity.pdf>; Ljungqvist, Alexander, and Matthew P. Richardson, *The Cash Flow, Return and Risk Characteristics of Private Equity*, SSRN Electronic Journal (2003) NBER Working Paper Series, available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.201.2476&rep=rep1&type=pdf>; Blackstone Private Wealth Management, *Patient Capital, Private Opportunity: The Benefits and Challenges of Illiquid Alternatives*, (9 Sept. 2014), available at <https://www.blackstone.com/docs/default-source/black-papers/patient-capital-private-opportunity.pdf?sfvrsn=0>; Harris, Robert S., Tim Jenkinson, and Steven N. Kaplan, *Private Equity Performance: What Do We Know?* (Sept. 23, 2011), available at <http://faculty.chicagobooth.edu/steven.kaplan/research/hjk.pdf>.

| No. | Date of IPO | Issuer                                        | Primary Sector             | Primary Industry                        | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-----------------------------------------------|----------------------------|-----------------------------------------|---------------|-------------------|-----------------|----------------|
| 1   | 11/09/2007  | Visa Inc. (NYSE:V)                            | Information Technology     | Data Processing and Outsourced Services | United States | 17,864.00         | 500.19          | 2.80%          |
| 2   | 02/01/2012  | Facebook, Inc. (NasdaqGS:FB)                  | Information Technology     | Internet Software and Services          | United States | 16,006.88         | 176.08          | 1.10%          |
| 3   | 08/18/2010  | General Motors Company (NYSE:GM)              | Consumer Discretionary     | Automobile Manufacturers                | United States | 15,774.00         | 118.31          | 0.75%          |
| 4   | 12/22/2010  | HCA Holdings, Inc. (NYSE:HCA)                 | Healthcare                 | Healthcare Facilities                   | United States | 3,786.00          | 137.24          | 3.63%          |
| 5   | 11/23/2010  | Kinder Morgan, Inc. (NYSE:KMI)                | Energy                     | Oil and Gas Storage and Transportation  | United States | 2,864.00          | 85.92           | 3.00%          |
| 6   | 07/29/2013  | Plains GP Holdings, L.P. (NYSE:PAGP)          | Energy                     | Oil and Gas Storage and Transportation  | United States | 2,816.00          | 84.48           | 3.00%          |
| 7   | 07/20/2015  | First Data Corporation (NYSE:FDC)             | Information Technology     | Data Processing and Outsourced Services | United States | 2,560.00          | 83.20           | 3.25%          |
| 8   | 09/12/2013  | Hilton Worldwide Holdings Inc. (NYSE:HLT)     | Consumer Discretionary     | Hotels, Resorts and Cruise Lines        | United States | 2,352.81          | 85.29           | 3.63%          |
| 9   | 08/10/2012  | Zoetis Inc. (NYSE:ZTS)                        | Healthcare                 | Pharmaceuticals                         | United States | 2,238.60          | 82.83           | 3.70%          |
| 10  | 08/12/2008  | Verisk Analytics, Inc. (NasdaqGS:VRSK)        | Industrials                | Research and Consulting Services        | United States | 1,875.50          | 75.02           | 4.00%          |
| 11  | 10/03/2013  | Twitter, Inc. (NYSE:TWTR)                     | Information Technology     | Internet Software and Services          | United States | 1,820.00          | 59.15           | 3.25%          |
| 12  | 06/03/2010  | Nielsen Holdings plc (NYSE:NLSN)              | Industrials                | Research and Consulting Services        | United States | 1,642.86          | 73.93           | 4.50%          |
| 13  | 06/13/2013  | Antero Resources Corporation (NYSE:AR)        | Energy                     | Oil and Gas Exploration and Production  | United States | 1,571.90          | 70.74           | 4.50%          |
| 14  | 01/02/2014  | IMS Health Holdings, Inc.                     | Healthcare                 | Health Care Technology                  | United States | 1,300.00          | 58.50           | 4.50%          |
| 15  | 08/27/2007  | American Water Works Company, Inc. (NYSE:AWK) | Utilities                  | Water Utilities                         | United States | 1,247.00          | 37.41           | 3.00%          |
| 16  | 02/24/2015  | Tallgrass Energy GP, LP (NYSE:TEGP)           | Energy                     | Oil and Gas Storage and Transportation  | United States | 1,203.50          | 57.17           | 4.75%          |
| 17  | 10/18/2013  | Caesars Acquisition Company (NasdaqGS:CACQ)   | Consumer Discretionary     | Casinos and Gaming                      | United States | 1,173.07          | -               | -              |
| 18  | 01/04/2007  | MetroPCS Communications, Inc.                 | Telecommunication Services | Wireless Telecommunication Services     | United States | 1,150.00          | 54.05           | 4.70%          |
| 19  | 09/29/2014  | Columbia Pipeline Partners LP (NYSE:CPPL)     | Energy                     | Oil and Gas Storage and Transportation  | United States | 1,076.66          | 48.45           | 4.50%          |
| 20  | 02/09/2016  | US Foods Holding Corp. (NYSE:USFD)            | Consumer Staples           | Food Distributors                       | United States | 1,022.22          | 48.56           | 4.75%          |
| 21  | 07/01/2011  | Zynga Inc. (NasdaqGS:ZNGA)                    | Information Technology     | Home Entertainment Software             | United States | 1,000.00          | 32.50           | 3.25%          |
| 22  | 06/28/2012  | Coty Inc. (NYSE:COTY)                         | Consumer Staples           | Personal Products                       | United States | 1,000.00          | 35.00           | 3.50%          |
| 23  | 02/06/2014  | Antero Midstream Partners LP (NYSE:AM)        | Energy                     | Oil and Gas Storage and Transportation  | United States | 1,000.00          | 45.00           | 4.50%          |
| 24  | 08/20/2014  | Axalta Coating Systems Ltd. (NYSE:AXTA)       | Materials                  | Specialty Chemicals                     | United States | 975.00            | 48.75           | 5.00%          |
| 25  | 06/13/2013  | Envision Healthcare Holdings, Inc.            | Healthcare                 | Healthcare Services                     | United States | 966.00            | 53.13           | 5.50%          |
| 26  | 12/20/2007  | Intrepid Potash, Inc. (NYSE:IP)               | Materials                  | Fertilizers and Agricultural Chemicals  | United States | 960.00            | 57.60           | 6.00%          |
| 27  | 04/11/2013  | HD Supply Holdings, Inc. (NasdaqGS:HDS)       | Industrials                | Trading Companies and Distributors      | United States | 957.45            | 40.69           | 4.25%          |
| 28  | 04/26/2007  | VMware, Inc. (NYSE:VMW)                       | Information Technology     | Systems Software                        | United States | 957.00            | 52.64           | 5.50%          |



| No. | Date of IPO | Issuer                                               | Primary Sector         | Primary Industry                       | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|------------------------------------------------------|------------------------|----------------------------------------|---------------|-------------------|-----------------|----------------|
| 29  | 07/27/2007  | Talecris Biotherapeutics Holdings Corp.              | Healthcare             | Biotechnology                          | United States | 950.00            | 52.25           | 5.50%          |
| 30  | 08/05/2009  | Hyatt Hotels Corporation (NYSE:H)                    | Consumer Discretionary | Hotels, Resorts and Cruise Lines       | United States | 950.00            | 48.69           | 5.13%          |
| 31  | 02/15/2013  | Quintiles IMS Holdings, Inc. (NYSE:Q)                | Healthcare             | Life Sciences Tools and Services       | United States | 947.37            | 52.11           | 5.50%          |
| 32  | 04/11/2014  | Parsley Energy, Inc. (NYSE:PE)                       | Energy                 | Oil and Gas Exploration and Production | United States | 925.00            | 50.88           | 5.50%          |
| 33  | 12/16/2013  | Rice Energy Inc. (NYSE:RICE)                         | Energy                 | Oil and Gas Exploration and Production | United States | 924.00            | 46.20           | 5.00%          |
| 34  | 06/18/2014  | Shell Midstream Partners, L.P. (NYSE:SHLX)           | Energy                 | Oil and Gas Storage and Transportation | United States | 920.00            | 40.02           | 4.35%          |
| 35  | 05/17/2013  | Platform Specialty Products Corporation (NYSE:PAH)   | Materials              | Specialty Chemicals                    | United States | 885.00            | 21.15           | 2.39%          |
| 36  | 01/24/2014  | Catalent, Inc. (NYSE:CTLT)                           | Healthcare             | Pharmaceuticals                        | United States | 871.25            | 43.56           | 5.00%          |
| 37  | 09/04/2009  | Cobalt International Energy, Inc. (NYSE:CIE)         | Energy                 | Oil and Gas Exploration and Production | United States | 850.50            | 36.57           | 4.30%          |
| 38  | 05/02/2014  | Eclipse Resources Corporation (NYSE:ECR)             | Energy                 | Oil and Gas Exploration and Production | United States | 818.10            | 42.95           | 5.25%          |
| 39  | 04/04/2014  | Range Resources - Louisiana, Inc.                    | Energy                 | Oil and Gas Exploration and Production | United States | 813.20            | 45.74           | 5.63%          |
| 40  | 07/21/2010  | Swift Transportation Company (NYSE:SWFT)             | Industrials            | Trucking                               | United States | 806.30            | 40.32           | 5.00%          |
| 41  | 01/14/2011  | Air Lease Corporation (NYSE:AL)                      | Industrials            | Trading Companies and Distributors     | United States | 802.50            | 44.14           | 5.50%          |
| 42  | 02/11/2011  | Freescale Semiconductor, Ltd.                        | Information Technology | Semiconductors                         | United States | 783.00            | 35.24           | 4.50%          |
| 43  | 06/27/2014  | Univar Inc. (NYSE:UNVR)                              | Industrials            | Trading Companies and Distributors     | United States | 770.00            | 46.20           | 6.00%          |
| 44  | 08/26/2013  | Premier, Inc. (NasdaqGS:PINC)                        | Healthcare             | Healthcare Services                    | United States | 760.10            | 45.61           | 6.00%          |
| 45  | 05/07/2015  | Fitbit, Inc. (NYSE:FIT)                              | Information Technology | Electronic Equipment and Instruments   | United States | 731.50            | 43.89           | 6.00%          |
| 46  | 09/09/2013  | Aramark (NYSE:ARMK)                                  | Consumer Discretionary | Restaurants                            | United States | 725.00            | 39.88           | 5.50%          |
| 47  | 12/18/2008  | Mead Johnson Nutrition Company (NYSE:MJN)            | Consumer Staples       | Packaged Foods and Meats               | United States | 720.00            | 36.00           | 5.00%          |
| 48  | 09/20/2013  | Cheniere Energy Partners LP Holdings, LLC (AMEX:CQH) | Energy                 | Oil and Gas Storage and Transportation | United States | 720.00            | 42.30           | 5.88%          |
| 49  | 08/20/2009  | Dollar General Corporation (NYSE:DG)                 | Consumer Discretionary | General Merchandise Stores             | United States | 716.10            | 41.18           | 5.75%          |
| 50  | 09/04/2013  | EP Energy Corporation (NYSE:EPE)                     | Energy                 | Oil and Gas Exploration and Production | United States | 704.00            | 31.68           | 4.50%          |
| 51  | 03/08/2007  | AECOM (NYSE:ACM)                                     | Industrials            | Construction and Engineering           | United States | 703.00            | 43.23           | 6.15%          |
| 52  | 12/27/2012  | SeaWorld Entertainment, Inc. (NYSE:SEAS)             | Consumer Discretionary | Leisure Facilities                     | United States | 702.00            | 42.12           | 6.00%          |
| 53  | 06/02/2011  | Groupon, Inc. (NasdaqGS:GRPN)                        | Consumer Discretionary | Internet and Direct Marketing Retail   | United States | 700.00            | 42.00           | 6.00%          |
| 54  | 06/10/2015  | Blue Buffalo Pet Products, Inc. (NasdaqGS:BUFF)      | Consumer Staples       | Packaged Foods and Meats               | United States | 676.63            | 35.52           | 5.25%          |
| 55  | 05/07/2015  | TerraForm Global, Inc. (NasdaqGS:GLBL)               | Utilities              | Renewable Electricity                  | United States | 675.00            | 38.70           | 5.73%          |
| 56  | 03/30/2015  | TransUnion (NYSE:TRU)                                | Industrials            | Research and Consulting Services       | United States | 664.77            | 38.22           | 5.75%          |

| No. | Date of IPO | Issuer                                          | Primary Sector         | Primary Industry                        | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-------------------------------------------------|------------------------|-----------------------------------------|---------------|-------------------|-----------------|----------------|
| 57  | 05/31/2016  | Valvoline Inc. (NYSE:VVV)                       | Materials              | Commodity Chemicals                     | United States | 660.00            | 34.65           | 5.25%          |
| 58  | 02/10/2014  | La Quinta Holdings Inc. (NYSE:LQ)               | Consumer Discretionary | Hotels, Resorts and Cruise Lines        | United States | 650.25            | 32.51           | 5.00%          |
| 59  | 08/30/2012  | Workday, Inc. (NYSE:WDAY)                       | Information Technology | Application Software                    | United States | 637.00            | 38.22           | 6.00%          |
| 60  | 09/14/2016  | Extraction Oil & Gas, LLC (NasdaqGS:XOG)        | Energy                 | Oil and Gas Exploration and Production  | United States | 633.33            | 34.83           | 5.50%          |
| 61  | 12/05/2012  | Taylor Morrison Home Corporation (NYSE:TMHC)    | Consumer Discretionary | Homebuilding                            | United States | 628.58            | 37.72           | 6.00%          |
| 62  | 01/21/2014  | Sabre Corporation (NasdaqGS:SABR)               | Information Technology | Data Processing and Outsourced Services | United States | 627.20            | 32.93           | 5.25%          |
| 63  | 06/08/2015  | Patheon N.V. (NYSE:PTHN)                        | Healthcare             | Life Sciences Tools and Services        | United States | 625.00            | 34.38           | 5.50%          |
| 64  | 02/12/2015  | EQT GP Holdings, LP (NYSE:EQGP)                 | Energy                 | Oil and Gas Storage and Transportation  | United States | 621.00            | 31.05           | 5.00%          |
| 65  | 03/24/2014  | ServiceMaster Global Holdings, Inc. (NYSE:SERV) | Consumer Discretionary | Specialized Consumer Services           | United States | 610.30            | 30.52           | 5.00%          |
| 66  | 03/18/2011  | Allison Transmission Holdings, Inc. (NYSE:ALSN) | Industrials            | Construction Machinery and Heavy Trucks | United States | 600.30            | 33.02           | 5.50%          |
| 67  | 09/28/2012  | CVR Refining, LP (NYSE:CVRR)                    | Energy                 | Oil and Gas Refining and Marketing      | United States | 600.00            | 30.00           | 5.00%          |
| 68  | 12/30/2014  | Inovalon Holdings, Inc. (NasdaqGS:INOV)         | Healthcare             | Health Care Technology                  | United States | 600.00            | 35.56           | 5.93%          |
| 69  | 06/21/2011  | Flint Hills Resources Houston Chemical, LLC     | Materials              | Commodity Chemicals                     | United States | 595.00            | 35.70           | 6.00%          |
| 70  | 03/04/2010  | Oasis Petroleum Inc. (NYSE:OAS)                 | Energy                 | Oil and Gas Exploration and Production  | United States | 588.00            | 35.28           | 6.00%          |
| 71  | 12/19/2012  | Pinnacle Foods Inc. (NYSE:PF)                   | Consumer Staples       | Packaged Foods and Meats                | United States | 580.00            | 34.80           | 6.00%          |
| 72  | 08/02/2013  | CommScope Holding Company, Inc. (NasdaqGS:COMM) | Information Technology | Communications Equipment                | United States | 576.92            | 30.29           | 5.25%          |
| 73  | 06/01/2016  | JELD-WEN Holding, inc. (NYSE:JELD)              | Industrials            | Building Products                       | United States | 575.00            | 35.94           | 6.25%          |
| 74  | 07/19/2013  | Extended Stay America, Inc. (NYSE:STAY)         | Consumer Discretionary | Hotels, Resorts and Cruise Lines        | United States | 565.00            | 33.90           | 6.00%          |
| 75  | 01/05/2012  | Sandridge Mississippian Trust II (NYSE:SDR)     | Energy                 | Oil and Gas Exploration and Production  | United States | 546.00            | 32.76           | 6.00%          |
| 76  | 05/25/2011  | SandRidge Permian Trust (NYSE:PER)              | Energy                 | Oil and Gas Exploration and Production  | United States | 540.00            | 32.40           | 6.00%          |
| 77  | 06/24/2014  | VWR Corporation (NasdaqGS:VWR)                  | Healthcare             | Life Sciences Tools and Services        | United States | 536.17            | 29.49           | 5.50%          |
| 78  | 11/14/2011  | PBF Energy Inc. (NYSE:PBF)                      | Energy                 | Oil and Gas Refining and Marketing      | United States | 533.00            | 29.32           | 5.50%          |
| 79  | 02/01/2007  | Cinemark Holdings, Inc. (NYSE:CNK)              | Consumer Discretionary | Movies and Entertainment                | United States | 532.00            | 29.26           | 5.50%          |
| 80  | 01/28/2016  | Red Rock Resorts, Inc. (NasdaqGS:RRR)           | Consumer Discretionary | Casinos and Gaming                      | United States | 531.38            | 31.88           | 6.00%          |
| 81  | 05/10/2007  | Orbitz Worldwide, Inc.                          | Consumer Discretionary | Internet and Direct Marketing Retail    | United States | 510.00            | 28.05           | 5.50%          |
| 82  | 12/14/2016  | Keane Group, Inc. (NYSE:FRAC)                   | Energy                 | Oil and Gas Equipment and Services      | United States | 508.44            | 33.05           | 6.50%          |
| 83  | 02/06/2013  | EVERTEC, Inc. (NYSE:EVTCT)                      | Information Technology | Data Processing and Outsourced Services | United States | 505.26            | 27.79           | 5.50%          |
| 84  | 05/28/2014  | TerraForm Power, Inc. (NasdaqGS:TERP)           | Utilities              | Renewable Electricity                   | United States | 501.63            | 34.89           | 6.95%          |



| No. | Date of IPO | Issuer                                                | Primary Sector         | Primary Industry                               | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-------------------------------------------------------|------------------------|------------------------------------------------|---------------|-------------------|-----------------|----------------|
| 85  | 08/31/2007  | El Paso Pipeline Partners, L.P.                       | Energy                 | Oil and Gas Storage and Transportation         | United States | 500.00            | 30.00           | 6.00%          |
| 86  | 11/09/2011  | Vantiv, Inc. (NYSE:VNTV)                              | Information Technology | Data Processing and Outsourced Services        | United States | 500.00            | 27.50           | 5.50%          |
| 87  | 11/25/2013  | Enable Midstream Partners, LP (NYSE:ENBL)             | Energy                 | Oil and Gas Storage and Transportation         | United States | 500.00            | 28.75           | 5.75%          |
| 88  | 10/02/2015  | Laureate Education, Inc. (NasdaqGS:LAUR)              | Consumer Discretionary | Education Services                             | United States | 490.00            | 24.50           | 5.00%          |
| 89  | 06/14/2007  | Resolute Energy Corporation (NYSE:REN)                | Energy                 | Oil and Gas Exploration and Production         | United States | 480.00            | 33.60           | 7.00%          |
| 90  | 07/12/2007  | Triplecrown Acquisition Corp.                         | Consumer Staples       | Agricultural Products                          | United States | 480.00            | 33.60           | 7.00%          |
| 91  | 01/12/2012  | MRC Global Inc. (NYSE:MRC)                            | Industrials            | Trading Companies and Distributors             | United States | 477.27            | 28.64           | 6.00%          |
| 92  | 12/19/2016  | Jagged Peak Energy Inc. (NYSE:JAG)                    | Energy                 | Oil and Gas Exploration and Production         | United States | 473.99            | 72.37           | 15.27%         |
| 93  | 12/20/2013  | The Michaels Companies, Inc. (NasdaqGS:MIK)           | Consumer Discretionary | Specialty Stores                               | United States | 472.22            | 26.56           | 5.63%          |
| 94  | 03/23/2012  | Berry Plastics Group, Inc. (NYSE:BERY)                | Materials              | Metal and Glass Containers                     | United States | 470.59            | 26.14           | 5.55%          |
| 95  | 06/09/2014  | GoDaddy Inc. (NYSE:GDDY)                              | Information Technology | Internet Software and Services                 | United States | 460.00            | 24.60           | 5.35%          |
| 96  | 08/12/2009  | Cloud Peak Energy Inc. (NYSE:CLD)                     | Energy                 | Coal and Consumable Fuels                      | United States | 459.00            | 25.25           | 5.50%          |
| 97  | 02/12/2007  | RSC Holdings, Inc.                                    | Industrials            | Trading Companies and Distributors             | United States | 458.33            | 25.21           | 5.50%          |
| 98  | 04/15/2011  | Vanguard Health Systems Inc.                          | Healthcare             | Healthcare Facilities                          | United States | 450.00            | 25.88           | 5.75%          |
| 99  | 01/27/2016  | Centennial Resource Development, Inc. (NasdaqCM:CDEV) | Energy                 | Oil and Gas Exploration and Production         | United States | 450.00            | 24.75           | 5.50%          |
| 100 | 07/15/2011  | Norwegian Cruise Line Holdings Ltd. (NasdaqGS:NCLH)   | Consumer Discretionary | Hotels, Resorts and Cruise Lines               | United States | 447.06            | 25.71           | 5.75%          |
| 101 | 08/14/2009  | Dole Food Company Inc.                                | Consumer Staples       | Packaged Foods and Meats                       | United States | 446.44            | 26.79           | 6.00%          |
| 102 | 02/16/2010  | Access Midstream Partners, L.P.                       | Energy                 | Oil and Gas Storage and Transportation         | United States | 446.25            | 26.78           | 6.00%          |
| 103 | 12/23/2014  | Black Knight Financial Services, Inc. (NYSE:BKFS)     | Information Technology | Data Processing and Outsourced Services        | United States | 441.00            | 24.26           | 5.50%          |
| 104 | 05/09/2014  | Nexeo Solutions, Inc. (NasdaqCM:NXEO)                 | Industrials            | Trading Companies and Distributors             | United States | 435.00            | 23.93           | 5.50%          |
| 105 | 06/06/2013  | NRG Yield, Inc. (NYSE:NYLDA)                          | Utilities              | Independent Power Producers and Energy Traders | United States | 430.65            | 23.69           | 5.50%          |
| 106 | 03/19/2015  | Black Stone Minerals, L.P. (NYSE:BSM)                 | Energy                 | Oil and Gas Exploration and Production         | United States | 427.50            | 23.51           | 5.50%          |
| 107 | 05/19/2014  | GoPro, Inc. (NasdaqGS:GPRO)                           | Consumer Discretionary | Consumer Electronics                           | United States | 427.20            | 25.63           | 6.00%          |
| 108 | 05/25/2011  | Rexnord Corporation (NYSE:RXN)                        | Industrials            | Industrial Machinery                           | United States | 426.32            | 24.51           | 5.75%          |
| 109 | 08/12/2015  | Pure Storage, Inc. (NYSE:PSTG)                        | Information Technology | Technology Hardware, Storage and Peripherals   | United States | 425.00            | 25.50           | 6.00%          |
| 110 | 05/04/2011  | Dunkin' Brands Group, Inc. (NasdaqGS:DNKN)            | Consumer Discretionary | Restaurants                                    | United States | 422.75            | 27.48           | 6.50%          |
| 111 | 02/12/2007  | Solera Holdings Inc.                                  | Information Technology | Application Software                           | United States | 420.00            | 26.25           | 6.25%          |
| 112 | 05/09/2013  | QEP Midstream Partners, LP                            | Energy                 | Oil and Gas Storage and Transportation         | United States | 420.00            | 25.20           | 6.00%          |

| No. | Date of IPO | Issuer                                                | Primary Sector             | Primary Industry                       | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-------------------------------------------------------|----------------------------|----------------------------------------|---------------|-------------------|-----------------|----------------|
| 113 | 03/10/2015  | 8point3 Energy Partners LP (NasdaqGS:CAFD)            | Utilities                  | Renewable Electricity                  | United States | 420.00            | 23.10           | 5.50%          |
| 114 | 05/01/2007  | Virgin Mobile USA, Inc.                               | Telecommunication Services | Wireless Telecommunication Services    | United States | 412.50            | 23.72           | 5.75%          |
| 115 | 11/06/2014  | Rice Midstream Partners LP (NYSE:RMP)                 | Energy                     | Oil and Gas Storage and Transportation | United States | 412.50            | 24.75           | 6.00%          |
| 116 | 11/10/2016  | WildHorse Resource Development Corporation (NYSE:WRD) | Energy                     | Oil and Gas Exploration and Production | United States | 412.50            | 22.17           | 5.38%          |
| 117 | 05/20/2014  | NextEra Energy Partners, LP (NYSE:NEP)                | Utilities                  | Renewable Electricity                  | United States | 406.25            | 21.33           | 5.25%          |
| 118 | 06/26/2007  | Nuverra Environmental Solutions, Inc. (OTCPK:NESC)    | Energy                     | Oil and Gas Equipment and Services     | United States | 400.00            | 28.00           | 7.00%          |
| 119 | 07/02/2014  | Zayo Group Holdings, Inc. (NYSE:ZAYO)                 | Telecommunication Services | Alternative Carriers                   | United States | 400.00            | 21.50           | 5.37%          |
| 120 | 12/18/2014  | Summit Materials, Inc. (NYSE:SUM)                     | Materials                  | Construction Materials                 | United States | 400.00            | 23.50           | 5.87%          |
| 121 | 10/16/2015  | Match Group, Inc. (NasdaqGS:MTCH)                     | Information Technology     | Internet Software and Services         | United States | 400.00            | 22.00           | 5.50%          |
| 122 | 03/22/2013  | CDW Corporation (NasdaqGS:CDW)                        | Information Technology     | Technology Distributors                | United States | 395.25            | 21.74           | 5.50%          |
| 123 | 08/07/2012  | The WhiteWave Foods Company (NYSE:WWAV)               | Consumer Staples           | Packaged Foods and Meats               | United States | 391.00            | 23.46           | 6.00%          |
| 124 | 04/11/2016  | AdvancePierre Foods Holdings, Inc. (NYSE:APFH)        | Consumer Staples           | Packaged Foods and Meats               | United States | 390.60            | 23.44           | 6.00%          |
| 125 | 11/12/2013  | RSP Permian, Inc. (NYSE:RSPP)                         | Energy                     | Oil and Gas Exploration and Production | United States | 390.00            | 22.43           | 5.75%          |
| 126 | 08/25/2014  | CONE Midstream Partners LP (NYSE:CNNX)                | Energy                     | Oil and Gas Storage and Transportation | United States | 385.00            | 23.10           | 6.00%          |
| 127 | 07/02/2012  | MPLX LP (NYSE:MPLX)                                   | Energy                     | Oil and Gas Storage and Transportation | United States | 380.60            | 22.84           | 6.00%          |
| 128 | 07/07/2011  | Chesapeake Granite Wash Trust (NYSE:CHKR)             | Energy                     | Oil and Gas Exploration and Production | United States | 380.00            | 21.85           | 5.75%          |
| 129 | 08/31/2011  | Forum Energy Technologies, Inc. (NYSE:FET)            | Energy                     | Oil and Gas Equipment and Services     | United States | 378.95            | 23.68           | 6.25%          |
| 130 | 11/05/2012  | Western Gas Equity Partners, LP (NYSE:WGP)            | Energy                     | Oil and Gas Storage and Transportation | United States | 377.98            | 18.90           | 5.00%          |
| 131 | 03/27/2013  | Phillips 66 Partners LP (NYSE:PSXP)                   | Energy                     | Oil and Gas Storage and Transportation | United States | 377.78            | 22.67           | 6.00%          |
| 132 | 01/21/2014  | Party City Holdco Inc. (NYSE:PRTY)                    | Consumer Discretionary     | Specialty Stores                       | United States | 371.88            | 23.24           | 6.25%          |
| 133 | 01/06/2012  | Pacific Coast Oil Trust (NYSE:ROYT)                   | Energy                     | Oil and Gas Exploration and Production | United States | 370.00            | 23.13           | 6.25%          |
| 134 | 03/28/2014  | Dominion Midstream Partners, LP (NYSE:DM)             | Energy                     | Oil and Gas Storage and Transportation | United States | 367.50            | 22.05           | 6.00%          |
| 135 | 09/12/2008  | Change Healthcare Holdings, Inc.                      | Healthcare                 | Health Care Technology                 | United States | 367.35            | 23.94           | 6.52%          |
| 136 | 09/09/2010  | Targa Resources Corp. (NYSE:TRGP)                     | Energy                     | Oil and Gas Storage and Transportation | United States | 360.25            | 19.81           | 5.50%          |
| 137 | 03/19/2007  | Boise Inc.                                            | Materials                  | Paper Packaging                        | United States | 360.00            | 25.20           | 7.00%          |
| 138 | 09/28/2010  | GNC Holdings, Inc. (NYSE:GNC)                         | Consumer Discretionary     | Specialty Stores                       | United States | 360.00            | 21.60           | 6.00%          |
| 139 | 02/19/2010  | Niska Gas Storage Partners LLC                        | Energy                     | Oil and Gas Storage and Transportation | United States | 358.75            | 21.97           | 6.12%          |
| 140 | 01/27/2011  | LinkedIn Corporation                                  | Information Technology     | Internet Software and Services         | United States | 352.80            | 24.70           | 7.00%          |



| No. | Date of IPO | Issuer                                                               | Primary Sector         | Primary Industry                       | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|----------------------------------------------------------------------|------------------------|----------------------------------------|---------------|-------------------|-----------------|----------------|
| 141 | 08/09/2013  | Pattern Energy Group Inc. (NasdaqGS:PEGI)                            | Utilities              | Renewable Electricity                  | United States | 352.00            | 19.36           | 5.50%          |
| 142 | 02/02/2012  | Foresight Energy LP (NYSE:FELP)                                      | Energy                 | Coal and Consumable Fuels              | United States | 350.00            | 20.13           | 5.75%          |
| 143 | 07/17/2015  | Hostess Brands, Inc. (NasdaqCM:TWNK)                                 | Consumer Staples       | Packaged Foods and Meats               | United States | 350.00            | 19.25           | 5.50%          |
| 144 | 09/06/2012  | Sears Hometown and Outlet Stores, Inc. (NasdaqCM:SHOS)               | Consumer Discretionary | Home Improvement Retail                | United States | 346.50            | -               | -              |
| 145 | 08/21/2015  | Advanced Disposal Services, Inc. (NYSE:ADSW)                         | Industrials            | Environmental and Facilities Services  | United States | 346.50            | 19.92           | 5.75%          |
| 146 | 09/19/2013  | Valero Energy Partners LP (NYSE:VLP)                                 | Energy                 | Oil and Gas Storage and Transportation | United States | 345.00            | 20.70           | 6.00%          |
| 147 | 01/03/2014  | Fortress Transportation and Infrastructure Investors LLC (NYSE:FTAI) | Industrials            | Trading Companies and Distributors     | United States | 340.00            | 21.25           | 6.25%          |
| 148 | 12/13/2011  | Tumi Holdings, Inc.                                                  | Consumer Discretionary | Apparel, Accessories and Luxury Goods  | United States | 338.04            | 20.28           | 6.00%          |
| 149 | 01/04/2008  | Colfax Corporation (NYSE:CFX)                                        | Industrials            | Industrial Machinery                   | United States | 337.50            | 22.78           | 6.75%          |
| 150 | 05/09/2013  | Sprouts Farmers Market, Inc. (NasdaqGS:SFM)                          | Consumer Staples       | Food Retail                            | United States | 333.00            | 18.32           | 5.50%          |
| 151 | 06/14/2013  | Midcoast Energy Partners, L.P. (NYSE:MEP)                            | Energy                 | Integrated Oil and Gas                 | United States | 333.00            | 19.98           | 6.00%          |
| 152 | 05/28/2010  | Ply Gem Holdings, Inc (NYSE:PGEM)                                    | Industrials            | Building Products                      | United States | 331.58            | 22.08           | 6.66%          |
| 153 | 08/30/2013  | AMC Entertainment Holdings, Inc. (NYSE:AMC)                          | Consumer Discretionary | Movies and Entertainment               | United States | 331.58            | 17.41           | 5.25%          |
| 154 | 07/08/2016  | Forterra, Inc. (NasdaqGS:FRTA)                                       | Materials              | Construction Materials                 | United States | 331.56            | 18.24           | 5.50%          |
| 155 | 07/27/2009  | RailAmerica, Inc.                                                    | Industrials            | Railroads                              | United States | 330.00            | 21.45           | 6.50%          |
| 156 | 08/26/2014  | Vivint Solar, Inc. (NYSE:VSLR)                                       | Utilities              | Renewable Electricity                  | United States | 329.60            | 20.19           | 6.13%          |
| 157 | 06/17/2016  | Acushnet Holdings Corp. (NYSE:GOLF)                                  | Consumer Discretionary | Leisure Products                       | United States | 328.67            | 18.90           | 5.75%          |
| 158 | 09/12/2007  | Williams Pipeline Partners L.P.                                      | Energy                 | Oil and Gas Storage and Transportation | United States | 325.00            | 19.50           | 6.00%          |
| 159 | 08/15/2014  | Wayfair Inc. (NYSE:W)                                                | Consumer Discretionary | Internet and Direct Marketing Retail   | United States | 319.00            | 19.14           | 6.00%          |
| 160 | 04/03/2014  | PBF Logistics LP (NYSE:PBFX)                                         | Energy                 | Oil and Gas Storage and Transportation | United States | 316.25            | 18.98           | 6.00%          |
| 161 | 06/05/2013  | Athlon Energy Inc.                                                   | Energy                 | Oil and Gas Exploration and Production | United States | 315.79            | 17.37           | 5.50%          |
| 162 | 01/05/2011  | SandRidge Mississippian Trust I (NYSE:SDT)                           | Energy                 | Oil and Gas Exploration and Production | United States | 315.00            | 20.48           | 6.50%          |
| 163 | 04/08/2011  | Wesco Aircraft Holdings, Inc. (NYSE:WAIR)                            | Industrials            | Aerospace and Defense                  | United States | 315.00            | 18.11           | 5.75%          |
| 164 | 06/14/2013  | OCI Partners LP (NYSE:OCIP)                                          | Materials              | Commodity Chemicals                    | United States | 315.00            | 18.90           | 6.00%          |
| 165 | 10/15/2007  | Western Gas Partners, LP (NYSE:WES)                                  | Energy                 | Oil and Gas Storage and Transportation | United States | 309.38            | 18.56           | 6.00%          |
| 166 | 12/20/2010  | CVR Partners, LP (NYSE:UAN)                                          | Materials              | Fertilizers and Agricultural Chemicals | United States | 307.20            | 21.50           | 7.00%          |
| 167 | 09/08/2014  | PRA Health Sciences, Inc. (NasdaqGS:PRAH)                            | Healthcare             | Life Sciences Tools and Services       | United States | 305.58            | 15.28           | 5.00%          |
| 168 | 08/02/2013  | FireEye, Inc. (NasdaqGS:FEYE)                                        | Information Technology | Systems Software                       | United States | 303.50            | 21.25           | 7.00%          |

| No. | Date of IPO | Issuer                                           | Primary Sector         | Primary Industry                        | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|--------------------------------------------------|------------------------|-----------------------------------------|---------------|-------------------|-----------------|----------------|
| 169 | 07/25/2013  | Western Refining Logistics, LP (NYSE:WNRL)       | Energy                 | Oil and Gas Storage and Transportation  | United States | 302.50            | 18.15           | 6.00%          |
| 170 | 07/24/2008  | Select Medical Holdings Corporation (NYSE:SEM)   | Healthcare             | Healthcare Facilities                   | United States | 300.00            | 18.00           | 6.00%          |
| 171 | 09/14/2009  | KAR Auction Services, Inc. (NYSE:KAR)            | Industrials            | Diversified Support Services            | United States | 300.00            | 17.25           | 5.75%          |
| 172 | 09/30/2010  | QR Energy, LP                                    | Energy                 | Oil and Gas Exploration and Production  | United States | 300.00            | 19.50           | 6.50%          |
| 173 | 04/15/2011  | Bankrate, Inc. (NYSE:RATE)                       | Information Technology | Internet Software and Services          | United States | 300.00            | 18.00           | 6.00%          |
| 174 | 08/05/2011  | Rentech Nitrogen Partners, L.P.                  | Materials              | Fertilizers and Agricultural Chemicals  | United States | 300.00            | 21.00           | 7.00%          |
| 175 | 08/24/2011  | Laredo Petroleum, Inc. (NYSE:LPI)                | Energy                 | Oil and Gas Exploration and Production  | United States | 297.50            | 17.11           | 5.75%          |
| 176 | 04/15/2010  | FleetCor Technologies, Inc. (NYSE:FLT)           | Information Technology | Data Processing and Outsourced Services | United States | 291.53            | 18.22           | 6.25%          |
| 177 | 05/16/2011  | Enduro Royalty Trust (NYSE:NDRO)                 | Energy                 | Oil and Gas Exploration and Production  | United States | 290.40            | 18.15           | 6.25%          |
| 178 | 05/03/2010  | The Fresh Market, Inc.                           | Consumer Staples       | Food Retail                             | United States | 289.85            | 20.29           | 7.00%          |
| 179 | 04/03/2015  | Milacron Holdings Corp. (NYSE:MCRN)              | Industrials            | Industrial Machinery                    | United States | 285.71            | 17.86           | 6.25%          |
| 180 | 03/14/2007  | Polypore International, LP                       | Industrials            | Electrical Components and Equipment     | United States | 285.00            | 17.10           | 6.00%          |
| 181 | 10/22/2015  | Noble Midstream Partners LP (NYSE:NBLX)          | Energy                 | Oil and Gas Storage and Transportation  | United States | 281.25            | 16.17           | 5.75%          |
| 182 | 03/28/2013  | Tallgrass Energy Partners, LP (NYSE:TEP)         | Energy                 | Oil and Gas Storage and Transportation  | United States | 280.58            | 16.13           | 5.75%          |
| 183 | 04/14/2008  | DigitalGlobe, Inc. (NYSE:DGI)                    | Industrials            | Aerospace and Defense                   | United States | 279.30            | 19.55           | 7.00%          |
| 184 | 09/09/2014  | Performance Food Group Company (NYSE:PFGC)       | Consumer Staples       | Food Distributors                       | United States | 275.50            | 15.15           | 5.50%          |
| 185 | 03/09/2007  | Blueknight Energy Partners, L.P. (NasdaqGM:BKEP) | Energy                 | Oil and Gas Storage and Transportation  | United States | 275.00            | 16.85           | 6.13%          |
| 186 | 05/07/2014  | JP Energy Partners LP (NYSE:JPEP)                | Energy                 | Oil and Gas Storage and Transportation  | United States | 275.00            | 16.50           | 6.00%          |
| 187 | 1C/24/2016  | REV Group, Inc. (NYSE:REVG)                      | Industrials            | Construction Machinery and Heavy Trucks | United States | 275.00            | 18.22           | 6.63%          |
| 188 | 01/04/2011  | Tesoro Logistics LP (NYSE:TLLP)                  | Energy                 | Oil and Gas Storage and Transportation  | United States | 273.00            | 17.06           | 6.25%          |
| 189 | 02/16/2010  | Express, Inc. (NYSE:EXPR)                        | Consumer Discretionary | Apparel Retail                          | United States | 272.00            | 17.68           | 6.50%          |
| 190 | 08/24/2011  | Inergy Midstream, L.P.                           | Energy                 | Oil and Gas Storage and Transportation  | United States | 272.00            | 16.32           | 6.00%          |
| 191 | 08/17/2015  | Surgery Partners, Inc. (NasdaqGS:SGRY)           | Healthcare             | Healthcare Facilities                   | United States | 271.42            | 15.61           | 5.75%          |
| 192 | 04/29/2014  | Westlake Chemical Partners LP (NYSE:WLKP)        | Materials              | Commodity Chemicals                     | United States | 270.00            | 16.54           | 6.13%          |
| 193 | 06/26/2015  | Amplify Snack Brands, Inc. (NYSE:BETR)           | Consumer Staples       | Packaged Foods and Meats                | United States | 270.00            | 18.90           | 7.00%          |
| 194 | 03/04/2015  | Etsy, Inc. (NasdaqGS:ETSY)                       | Consumer Discretionary | Internet and Direct Marketing Retail    | United States | 266.67            | 17.33           | 6.50%          |
| 195 | 11/17/2014  | Juno Therapeutics, Inc. (NasdaqGS:JUNO)          | Healthcare             | Biotechnology                           | United States | 264.55            | 18.52           | 7.00%          |
| 196 | 02/13/2012  | EQT Midstream Partners, LP (NYSE:EQM)            | Energy                 | Oil and Gas Storage and Transportation  | United States | 262.50            | 15.49           | 5.90%          |



| No. | Date of IPO | Issuer                                                       | Primary Sector         | Primary Industry                             | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|--------------------------------------------------------------|------------------------|----------------------------------------------|---------------|-------------------|-----------------|----------------|
| 197 | 09/10/2013  | Veeva Systems Inc. (NYSE:VEEV)                               | Healthcare             | Health Care Technology                       | United States | 260.90            | 18.26           | 7.00%          |
| 198 | 04/06/2012  | Palo Alto Networks, Inc. (NYSE:PANW)                         | Information Technology | Communications Equipment                     | United States | 260.40            | 18.23           | 7.00%          |
| 199 | 08/08/2012  | SunCoke Energy Partners, L.P. (NYSE: SXCP)                   | Materials              | Steel                                        | United States | 256.50            | 15.39           | 6.00%          |
| 200 | 04/02/2013  | Tableau Software, Inc. (NYSE:DATA)                           | Information Technology | Systems Software                             | United States | 254.20            | 17.79           | 7.00%          |
| 201 | 10/08/2013  | zulily, llc                                                  | Consumer Discretionary | Internet and Direct Marketing Retail         | United States | 253.00            | 16.45           | 6.50%          |
| 202 | 09/09/2013  | Endurance International Group Holdings, Inc. (NasdaqGS:EIGI) | Information Technology | Internet Software and Services               | United States | 252.61            | 13.26           | 5.25%          |
| 203 | 07/12/2013  | ClubCorp Holdings, Inc. (NYSE:MYCC)                          | Consumer Discretionary | Leisure Facilities                           | United States | 252.00            | 15.75           | 6.25%          |
| 204 | 01/25/2010  | PAA Natural Gas Storage, L.P.                                | Energy                 | Oil and Gas Storage and Transportation       | United States | 251.98            | 15.47           | 6.14%          |
| 205 | 06/25/2015  | Sunrun Inc. (NasdaqGS:RUN)                                   | Industrials            | Electrical Components and Equipment          | United States | 250.60            | 16.29           | 6.50%          |
| 206 | 07/10/2007  | Global BPO Services Corporation                              | Information Technology | Data Processing and Outsourced Services      | United States | 250.00            | 17.50           | 7.00%          |
| 207 | 08/21/2012  | Summit Midstream Partners, LP (NYSE:SMLP)                    | Energy                 | Oil and Gas Storage and Transportation       | United States | 250.00            | 15.13           | 6.05%          |
| 208 | 06/10/2016  | Camping World Holdings, Inc. (NYSE:CWH)                      | Consumer Discretionary | Automotive Retail                            | United States | 250.00            | 16.60           | 6.64%          |
| 209 | 11/15/2012  | Boise Cascade Company (NYSE:BCC)                             | Materials              | Forest Products                              | United States | 247.06            | 16.68           | 6.75%          |
| 210 | 09/19/2007  | RiskMetrics Group, LLC                                       | Industrials            | Office Services and Supplies                 | United States | 245.00            | 15.93           | 6.50%          |
| 211 | 10/20/2009  | Generac Holdings Inc. (NYSE:GNRC)                            | Industrials            | Electrical Components and Equipment          | United States | 243.75            | 15.23           | 6.25%          |
| 212 | 10/14/2015  | Square, Inc. (NYSE:SQ)                                       | Information Technology | Data Processing and Outsourced Services      | United States | 243.00            | 13.37           | 5.50%          |
| 213 | 04/24/2007  | Concho Resources Inc. (NYSE:CXO)                             | Energy                 | Oil and Gas Exploration and Production       | United States | 240.20            | 15.01           | 6.25%          |
| 214 | 03/22/2007  | Limelight Networks, Inc. (NasdaqGS:LLNW)                     | Information Technology | Internet Software and Services               | United States | 240.00            | 16.80           | 7.00%          |
| 215 | 11/20/2013  | TriNet Group, Inc. (NYSE:TNET)                               | Industrials            | Human Resource and Employment Services       | United States | 240.00            | 16.80           | 7.00%          |
| 216 | 05/19/2008  | Metals USA Holdings Corp.                                    | Materials              | Steel                                        | United States | 239.95            | 14.70           | 6.13%          |
| 217 | 06/21/2010  | Booz Allen Hamilton Holding Corporation (NYSE:BAH)           | Information Technology | IT Consulting and Other Services             | United States | 238.00            | 14.88           | 6.25%          |
| 218 | 12/22/2015  | Nutanix, Inc. (NasdaqGS:NTNX)                                | Information Technology | Internet Software and Services               | United States | 237.92            | 16.65           | 7.00%          |
| 219 | 04/29/2016  | Cotiviti Holdings, Inc. (NYSE:COTV)                          | Healthcare             | Health Care Technology                       | United States | 237.50            | 15.44           | 6.50%          |
| 220 | 12/03/2012  | Tamirco Corporation                                          | Materials              | Specialty Chemicals                          | United States | 236.84            | 13.03           | 5.50%          |
| 221 | 02/11/2011  | Pandora Media, Inc. (NYSE:P)                                 | Information Technology | Internet Software and Services               | United States | 234.94            | 16.45           | 7.00%          |
| 222 | 09/04/2013  | Surgical Care Affiliates, Inc. (NasdaqGS:SCAI)               | Healthcare             | Healthcare Facilities                        | United States | 234.67            | 14.67           | 6.25%          |
| 223 | 03/09/2011  | Fusion-io, Inc.                                              | Information Technology | Technology Hardware, Storage and Peripherals | United States | 233.70            | 16.36           | 7.00%          |
| 224 | 04/06/2010  | Aeroflex Holding Corp.                                       | Information Technology | Electronic Components                        | United States | 232.88            | 14.55           | 6.25%          |

| No. | Date of IPO | Issuer                                                      | Primary Sector         | Primary Industry                        | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-------------------------------------------------------------|------------------------|-----------------------------------------|---------------|-------------------|-----------------|----------------|
| 225 | 12/29/2010  | VOC Energy Trust (NYSE:VOC)                                 | Energy                 | Oil and Gas Exploration and Production  | United States | 232.79            | 15.13           | 6.50%          |
| 226 | 12/21/2012  | TRI Pointe Homes, Inc.                                      | Consumer Discretionary | Homebuilding                            | United States | 232.71            | 16.29           | 7.00%          |
| 227 | 04/02/2014  | Advanced Drainage Systems, Inc. (NYSE:WMS)                  | Industrials            | Building Products                       | United States | 232.00            | 15.08           | 6.50%          |
| 228 | 03/18/2013  | Blackhawk Network Holdings, Inc. (NasdaqGS:HAWK)            | Information Technology | Data Processing and Outsourced Services | United States | 230.00            | 14.95           | 6.50%          |
| 229 | 01/12/2012  | Splunk Inc. (NasdaqGS:SPLK)                                 | Information Technology | Application Software                    | United States | 229.50            | 16.07           | 7.00%          |
| 230 | 10/14/2009  | Baltic Trading Limited                                      | Industrials            | Marine                                  | United States | 228.20            | 14.83           | 6.50%          |
| 231 | 12/13/2011  | Northern Tier Energy LP                                     | Energy                 | Oil and Gas Refining and Marketing      | United States | 227.50            | 14.22           | 6.25%          |
| 232 | 06/27/2013  | Burlington Stores, Inc. (NYSE:BURL)                         | Consumer Discretionary | Apparel Retail                          | United States | 226.67            | 15.87           | 7.00%          |
| 233 | 01/29/2010  | Tesla, Inc. (NasdaqGS:TSLA)                                 | Consumer Discretionary | Automobile Manufacturers                | United States | 226.10            | 14.70           | 6.50%          |
| 234 | 03/28/2014  | Arista Networks, Inc. (NYSE:ANET)                           | Information Technology | Communications Equipment                | United States | 225.75            | 13.55           | 6.00%          |
| 235 | 09/30/2013  | The Container Store Group, Inc. (NYSE:TCS)                  | Consumer Discretionary | Specialty Stores                        | United States | 225.00            | 15.19           | 6.75%          |
| 236 | 09/30/2014  | PennTex Midstream Partners, LP (NasdaqGS:PTXP)              | Energy                 | Oil and Gas Storage and Transportation  | United States | 225.00            | 12.94           | 5.75%          |
| 237 | 02/12/2007  | TomoTherapy Incorporated                                    | Healthcare             | Healthcare Equipment                    | United States | 223.12            | 15.62           | 7.00%          |
| 238 | 04/06/2015  | Press Ganey Holdings, Inc.                                  | Healthcare             | Health Care Technology                  | United States | 222.50            | 14.46           | 6.50%          |
| 239 | 10/24/2012  | Bright Horizons Family Solutions Inc. (NYSE:BFAM)           | Consumer Discretionary | Education Services                      | United States | 222.20            | 15.00           | 6.75%          |
| 240 | 09/01/2011  | Sanchez Energy Corporation (NYSE:SN)                        | Energy                 | Oil and Gas Exploration and Production  | United States | 220.00            | 14.30           | 6.50%          |
| 241 | 08/02/2013  | Houghton Mifflin Harcourt Company (NasdaqGS:HMHC)           | Consumer Discretionary | Education Services                      | United States | 219.00            | 13.14           | 6.00%          |
| 242 | 02/13/2012  | Diamondback Energy, Inc. (NasdaqGS:FANG)                    | Energy                 | Oil and Gas Exploration and Production  | United States | 218.75            | 12.27           | 5.61%          |
| 243 | 04/04/2007  | DHI Group, Inc. (NYSE:DHX)                                  | Information Technology | Internet Software and Services          | United States | 217.10            | 15.20           | 7.00%          |
| 244 | 06/14/2013  | Diamond Resorts International, Inc.                         | Consumer Discretionary | Hotels, Resorts and Cruise Lines        | United States | 217.00            | 14.65           | 6.75%          |
| 245 | 03/11/2011  | HomeAway, Inc.                                              | Information Technology | Internet Software and Services          | United States | 216.00            | 15.12           | 7.00%          |
| 246 | 06/22/2015  | Planet Fitness, Inc. (NYSE:PLNT)                            | Consumer Discretionary | Leisure Facilities                      | United States | 216.00            | 14.04           | 6.50%          |
| 247 | 03/31/2011  | Oiltanking Partners, L.P.                                   | Energy                 | Oil and Gas Storage and Transportation  | United States | 215.00            | 13.12           | 6.10%          |
| 248 | 06/26/2015  | Multi Packaging Solutions International Limited (NYSE:MPSX) | Materials              | Paper Packaging                         | United States | 214.50            | 12.33           | 5.75%          |
| 249 | 08/24/2007  | MedAssets, Inc.                                             | Healthcare             | Health Care Technology                  | United States | 212.80            | 14.90           | 7.00%          |
| 250 | 01/10/2014  | AgroFresh Solutions, Inc. (NasdaqGS:AGFS)                   | Materials              | Fertilizers and Agricultural Chemicals  | United States | 210.00            | 11.55           | 5.50%          |
| 251 | 05/22/2015  | Gener8 Maritime, Inc. (NYSE:GNRT)                           | Energy                 | Oil and Gas Storage and Transportation  | United States | 210.00            | 13.65           | 6.50%          |
| 252 | 08/18/2015  | SiteOne Landscape Supply, Inc. (NYSE:SITE)                  | Industrials            | Trading Companies and Distributors      | United States | 210.00            | 13.65           | 6.50%          |



| No. | Date of IPO | Issuer                                                  | Primary Sector         | Primary Industry                       | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|---------------------------------------------------------|------------------------|----------------------------------------|---------------|-------------------|-----------------|----------------|
| 253 | 03/30/2012  | ServiceNow, Inc. (NYSE:NOW)                             | Information Technology | Systems Software                       | United States | 209.70            | 14.68           | 7.00%          |
| 254 | 06/19/2015  | NantKwest, Inc. (NasdaqGS:NK)                           | Healthcare             | Biotechnology                          | United States | 207.20            | 10.62           | 5.12%          |
| 255 | 04/27/2007  | Triple-S Management Corporation (NYSE:GTS)              | Healthcare             | Managed Healthcare                     | United States | 203.00            | 13.20           | 6.50%          |
| 256 | 04/17/2007  | Masimo Corporation (NasdaqGS:MASI)                      | Healthcare             | Healthcare Equipment                   | United States | 202.58            | 14.18           | 7.00%          |
| 257 | 04/09/2010  | RealD Inc.                                              | Information Technology | Electronic Equipment and Instruments   | United States | 200.00            | 14.00           | 7.00%          |
| 258 | 08/16/2010  | Pacific Biosciences of California, Inc. (NasdaqGS:PACB) | Healthcare             | Life Sciences Tools and Services       | United States | 200.00            | 14.00           | 7.00%          |
| 259 | 07/18/2011  | U.S. Silica Holdings, Inc. (NYSE:SLCA)                  | Energy                 | Oil and Gas Equipment and Services     | United States | 200.00            | 14.00           | 7.00%          |
| 260 | 09/24/2013  | Vince Holding Corp (NYSE:VNCE)                          | Consumer Discretionary | Apparel, Accessories and Luxury Goods  | United States | 200.00            | 14.00           | 7.00%          |
| 261 | 10/27/2014  | Enviva Partners, LP (NYSE:EVA)                          | Energy                 | Coal and Consumable Fuels              | United States | 200.00            | 12.00           | 6.00%          |
| 262 | 06/20/2008  | AGA Medical Holdings, Inc.                              | Healthcare             | Healthcare Equipment                   | United States | 199.38            | 12.96           | 6.50%          |
| 263 | 05/27/2014  | Civitas Solutions, Inc. (NYSE:CIVI)                     | Healthcare             | Healthcare Services                    | United States | 198.90            | 12.93           | 6.50%          |
| 264 | 06/09/2011  | USA Compression Partners, LP (NYSE:USAC)                | Energy                 | Oil and Gas Equipment and Services     | United States | 198.00            | 12.13           | 6.13%          |
| 265 | 03/11/2011  | TerraVia Holdings, Inc. (NasdaqGS:TVIA)                 | Materials              | Specialty Chemicals                    | United States | 197.55            | 13.83           | 7.00%          |
| 266 | 05/04/2015  | Evolent Health, Inc. (NYSE:EVH)                         | Healthcare             | Health Care Technology                 | United States | 195.50            | 13.69           | 7.00%          |
| 267 | 04/26/2007  | The Dolan Company                                       | Industrials            | Research and Consulting Services       | United States | 195.12            | 13.66           | 7.00%          |
| 268 | 06/22/2012  | Sunoco LP (NYSE:SUN)                                    | Energy                 | Oil and Gas Storage and Transportation | United States | 194.75            | 11.49           | 5.90%          |
| 269 | 02/28/2014  | GrubHub Inc. (NYSE:GRUB)                                | Information Technology | Internet Software and Services         | United States | 192.55            | 13.48           | 7.00%          |
| 270 | 03/04/2016  | Atkore International Group Inc. (NYSE:ATKR)             | Industrials            | Electrical Components and Equipment    | United States | 192.00            | 11.52           | 6.00%          |
| 271 | 07/06/2012  | Hi-Crush Partners LP (NYSE:HCLP)                        | Materials              | Diversified Metals and Mining          | United States | 191.25            | 11.71           | 6.13%          |
| 272 | 03/10/2014  | Phibro Animal Health Corporation (NasdaqGM:PAHC)        | Healthcare             | Pharmaceuticals                        | United States | 191.18            | 12.90           | 6.75%          |
| 273 | 06/17/2013  | RetailMeNot, Inc. (NasdaqGS:SALE)                       | Information Technology | Internet Software and Services         | United States | 190.91            | 13.36           | 7.00%          |
| 274 | 03/14/2014  | Trinseo S.A. (NYSE:TSE)                                 | Materials              | Commodity Chemicals                    | United States | 190.00            | 13.30           | 7.00%          |
| 275 | 05/11/2007  | Encore Energy Partners LP                               | Energy                 | Oil and Gas Exploration and Production | United States | 189.00            | 12.52           | 6.62%          |
| 276 | 01/28/2011  | Skullcandy, Inc.                                        | Consumer Discretionary | Consumer Electronics                   | United States | 188.83            | 13.22           | 7.00%          |
| 277 | 04/25/2008  | Rackspace Hosting, Inc.                                 | Information Technology | Internet Software and Services         | United States | 187.50            | 13.13           | 7.00%          |
| 278 | 11/20/2009  | Ironwood Pharmaceuticals, Inc. (NasdaqGS:IRWD)          | Healthcare             | Biotechnology                          | United States | 187.50            | 10.51           | 5.61%          |
| 279 | 05/28/2013  | Jones Energy, Inc. (NYSE:JONE)                          | Energy                 | Oil and Gas Exploration and Production | United States | 187.50            | 11.72           | 6.25%          |
| 280 | 08/14/2013  | Chegg, Inc. (NYSE:CHGG)                                 | Consumer Discretionary | Education Services                     | United States | 187.50            | 13.13           | 7.00%          |

| No. | Date of IPO | Issuer                                           | Primary Sector         | Primary Industry                             | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|--------------------------------------------------|------------------------|----------------------------------------------|---------------|-------------------|-----------------|----------------|
| 281 | 11/12/2013  | Intrawest Resorts Holdings, Inc. (NYSE:SNOW)     | Consumer Discretionary | Leisure Facilities                           | United States | 187.50            | 12.19           | 6.50%          |
| 282 | 02/18/2014  | A10 Networks, Inc. (NYSE:ATEN)                   | Information Technology | Systems Software                             | United States | 187.50            | 13.13           | 7.00%          |
| 283 | 09/17/2010  | Spirit Airlines, Inc. (NasdaqGS:SAVE)            | Industrials            | Airlines                                     | United States | 187.20            | 11.23           | 6.00%          |
| 284 | 12/22/2011  | Gogo Inc. (NasdaqGS:GOGO)                        | Information Technology | Internet Software and Services               | United States | 187.00            | 13.09           | 7.00%          |
| 285 | 03/23/2011  | SunCoke Energy, Inc. (NYSE:SXC)                  | Materials              | Steel                                        | United States | 185.60            | 12.71           | 6.85%          |
| 286 | 02/26/2007  | Infinera Corporation (NasdaqGS:INFN)             | Information Technology | Communications Equipment                     | United States | 182.00            | 12.74           | 7.00%          |
| 287 | 04/20/2012  | Southcross Energy Partners, L.P. (NYSE:SXE)      | Energy                 | Oil and Gas Storage and Transportation       | United States | 180.00            | 11.25           | 6.25%          |
| 288 | 06/01/2015  | Natera, Inc. (NasdaqGS:NTRA)                     | Healthcare             | Biotechnology                                | United States | 180.00            | 12.60           | 7.00%          |
| 289 | 01/13/2017  | Foundation Building Materials, LLC (NYSE:FBM)    | Industrials            | Trading Companies and Distributors           | United States | 179.20            | -               | -              |
| 290 | 05/06/2011  | LRR Energy, L.P.                                 | Energy                 | Oil and Gas Exploration and Production       | United States | 178.75            | 11.17           | 6.25%          |
| 291 | 02/10/2014  | Castlight Health, Inc. (NYSE:CSLT)               | Healthcare             | Health Care Technology                       | United States | 177.60            | 12.43           | 7.00%          |
| 292 | 04/01/2010  | ECA Marcellus Trust I (NYSE:ECT)                 | Energy                 | Oil and Gas Exploration and Production       | United States | 176.05            | 11.44           | 6.50%          |
| 293 | 07/01/2010  | Vera Bradley, Inc. (NasdaqGS:VRA)                | Consumer Discretionary | Apparel, Accessories and Luxury Goods        | United States | 176.00            | 12.32           | 7.00%          |
| 294 | 04/06/2012  | Bloomin' Brands, Inc. (NasdaqGS:BLMN)            | Consumer Discretionary | Restaurants                                  | United States | 176.00            | 10.56           | 6.00%          |
| 295 | 06/17/2013  | World Point Terminals, LP (NYSE:WPT)             | Energy                 | Oil and Gas Storage and Transportation       | United States | 175.00            | 10.50           | 6.00%          |
| 296 | 03/24/2014  | Box, Inc. (NYSE:BOX)                             | Information Technology | Internet Software and Services               | United States | 175.00            | 12.25           | 7.00%          |
| 297 | 06/01/2010  | Zipcar, Inc.                                     | Industrials            | Trucking                                     | United States | 174.31            | 12.20           | 7.00%          |
| 298 | 07/02/2014  | Diplomat Pharmacy, Inc. (NYSE:DPLO)              | Healthcare             | Healthcare Services                          | United States | 173.33            | 11.70           | 6.75%          |
| 299 | 06/23/2011  | Memorial Production Partners LP (NasdaqGS:MEMP)  | Energy                 | Oil and Gas Exploration and Production       | United States | 171.00            | 11.12           | 6.50%          |
| 300 | 04/18/2011  | Francesca's Holdings Corporation (NasdaqGS:FRAN) | Consumer Discretionary | Apparel Retail                               | United States | 170.00            | 11.90           | 7.00%          |
| 301 | 06/07/2011  | Bonanza Creek Energy Inc. (NYSE:BCEI)            | Energy                 | Oil and Gas Exploration and Production       | United States | 170.00            | 11.05           | 6.50%          |
| 302 | 07/11/2012  | Delek Logistics Partners, LP (NYSE:DKL)          | Energy                 | Oil and Gas Storage and Transportation       | United States | 168.00            | 10.92           | 6.50%          |
| 303 | 10/18/2013  | Nimble Storage, Inc. (NYSE:NMBL)                 | Information Technology | Technology Hardware, Storage and Peripherals | United States | 168.00            | 11.76           | 7.00%          |
| 304 | 01/31/2014  | Quotient Technology Inc. (NYSE:QUOT)             | Information Technology | Internet Software and Services               | United States | 168.00            | 11.76           | 7.00%          |
| 305 | 08/15/2013  | Ophthotech Corporation (NasdaqGS:OPHT)           | Healthcare             | Biotechnology                                | United States | 167.20            | 11.70           | 7.00%          |
| 306 | 12/22/2009  | Graham Packaging Company Inc.                    | Materials              | Paper Packaging                              | United States | 166.67            | 10.30           | 6.18%          |
| 307 | 02/14/2011  | Active Network, LLC                              | Information Technology | Internet Software and Services               | United States | 165.00            | 11.55           | 7.00%          |
| 308 | 12/29/2011  | Edgen Group Inc.                                 | Industrials            | Trading Companies and Distributors           | United States | 165.00            | 11.14           | 6.75%          |



| No. | Date of IPO | Issuer                                              | Primary Sector         | Primary Industry                       | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-----------------------------------------------------|------------------------|----------------------------------------|---------------|-------------------|-----------------|----------------|
| 309 | 08/31/2015  | American Renal Associates Holdings, Inc. (NYSE:ARA) | Healthcare             | Healthcare Services                    | United States | 165.00            | 11.14           | 6.75%          |
| 310 | 08/13/2010  | ExamWorks Group, Inc.                               | Healthcare             | Healthcare Services                    | United States | 164.80            | 11.54           | 7.00%          |
| 311 | 12/24/2013  | Continental Building Products, Inc. (NYSE:CBPX)     | Industrials            | Building Products                      | United States | 164.71            | 10.71           | 6.50%          |
| 312 | 07/19/2007  | PostRock MidContinent Production, LLC               | Energy                 | Oil and Gas Exploration and Production | United States | 163.80            | 10.65           | 6.50%          |
| 313 | 04/17/2012  | Five Below, Inc. (NasdaqGS:FIVE)                    | Consumer Discretionary | Specialty Stores                       | United States | 163.46            | 11.44           | 7.00%          |
| 314 | 12/05/2011  | Roundy's, Inc.                                      | Consumer Staples       | Food Retail                            | United States | 163.05            | 11.41           | 7.00%          |
| 315 | 05/08/2007  | Deltek, Inc.                                        | Information Technology | Application Software                   | United States | 162.00            | 11.34           | 7.00%          |
| 316 | 03/24/2010  | Westmoreland Resource Partners, LP (NYSE:WMLP)      | Energy                 | Coal and Consumable Fuels              | United States | 161.88            | 10.52           | 6.50%          |
| 317 | 11/23/2011  | ExactTarget, Inc.                                   | Information Technology | Internet Software and Services         | United States | 161.50            | 11.31           | 7.00%          |
| 318 | 06/20/2014  | Smart & Final Stores, Inc. (NYSE:SFS)               | Consumer Staples       | Food Retail                            | United States | 161.40            | 10.89           | 6.75%          |
| 319 | 08/24/2011  | Jive Software, Inc. (NasdaqGS:JIVE)                 | Information Technology | Application Software                   | United States | 161.28            | 11.29           | 7.00%          |
| 320 | 07/02/2007  | NetSuite Inc.                                       | Information Technology | Systems Software                       | United States | 161.20            | 9.27            | 5.75%          |
| 321 | 12/30/2014  | Spark Therapeutics, Inc. (NasdaqGS:ONCE)            | Healthcare             | Biotechnology                          | United States | 161.00            | 11.27           | 7.00%          |
| 322 | 06/24/2016  | Medpace Holdings, Inc. (NasdaqGS:MEDP)              | Healthcare             | Life Sciences Tools and Services       | United States | 161.00            | 10.06           | 6.25%          |
| 323 | 12/28/2009  | SS&C Technologies Holdings, Inc. (NasdaqGS:SSNC)    | Information Technology | Application Software                   | United States | 160.88            | 11.26           | 7.00%          |
| 324 | 01/21/2011  | RPX Corporation (NasdaqGS:RPXC)                     | Industrials            | Research and Consulting Services       | United States | 160.18            | 11.21           | 7.00%          |
| 325 | 08/12/2011  | Matador Resources Company (NYSE:MTDR)               | Energy                 | Oil and Gas Exploration and Production | United States | 160.00            | 10.80           | 6.75%          |
| 326 | 08/31/2012  | Alon USA Partners, LP (NYSE:ALDW)                   | Energy                 | Oil and Gas Refining and Marketing     | United States | 160.00            | 11.20           | 7.00%          |
| 327 | 07/09/2013  | Intrexon Corporation (NYSE:XON)                     | Healthcare             | Biotechnology                          | United States | 160.00            | 11.20           | 7.00%          |
| 328 | 07/06/2015  | Aimmune Therapeutics, Inc. (NasdaqGS:AIMT)          | Healthcare             | Biotechnology                          | United States | 160.00            | 11.20           | 7.00%          |
| 329 | 10/05/2009  | Team Health Holdings, Inc.                          | Healthcare             | Healthcare Services                    | United States | 159.60            | 9.58            | 6.00%          |
| 330 | 09/03/2014  | Neff Corporation (NYSE:NEFF)                        | Industrials            | Trading Companies and Distributors     | United States | 157.14            | 11.00           | 7.00%          |
| 331 | 07/26/2007  | Pioneer Southwest Energy Partners L.P.              | Energy                 | Oil and Gas Exploration and Production | United States | 156.75            | 10.97           | 7.00%          |
| 332 | 05/29/2015  | Teladoc, Inc. (NYSE:TDOC)                           | Healthcare             | Healthcare Services                    | United States | 156.75            | -               | -              |
| 333 | 08/10/2009  | Fortinet, Inc. (NasdaqGS:FTNT)                      | Information Technology | Systems Software                       | United States | 156.25            | 10.94           | 7.00%          |
| 334 | 09/12/2014  | Freshpet, Inc. (NasdaqGM:FRPT)                      | Consumer Staples       | Packaged Foods and Meats               | United States | 156.25            | 10.94           | 7.00%          |
| 335 | 08/29/2014  | USD Partners LP (NYSE:USDP)                         | Energy                 | Oil and Gas Storage and Transportation | United States | 155.04            | 9.11            | 5.88%          |
| 336 | 07/23/2009  | Vitamin Shoppe, Inc. (NYSE:VSI)                     | Consumer Discretionary | Specialty Stores                       | United States | 154.63            | 10.82           | 7.00%          |

| No. | Date of IPO | Issuer                                                | Primary Sector         | Primary Industry                       | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-------------------------------------------------------|------------------------|----------------------------------------|---------------|-------------------|-----------------|----------------|
| 337 | 07/06/2007  | Ulta Beauty, Inc. (NasdaqGS:ULTA)                     | Consumer Discretionary | Specialty Stores                       | United States | 153.71            | 10.76           | 7.00%          |
| 338 | 07/27/2011  | Sprague Resources LP (NYSE:SRLP)                      | Energy                 | Oil and Gas Storage and Transportation | United States | 153.00            | 8.80            | 5.75%          |
| 339 | 03/21/2008  | SolarWinds, Inc.                                      | Information Technology | Application Software                   | United States | 151.45            | 10.60           | 7.00%          |
| 340 | 08/06/2010  | Leaf Group Ltd. (NYSE:LFGR)                           | Information Technology | Internet Software and Services         | United States | 151.30            | 10.59           | 7.00%          |
| 341 | 03/09/2007  | BWAY Parent Company, Inc.                             | Materials              | Metal and Glass Containers             | United States | 150.59            | 10.16           | 6.75%          |
| 342 | 11/19/2009  | QuinStreet, Inc. (NasdaqGS:QNST)                      | Information Technology | Internet Software and Services         | United States | 150.00            | 10.50           | 7.00%          |
| 343 | 06/18/2013  | Jason Industries, Inc. (NasdaqCM:JASN)                | Industrials            | Industrial Machinery                   | United States | 150.00            | 9.00            | 6.00%          |
| 344 | 10/04/2013  | Del Taco Restaurants, Inc. (NasdaqCM:TACO)            | Consumer Discretionary | Restaurants                            | United States | 150.00            | 8.25            | 5.50%          |
| 345 | 08/22/2014  | Metaldyne Performance Group Inc. (NYSE:MPG)           | Consumer Discretionary | Auto Parts and Equipment               | United States | 150.00            | 8.63            | 5.75%          |
| 346 | 10/06/2014  | INC Research Holdings, Inc. (NasdaqGS:INCR)           | Healthcare             | Life Sciences Tools and Services       | United States | 150.00            | 10.50           | 7.00%          |
| 347 | 05/18/2015  | Green Plains Partners LP (NasdaqGM:GPP)               | Energy                 | Oil and Gas Storage and Transportation | United States | 150.00            | 9.19            | 6.13%          |
| 348 | 05/26/2016  | Twilio Inc. (NYSE:TWLO)                               | Information Technology | Internet Software and Services         | United States | 150.00            | 10.50           | 7.00%          |
| 349 | 10/11/2016  | Hunter Maritime Acquisition Corp.                     | Industrials            | Marine                                 | United States | 150.00            | 8.25            | 5.50%          |
| 350 | 07/24/2008  | Roadrunner Transportation Systems, Inc. (NYSE:RRTS)   | Industrials            | Trucking                               | United States | 148.41            | 10.39           | 7.00%          |
| 351 | 04/06/2015  | Bojangles', Inc. (NasdaqGS:BOJA)                      | Consumer Discretionary | Restaurants                            | United States | 147.25            | 10.31           | 7.00%          |
| 352 | 07/28/2015  | GMS Inc. (NYSE:GMS)                                   | Industrials            | Trading Companies and Distributors     | United States | 147.00            | 10.29           | 7.00%          |
| 353 | 03/23/2015  | Blueprint Medicines Corporation (NasdaqGS:BPMC)       | Healthcare             | Biotechnology                          | United States | 146.63            | 10.26           | 7.00%          |
| 354 | 09/30/2016  | BlackLine, Inc. (NasdaqGS:BL)                         | Information Technology | Application Software                   | United States | 146.20            | 10.23           | 7.00%          |
| 355 | 09/30/2014  | FibroGen, Inc. (NasdaqGS:FGEN)                        | Healthcare             | Biotechnology                          | United States | 145.80            | 10.21           | 7.00%          |
| 356 | 05/13/2010  | TMS International Corp.                               | Industrials            | Diversified Support Services           | United States | 145.60            | 9.46            | 6.50%          |
| 357 | 04/09/2010  | IntraLinks Holdings, Inc.                             | Information Technology | Internet Software and Services         | United States | 143.00            | 10.01           | 7.00%          |
| 358 | 06/15/2015  | Ollie's Bargain Outlet Holdings, Inc. (NasdaqGM:OLLI) | Consumer Discretionary | General Merchandise Stores             | United States | 142.80            | 9.64            | 6.75%          |
| 359 | 08/10/2007  | OSG America L.P.                                      | Energy                 | Oil and Gas Storage and Transportation | United States | 142.50            | 9.44            | 6.63%          |
| 360 | 12/22/2008  | Bridgepoint Education, Inc. (NYSE:BPI)                | Consumer Discretionary | Education Services                     | United States | 141.75            | 9.21            | 6.50%          |
| 361 | 08/26/2016  | e.l.f. Beauty, Inc. (NYSE:ELF)                        | Consumer Staples       | Personal Products                      | United States | 141.67            | 9.92            | 7.00%          |
| 362 | 08/28/2012  | LifeLock, Inc.                                        | Consumer Discretionary | Specialized Consumer Services          | United States | 141.30            | 9.89            | 7.00%          |
| 363 | 07/01/2010  | Bravo Brio Restaurant Group, Inc. (NasdaqGS:BBRG)     | Consumer Discretionary | Restaurants                            | United States | 140.00            | 9.80            | 7.00%          |
| 364 | 08/12/2011  | Rose Rock Midstream, L.P.                             | Energy                 | Oil and Gas Storage and Transportation | United States | 140.00            | 9.10            | 6.50%          |



| No. | Date of IPO | Issuer                                         | Primary Sector         | Primary Industry                       | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|------------------------------------------------|------------------------|----------------------------------------|---------------|-------------------|-----------------|----------------|
| 365 | 11/18/2014  | Bellicum Pharmaceuticals, Inc. (NasdaqGM:BLCM) | Healthcare             | Biotechnology                          | United States | 139.65            | 9.78            | 7.00%          |
| 366 | 10/01/2009  | Kraton Corporation (NYSE:KRA)                  | Materials              | Specialty Chemicals                    | United States | 138.97            | 9.03            | 6.50%          |
| 367 | 08/17/2015  | Regenxbio Inc. (NasdaqGS:RGNX)                 | Healthcare             | Biotechnology                          | United States | 138.60            | 9.70            | 7.00%          |
| 368 | 09/28/2010  | Cornerstone OnDemand, Inc. (NasdaqGS:CSOD)     | Information Technology | Internet Software and Services         | United States | 136.50            | 9.75            | 7.14%          |
| 369 | 04/29/2010  | RealPage, Inc. (NasdaqGS:RP)                   | Information Technology | Application Software                   | United States | 135.30            | 9.47            | 7.00%          |
| 370 | 04/12/2011  | The Chefs' Warehouse, Inc. (NasdaqGS:CHEF)     | Consumer Staples       | Food Distributors                      | United States | 135.00            | 9.45            | 7.00%          |
| 371 | 05/21/2015  | ConformIS, Inc. (NasdaqGS:CFMS)                | Healthcare             | Healthcare Equipment                   | United States | 135.00            | 9.45            | 7.00%          |
| 372 | 05/27/2015  | Seres Therapeutics, Inc. (NasdaqGS:MCRB)       | Healthcare             | Biotechnology                          | United States | 133.75            | 9.36            | 7.00%          |
| 373 | 09/08/2016  | Coupa Software Incorporated (NasdaqGS:COUP)    | Information Technology | Internet Software and Services         | United States | 133.20            | 9.32            | 7.00%          |
| 374 | 05/23/2007  | Duff & Phelps Corporation                      | Industrials            | Research and Consulting Services       | United States | 132.80            | 9.30            | 7.00%          |
| 375 | 01/05/2012  | Millennial Media Inc.                          | Information Technology | Internet Software and Services         | United States | 132.60            | 9.28            | 7.00%          |
| 376 | 03/13/2014  | K2M Group Holdings, Inc. (NasdaqGS:KTWO)       | Healthcare             | Healthcare Equipment                   | United States | 132.38            | 9.27            | 7.00%          |
| 377 | 01/26/2007  | Monotype Imaging Holdings Inc. (NasdaqGS:TYPE) | Information Technology | Application Software                   | United States | 132.00            | 9.24            | 7.00%          |
| 378 | 06/20/2007  | Vitacost.com, Inc.                             | Consumer Discretionary | Internet and Direct Marketing Retail   | United States | 132.00            | 9.24            | 7.00%          |
| 379 | 08/14/2013  | Benefitfocus, Inc. (NasdaqGM:BNFT)             | Information Technology | Internet Software and Services         | United States | 130.78            | 9.15            | 7.00%          |
| 380 | 09/04/2015  | At Home Group Inc. (NYSE:HOME)                 | Consumer Discretionary | Home Furnishing Retail                 | United States | 130.01            | 9.10            | 7.00%          |
| 381 | 06/23/2011  | Clovis Oncology, Inc. (NasdaqGS:CLVS)          | Healthcare             | Biotechnology                          | United States | 130.00            | 6.32            | 4.86%          |
| 382 | 05/07/2014  | Viper Energy Partners LP (NasdaqGS:VNOM)       | Energy                 | Oil and Gas Exploration and Production | United States | 130.00            | 8.45            | 6.50%          |
| 383 | 09/16/2016  | Smart Sand Inc. (NasdaqGS:SND)                 | Energy                 | Oil and Gas Equipment and Services     | United States | 128.70            | 7.72            | 6.00%          |
| 384 | 07/08/2013  | Fox Factory Holding Corp (NasdaqGS:FOXF)       | Consumer Discretionary | Auto Parts and Equipment               | United States | 128.57            | 9.00            | 7.00%          |
| 385 | 09/10/2009  | rue21, Inc.                                    | Consumer Discretionary | Apparel Retail                         | United States | 128.54            | 9.00            | 7.00%          |
| 386 | 07/13/2012  | Gigamon Inc. (NYSE:GIMO)                       | Information Technology | Systems Software                       | United States | 128.25            | 8.98            | 7.00%          |
| 387 | 03/22/2013  | Emerge Energy Services LP (NYSE:EMES)          | Energy                 | Oil and Gas Refining and Marketing     | United States | 127.50            | 7.65            | 6.00%          |
| 388 | 05/19/2014  | Kite Pharma, Inc. (NasdaqGS:KITE)              | Healthcare             | Biotechnology                          | United States | 127.50            | 8.93            | 7.00%          |
| 389 | 06/10/2014  | HealthEquity, Inc. (NasdaqGS:HQY)              | Healthcare             | Managed Healthcare                     | United States | 127.40            | 8.92            | 7.00%          |
| 390 | 03/06/2007  | Starent Networks LLC                           | Information Technology | Communications Equipment               | United States | 126.42            | 8.85            | 7.00%          |
| 391 | 05/13/2008  | Grand Canyon Education, Inc. (NasdaqGS:LOPE)   | Consumer Discretionary | Education Services                     | United States | 126.00            | 8.82            | 7.00%          |
| 392 | 10/05/2012  | Ruckus Wireless, Inc.                          | Information Technology | Communications Equipment               | United States | 126.00            | 8.82            | 7.00%          |

| No. | Date of IPO | Issuer                                               | Primary Sector         | Primary Industry                        | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|------------------------------------------------------|------------------------|-----------------------------------------|---------------|-------------------|-----------------|----------------|
| 393 | 02/18/2014  | Versartis, Inc. (NasdaqGS:VSAR)                      | Healthcare             | Biotechnology                           | United States | 126.00            | 8.82            | 7.00%          |
| 394 | 10/03/2014  | Nevro Corp. (NYSE:NVRO)                              | Healthcare             | Healthcare Equipment                    | United States | 126.00            | 8.82            | 7.00%          |
| 395 | 12/03/2010  | RLJ Acquisition, Inc.                                | Consumer Discretionary | Movies and Entertainment                | United States | 125.00            | 6.25            | 5.00%          |
| 396 | 08/25/2014  | HubSpot, Inc. (NYSE:HUBS)                            | Information Technology | Application Software                    | United States | 125.00            | 8.75            | 7.00%          |
| 397 | 08/27/2014  | Dermira, Inc. (NasdaqGS:DERM)                        | Healthcare             | Pharmaceuticals                         | United States | 125.00            | 8.75            | 7.00%          |
| 398 | 07/01/2011  | Tilly's, Inc. (NYSE:TLYS)                            | Consumer Discretionary | Apparel Retail                          | United States | 124.00            | 8.68            | 7.00%          |
| 399 | 09/09/2011  | RH (NYSE:RH)                                         | Consumer Discretionary | Home Furnishing Retail                  | United States | 123.94            | 8.68            | 7.00%          |
| 400 | 04/12/2013  | Portola Pharmaceuticals, Inc. (NasdaqGS:PTLA)        | Healthcare             | Biotechnology                           | United States | 122.13            | 8.55            | 7.00%          |
| 401 | 04/17/2007  | hhgregg, Inc. (NYSE:HGG)                             | Consumer Discretionary | Computer and Electronics Retail         | United States | 121.88            | 8.53            | 7.00%          |
| 402 | 04/28/2011  | Teavana Holdings, Inc.                               | Consumer Discretionary | Specialty Stores                        | United States | 121.43            | 8.50            | 7.00%          |
| 403 | 01/22/2010  | Ryerson Holding Corporation (NYSE:RYI)               | Materials              | Steel                                   | United States | 121.00            | 7.26            | 6.00%          |
| 404 | 11/08/2013  | Ultragenyx Pharmaceutical Inc. (NasdaqGS:RARE)       | Healthcare             | Biotechnology                           | United States | 120.97            | 8.47            | 7.00%          |
| 405 | 09/07/2007  | Cardtronics plc (NasdaqGS:CATM)                      | Information Technology | Data Processing and Outsourced Services | United States | 120.00            | 8.40            | 7.00%          |
| 406 | 09/29/2009  | R1 RCM Inc. (OTCPK:ACHI)                             | Healthcare             | Healthcare Services                     | United States | 120.00            | 8.00            | 6.67%          |
| 407 | 02/02/2011  | Thermon Group Holdings, Inc. (NYSE:THR)              | Industrials            | Electrical Components and Equipment     | United States | 120.00            | 8.40            | 7.00%          |
| 408 | 01/06/2012  | Infoblox Inc.                                        | Information Technology | Systems Software                        | United States | 120.00            | 8.40            | 7.00%          |
| 409 | 05/11/2012  | CrossAmerica Partners LP (NYSE:CAPL)                 | Energy                 | Oil and Gas Storage and Transportation  | United States | 120.00            | 7.80            | 6.50%          |
| 410 | 10/07/2013  | Tandem Diabetes Care, Inc. (NasdaqGM:TNDM)           | Healthcare             | Healthcare Equipment                    | United States | 120.00            | 8.40            | 7.00%          |
| 411 | 07/08/2015  | Global Blood Therapeutics, Inc. (NasdaqGS:GBT)       | Healthcare             | Biotechnology                           | United States | 120.00            | 8.40            | 7.00%          |
| 412 | 08/14/2015  | Penumbra, Inc. (NYSE:PEN)                            | Healthcare             | Healthcare Equipment                    | United States | 120.00            | 8.40            | 7.00%          |
| 413 | 01/30/2014  | Paylocity Holding Corporation (NasdaqGS:PCTY)        | Information Technology | Application Software                    | United States | 119.77            | 8.38            | 7.00%          |
| 414 | 12/20/2010  | ServiceSource International, Inc. (NasdaqGS:SREV)    | Information Technology | IT Consulting and Other Services        | United States | 119.40            | 8.36            | 7.00%          |
| 415 | 02/21/2014  | 2U, Inc. (NasdaqGS:TWOU)                             | Information Technology | Internet Software and Services          | United States | 119.28            | 8.35            | 7.00%          |
| 416 | 04/01/2008  | Energy Recovery, Inc. (NasdaqGS:ERII)                | Industrials            | Industrial Machinery                    | United States | 119.00            | 8.33            | 7.00%          |
| 417 | 03/11/2015  | Aduro BioTech, Inc. (NasdaqGS:ADRO)                  | Healthcare             | Biotechnology                           | United States | 119.00            | 8.33            | 7.00%          |
| 418 | 03/07/2014  | Sportsman's Warehouse Holdings, Inc. (NasdaqGS:SPWH) | Consumer Discretionary | Specialty Stores                        | United States | 118.75            | 8.31            | 7.00%          |
| 419 | 07/08/2013  | Cvent, Inc.                                          | Information Technology | Internet Software and Services          | United States | 117.60            | 8.23            | 7.00%          |
| 420 | 06/15/2015  | vTv Therapeutics Inc. (NasdaqGM:VTVT)                | Healthcare             | Biotechnology                           | United States | 117.19            | 8.20            | 7.00%          |



| No. | Date of IPO | Issuer                                                    | Primary Sector         | Primary Industry                             | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-----------------------------------------------------------|------------------------|----------------------------------------------|---------------|-------------------|-----------------|----------------|
| 421 | 09/25/2015  | AquaVenture Holdings Limited (NYSE:WAAS)                  | Utilities              | Water Utilities                              | United States | 117.00            | 8.19            | 7.00%          |
| 422 | 04/04/2013  | UCP, Inc. (NYSE:UCP)                                      | Consumer Discretionary | Homebuilding                                 | United States | 116.25            | 8.14            | 7.00%          |
| 423 | 09/02/2016  | Mammoth Energy Services, Inc. (NasdaqGS:TUSK)             | Energy                 | Oil and Gas Equipment and Services           | United States | 116.25            | 7.27            | 6.25%          |
| 424 | 08/16/2013  | Rocket Fuel Inc. (NasdaqGS:FUEL)                          | Information Technology | Internet Software and Services               | United States | 116.00            | 8.12            | 7.00%          |
| 425 | 03/03/2014  | OPOWER, Inc.                                              | Information Technology | Internet Software and Services               | United States | 115.90            | 8.11            | 7.00%          |
| 426 | 09/02/2011  | Guidewire Software, Inc. (NYSE:GWRE)                      | Information Technology | Application Software                         | United States | 115.05            | 8.05            | 7.00%          |
| 427 | 11/10/2014  | New Relic, Inc. (NYSE:NEWR)                               | Information Technology | Internet Software and Services               | United States | 115.00            | 8.05            | 7.00%          |
| 428 | 08/25/2011  | Angie's List, Inc. (NasdaqGS:ANGI)                        | Information Technology | Internet Software and Services               | United States | 114.31            | 8.00            | 7.00%          |
| 429 | 08/01/2011  | MACOM Technology Solutions Holdings, Inc. (NasdaqGS:MTSI) | Information Technology | Semiconductors                               | United States | 114.00            | 7.98            | 7.00%          |
| 430 | 1C/02/2013  | Arc Logistics Partners LP (NYSE:ARCX)                     | Energy                 | Oil and Gas Storage and Transportation       | United States | 114.00            | 6.84            | 6.00%          |
| 431 | 08/26/2011  | Bazaarvoice, Inc. (NasdaqGS:BV)                           | Information Technology | Internet Software and Services               | United States | 113.81            | 7.97            | 7.00%          |
| 432 | 06/22/2007  | athenahealth, Inc. (NasdaqGS:ATHN)                        | Healthcare             | Health Care Technology                       | United States | 113.16            | 7.92            | 7.00%          |
| 433 | 09/23/2008  | Rosetta Stone Inc. (NYSE:RST)                             | Information Technology | Home Entertainment Software                  | United States | 112.50            | 7.88            | 7.00%          |
| 434 | 01/29/2010  | Douglas Dynamics, Inc. (NYSE:LOW)                         | Industrials            | Construction Machinery and Heavy Trucks      | United States | 112.50            | 7.59            | 6.75%          |
| 435 | 04/01/2010  | Qlik Technologies, Inc.                                   | Information Technology | Application Software                         | United States | 112.00            | 7.84            | 7.00%          |
| 436 | 12/17/2015  | SecureWorks Corp. (NasdaqGS:SCWX)                         | Information Technology | Systems Software                             | United States | 112.00            | 7.84            | 7.00%          |
| 437 | 03/30/2007  | Data Domain, Inc.                                         | Information Technology | Technology Hardware, Storage and Peripherals | United States | 110.85            | 7.76            | 7.00%          |
| 438 | 05/06/2015  | Wingstop Inc. (NasdaqGS:WING)                             | Consumer Discretionary | Restaurants                                  | United States | 110.20            | 7.71            | 7.00%          |
| 439 | 04/23/2007  | Lumber Liquidators Holdings, Inc. (NYSE:LL)               | Consumer Discretionary | Home Improvement Retail                      | United States | 110.00            | 7.70            | 7.00%          |
| 440 | 06/19/2014  | Independence Contract Drilling, Inc. (NYSE:ICD)           | Energy                 | Oil and Gas Drilling                         | United States | 110.00            | 6.54            | 5.94%          |
| 441 | 1C/04/2013  | Karyopharm Therapeutics Inc. (NasdaqGS:KPTI)              | Healthcare             | Biotechnology                                | United States | 108.80            | 7.62            | 7.00%          |
| 442 | 06/10/2008  | Mistras Group, Inc. (NYSE:MG)                             | Industrials            | Research and Consulting Services             | United States | 108.75            | 7.61            | 7.00%          |
| 443 | 03/22/2007  | Netezza Corporation                                       | Information Technology | Application Software                         | United States | 108.00            | 7.56            | 7.00%          |
| 444 | 07/26/2007  | K12 Inc. (NYSE:LRN)                                       | Consumer Discretionary | Education Services                           | United States | 108.00            | 7.56            | 7.00%          |
| 445 | 03/24/2010  | Higher One Holdings, Inc.                                 | Information Technology | Data Processing and Outsourced Services      | United States | 108.00            | 7.56            | 7.00%          |
| 446 | 05/12/2015  | Glaukos Corporation (NYSE:GKOS)                           | Healthcare             | Healthcare Equipment                         | United States | 108.00            | 7.56            | 7.00%          |
| 447 | 04/11/2016  | Intellia Therapeutics Inc. (NasdaqGM:NTLA)                | Healthcare             | Biotechnology                                | United States | 108.00            | 7.56            | 7.00%          |
| 448 | 07/20/2007  | SuccessFactors, Inc.                                      | Information Technology | Application Software                         | United States | 107.90            | 7.71            | 7.15%          |

| No. | Date of IPO | Issuer                                               | Primary Sector         | Primary Industry                             | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|------------------------------------------------------|------------------------|----------------------------------------------|---------------|-------------------|-----------------|----------------|
| 449 | 10/16/2009  | Cellu Tissue Holdings, Inc.                          | Consumer Staples       | Household Products                           | United States | 107.90            | 7.55            | 7.00%          |
| 450 | 05/21/2014  | Adeptus Health Inc. (NYSE:ADPT)                      | Healthcare             | Healthcare Services                          | United States | 107.80            | 7.55            | 7.00%          |
| 451 | 08/12/2010  | Gevo, Inc. (NasdaqCM:GEVO)                           | Energy                 | Oil and Gas Refining and Marketing           | United States | 107.25            | 7.51            | 7.00%          |
| 452 | 11/17/2011  | Yelp Inc. (NYSE:YELP)                                | Information Technology | Internet Software and Services               | United States | 107.25            | 7.51            | 7.00%          |
| 453 | 07/06/2007  | Constant Contact, Inc.                               | Information Technology | Internet Software and Services               | United States | 107.20            | 7.50            | 7.00%          |
| 454 | 09/29/2016  | Quantenna Communications, Inc. (NasdaqGS:QTNA)       | Information Technology | Communications Equipment                     | United States | 107.20            | 7.50            | 7.00%          |
| 455 | 06/18/2012  | Natural Grocers by Vitamin Cottage, Inc. (NYSE:NGVC) | Consumer Staples       | Food Retail                                  | United States | 107.14            | 7.50            | 7.00%          |
| 456 | 06/24/2014  | El Pollo Loco Holdings, Inc. (NasdaqGS:LOCO)         | Consumer Discretionary | Restaurants                                  | United States | 107.14            | 7.50            | 7.00%          |
| 457 | 05/14/2014  | ZS Pharma, Inc.                                      | Healthcare             | Pharmaceuticals                              | United States | 107.00            | 7.49            | 7.00%          |
| 458 | 09/23/2016  | iRhythm Technologies, Inc. (NasdaqGM:IRTC)           | Healthcare             | Healthcare Equipment                         | United States | 107.00            | 7.49            | 7.00%          |
| 459 | 01/11/2008  | LogMeIn, Inc. (NasdaqGS:LOGM)                        | Information Technology | Internet Software and Services               | United States | 106.67            | 7.47            | 7.00%          |
| 460 | 06/10/2013  | Agios Pharmaceuticals, Inc. (NasdaqGS:AGIO)          | Healthcare             | Biotechnology                                | United States | 106.00            | 7.42            | 7.00%          |
| 461 | 07/29/2013  | Foundation Medicine, Inc. (NasdaqGS:FMI)             | Healthcare             | Biotechnology                                | United States | 106.00            | 7.42            | 7.00%          |
| 462 | 04/27/2007  | Rex Energy Corporation (NasdaqCM:REXX)               | Energy                 | Oil and Gas Exploration and Production       | United States | 105.60            | 6.34            | 6.00%          |
| 463 | 10/22/2013  | Varonis Systems, Inc. (NasdaqGS:VRNS)                | Information Technology | Systems Software                             | United States | 105.60            | 7.39            | 7.00%          |
| 464 | 06/17/2011  | Ubiquiti Networks, Inc. (NasdaqGS:UBNT)              | Information Technology | Communications Equipment                     | United States | 105.57            | 7.76            | 7.35%          |
| 465 | 06/10/2011  | Mattress Firm Holding Corp.                          | Consumer Discretionary | Home Furnishing Retail                       | United States | 105.56            | 7.39            | 7.00%          |
| 466 | 02/12/2007  | Crestwood Midstream Partners LP                      | Energy                 | Oil and Gas Storage and Transportation       | United States | 105.00            | 6.83            | 6.50%          |
| 467 | 08/14/2007  | 3Par Inc.                                            | Information Technology | Technology Hardware, Storage and Peripherals | United States | 105.00            | 7.35            | 7.00%          |
| 468 | 02/13/2013  | Marin Software Incorporated (NYSE:MRIN)              | Information Technology | Internet Software and Services               | United States | 105.00            | 7.35            | 7.00%          |
| 469 | 08/29/2013  | Pottbelly Corporation (NasdaqGS:PBPB)                | Consumer Discretionary | Restaurants                                  | United States | 105.00            | 7.35            | 7.00%          |
| 470 | 12/29/2014  | Shake Shack Inc. (NYSE:SHAK)                         | Consumer Discretionary | Restaurants                                  | United States | 105.00            | 7.35            | 7.00%          |
| 471 | 02/13/2013  | Model N, Inc. (NYSE:MODN)                            | Information Technology | Application Software                         | United States | 104.47            | 7.31            | 7.00%          |
| 472 | 12/21/2015  | Acacia Communications, Inc. (NasdaqGS:ACIA)          | Information Technology | Communications Equipment                     | United States | 103.50            | 7.25            | 7.00%          |
| 473 | 06/11/2015  | Rapid7, Inc. (NasdaqGM:RPD)                          | Information Technology | Systems Software                             | United States | 103.20            | 7.22            | 7.00%          |
| 474 | 09/03/2009  | Archipelago Learning, Inc.                           | Consumer Discretionary | Education Services                           | United States | 103.13            | 7.22            | 7.00%          |
| 475 | 05/05/2014  | Century Communities, Inc. (NYSE:CCS)                 | Consumer Discretionary | Homebuilding                                 | United States | 103.04            | 7.21            | 7.00%          |
| 476 | 03/08/2013  | Chimerix, Inc. (NasdaqGM:CMRX)                       | Healthcare             | Biotechnology                                | United States | 102.48            | 7.17            | 7.00%          |



| No. | Date of IPO | Issuer                                          | Primary Sector         | Primary Industry                    | Headquarters  | \$ Gross Proceeds | \$ Gross Spread | % Gross Spread |
|-----|-------------|-------------------------------------------------|------------------------|-------------------------------------|---------------|-------------------|-----------------|----------------|
| 477 | 10/07/2013  | Norcraft Companies, Inc.                        | Consumer Discretionary | Home Furnishings                    | United States | 102.35            | 7.16            | 7.00%          |
| 478 | 08/17/2012  | Trulia, Inc.                                    | Information Technology | Internet Software and Services      | United States | 102.00            | 7.14            | 7.00%          |
| 479 | 06/30/2014  | Adverum Biotechnologies, Inc. (NasdaqGM:ADVM)   | Healthcare             | Biotechnology                       | United States | 102.00            | 7.14            | 7.00%          |
| 480 | 10/09/2015  | WAVE Life Sciences Ltd. (NasdaqGM:WVE)          | Healthcare             | Pharmaceuticals                     | United States | 102.00            | 7.14            | 7.00%          |
| 481 | 06/15/2015  | Chiasma, Inc. (NasdaqGS:CHMA)                   | Healthcare             | Biotechnology                       | United States | 101.84            | 7.13            | 7.00%          |
| 482 | 12/30/2016  | Jounce Therapeutics, Inc. (NasdaqGS:JNCE)       | Healthcare             | Pharmaceuticals                     | United States | 101.84            | 7.13            | 7.00%          |
| 483 | 01/09/2015  | Invitae Corporation (NYSE:NVTA)                 | Healthcare             | Biotechnology                       | United States | 101.60            | 7.11            | 7.00%          |
| 484 | 02/04/2014  | The Rubicon Project, Inc. (NYSE:RUBI)           | Information Technology | Systems Software                    | United States | 101.56            | 7.11            | 7.00%          |
| 485 | 05/14/2013  | bluebird bio, Inc. (NasdaqGS:BLUE)              | Healthcare             | Biotechnology                       | United States | 101.00            | 7.07            | 7.00%          |
| 486 | 02/12/2014  | Q2 Holdings, Inc. (NYSE:QTWO)                   | Information Technology | Internet Software and Services      | United States | 100.89            | 7.06            | 7.00%          |
| 487 | 10/17/2014  | Workiva Inc. (NYSE:WK)                          | Information Technology | Application Software                | United States | 100.80            | 7.06            | 7.00%          |
| 488 | 02/07/2007  | TechTarget, Inc. (NasdaqGM:TTGT)                | Information Technology | Internet Software and Services      | United States | 100.10            | 7.01            | 7.00%          |
| 489 | 07/08/2011  | Merrimack Pharmaceuticals, Inc. (NasdaqGM:MACK) | Healthcare             | Biotechnology                       | United States | 100.10            | 7.01            | 7.00%          |
| 490 | 02/24/2014  | Everyday Health, Inc.                           | Information Technology | Internet Software and Services      | United States | 100.10            | 7.01            | 7.00%          |
| 491 | 05/11/2015  | MINDBODY, Inc. (NasdaqGM:MB)                    | Information Technology | Internet Software and Services      | United States | 100.10            | 7.01            | 7.00%          |
| 492 | 08/20/2007  | Orion Energy Systems, Inc (NasdaqCM:OESX)       | Industrials            | Electrical Components and Equipment | United States | 100.00            | 7.00            | 7.00%          |
| 493 | 12/13/2013  | Malibu Boats, Inc. (NasdaqGM:MBUU)              | Consumer Discretionary | Leisure Products                    | United States | 100.00            | 7.00            | 7.00%          |
| 494 | 02/14/2014  | Akebia Therapeutics, Inc. (NasdaqGM:AKBA)       | Healthcare             | Biotechnology                       | United States | 100.00            | 7.00            | 7.00%          |

## Gross Spread Analysis (1-1-2006 to 1-31-2017) US Only

### Summary

SOURCE: CapIQ

Note: Excludes Investment Funds and Self Funded REITS.

| US                  |                |                    |                               |
|---------------------|----------------|--------------------|-------------------------------|
|                     | No. of Issuers | Avg Gross Proceeds | Avg %<br>Underwrite<br>Spread |
| \$100M to \$199.99M | 233            | 138.07             | 6.8%                          |
| \$200M to \$299.99M | 87             | 241.37             | 6.4%                          |
| \$300M to \$399.99M | 53             | 341.88             | 6.0%                          |
| \$400M to \$499.99M | 34             | 438.24             | 6.1%                          |
| \$500M to \$999.99M | 64             | 699.16             | 5.5%                          |
| \$1.00B to \$1.99B  | 14             | 1,291.62           | 4.1%                          |
| \$2.00B+            | 9              | 7,362.48           | 2.8%                          |
| Total               | 494            | \$ 435.79          | 6.3%                          |

# **Exhibit III-H-1**

**To**

**SUPPLEMENTAL REPLY EVIDENCE  
OF CSX TRANSPORTATION, INC.**

---

**Docket No. NOR 42121**

**TABLE A: CERR ANNUAL COST OF CAPITAL**

| <b>Year</b> | <b>Industry<br/>Cost of<br/>Capital</b> | <b>Industry<br/>Cost of<br/>Debt 1/</b> | <b>Industry<br/>Cost of<br/>Preferred<br/>Equity 2/</b> | <b>Industry<br/>Cost of<br/>Equity 3/</b> | <b>CERR's<br/>Cost of<br/>Debt</b> | <b>CERR's<br/>Cost of<br/>Preferred<br/>Equity</b> | <b>CERR's<br/>Cost of<br/>Equity</b> | <b>Debt as a<br/>Percent<br/>of Total<br/>Investment</b> | <b>Preferred<br/>Equity as a<br/>Percent<br/>of Total<br/>Investment</b> | <b>Equity as a<br/>Percent<br/>of Total<br/>Investment</b> | <b>Composite<br/>Cost of<br/>Capital</b> | <b>1 +<br/>Cost of<br/>Capital</b> | <b>STB<br/>Prescribed<br/>Debt as a %<br/>of Capital 4/</b> | <b>STB<br/>Preferred<br/>Equity as a %<br/>of Capital 4/</b> |
|-------------|-----------------------------------------|-----------------------------------------|---------------------------------------------------------|-------------------------------------------|------------------------------------|----------------------------------------------------|--------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------|------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|
| (1)         | (2)                                     | (3)                                     | (4)                                                     | (5)                                       | (6)                                | (7)                                                | (8)                                  | (9)                                                      | (10)                                                                     | (11)                                                       | (12)                                     | (13)                               | (14)                                                        | (15)                                                         |
| 2012        | 11.12%                                  | 3.29%                                   | 0.00%                                                   | 13.40%                                    | 3.29%                              | 0.00%                                              | 13.40%                               | 22.56%                                                   | 0.000%                                                                   | 77.44%                                                     | 11.12%                                   | 1.1112                             | 22.560%                                                     | 0.000%                                                       |
| 2013        | 11.32%                                  | 3.68%                                   | 3.87%                                                   | 12.96%                                    | 3.68%                              | 3.87%                                              | 12.96%                               | 17.69%                                                   | 0.004%                                                                   | 82.31%                                                     | 11.32%                                   | 1.1132                             | 17.690%                                                     | 0.004%                                                       |
| 2014        | 10.65%                                  | 3.58%                                   | 3.69%                                                   | 12.06%                                    | 3.58%                              | 3.69%                                              | 12.06%                               | 16.66%                                                   | 0.004%                                                                   | 83.34%                                                     | 10.65%                                   | 1.1065                             | 16.660%                                                     | 0.004%                                                       |
| 2015        | 9.61%                                   | 3.55%                                   | 3.68%                                                   | 10.96%                                    | 3.61%                              | 3.44%                                              | 10.96%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 9.65%                                    | 1.0965                             | 18.16%                                                      | 0.000%                                                       |
| 2016        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |
| 2017        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |
| 2018        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |
| 2019        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |
| 2020        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |
| 2021        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |
| 2022        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |
| 2023        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |
| 2024        |                                         |                                         |                                                         |                                           | 3.61%                              | 3.44%                                              | 12.35%                               | 17.77%                                                   | 0.004%                                                                   | 82.23%                                                     | 10.79%                                   | 1.1079                             |                                                             |                                                              |

1/ Cost of railroad industry debt from the STB Decisions in Ex Parte No. 558 (Sub-No. 16), *Railroad Cost of Capital - 2012*, decided August 30, 2013, Ex Parte No. 558 (Sub-No. 17), *Railroad Cost of Capital - 2013*, decided July 31, 2014 and Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, decided August 7, 2015.

2/ Cost of preferred equity from the STB Decisions Ex Parte No. 558 (Sub-No. 17), *Railroad Cost of Capital - 2013*, decided July 31, 2014 and Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, decided August 7, 2015. There was no railroad preferred equity issued in

3/ Cost of railroad common equity from the STB Decisions in Ex Parte No. 558 (Sub-No. 16), *Railroad Cost of Capital - 2012*, decided August 30, 2013, Ex Parte No. 558 (Sub-No. 17), *Railroad Cost of Capital - 2013*, decided July 31, 2014 and Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, decided August 7, 2015.

4/ Railroad average capital structure from the STB Decisions in Ex Parte No. 558 (Sub-No. 16), *Railroad Cost of Capital - 2012*, decided August 30, 2013, Ex Parte No. 558 (Sub-No. 17), *Railroad Cost of Capital - 2013*, decided July 31, 2014 and Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, decided August 7, 2015.



**TABLE B: CERR INFLATION INDEXES**

| <u>Period</u><br>(1)     | <u>Land 1/</u><br>(2) | <u>Hybrid<br/>RCAF 2/</u><br>(3) | <u>MWS<br/>Excluding Fuel 3/</u><br>(4) | <u>Materials &amp;<br/>Supplies 4/</u><br>(5) | <u>Wages<br/>&amp; Supplements 5/</u><br>(6) |
|--------------------------|-----------------------|----------------------------------|-----------------------------------------|-----------------------------------------------|----------------------------------------------|
| 3Q 2012                  | 100.0                 |                                  | 477.5                                   | 346.6                                         | 503.3                                        |
| 4Q 2012                  | 103.2                 |                                  | 475.6                                   | 340.7                                         | 502.4                                        |
| 1Q 2013                  | 105.6                 |                                  | 477.1                                   | 339.0                                         | 504.6                                        |
| 2Q 2013                  | 109.1                 |                                  | 471.1                                   | 334.0                                         | 498.4                                        |
| 3Q 2013                  | 113.4                 |                                  | 478.0                                   | 340.8                                         | 505.2                                        |
| 4Q 2013                  | 118.7                 |                                  | 477.6                                   | 332.4                                         | 506.8                                        |
| 1Q 2014                  | 121.9                 |                                  | 483.7                                   | 337.7                                         | 513.0                                        |
| 2Q 2014                  | 125.5                 |                                  | 489.7                                   | 348.8                                         | 517.7                                        |
| 3Q 2014                  | 129.1                 |                                  | 494.1                                   | 349.1                                         | 523.0                                        |
| 4Q 2014                  | 132.7                 |                                  | 496.9                                   | 358.9                                         | 524.2                                        |
| 1Q 2015                  | 137.0                 | 100.0                            | 506.7                                   | 338.8                                         | 541.1                                        |
| 2Q 2015                  | 141.4                 | 93.0                             | 509.4                                   | 336.6                                         | 544.9                                        |
| 3Q 2015                  | 142.8                 | 87.6                             | 507.6                                   | 332.7                                         | 543.5                                        |
| 4Q 2015                  | 144.3                 | 91.1                             | 509.6                                   | 338.9                                         | 544.6                                        |
| 1Q 2016                  | 145.9                 | 91.3                             | 507.5                                   | 325.8                                         | 545.1                                        |
| 2Q 2016                  | 147.5                 | 88.7                             | 506.2                                   | 325.8                                         | 543.5                                        |
| 3Q 2016                  | 149.2                 | 91.5                             | 509.3                                   | 327.8                                         | 546.7                                        |
| 4Q 2016                  | 150.9                 | 92.9                             | 513.2                                   | 333.0                                         | 550.0                                        |
| 1Q 2017                  | 152.5                 | 93.2                             | 518.4                                   | 333.3                                         | 556.6                                        |
| 2Q 2017                  | 154.2                 | 94.5                             | 522.4                                   | 337.0                                         | 560.5                                        |
| 3Q 2017                  | 156.0                 | 96.1                             | 527.5                                   | 343.1                                         | 565.0                                        |
| 4Q 2017                  | 157.7                 | 96.8                             | 531.3                                   | 344.4                                         | 569.5                                        |
| 1Q 2018                  | 159.5                 | 97.7                             | 536.3                                   | 348.2                                         | 574.6                                        |
| 2Q 2018                  | 161.3                 | 98.7                             | 541.2                                   | 351.9                                         | 579.7                                        |
| 3Q 2018                  | 163.1                 | 99.8                             | 546.2                                   | 355.6                                         | 584.9                                        |
| 4Q 2018                  | 164.9                 | 100.9                            | 551.2                                   | 359.4                                         | 590.1                                        |
| 1Q 2019                  | 166.7                 | 102.0                            | 555.9                                   | 362.7                                         | 595.0                                        |
| 2Q 2019                  | 168.6                 | 103.2                            | 560.6                                   | 366.0                                         | 600.0                                        |
| 3Q 2019                  | 170.5                 | 104.3                            | 565.4                                   | 369.3                                         | 605.1                                        |
| 4Q 2019                  | 172.4                 | 105.5                            | 570.2                                   | 372.7                                         | 610.1                                        |
| 1Q 2020                  | 174.3                 | 106.7                            | 575.0                                   | 375.5                                         | 615.4                                        |
| 2Q 2020                  | 176.3                 | 107.8                            | 579.9                                   | 378.4                                         | 620.7                                        |
| 3Q 2020                  | 178.2                 | 109.1                            | 584.8                                   | 381.3                                         | 626.1                                        |
| 4Q 2020                  | 180.2                 | 110.3                            | 589.8                                   | 384.2                                         | 631.5                                        |
| 1Q 2021                  | 182.3                 | 111.4                            | 595.2                                   | 387.6                                         | 637.4                                        |
| 2Q 2021                  | 184.3                 | 112.5                            | 600.7                                   | 390.9                                         | 643.4                                        |
| 3Q 2021                  | 186.4                 | 113.6                            | 606.3                                   | 394.3                                         | 649.4                                        |
| 4Q 2021                  | 188.5                 | 114.7                            | 611.9                                   | 397.7                                         | 655.5                                        |
| 1Q 2022                  | 190.6                 | 115.6                            | 617.2                                   | 400.8                                         | 661.3                                        |
| 2Q 2022                  | 192.7                 | 116.5                            | 622.6                                   | 404.0                                         | 667.2                                        |
| 3Q 2022                  | 194.9                 | 117.4                            | 628.0                                   | 407.2                                         | 673.1                                        |
| 4Q 2022                  | 197.1                 | 118.3                            | 633.5                                   | 410.4                                         | 679.1                                        |
| 1Q 2023                  | 199.3                 | 119.2                            | 638.8                                   | 413.5                                         | 685.0                                        |
| 2Q 2023                  | 201.5                 | 120.1                            | 644.2                                   | 416.5                                         | 690.9                                        |
| 3Q 2023                  | 203.8                 | 121.0                            | 649.6                                   | 419.6                                         | 696.8                                        |
| 4Q 2023                  | 206.1                 | 121.9                            | 655.1                                   | 422.7                                         | 702.9                                        |
| 1Q 2024                  | 208.4                 | 122.9                            | 660.6                                   | 425.7                                         | 708.9                                        |
| 2Q 2024                  | 210.8                 | 123.8                            | 666.1                                   | 428.6                                         | 715.1                                        |
| 3Q 2024                  | 213.1                 | 124.8                            | 671.6                                   | 431.6                                         | 721.2                                        |
| 4Q 2024                  | 215.5                 | 125.7                            | 677.2                                   | 434.6                                         | 727.5                                        |
| Annual Inflation Rate 6/ | 4.97%                 |                                  | 3.14%                                   | 1.93%                                         | 3.33%                                        |

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 S&P Dow Jones and Moody's/RCA.

2/ Used to index expenses in Table K. Based on the RCAF-U and RCAF-A through 1Q2016 then IHS Economics 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 1Q2016 then IHS Economics forecast.

4/ Used to index Road Property Accounts 8, 9, and 11. Based on RCR indexes - East Region through 1Q2016 then IHS Economics forecast for remaining periods.

5/ Used to index Road Property Accounts 1 and 12. Based on RCR indexes - East Region through 1Q2016 then IHS Economics forecast for remaining periods.

6/  $4Q\ 2014 \div 4Q\ 2024^{(1/10)} - 1$ . The Annual Rate is used to develop asset replacement values at the end of asset lives.

**TABLE C: CERR PROPERTY INVESTMENT VALUES**

Construction of the CERR occurs between July 1, 2012 and January 1, 2015.

Investments are assumed to be in January 1, 2015 dollars.

| <u>Property Account</u> | <u>Property Component</u>     | <u>Service Life In Years 1/</u> | <u>Investment In 3Q2012 Dollars 2/</u> | <u>Investment In 3Q2013 Dollars 3/</u> | <u>Investment In 3Q2014 Dollars 4/</u> | <u>2012 Investment Value 5/</u> | <u>2013 Investment Value 6/</u> | <u>2014 Investment Value 7/</u> | <u>Total Property Investment 1Q 2015 8/</u> |
|-------------------------|-------------------------------|---------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------------------|
| (1)                     | (2)                           | (3)                             | (4)                                    | (5)                                    | (6)                                    | (7)                             | (8)                             | (9)                             | (10)                                        |
| 1                       | Engineering                   | NA                              | \$59,131,332                           | \$59,354,558                           | \$61,445,831                           | \$35,478,799                    | \$23,741,823                    | \$0                             | \$59,220,623                                |
| 2                       | Land                          | NA                              | \$96,118,222                           | \$108,987,957                          | \$124,131,598                          | \$41,193,524                    | \$62,278,832                    | \$0                             | \$124,400,000                               |
| 3                       | Grading                       | 69                              | \$94,715,261                           | \$94,814,439                           | \$98,007,980                           | \$0                             | \$94,814,439                    | \$0                             | \$94,814,439                                |
| 5                       | Tunnels                       | 76                              | \$0                                    | \$0                                    | \$0                                    | \$0                             | \$0                             | \$0                             | \$0                                         |
| 6                       | Bridges & Culverts            | 61                              | \$171,769,513                          | \$171,949,377                          | \$177,740,977                          | \$0                             | \$120,364,564                   | \$53,322,293                    | \$173,686,857                               |
| 8                       | Ties                          | 20                              | \$62,487,316                           | \$61,441,654                           | \$62,938,032                           | \$0                             | \$26,332,137                    | \$35,964,590                    | \$62,296,727                                |
| 9                       | Rails and OTM                 | 34                              | \$102,042,271                          | \$100,334,697                          | \$102,778,295                          | \$0                             | \$43,000,585                    | \$58,730,454                    | \$101,731,039                               |
| 11                      | Ballast                       | 36                              | \$80,644,906                           | \$79,295,395                           | \$81,226,592                           | \$0                             | \$33,983,741                    | \$46,415,195                    | \$80,398,936                                |
| 12                      | Labor                         | 31                              | \$48,548,567                           | \$48,731,842                           | \$50,448,838                           | \$0                             | \$20,885,075                    | \$28,827,908                    | \$49,712,983                                |
| 13                      | Fences and Roadway Signs      | 47                              | \$101,221                              | \$101,327                              | \$104,740                              | \$0                             | \$43,426                        | \$59,851                        | \$103,277                                   |
| 16                      | Stations and Office Buildings | 40                              | \$2,999,774                            | \$3,002,915                            | \$3,104,059                            | \$0                             | \$1,201,166                     | \$1,862,436                     | \$3,063,602                                 |
| 17                      | Roadway Buildings             | 37                              | \$9,604,291                            | \$9,614,348                            | \$9,938,179                            | \$0                             | \$3,845,739                     | \$5,962,907                     | \$9,808,647                                 |
| 19                      | Fuel Stations                 | 29                              | \$0                                    | \$0                                    | \$0                                    | \$0                             | \$0                             | \$0                             | \$0                                         |
| 20                      | Shops and Enginehouses        | 34                              | \$6,945,393                            | \$6,952,665                            | \$7,186,845                            | \$0                             | \$2,781,066                     | \$4,312,107                     | \$7,093,173                                 |
| 26                      | Communications Systems        | 13                              | \$12,321,975                           | \$12,334,877                           | \$12,750,341                           | \$0                             | \$0                             | \$12,750,341                    | \$12,750,341                                |
| 27                      | Signals and Interlockers      | 29                              | \$38,909,877                           | \$38,950,620                           | \$40,262,555                           | \$0                             | \$0                             | \$40,262,555                    | \$40,262,555                                |
| 39                      | Public Improvements           | 44                              | \$23,850,708                           | \$23,875,682                           | \$24,679,863                           | \$0                             | \$10,232,435                    | \$14,102,779                    | \$24,335,214                                |
| Total                   |                               |                                 | \$810,190,626                          | \$819,742,354                          | \$856,744,726                          | \$76,672,323                    | \$443,505,029                   | \$302,573,416                   | \$843,678,412                               |

1/ 1 ÷ Depreciation Rate shown in Schedule 332 of CSXT's 2014 Annual Report R-1

2/ January 1, 2015, indexed to 2012 dollars; Investment Exhibit - 1Q2015 x Inflation Index from Table B, 3Q2012 ÷ 1Q2015.

3/ January 1, 2015, indexed to 2013 dollars; Investment Exhibit - 1Q2015 x Inflation Index from Table B, 3Q2013 ÷ 1Q2015.

4/ January 1, 2015, indexed to 2014 dollars; Investment Exhibit - 1Q2015 x Inflation Index from Table B, 3Q2014 ÷ 1Q2015.

5/ Column (4) x Percent constructed in 2012.

6/ Column (5) x Percent constructed in 2013.

7/ Column (6) x Percent constructed in 2014.

8/ Sum of Columns (7) through (9).

**TABLE D: INTEREST DURING CONSTRUCTION**

| Month of<br>Installation | Cost of<br>Funds 1/ | Timing of<br>Account 1<br>Investment 2/ | Timing of<br>Account 2<br>Investment 2/ | Timing of<br>Accounts<br>3, 5 and 6<br>Investment 2/ | Timing of<br>Accounts 8<br>Through 39<br>Investment 2/ | Total<br>Investment<br>by Month 3/ | Interest<br>During<br>Construction 4/ | Cost of<br>Debt 5/ | Deductible<br>Interest<br>During<br>Construction 6/ |
|--------------------------|---------------------|-----------------------------------------|-----------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------|---------------------------------------|--------------------|-----------------------------------------------------|
| (1)                      | (2)                 | (3)                                     | (4)                                     | (5)                                                  | (6)                                                    | (7)                                | (8)                                   | (9)                | (10)                                                |
| Jul-12                   | 0.88%               | \$5,913,133                             | \$0                                     | \$0                                                  | \$0                                                    | \$5,913,133                        | \$0                                   | 0.27%              | \$0                                                 |
| Aug-12                   | 0.88%               | \$5,913,133                             | \$0                                     | \$0                                                  | \$0                                                    | \$5,913,133                        | \$52,182                              | 0.27%              | \$3,603                                             |
| Sep-12                   | 0.88%               | \$5,913,133                             | \$0                                     | \$0                                                  | \$0                                                    | \$5,913,133                        | \$104,825                             | 0.27%              | \$7,239                                             |
| Oct-12                   | 0.88%               | \$5,913,133                             | \$13,731,175                            | \$0                                                  | \$0                                                    | \$19,644,308                       | \$157,932                             | 0.27%              | \$10,906                                            |
| Nov-12                   | 0.88%               | \$5,913,133                             | \$13,731,175                            | \$0                                                  | \$0                                                    | \$19,644,308                       | \$332,683                             | 0.27%              | \$22,973                                            |
| Dec-12                   | 0.88%               | \$5,913,133                             | \$13,731,175                            | \$0                                                  | \$0                                                    | \$19,644,308                       | \$508,976                             | 0.27%              | \$35,147                                            |
| Jan-13                   | 0.90%               | \$5,935,456                             | \$15,569,708                            | \$0                                                  | \$0                                                    | \$21,505,164                       | \$698,523                             | 0.30%              | \$41,526                                            |
| Feb-13                   | 0.90%               | \$5,935,456                             | \$15,569,708                            | \$0                                                  | \$0                                                    | \$21,505,164                       | \$897,803                             | 0.30%              | \$53,373                                            |
| Mar-13                   | 0.90%               | \$5,935,456                             | \$15,569,708                            | \$0                                                  | \$0                                                    | \$21,505,164                       | \$1,098,872                           | 0.30%              | \$65,326                                            |
| Apr-13                   | 0.90%               | \$5,935,456                             | \$15,569,708                            | \$13,544,920                                         | \$0                                                    | \$35,050,084                       | \$1,301,746                           | 0.30%              | \$77,386                                            |
| May-13                   | 0.90%               | \$0                                     | \$0                                     | \$13,544,920                                         | \$0                                                    | \$13,544,920                       | \$1,628,007                           | 0.30%              | \$96,782                                            |
| Jun-13                   | 0.90%               | \$0                                     | \$0                                     | \$30,739,858                                         | \$0                                                    | \$30,739,858                       | \$1,764,186                           | 0.30%              | \$104,877                                           |
| Jul-13                   | 0.90%               | \$0                                     | \$0                                     | \$30,739,858                                         | \$22,412,900                                           | \$53,152,757                       | \$2,055,913                           | 0.30%              | \$122,220                                           |
| Aug-13                   | 0.90%               | \$0                                     | \$0                                     | \$30,739,858                                         | \$22,412,900                                           | \$53,152,757                       | \$2,551,417                           | 0.30%              | \$151,677                                           |
| Sep-13                   | 0.90%               | \$0                                     | \$0                                     | \$30,739,858                                         | \$24,369,893                                           | \$55,109,750                       | \$3,051,368                           | 0.30%              | \$181,398                                           |
| Oct-13                   | 0.90%               | \$0                                     | \$0                                     | \$30,739,858                                         | \$24,369,893                                           | \$55,109,750                       | \$3,573,370                           | 0.30%              | \$212,430                                           |
| Nov-13                   | 0.90%               | \$0                                     | \$0                                     | \$17,194,938                                         | \$24,369,893                                           | \$41,564,830                       | \$4,100,057                           | 0.30%              | \$243,741                                           |
| Dec-13                   | 0.90%               | \$0                                     | \$0                                     | \$17,194,938                                         | \$24,369,893                                           | \$41,564,830                       | \$4,509,904                           | 0.30%              | \$268,105                                           |
| Jan-14                   | 0.85%               | \$0                                     | \$0                                     | \$17,774,098                                         | \$25,035,505                                           | \$42,809,603                       | \$4,644,589                           | 0.29%              | \$268,276                                           |
| Feb-14                   | 0.85%               | \$0                                     | \$0                                     | \$17,774,098                                         | \$25,035,505                                           | \$42,809,603                       | \$5,046,374                           | 0.29%              | \$291,483                                           |
| Mar-14                   | 0.85%               | \$0                                     | \$0                                     | \$17,774,098                                         | \$25,035,505                                           | \$42,809,603                       | \$5,451,560                           | 0.29%              | \$314,887                                           |
| Apr-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$25,035,505                                           | \$25,035,505                       | \$5,860,178                           | 0.29%              | \$338,489                                           |
| May-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$25,035,505                                           | \$25,035,505                       | \$6,121,765                           | 0.29%              | \$353,599                                           |
| Jun-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$42,706,471                                           | \$42,706,471                       | \$6,385,567                           | 0.29%              | \$368,836                                           |
| Jul-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$40,683,562                                           | \$40,683,562                       | \$6,801,220                           | 0.29%              | \$392,845                                           |
| Aug-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$40,683,562                                           | \$40,683,562                       | \$7,203,264                           | 0.29%              | \$416,067                                           |
| Sep-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$0                                                    | \$0                                | \$7,608,712                           | 0.29%              | \$439,486                                           |
| Oct-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$0                                                    | \$0                                | \$7,673,133                           | 0.29%              | \$443,207                                           |
| Nov-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$0                                                    | \$0                                | \$7,738,100                           | 0.29%              | \$446,960                                           |
| Dec-14                   | 0.85%               | \$0                                     | \$0                                     | \$0                                                  | \$0                                                    | \$0                                | \$7,803,617                           | 0.29%              | \$450,744                                           |
| Total                    |                     | \$59,220,623                            | \$103,472,356                           | \$268,501,296                                        | \$391,556,493                                          | \$822,750,768                      | \$106,725,843                         |                    | \$6,223,586                                         |

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/ July 12 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/ July 12 equals prior Column (7) x Column (9) x Table A, Column (9) for 2012, 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: CERR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPITAL**

| INTEREST SCHEDULE FOR<br>THE CERR 2012 ROAD PROPERTY<br>INVESTMENT FOR THE 2Q2009 START-UP |                      |                   |           |           |                    | INTEREST SCHEDULE FOR<br>THE CERR 2013 ROAD PROPERTY<br>INVESTMENT FOR THE 2Q2009 START-UP |                      |                   |             |           |                    | INTEREST SCHEDULE FOR<br>THE CERR 2014 ROAD PROPERTY<br>INVESTMENT FOR THE 2Q2009 START-UP |                      |                   |             |           |                    |
|--------------------------------------------------------------------------------------------|----------------------|-------------------|-----------|-----------|--------------------|--------------------------------------------------------------------------------------------|----------------------|-------------------|-------------|-----------|--------------------|--------------------------------------------------------------------------------------------|----------------------|-------------------|-------------|-----------|--------------------|
| 1. TOTAL INVESTMENT                                                                        |                      |                   |           |           | \$76,672,323 1/    | 1. TOTAL INVESTMENT                                                                        |                      |                   |             |           | \$443,505,029 1/   | 1. TOTAL INVESTMENT                                                                        |                      |                   |             |           | \$302,573,416 1/   |
| 2. IDC                                                                                     |                      |                   |           |           | \$1,156,599 2/     | 2. IDC                                                                                     |                      |                   |             |           | \$27,231,166 2/    | 2. IDC                                                                                     |                      |                   |             |           | \$78,338,077 2/    |
| 3. PRINCIPAL                                                                               |                      |                   |           |           | \$17,558,205 3/    | 3. PRINCIPAL                                                                               |                      |                   |             |           | \$83,273,233 3/    | 3. PRINCIPAL                                                                               |                      |                   |             |           | \$63,459,855 3/    |
| 4. INTEREST                                                                                |                      |                   |           |           | 3.29% 4/           | 4. INTEREST                                                                                |                      |                   |             |           | 3.68% 4/           | 4. INTEREST                                                                                |                      |                   |             |           | 3.58% 4/           |
| 5. TERM (QUARTERS)                                                                         |                      |                   |           |           | 80 5/              | 5. TERM (QUARTERS)                                                                         |                      |                   |             |           | 80 5/              | 5. TERM (QUARTERS)                                                                         |                      |                   |             |           | 80 5/              |
| 6. PAYMENT                                                                                 |                      |                   |           |           | \$299,346 6/       | 6. PAYMENT                                                                                 |                      |                   |             |           | \$1,468,643 6/     | 6. PAYMENT                                                                                 |                      |                   |             |           | \$1,109,585 6/     |
| Quarter<br>(1)                                                                             | Beginning<br>Balance | Ending<br>Balance | Payment   | Principal | Interest 7/<br>(2) | Quarter<br>(3)                                                                             | Beginning<br>Balance | Ending<br>Balance | Payment     | Principal | Interest 7/<br>(4) | Quarter<br>(3)                                                                             | Beginning<br>Balance | Ending<br>Balance | Payment     | Principal | Interest 7/<br>(4) |
| 1                                                                                          | \$17,558,205         | \$17,401,527      | \$299,346 | \$156,678 | \$142,668          | 1                                                                                          | \$83,273,233         | \$82,560,353      | \$1,468,643 | \$712,880 | \$755,763          | 1                                                                                          | \$63,459,855         | \$62,910,766      | \$1,109,585 | \$549,088 | \$560,496          |
| 2                                                                                          | 17,401,527           | 17,243,576        | 299,346   | 157,951   | 141,395            | 2                                                                                          | 82,560,353           | 81,841,003        | 1,468,643   | 719,350   | 749,293            | 2                                                                                          | 62,910,766           | 62,356,828        | 1,109,585   | 553,938   | 555,646            |
| 3                                                                                          | 17,243,576           | 17,084,342        | 299,346   | 159,234   | 140,111            | 3                                                                                          | 81,841,003           | 81,115,125        | 1,468,643   | 725,878   | 742,764            | 3                                                                                          | 62,356,828           | 61,797,998        | 1,109,585   | 558,831   | 550,754            |
| 4                                                                                          | 17,084,342           | 16,923,814        | 299,346   | 160,528   | 138,818            | 4                                                                                          | 81,115,125           | 80,382,659        | 1,468,643   | 732,466   | 736,176            | 4                                                                                          | 61,797,998           | 61,234,231        | 1,109,585   | 563,766   | 545,818            |
| 5                                                                                          | 16,923,814           | 16,761,981        | 299,346   | 161,833   | 137,513            | 5                                                                                          | 80,382,659           | 79,643,545        | 1,468,643   | 739,114   | 729,529            | 5                                                                                          | 61,234,231           | 60,665,485        | 1,109,585   | 568,746   | 540,839            |
| 6                                                                                          | 16,761,981           | 16,598,834        | 299,346   | 163,148   | 136,198            | 6                                                                                          | 79,643,545           | 78,897,723        | 1,468,643   | 745,822   | 722,821            | 6                                                                                          | 60,665,485           | 60,091,716        | 1,109,585   | 573,769   | 535,815            |
| 7                                                                                          | 16,598,834           | 16,434,360        | 299,346   | 164,473   | 134,873            | 7                                                                                          | 78,897,723           | 78,145,132        | 1,468,643   | 752,591   | 716,052            | 7                                                                                          | 60,091,716           | 59,512,879        | 1,109,585   | 578,837   | 530,748            |
| 8                                                                                          | 16,434,360           | 16,268,551        | 299,346   | 165,810   | 133,536            | 8                                                                                          | 78,145,132           | 77,385,711        | 1,468,643   | 759,421   | 709,222            | 8                                                                                          | 59,512,879           | 58,928,930        | 1,109,585   | 583,949   | 525,635            |
| 9                                                                                          | 16,268,551           | 16,101,394        | 299,346   | 167,157   | 132,189            | 9                                                                                          | 77,385,711           | 76,619,398        | 1,468,643   | 766,313   | 702,329            | 9                                                                                          | 58,928,930           | 58,339,823        | 1,109,585   | 589,107   | 520,478            |
| 10                                                                                         | 16,101,394           | 15,932,879        | 299,346   | 168,515   | 130,831            | 10                                                                                         | 76,619,398           | 75,846,130        | 1,468,643   | 773,268   | 695,375            | 10                                                                                         | 58,339,823           | 57,745,513        | 1,109,585   | 594,310   | 515,275            |
| 11                                                                                         | 15,932,879           | 15,762,995        | 299,346   | 169,884   | 129,461            | 11                                                                                         | 75,846,130           | 75,065,844        | 1,468,643   | 780,286   | 688,357            | 11                                                                                         | 57,745,513           | 57,145,954        | 1,109,585   | 599,559   | 510,025            |
| 12                                                                                         | 15,762,995           | 15,591,730        | 299,346   | 171,265   | 128,081            | 12                                                                                         | 75,065,844           | 74,278,476        | 1,468,643   | 787,368   | 681,275            | 12                                                                                         | 57,145,954           | 56,541,099        | 1,109,585   | 604,855   | 504,730            |
| 13                                                                                         | 15,591,730           | 15,419,074        | 299,346   | 172,656   | 126,689            | 13                                                                                         | 74,278,476           | 73,483,963        | 1,468,643   | 794,514   | 674,129            | 13                                                                                         | 56,541,099           | 55,930,902        | 1,109,585   | 610,197   | 499,388            |
| 14                                                                                         | 15,419,074           | 15,245,014        | 299,346   | 174,059   | 125,287            | 14                                                                                         | 73,483,963           | 72,682,238        | 1,468,643   | 801,724   | 666,918            | 14                                                                                         | 55,930,902           | 55,315,316        | 1,109,585   | 615,586   | 493,998            |
| 15                                                                                         | 15,245,014           | 15,069,541        | 299,346   | 175,474   | 123,872            | 15                                                                                         | 72,682,238           | 71,873,238        | 1,468,643   | 809,001   | 659,642            | 15                                                                                         | 55,315,316           | 54,694,293        | 1,109,585   | 621,023   | 488,561            |
| 16                                                                                         | 15,069,541           | 14,892,642        | 299,346   | 176,899   | 122,446            | 16                                                                                         | 71,873,238           | 71,056,895        | 1,468,643   | 816,343   | 652,300            | 16                                                                                         | 54,694,293           | 54,067,784        | 1,109,585   | 626,508   | 483,076            |
| 17                                                                                         | 14,892,642           | 14,714,305        | 299,346   | 178,337   | 121,009            | 17                                                                                         | 71,056,895           | 70,233,143        | 1,468,643   | 823,752   | 644,891            | 17                                                                                         | 54,067,784           | 53,435,742        | 1,109,585   | 632,042   | 477,543            |
| 18                                                                                         | 14,714,305           | 14,534,519        | 299,346   | 179,786   | 119,560            | 18                                                                                         | 70,233,143           | 69,401,916        | 1,468,643   | 831,228   | 637,415            | 18                                                                                         | 53,435,742           | 52,798,118        | 1,109,585   | 637,624   | 471,960            |
| 19                                                                                         | 14,534,519           | 14,353,272        | 299,346   | 181,247   | 118,099            | 19                                                                                         | 69,401,916           | 68,563,144        | 1,468,643   | 838,772   | 629,871            | 19                                                                                         | 52,798,118           | 52,154,862        | 1,109,585   | 643,256   | 466,329            |
| 20                                                                                         | 14,353,272           | 14,170,553        | 299,346   | 182,719   | 116,626            | 20                                                                                         | 68,563,144           | 67,716,760        | 1,468,643   | 846,384   | 622,258            | 20                                                                                         | 52,154,862           | 51,505,924        | 1,109,585   | 648,937   | 460,647            |
| 21                                                                                         | 14,170,553           | 13,986,349        | 299,346   | 184,204   | 115,142            | 21                                                                                         | 67,716,760           | 66,862,694        | 1,468,643   | 854,066   | 614,577            | 21                                                                                         | 51,505,924           | 50,851,255        | 1,109,585   | 654,669   | 454,916            |
| 22                                                                                         | 13,986,349           | 13,800,648        | 299,346   | 185,701   | 113,645            | 22                                                                                         | 66,862,694           | 66,000,877        | 1,468,643   | 861,817   | 606,826            | 22                                                                                         | 50,851,255           | 50,190,804        | 1,109,585   | 660,451   | 449,133            |
| 23                                                                                         | 13,800,648           | 13,613,439        | 299,346   | 187,210   | 112,136            | 23                                                                                         | 66,000,877           | 65,131,238        | 1,468,643   | 869,639   | 599,004            | 23                                                                                         | 50,190,804           | 49,524,519        | 1,109,585   | 666,285   | 443,300            |
| 24                                                                                         | 13,613,439           | 13,424,708        | 299,346   | 188,731   | 110,615            | 24                                                                                         | 65,131,238           | 64,253,707        | 1,468,643   | 877,531   | 591,111            | 24                                                                                         | 49,524,519           | 48,852,350        | 1,109,585   | 672,169   | 437,415            |
| 25                                                                                         | 13,424,708           | 13,234,444        | 299,346   | 190,264   | 109,082            | 25                                                                                         | 64,253,707           | 63,368,212        | 1,468,643   | 885,495   | 583,147            | 25                                                                                         | 48,852,350           | 48,174,244        | 1,109,585   | 678,106   | 431,478            |
| 26                                                                                         | 13,234,444           | 13,042,634        | 299,346   | 191,810   | 107,536            | 26                                                                                         | 63,368,212           | 62,474,680        | 1,468,643   | 893,532   | 575,111            | 26                                                                                         | 48,174,244           | 47,490,148        | 1,109,585   | 684,095   | 425,489            |
| 27                                                                                         | 13,042,634           | 12,849,265        | 299,346   | 193,369   | 105,977            | 27                                                                                         | 62,474,680           | 61,573,039        | 1,468,643   | 901,641   | 567,001            | 27                                                                                         | 47,490,148           | 46,800,011        | 1,109,585   | 690,138   | 419,447            |
| 28                                                                                         | 12,849,265           | 12,654,325        | 299,346   | 194,940   | 104,406            | 28                                                                                         | 61,573,039           | 60,663,215        | 1,468,643   | 909,824   | 558,818            | 28                                                                                         | 46,800,011           | 46,103,778        | 1,109,585   | 696,233   | 413,352            |
| 29                                                                                         | 12,654,325           | 12,457,801        | 299,346   | 196,524   | 102,822            | 29                                                                                         | 60,663,215           | 59,745,133        | 1,468,643   | 918,082   | 550,561            | 29                                                                                         | 46,103,778           | 45,401,395        | 1,109,585   | 702,382   | 407,202            |
| 30                                                                                         | 12,457,801           | 12,259,680        | 299,346   | 198,121   | 101,225            | 30                                                                                         | 59,745,133           | 58,818,719        | 1,468,643   | 926,414   | 542,229            | 30                                                                                         | 45,401,395           | 44,692,809        | 1,109,585   | 708,586   | 400,999            |
| 31                                                                                         | 12,259,680           | 12,059,949        | 299,346   | 199,731   | 99,615             | 31                                                                                         | 58,818,719           | 57,883,897        | 1,468,643   | 934,822   | 533,821            | 31                                                                                         | 44,692,809           | 43,977,965        | 1,109,585   | 714,845   | 394,740            |
| 32                                                                                         | 12,059,949           | 11,858,596        | 299,346   | 201,354   | 97,992             | 32                                                                                         | 57,883,897           | 56,940,592        | 1,468,643   | 943,306   | 525,337            | 32                                                                                         | 43,977,965           | 43,256,806        | 1,109,585   | 721,158   | 388,426            |
| 33                                                                                         | 11,858,596           | 11,655,606        | 299,346   | 202,990   | 96,356             | 33                                                                                         | 56,940,592           | 55,988,725        | 1,468,643   | 951,867   | 516,776            | 33                                                                                         | 43,256,806           | 42,529,279        | 1,109,585   | 727,528   | 382,057            |
| 34                                                                                         | 11,655,606           | 11,450,967        | 299,346   | 204,639   | 94,707             | 34                                                                                         | 55,988,725           | 55,028,219        | 1,468,643   | 960,506   | 508,137            | 34                                                                                         | 42,529,279           | 41,795,325        | 1,109,585   | 733,953   | 375,631            |
| 35                                                                                         | 11,450,967           | 11,244,665        | 299,346   | 206,302   | 93,044             | 35                                                                                         | 55,028,219           | 54,058,996        | 1,468,643   | 969,223   | 499,420            | 35                                                                                         | 41,795,325           | 41,054,889        | 1,109,585   | 740,436   | 369,149            |
| 36                                                                                         | 11,244,665           | 11,036,687        | 299,346   | 207,978   | 91,368             | 36                                                                                         | 54,058,996           | 53,080,976        | 1,468,643   | 978,019   | 490,623            | 36                                                                                         | 41,054,889           | 40,307,914        | 1,109,585   | 746,976   | 362,609            |
| 37                                                                                         | 11,036,687           | 10,827,019        | 299,346   | 209,668   | 89,678             | 37                                                                                         | 53,080,976           | 52,094,081        | 1,468,643   | 986,896   | 481,747            | 37                                                                                         | 40,307,914           | 39,554,340        | 1,109,585   | 753,573   | 356,011            |
| 38                                                                                         | 10,827,019           | 10,615,648        | 299,346   | 211,372   | 87,974             | 38                                                                                         | 52,094,081           | 51,098,228        | 1,468,643   | 995,852   | 472,790            | 38                                                                                         | 39,554,340           | 38,794,111        | 1,109,585   | 760,229   | 349,356            |
| 39                                                                                         | 10,615,648           | 10,402,559        | 299,346   | 213,089   | 86,257             | 39                                                                                         | 51,098,228           | 50,093,338        | 1,468,643   | 1,004,891 | 463,752            | 39                                                                                         | 38,794,111           | 38,027,168        | 1,109,585   | 766,944   | 342,641            |
| 40                                                                                         | 10,402,559           | 10,187,738        | 299,346   | 214,821   | 84,525             | 40                                                                                         | 50,093,338           | 49,079,327        | 1,468,643   | 1,014,011 | 454,632            | 40                                                                                         | 38,027,168           | 37,253,450        | 1,109,585   | 773,717   | 335,867            |
| 41                                                                                         | 10,187,738           | 9,971,172         | 299,346   | 216,566   | 82,780             | 41                                                                                         | 49,079,327           | 48,056,113        | 1,468,643   | 1,023,213 | 445,429            | 41                                                                                         | 37,253,450           | 36,472,899        | 1,109,585   | 780,551   | 329,033            |
| 42                                                                                         | 9,971,172            | 9,752,846         | 299,346   | 218,326   | 81,020             | 42                                                                                         | 48,056,113           | 47,023,614        | 1,468,643   | 1,032,500 | 436,143            | 42                                                                                         | 36,472,899           | 35,685,454        | 1,109,585   | 787,445   | 322,139            |
| 43                                                                                         | 9,752,846            | 9,532,747         | 299,346   | 220,100   | 79,246             | 43                                                                                         | 47,023,614           | 45,981,743        | 1,468,643   | 1,041,780 | 426,772            | 43                                                                                         | 35,685,454           | 34,891,054        | 1,109,585   | 794,400   | 315,184            |
| 44                                                                                         | 9,532,747            | 9,310,858         | 299,346   | 221,888   | 77,458             | 44                                                                                         | 45,981,743           | 44,930,417        | 1,468,643   | 1,051,326 | 417,316            | 44                                                                                         | 34,891,054           | 34,089,638        | 1,109,585   | 801,417   | 308,168            |
| 45                                                                                         | 9,310,858            | 9,087,167         | 299,346   | 223,691   | 75,655             | 45                                                                                         | 44,930,417           | 43,869,549        | 1,468,643   | 1,060,868 | 407,775            | 45                                                                                         | 34,089,638           | 33,281,143        | 1,109,585   | 808,495   | 301,090            |
| 46                                                                                         | 9,087,167            | 8,861,659         | 299,346   | 225,509   | 73,837             | 46                                                                                         | 43,869,549           | 42,799,053        | 1,468,643   | 1,070,496 | 398,147            | 46                                                                                         | 33,281,143           | 32,465,507        | 1,109,585   | 815,636   | 293,949            |
| 47                                                                                         | 8,861,659            | 8,634,318         | 299,346   | 227,341   | 72,005             | 47                                                                                         | 42,799,053           | 41,718,842        | 1,468,643   | 1,080,211 | 388,431            | 47                                                                                         | 32,465,507           | 31,642,667        | 1,109,585   | 822,840   | 286,745            |
| 48                                                                                         | 8,634,318            | 8,405,129         | 299,346   | 229,188   | 70,158             | 48                                                                                         | 41,718,842           | 40,628,827        | 1,468,643   | 1,090,015 | 378,628            | 48                                                                                         | 31,642,667           | 30,812,560        | 1,109,585   | 830,107   | 279,477            |
| 49                                                                                         | 8,405,129            | 8,174,079         | 299,346   | 231,051   | 68,295             | 49                                                                                         | 40,628,827           | 39,528,920        | 1,468       |           |                    |                                                                                            |                      |                   |             |           |                    |



**TABLE E: CERR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPITAL**

| INTEREST SCHEDULE FOR<br>THE CERR 2012 ROAD PROPERTY<br>INVESTMENT SCHEDULE FOR THE 2Q2009 START-UP |                      |                   |         |           |              |
|-----------------------------------------------------------------------------------------------------|----------------------|-------------------|---------|-----------|--------------|
| 1. TOTAL INVESTMENT                                                                                 |                      |                   |         |           | \$76,672,323 |
| 2. IDC                                                                                              |                      |                   |         |           | \$1,156,599  |
| 3. PRINCIPAL                                                                                        |                      |                   |         |           | \$17,558,205 |
| 4. INTEREST                                                                                         |                      |                   |         |           | 3.29%        |
| 5. TERM (QUARTERS)                                                                                  |                      |                   |         |           | 80           |
| 6. PAYMENT                                                                                          |                      |                   |         |           | \$299,346    |
| Quarter                                                                                             | Beginning<br>Balance | Ending<br>Balance | Payment | Principal | Interest %   |
| (1)                                                                                                 |                      |                   |         |           | (2)          |
| 64                                                                                                  | 4,735,133            | 4,474,262         | 299,346 | 260,871   | 38,475       |
| 65                                                                                                  | 4,474,262            | 4,211,272         | 299,346 | 262,990   | 36,355       |
| 66                                                                                                  | 4,211,272            | 3,946,145         | 299,346 | 265,127   | 34,218       |
| 67                                                                                                  | 3,946,145            | 3,678,863         | 299,346 | 267,282   | 32,064       |
| 68                                                                                                  | 3,678,863            | 3,409,409         | 299,346 | 269,453   | 29,892       |
| 69                                                                                                  | 3,409,409            | 3,137,767         | 299,346 | 271,643   | 27,703       |
| 70                                                                                                  | 3,137,767            | 2,863,916         | 299,346 | 273,850   | 25,496       |
| 71                                                                                                  | 2,863,916            | 2,587,841         | 299,346 | 276,075   | 23,271       |
| 72                                                                                                  | 2,587,841            | 2,309,523         | 299,346 | 278,318   | 21,027       |
| 73                                                                                                  | 2,309,523            | 2,028,943         | 299,346 | 280,580   | 18,766       |
| 74                                                                                                  | 2,028,943            | 1,746,083         | 299,346 | 282,860   | 16,486       |
| 75                                                                                                  | 1,746,083            | 1,460,925         | 299,346 | 285,158   | 14,188       |
| 76                                                                                                  | 1,460,925            | 1,173,450         | 299,346 | 287,475   | 11,871       |
| 77                                                                                                  | 1,173,450            | 883,639           | 299,346 | 289,811   | 9,535        |
| 78                                                                                                  | 883,639              | 591,473           | 299,346 | 292,166   | 7,180        |
| 79                                                                                                  | 591,473              | 296,933           | 299,346 | 294,540   | 4,806        |
| 80                                                                                                  | 296,933              | 0                 | 299,346 | 296,933   | 2,413        |

| INTEREST SCHEDULE FOR<br>THE CERR 2013 ROAD PROPERTY<br>INVESTMENT FOR THE 2Q2009 START-UP |                      |                   |           |           |                  |
|--------------------------------------------------------------------------------------------|----------------------|-------------------|-----------|-----------|------------------|
| 1. TOTAL INVESTMENT                                                                        |                      |                   |           |           | \$443,505,029 1/ |
| 2. IDC                                                                                     |                      |                   |           |           | \$27,231,166 2/  |
| 3. PRINCIPAL                                                                               |                      |                   |           |           | \$83,273,233 3/  |
| 4. INTEREST                                                                                |                      |                   |           |           | 3.68% 4/         |
| 5. TERM (QUARTERS)                                                                         |                      |                   |           |           | 80 5/            |
| 6. PAYMENT                                                                                 |                      |                   |           |           | \$1,468,643 6/   |
| Quarter                                                                                    | Beginning<br>Balance | Ending<br>Balance | Payment   | Principal | Interest 7/      |
| (3)                                                                                        |                      |                   |           |           | (4)              |
| 64                                                                                         | 23,039,690           | 21,780,149        | 1,468,643 | 1,259,541 | 209,101          |
| 65                                                                                         | 21,780,149           | 20,509,177        | 1,468,643 | 1,270,973 | 197,670          |
| 66                                                                                         | 20,509,177           | 19,226,669        | 1,468,643 | 1,282,508 | 186,135          |
| 67                                                                                         | 19,226,669           | 17,932,522        | 1,468,643 | 1,294,147 | 174,495          |
| 68                                                                                         | 17,932,522           | 16,626,629        | 1,468,643 | 1,305,892 | 162,750          |
| 69                                                                                         | 16,626,629           | 15,308,885        | 1,468,643 | 1,317,744 | 150,898          |
| 70                                                                                         | 15,308,885           | 13,979,181        | 1,468,643 | 1,329,704 | 138,939          |
| 71                                                                                         | 13,979,181           | 12,637,410        | 1,468,643 | 1,341,772 | 126,871          |
| 72                                                                                         | 12,637,410           | 11,283,460        | 1,468,643 | 1,353,949 | 114,693          |
| 73                                                                                         | 11,283,460           | 9,917,223         | 1,468,643 | 1,366,237 | 102,405          |
| 74                                                                                         | 9,917,223            | 8,538,586         | 1,468,643 | 1,378,637 | 90,006           |
| 75                                                                                         | 8,538,586            | 7,147,437         | 1,468,643 | 1,391,149 | 77,944           |
| 76                                                                                         | 7,147,437            | 5,743,662         | 1,468,643 | 1,403,775 | 64,868           |
| 77                                                                                         | 5,743,662            | 4,327,148         | 1,468,643 | 1,416,515 | 52,128           |
| 78                                                                                         | 4,327,148            | 2,897,777         | 1,468,643 | 1,429,371 | 39,272           |
| 79                                                                                         | 2,897,777            | 1,455,434         | 1,468,643 | 1,442,343 | 26,299           |
| 80                                                                                         | 1,455,434            | 0                 | 1,468,643 | 1,455,434 | 13,209           |

| INTEREST SCHEDULE FOR<br>THE CERR 2014 ROAD PROJECT<br>INVESTMENT FOR THE 2Q2009 START-UP |                      |                   |           |           |               |         |
|-------------------------------------------------------------------------------------------|----------------------|-------------------|-----------|-----------|---------------|---------|
| 1. TOTAL INVESTMENT                                                                       |                      |                   |           |           | \$302,573,416 | 1/      |
| 2. IDC                                                                                    |                      |                   |           |           | \$78,338,077  | 2/      |
| 3. PRINCIPAL                                                                              |                      |                   |           |           | \$63,459,855  | 3/      |
| 4. INTEREST                                                                               |                      |                   |           |           | 3.58%         | 4/      |
| 5. TERM (QUARTERS)                                                                        |                      |                   |           |           | 80            | 5/      |
| 6. PAYMENT                                                                                |                      |                   |           |           | \$1,09,585    | 6/      |
|                                                                                           | Beginning<br>Balance | Ending<br>Balance | Payment   | Principal | Interest 7/   |         |
| (3)                                                                                       |                      |                   |           |           |               | (4)     |
| 64                                                                                        | 17,443,815           | 16,488,299        | 1,109,585 | 955,516   |               | 154,069 |
| 65                                                                                        | 16,488,299           | 15,524,344        | 1,109,585 | 962,955   |               | 145,630 |
| 66                                                                                        | 15,524,344           | 14,551,875        | 1,109,585 | 972,469   |               | 137,116 |
| 67                                                                                        | 14,551,875           | 13,570,817        | 1,109,585 | 981,058   |               | 128,526 |
| 68                                                                                        | 13,570,817           | 12,581,094        | 1,109,585 | 989,723   |               | 119,861 |
| 69                                                                                        | 12,581,094           | 11,582,629        | 1,109,585 | 998,465   |               | 111,120 |
| 70                                                                                        | 11,582,629           | 10,575,346        | 1,109,585 | 1,007,283 |               | 102,301 |
| 71                                                                                        | 10,575,346           | 9,559,166         | 1,109,585 | 1,016,180 |               | 93,405  |
| 72                                                                                        | 9,559,166            | 8,534,010         | 1,109,585 | 1,025,155 |               | 84,429  |
| 73                                                                                        | 8,534,010            | 7,499,801         | 1,109,585 | 1,034,210 |               | 75,735  |
| 74                                                                                        | 7,499,801            | 6,456,456         | 1,109,585 | 1,043,344 |               | 66,240  |
| 75                                                                                        | 6,456,456            | 5,403,897         | 1,109,585 | 1,052,559 |               | 57,025  |
| 76                                                                                        | 5,403,897            | 4,342,041         | 1,109,585 | 1,061,856 |               | 47,729  |
| 77                                                                                        | 4,342,041            | 3,270,807         | 1,109,585 | 1,071,234 |               | 38,350  |
| 78                                                                                        | 3,270,807            | 2,190,111         | 1,109,585 | 1,080,696 |               | 28,889  |
| 79                                                                                        | 2,190,111            | 1,099,870         | 1,109,585 | 1,090,241 |               | 19,344  |
| 80                                                                                        | 1,099,870            | 0                 | 1,109,585 | 1,099,870 |               | 9,714   |

n Table D, Column BZ for the applicable year investment.

**TABLE F: CERR PRESENT VALUE OF REPLACEMENT COST**

| <u>Property Account</u> | <u>Property Component</u>     | <u>Service Life In Years 1/</u> | <u>Investment 2/</u> | <u>Salvage 3/</u> | <u>Replacement Year Asset Net Cost 4/</u> | <u>Replacement Cost Adjusted To Reflect An Infinite Life 5/</u> | <u>Present Value Of Replacement Cost Adjusted To Reflect An Infinite Life (2015 Dollars) 6/</u> |
|-------------------------|-------------------------------|---------------------------------|----------------------|-------------------|-------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| (1)                     | (2)                           | (3)                             | (4)                  | (5)               | (6)                                       | (7)                                                             | (8)                                                                                             |
| 3                       | Grading                       | 69                              | \$949,540,243        | \$0               | \$797,180,320                             | \$804,863,874                                                   | \$737,785                                                                                       |
| 5                       | Tunnels                       | 76                              | 0                    | 0                 | 0                                         | 0                                                               | 0                                                                                               |
| 6                       | Bridges & Culverts            | 61                              | 1,358,702,414        | 0                 | 1,124,887,108                             | 0                                                               | 2,357,335                                                                                       |
| 8                       | Ties                          | 20                              | 109,450,767          | 0                 | 85,066,646                                | 113,580,089                                                     | 14,212,794                                                                                      |
| 9                       | Rails and OTM                 | 34                              | 233,011,061          | 16,531,766        | 167,765,955                               | 186,094,334                                                     | 5,702,385                                                                                       |
| 11                      | Ballast                       | 36                              | 190,843,956          | 0                 | 148,326,555                               | 162,430,887                                                     | 4,118,385                                                                                       |
| 12                      | Labor                         | 31                              | 165,356,180          | 0                 | 128,517,104                               | 146,032,195                                                     | 6,017,986                                                                                       |
| 13                      | Fences and Roadway Signs      | 47                              | 523,618              | 0                 | 433,510                                   | 452,586                                                         | 3,870                                                                                           |
| 16                      | Stations and Office Buildings | 40                              | 12,347,496           | 0                 | 10,222,650                                | 10,986,598                                                      | 199,451                                                                                         |
| 17                      | Roadway Buildings             | 37                              | 36,147,260           | 0                 | 29,926,779                                | 32,690,141                                                      | 796,044                                                                                         |
| 19                      | Fuel Stations                 | 29                              | 0                    | 0                 | 0                                         | 0                                                               | 0                                                                                               |
| 20                      | Shops and Enginehouses        | 34                              | 24,371,598           | 0                 | 20,177,558                                | 22,381,950                                                      | 685,838                                                                                         |
| 26                      | Communications Systems        | 13                              | 22,633,773           | 0                 | 17,679,090                                | 30,272,026                                                      | 8,095,539                                                                                       |
| 27                      | Signals and Interlockers      | 29                              | 117,758,671          | 3,964,763         | 88,363,818                                | 102,743,555                                                     | 5,340,189                                                                                       |
| 39                      | Public Improvements           | 44                              | <u>112,815,480</u>   | <u>0</u>          | <u>93,401,379</u>                         | <u>98,445,495</u>                                               | <u>1,129,161</u>                                                                                |
| Total                   |                               |                                 | \$3,333,502,517      | \$20,496,528      | \$2,711,948,471                           | \$1,710,973,731                                                 | \$49,396,762                                                                                    |

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<br/>Property<br/>Account</u><br>(1) | <u>Road<br/>Property<br/>Component</u><br>(2) | <u>Asset<br/>Lives<br/>Per MACRS 2/<br/>(3)</u> | <u>Total<br/>1Q 2015<br/>Investment<br/>(4)</u> | <u>Depreciable<br/>Base<br/>(5)</u> |
|---------------------------------------------|-----------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------|
| 1                                           | Engineering                                   | 5                                               | \$59,220,623                                    | \$59,220,623                        |
| 2                                           | Land                                          | N/A                                             | \$124,400,000                                   | \$0                                 |
| 3                                           | Grading                                       | 50                                              | \$94,814,439                                    | \$94,814,439                        |
| 5                                           | Tunnels                                       | 50                                              | \$0                                             | \$0                                 |
| 6                                           | Bridges & Culverts                            | 20                                              | \$173,686,857                                   | \$173,686,857                       |
| 8                                           | Ties                                          | 7                                               | \$62,296,727                                    | \$62,296,727                        |
| 9                                           | Rails and OTM                                 | 7                                               | \$101,731,039                                   | \$101,731,039                       |
| 11                                          | Ballast                                       | 7                                               | \$80,398,936                                    | \$80,398,936                        |
| 12                                          | Labor                                         | 7                                               | \$49,712,983                                    | \$49,712,983                        |
| 13                                          | Fences and Roadway Signs                      | 20                                              | \$103,277                                       | \$103,277                           |
| 16                                          | Stations and Office Buildings                 | 20                                              | \$3,063,602                                     | \$3,063,602                         |
| 17                                          | Roadway Buildings                             | 20                                              | \$9,808,647                                     | \$9,808,647                         |
| 19                                          | Fuel Stations                                 | 20                                              | \$0                                             | \$0                                 |
| 20                                          | Shops and Enginehouses                        | 20                                              | \$7,093,173                                     | \$7,093,173                         |
| 26                                          | Communications Systems                        | 7                                               | \$12,750,341                                    | \$12,750,341                        |
| 27                                          | Signals and Interlockers                      | 7                                               | \$40,262,555                                    | \$40,262,555                        |
| 39                                          | Public Improvements                           | 20                                              | \$24,335,214                                    | \$24,335,214                        |
| <b>Total</b>                                |                                               |                                                 | <b>\$843,678,412</b>                            | <b>\$719,278,412</b>                |

1/ Applicable Depreciation Method: 200 or 150 percent  
Declining Balance Switching to Straight Line  
Applicable Recovery Periods: 7, 20 and 50 a/ years  
Applicable Convention: Mid-quarter(property placed in service in first 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>20-Year</u> | <u>50-Year a/</u> |
|-------------|---------------|---------------|----------------|-------------------|
| 1           | 20.00%        | 25.00%        | 6.56%          | 2.00%             |
| 2           | 20.00%        | 21.43%        | 7.00%          | 2.00%             |
| 3           | 20.00%        | 15.31%        | 6.48%          | 2.00%             |
| 4           | 20.00%        | 10.93%        | 6.00%          | 2.00%             |
| 5           | 20.00%        | 8.75%         | 5.55%          | 2.00%             |
| 6           |               | 8.74%         | 5.13%          | 2.00%             |
| 7           |               | 8.75%         | 4.75%          | 2.00%             |
| 8           |               | 1.09%         | 4.46%          | 2.00%             |
| 9           |               |               | 4.46%          | 2.00%             |
| 10          |               |               | 4.46%          | 2.00%             |
| 11          |               |               | 4.46%          | 2.00%             |
| 12          |               |               | 4.46%          | 2.00%             |
| 13          |               |               | 4.46%          | 2.00%             |
| 14          |               |               | 4.46%          | 2.00%             |
| 15          |               |               | 4.46%          | 2.00%             |
| 16          |               |               | 4.46%          | 2.00%             |
| 17          |               |               | 4.46%          | 2.00%             |
| 18          |               |               | 4.46%          | 2.00%             |
| 19          |               |               | 4.46%          | 2.00%             |
| 20          |               |               | 4.46%          | 19-50             |
| 21          |               |               | 0.57%          |                   |

a/ 50 year property uses the Straight Line Method for all time periods

2/ Bonus Depreciation Per the Tax Relief, Unemployment Compensation Reauthorization, and Job Creation Act of 2010, the American Taxpayer Relief Act of 2012 and the Tax Increase Prevention Act of 2014.

| <u>MARCS<br/>Lives</u> | <u>Bonus<br/>Depreciation - 50%</u> |
|------------------------|-------------------------------------|
| 7                      | \$34,120,126                        |
| 20                     | \$21,435,199                        |



**TABLE G PART 2: TAX DEPRECIATION SCHEDULES**

| Year | Amortization - 5 Years |         |                  | Road Property<br>Depreciation - MACRS 7 Years |         |                  | Depreciation - MACRS 20 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/<br>(2)   |         | Amort. 3/<br>(4) | Investment 4/<br>(5)                          |         | Amount 5/<br>(7) | Investment 6/<br>(8)          |         | Amount 7/<br>(10) | Investment 8/<br>(11)         |         | Amount 9/<br>(13) | Depreciation 10/<br>(14) |
| 1    | \$59,220,623           | 20.00%  | \$11,844,125     | \$313,032,455                                 | 25.00%  | \$78,258,114     | \$196,655,571                 | 6.56%   | \$12,906,505      | \$94,814,439                  | 2%      | \$1,896,289       | \$160,460,357            |
| 2    | \$47,376,498           | 20.00%  | \$11,844,125     | \$234,774,341                                 | 21.43%  | \$67,082,855     | \$183,749,066                 | 7.00%   | \$13,765,890      | \$92,918,151                  | 2%      | \$1,896,289       | \$94,589,158             |
| 3    | \$35,532,374           | 20.00%  | \$11,844,125     | \$167,691,486                                 | 15.31%  | \$47,925,269     | \$169,983,176                 | 6.48%   | \$12,747,214      | \$91,021,862                  | 2%      | \$1,896,289       | \$74,412,896             |
| 4    | \$23,688,249           | 20.00%  | \$11,844,125     | \$119,766,217                                 | 10.93%  | \$34,214,447     | \$157,235,962                 | 6.00%   | \$11,791,468      | \$89,125,573                  | 2%      | \$1,896,289       | \$59,746,329             |
| 5    | \$11,844,125           | 20.00%  | \$11,844,125     | \$85,551,770                                  | 8.75%   | \$27,390,340     | \$145,444,494                 | 5.55%   | \$10,906,518      | \$87,229,284                  | 2%      | \$1,896,289       | \$52,037,271             |
| 6    |                        |         |                  | \$58,161,430                                  | 8.74%   | \$27,359,037     | \$134,537,976                 | 5.13%   | \$10,088,431      | \$85,332,995                  | 2%      | \$1,896,289       | \$39,343,756             |
| 7    |                        |         |                  | \$30,802,394                                  | 8.75%   | \$27,390,340     | \$124,449,545                 | 4.75%   | \$9,333,273       | \$83,436,707                  | 2%      | \$1,896,289       | \$38,619,902             |
| 8    |                        |         |                  | \$3,412,054                                   | 1.09%   | \$3,412,054      | \$115,116,272                 | 4.46%   | \$8,768,872       | \$81,540,418                  | 2%      | \$1,896,289       | \$14,077,214             |
| 9    |                        |         |                  |                                               |         |                  | \$106,347,400                 | 4.46%   | \$8,768,872       | \$79,644,129                  | 2%      | \$1,896,289       | \$10,665,161             |
| 10   |                        |         |                  |                                               | 100%    |                  | \$97,578,528                  | 4.46%   | \$8,768,872       | \$77,747,840                  | 2%      | \$1,896,289       | \$10,665,161             |
| 11   |                        |         |                  |                                               |         |                  | \$88,809,656                  | 4.46%   | \$8,768,872       | \$75,851,551                  | 2%      | \$1,896,289       | \$10,665,161             |
| 12   |                        |         |                  |                                               |         |                  | \$80,040,784                  | 4.46%   | \$8,770,838       | \$73,955,263                  | 2%      | \$1,896,289       | \$10,667,127             |
| 13   |                        |         |                  |                                               |         |                  | \$71,269,945                  | 4.46%   | \$8,768,872       | \$72,058,974                  | 2%      | \$1,896,289       | \$10,665,161             |
| 14   |                        |         |                  |                                               |         |                  | \$62,501,074                  | 4.46%   | \$8,770,838       | \$70,162,685                  | 2%      | \$1,896,289       | \$10,667,127             |
| 15   |                        |         |                  |                                               |         |                  | \$53,730,235                  | 4.46%   | \$8,768,872       | \$68,266,396                  | 2%      | \$1,896,289       | \$10,665,161             |
| 16   |                        |         |                  |                                               |         |                  | \$44,961,363                  | 4.46%   | \$8,770,838       | \$66,370,108                  | 2%      | \$1,896,289       | \$10,667,127             |
| 17   |                        |         |                  |                                               |         |                  | \$36,190,525                  | 4.46%   | \$8,768,872       | \$64,473,819                  | 2%      | \$1,896,289       | \$10,665,161             |
| 18   |                        |         |                  |                                               |         |                  | \$27,421,653                  | 4.46%   | \$8,770,838       | \$62,577,530                  | 2%      | \$1,896,289       | \$10,667,127             |
| 19   |                        |         |                  |                                               |         |                  | \$18,650,814                  | 4.46%   | \$8,768,872       | \$60,681,241                  | 2%      | \$1,896,289       | \$10,665,161             |
| 20   |                        |         |                  |                                               |         |                  | \$9,881,942                   | 4.46%   | \$8,770,838       | \$58,784,952                  | 2%      | \$1,896,289       | \$10,667,127             |
| 21   |                        |         |                  |                                               |         |                  | \$1,111,104                   | 0.57%   | \$1,111,104       | \$56,888,664                  | 2%      | \$1,896,289       | \$3,007,393              |
| 22   |                        |         |                  |                                               |         |                  |                               |         |                   | \$54,992,375                  | 2%      | \$1,896,289       | \$1,896,289              |
| 23   |                        |         |                  |                                               |         |                  |                               | 100%    |                   | \$53,096,086                  | 2%      | \$1,896,289       | \$1,896,289              |
| 24   |                        |         |                  |                                               |         |                  |                               |         |                   | \$51,199,797                  | 2%      | \$1,896,289       | \$1,896,289              |
| 25   |                        |         |                  |                                               |         |                  |                               |         |                   | \$49,303,508                  | 2%      | \$1,896,289       | \$1,896,289              |
| 26   |                        |         |                  |                                               |         |                  |                               |         |                   | \$47,407,220                  | 2%      | \$1,896,289       | \$1,896,289              |
| 27   |                        |         |                  |                                               |         |                  |                               |         |                   | \$45,510,931                  | 2%      | \$1,896,289       | \$1,896,289              |
| 28   |                        |         |                  |                                               |         |                  |                               |         |                   | \$43,614,642                  | 2%      | \$1,896,289       | \$1,896,289              |
| 29   |                        |         |                  |                                               |         |                  |                               |         |                   | \$41,718,353                  | 2%      | \$1,896,289       | \$1,896,289              |
| 30   |                        |         |                  |                                               |         |                  |                               |         |                   | \$39,822,065                  | 2%      | \$1,896,289       | \$1,896,289              |
| 31   |                        |         |                  |                                               |         |                  |                               |         |                   | \$37,925,776                  | 2%      | \$1,896,289       | \$1,896,289              |
| 32   |                        |         |                  |                                               |         |                  |                               |         |                   | \$36,029,487                  | 2%      | \$1,896,289       | \$1,896,289              |
| 33   |                        |         |                  |                                               |         |                  |                               |         |                   | \$34,133,198                  | 2%      | \$1,896,289       | \$1,896,289              |
| 34   |                        |         |                  |                                               |         |                  |                               |         |                   | \$32,236,909                  | 2%      | \$1,896,289       | \$1,896,289              |
| 35   |                        |         |                  |                                               |         |                  |                               |         |                   | \$30,340,621                  | 2%      | \$1,896,289       | \$1,896,289              |
| 36   |                        |         |                  |                                               |         |                  |                               |         |                   | \$28,444,332                  | 2%      | \$1,896,289       | \$1,896,289              |
| 37   |                        |         |                  |                                               |         |                  |                               |         |                   | \$26,548,043                  | 2%      | \$1,896,289       | \$1,896,289              |
| 38   |                        |         |                  |                                               |         |                  |                               |         |                   | \$24,651,754                  | 2%      | \$1,896,289       | \$1,896,289              |
| 39   |                        |         |                  |                                               |         |                  |                               |         |                   | \$22,755,465                  | 2%      | \$1,896,289       | \$1,896,289              |
| 40   |                        |         |                  |                                               |         |                  |                               |         |                   | \$20,859,177                  | 2%      | \$1,896,289       | \$1,896,289              |
| 41   |                        |         |                  |                                               |         |                  |                               |         |                   | \$18,962,888                  | 2%      | \$1,896,289       | \$1,896,289              |
| 42   |                        |         |                  |                                               |         |                  |                               |         |                   | \$17,066,599                  | 2%      | \$1,896,289       | \$1,896,289              |
| 43   |                        |         |                  |                                               |         |                  |                               |         |                   | \$15,170,310                  | 2%      | \$1,896,289       | \$1,896,289              |

**TABLE G PART 2: TAX DEPRECIATION SCHEDULES**

| Year | Amortization - 5 Years              |                |                            | Road Property<br>Depreciation - MACRS 7 Years |                |                            | Depreciation - MACRS 20 Years         |                |                             | Depreciation - MACRS 50 Years        |                 |                             | Total<br>Annual<br>Depreciation 10/ |
|------|-------------------------------------|----------------|----------------------------|-----------------------------------------------|----------------|----------------------------|---------------------------------------|----------------|-----------------------------|--------------------------------------|-----------------|-----------------------------|-------------------------------------|
|      | Unamortized<br>Investment 1/<br>(1) | Rate 2/<br>(2) | Annual<br>Amort. 3/<br>(4) | Undepreciated<br>Investment 4/<br>(5)         | Rate 2/<br>(6) | Annual<br>Amount 5/<br>(7) | Undepreciated<br>Investment 6/<br>(8) | Rate 2/<br>(9) | Annual<br>Amount 7/<br>(10) | Unamortized<br>Investment 8/<br>(11) | Rate 2/<br>(12) | Annual<br>Amount 9/<br>(13) |                                     |
| 44   |                                     |                |                            |                                               |                |                            |                                       |                |                             | \$13,274,022                         | 2%              | \$1,896,289                 | \$1,896,289                         |
| 45   |                                     |                |                            |                                               |                |                            |                                       |                |                             | \$11,377,733                         | 2%              | \$1,896,289                 | \$1,896,289                         |
| 46   |                                     |                |                            |                                               |                |                            |                                       |                |                             | \$9,481,444                          | 2%              | \$1,896,289                 | \$1,896,289                         |
| 47   |                                     |                |                            |                                               |                |                            |                                       |                |                             | \$7,585,155                          | 2%              | \$1,896,289                 | \$1,896,289                         |
| 48   |                                     |                |                            |                                               |                |                            |                                       |                |                             | \$5,688,866                          | 2%              | \$1,896,289                 | \$1,896,289                         |
| 49   |                                     |                |                            |                                               |                |                            |                                       |                |                             | \$3,792,578                          | 2%              | \$1,896,289                 | \$1,896,289                         |
| 50   |                                     |                |                            |                                               |                |                            |                                       |                |                             | \$1,896,289                          | 2%              | \$1,896,289                 | \$1,896,289                         |

100%

1/ From Table G Part 1, Column (5), Road Property Accounts 1 minus Table G Part 1

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, 20-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, 7 & 20 Year Bonus Depreciation.

**TABLE H: CERR AVERAGE ANNUAL INFLATION IN ASSET PRICES**

Development of average annual inflation factors for all capital assets

|                                                                                 |                  |
|---------------------------------------------------------------------------------|------------------|
| 1. 1Q 2015 Land value                                                           | \$124,400,000 1/ |
| 2. 1Q 2015 Property asset value accounts 3, 5, 6, 13, 16, 17, 26, 27, 39 and 52 | \$365,918,105 1/ |
| 3. 1Q 2015 Road Property asset value accounts 8, 9, and 11                      | \$244,426,702 1/ |
| 4. 1Q 2015 Road Property asset value accounts 1 and 12                          | \$108,933,605 1/ |

| Period | Quarter | Inflation Index For Land 2/ | Inflation Index For Line 2 Property Assets 3/ | Inflation Index For Line 3 Road Property Assets 4/ | Inflation Index For Line 4 Road Property Assets 5/ | Land Value 6/ | Road Property Value 7/ | 1Q 2015 Inflation Index 8/ |
|--------|---------|-----------------------------|-----------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------|------------------------|----------------------------|
| (1)    | (2)     | (3)                         | (4)                                           | (5)                                                | (6)                                                | (7)           | (8)                    | (9)                        |
| 0      |         | 1.000                       | 1.000                                         | 1.000                                              | 1.000                                              | \$124,400,000 | \$719,278,412          | 1.000                      |
| 1      | 1Q 2015 | 1.032                       | 1.020                                         | 0.944                                              | 1.032                                              | \$128,370,634 | \$716,318,142          | 1.001                      |
| 2      | 2Q 2015 | 1.065                       | 1.025                                         | 0.938                                              | 1.039                                              | \$132,520,192 | \$717,597,805          | 1.008                      |
| 3      | 3Q 2015 | 1.076                       | 1.022                                         | 0.927                                              | 1.037                                              | \$133,878,182 | \$713,325,277          | 1.004                      |
| 4      | 4Q 2015 | 1.087                       | 1.026                                         | 0.944                                              | 1.039                                              | \$135,250,229 | \$719,249,144          | 1.013                      |
| 5      | 1Q 2016 | 1.099                       | 1.021                                         | 0.908                                              | 1.040                                              | \$136,757,830 | \$708,884,928          | 1.002                      |
| 6      | 2Q 2016 | 1.112                       | 1.019                                         | 0.908                                              | 1.037                                              | \$138,282,694 | \$707,616,156          | 1.003                      |
| 7      | 3Q 2016 | 1.124                       | 1.025                                         | 0.913                                              | 1.043                                              | \$139,825,024 | \$711,861,853          | 1.009                      |
| 8      | 4Q 2016 | 1.137                       | 1.033                                         | 0.928                                              | 1.049                                              | \$141,385,027 | \$719,008,188          | 1.020                      |
| 9      | 1Q 2017 | 1.149                       | 1.043                                         | 0.929                                              | 1.062                                              | \$142,962,911 | \$724,428,863          | 1.028                      |
| 10     | 2Q 2017 | 1.162                       | 1.051                                         | 0.939                                              | 1.069                                              | \$144,558,887 | \$730,669,729          | 1.037                      |
| 11     | 3Q 2017 | 1.175                       | 1.061                                         | 0.956                                              | 1.078                                              | \$146,173,169 | \$739,469,750          | 1.050                      |
| 12     | 4Q 2017 | 1.188                       | 1.069                                         | 0.960                                              | 1.086                                              | \$147,805,973 | \$744,184,555          | 1.057                      |
| 13     | 1Q 2018 | 1.201                       | 1.079                                         | 0.970                                              | 1.096                                              | \$149,457,518 | \$751,485,536          | 1.068                      |
| 14     | 2Q 2018 | 1.215                       | 1.089                                         | 0.981                                              | 1.106                                              | \$151,128,026 | \$758,677,711          | 1.078                      |
| 15     | 3Q 2018 | 1.228                       | 1.099                                         | 0.991                                              | 1.116                                              | \$152,817,722 | \$765,939,082          | 1.089                      |
| 16     | 4Q 2018 | 1.242                       | 1.109                                         | 1.001                                              | 1.126                                              | \$154,526,831 | \$773,270,317          | 1.100                      |
| 17     | 1Q 2019 | 1.256                       | 1.119                                         | 1.011                                              | 1.135                                              | \$156,255,584 | \$779,990,614          | 1.110                      |
| 18     | 2Q 2019 | 1.270                       | 1.128                                         | 1.020                                              | 1.145                                              | \$158,004,213 | \$786,769,384          | 1.120                      |
| 19     | 3Q 2019 | 1.284                       | 1.138                                         | 1.029                                              | 1.154                                              | \$159,772,955 | \$793,607,136          | 1.130                      |
| 20     | 4Q 2019 | 1.299                       | 1.147                                         | 1.038                                              | 1.164                                              | \$161,562,047 | \$800,504,385          | 1.140                      |
| 21     | 1Q 2020 | 1.313                       | 1.157                                         | 1.046                                              | 1.174                                              | \$163,371,730 | \$807,100,723          | 1.150                      |
| 22     | 2Q 2020 | 1.328                       | 1.167                                         | 1.054                                              | 1.184                                              | \$165,202,249 | \$813,751,543          | 1.160                      |
| 23     | 3Q 2020 | 1.343                       | 1.177                                         | 1.062                                              | 1.194                                              | \$167,053,851 | \$820,457,297          | 1.170                      |
| 24     | 4Q 2020 | 1.358                       | 1.187                                         | 1.071                                              | 1.205                                              | \$168,926,786 | \$827,218,439          | 1.181                      |
| 25     | 1Q 2021 | 1.373                       | 1.198                                         | 1.080                                              | 1.216                                              | \$170,821,308 | \$834,722,023          | 1.192                      |
| 26     | 2Q 2021 | 1.389                       | 1.209                                         | 1.089                                              | 1.227                                              | \$172,737,672 | \$842,293,744          | 1.203                      |
| 27     | 3Q 2021 | 1.404                       | 1.220                                         | 1.099                                              | 1.239                                              | \$174,676,138 | \$849,934,223          | 1.214                      |
| 28     | 4Q 2021 | 1.420                       | 1.231                                         | 1.108                                              | 1.250                                              | \$176,636,970 | \$857,644,083          | 1.226                      |
| 29     | 1Q 2022 | 1.436                       | 1.242                                         | 1.117                                              | 1.262                                              | \$178,620,432 | \$864,921,329          | 1.237                      |
| 30     | 2Q 2022 | 1.452                       | 1.253                                         | 1.126                                              | 1.273                                              | \$180,626,795 | \$872,260,460          | 1.248                      |
| 31     | 3Q 2022 | 1.468                       | 1.264                                         | 1.135                                              | 1.284                                              | \$182,656,330 | \$879,662,002          | 1.259                      |
| 32     | 4Q 2022 | 1.485                       | 1.275                                         | 1.144                                              | 1.295                                              | \$184,709,314 | \$887,126,488          | 1.270                      |
| 33     | 1Q 2023 | 1.501                       | 1.286                                         | 1.152                                              | 1.307                                              | \$186,786,025 | \$894,350,274          | 1.281                      |
| 34     | 2Q 2023 | 1.518                       | 1.296                                         | 1.161                                              | 1.318                                              | \$188,886,747 | \$901,633,102          | 1.293                      |
| 35     | 3Q 2023 | 1.535                       | 1.307                                         | 1.169                                              | 1.329                                              | \$191,011,765 | \$908,975,456          | 1.304                      |
| 36     | 4Q 2023 | 1.553                       | 1.318                                         | 1.178                                              | 1.341                                              | \$193,161,369 | \$916,377,825          | 1.315                      |
| 37     | 1Q 2024 | 1.570                       | 1.329                                         | 1.186                                              | 1.352                                              | \$195,335,853 | \$923,659,325          | 1.326                      |
| 38     | 2Q 2024 | 1.588                       | 1.340                                         | 1.194                                              | 1.364                                              | \$197,535,512 | \$930,999,129          | 1.338                      |
| 39     | 3Q 2024 | 1.606                       | 1.352                                         | 1.203                                              | 1.376                                              | \$199,760,649 | \$938,397,706          | 1.349                      |
| 40     | 4Q 2024 | 1.624                       | 1.363                                         | 1.211                                              | 1.388                                              | \$202,011,566 | \$945,855,531          | 1.361                      |

Annual Average 9/

3.46%

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: CERR 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. 1Q 2015 Road Property Investment                 | \$843,678,412 1/   |                        |          |
| 2. Interest During Construction (1Q 2015 Invest.)   | \$106,725,843 2/   | Federal Tax Rate       | 35.0%    |
| 3. Total 1Q 2015 Investment                         | \$950,404,255 3/   |                        |          |
| 4. Present Value Of Replacement Cost for the CERR   | \$49,396,762 4/    | Route Mile Weighted    |          |
| 5. Equity Flotation Costs                           | \$40,763,227       | Average State Tax Rate | 6.38% 6/ |
| 6. Total Cost Recovered From Quarterly Revenue Flow | \$1,040,564,245 5/ |                        |          |

| Period | Quarter | Quarterly Levelized C. Carrying Charge Requirement 7/ | Interest on Investment Financed 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      | 1Q 2015 | \$24,337,653                                          | \$1,458,927                                  | \$40,115,089        | \$0                             | \$0                           | \$24,337,653    | \$24,058,908                | \$24,058,908                 |
| 2      | 2Q 2015 | \$24,494,083                                          | \$1,446,334                                  | \$40,115,089        | \$0                             | \$0                           | \$24,494,083    | \$23,662,075                | \$47,720,984                 |
| 3      | 3Q 2015 | \$24,410,108                                          | \$1,433,630                                  | \$40,115,089        | \$0                             | \$0                           | \$24,410,108    | \$23,043,889                | \$70,764,873                 |
| 4      | 4Q 2015 | \$24,620,322                                          | \$1,420,812                                  | \$40,115,089        | \$0                             | \$0                           | \$24,620,322    | \$22,712,986                | \$93,477,859                 |
| 5      | 1Q 2016 | \$24,365,140                                          | \$1,407,881                                  | \$23,647,290        | \$0                             | \$0                           | \$24,365,140    | \$21,937,287                | \$115,415,146                |
| 6      | 2Q 2016 | \$24,372,519                                          | \$1,394,835                                  | \$23,647,290        | \$0                             | \$0                           | \$24,372,519    | \$21,388,828                | \$136,803,974                |
| 7      | 3Q 2016 | \$24,539,286                                          | \$1,381,672                                  | \$23,647,290        | \$0                             | \$0                           | \$24,539,286    | \$20,990,417                | \$157,794,390                |
| 8      | 4Q 2016 | \$24,790,138                                          | \$1,368,393                                  | \$23,647,290        | \$0                             | \$0                           | \$24,790,138    | \$20,668,580                | \$178,462,971                |
| 9      | 1Q 2017 | \$24,991,785                                          | \$1,354,996                                  | \$18,603,224        | \$0                             | \$0                           | \$24,991,785    | \$20,309,607                | \$198,772,578                |
| 10     | 2Q 2017 | \$25,217,584                                          | \$1,341,480                                  | \$18,603,224        | \$0                             | \$0                           | \$25,217,584    | \$19,974,701                | \$218,747,279                |
| 11     | 3Q 2017 | \$25,517,647                                          | \$1,327,843                                  | \$18,603,224        | \$0                             | \$0                           | \$25,517,647    | \$19,701,078                | \$238,448,358                |
| 12     | 4Q 2017 | \$25,700,538                                          | \$1,314,086                                  | \$18,603,224        | \$0                             | \$0                           | \$25,700,538    | \$19,340,342                | \$257,788,700                |
| 13     | 1Q 2018 | \$25,958,483                                          | \$1,300,206                                  | \$14,936,582        | \$0                             | \$0                           | \$25,958,483    | \$19,040,301                | \$276,829,001                |
| 14     | 2Q 2018 | \$26,213,840                                          | \$1,286,203                                  | \$14,936,582        | \$0                             | \$0                           | \$26,213,840    | \$18,741,213                | \$295,570,214                |
| 15     | 3Q 2018 | \$26,471,743                                          | \$1,272,076                                  | \$14,936,582        | \$0                             | \$0                           | \$26,471,743    | \$18,446,847                | \$314,017,061                |
| 16     | 4Q 2018 | \$26,732,219                                          | \$1,257,822                                  | \$14,936,582        | \$0                             | \$0                           | \$26,732,219    | \$18,157,129                | \$332,174,190                |
| 17     | 1Q 2019 | \$26,975,658                                          | \$1,243,443                                  | \$13,009,318        | \$0                             | \$0                           | \$26,975,658    | \$17,858,985                | \$350,033,175                |
| 18     | 2Q 2019 | \$27,221,354                                          | \$1,228,935                                  | \$13,009,318        | \$3,682,942                     | \$716,874                     | \$22,821,538    | \$14,726,590                | \$364,759,766                |
| 19     | 3Q 2019 | \$27,469,329                                          | \$1,214,299                                  | \$13,009,318        | \$4,340,309                     | \$844,829                     | \$22,284,191    | \$14,016,085                | \$378,775,851                |
| 20     | 4Q 2019 | \$27,719,605                                          | \$1,199,532                                  | \$13,009,318        | \$4,427,157                     | \$861,734                     | \$22,430,714    | \$13,751,355                | \$392,527,206                |
| 21     | 1Q 2020 | \$27,961,804                                          | \$1,184,634                                  | \$9,835,939         | \$5,551,244                     | \$1,080,534                   | \$21,330,026    | \$12,745,778                | \$405,272,984                |
| 22     | 2Q 2020 | \$28,206,173                                          | \$1,169,604                                  | \$9,835,939         | \$5,636,243                     | \$1,097,079                   | \$21,472,851    | \$12,506,542                | \$417,779,526                |
| 23     | 3Q 2020 | \$28,452,733                                          | \$1,154,440                                  | \$9,835,939         | \$5,722,003                     | \$1,113,772                   | \$21,616,957    | \$12,271,980                | \$430,051,507                |
| 24     | 4Q 2020 | \$28,701,503                                          | \$1,139,142                                  | \$9,835,939         | \$5,808,533                     | \$1,130,615                   | \$21,762,355    | \$12,041,998                | \$442,093,505                |
| 25     | 1Q 2021 | \$28,972,286                                          | \$1,123,707                                  | \$9,654,975         | \$5,961,617                     | \$1,160,412                   | \$21,850,257    | \$11,784,788                | \$453,878,293                |
| 26     | 2Q 2021 | \$29,245,662                                          | \$1,108,135                                  | \$9,654,975         | \$6,056,298                     | \$1,178,842                   | \$22,010,522    | \$11,570,926                | \$465,449,219                |
| 27     | 3Q 2021 | \$29,521,656                                          | \$1,092,425                                  | \$9,654,975         | \$6,151,883                     | \$1,197,447                   | \$22,172,326    | \$11,361,132                | \$476,810,351                |
| 28     | 4Q 2021 | \$29,800,294                                          | \$1,076,576                                  | \$9,654,975         | \$6,248,380                     | \$1,216,230                   | \$22,335,684    | \$11,155,323                | \$487,965,674                |
| 29     | 1Q 2022 | \$30,067,118                                          | \$1,060,585                                  | \$3,519,304         | \$8,351,567                     | \$1,625,609                   | \$20,089,942    | \$9,779,894                 | \$497,745,568                |
| 30     | 2Q 2022 | \$30,336,386                                          | \$1,044,452                                  | \$3,519,304         | \$8,445,086                     | \$1,643,812                   | \$20,247,487    | \$9,607,251                 | \$507,352,819                |
| 31     | 3Q 2022 | \$30,608,120                                          | \$1,028,176                                  | \$3,519,304         | \$8,539,460                     | \$1,662,182                   | \$20,406,477    | \$9,437,753                 | \$516,790,572                |
| 32     | 4Q 2022 | \$30,882,342                                          | \$1,011,755                                  | \$3,519,304         | \$8,634,697                     | \$1,680,720                   | \$20,566,925    | \$9,271,340                 | \$526,061,912                |
| 33     | 1Q 2023 | \$31,150,314                                          | \$995,189                                    | \$2,666,290         | \$9,007,446                     | \$1,753,274                   | \$20,389,593    | \$8,958,891                 | \$535,020,804                |
| 34     | 2Q 2023 | \$31,420,678                                          | \$978,475                                    | \$2,666,290         | \$9,101,515                     | \$1,771,584                   | \$20,547,578    | \$8,799,924                 | \$543,820,727                |
| 35     | 3Q 2023 | \$31,693,457                                          | \$961,612                                    | \$2,666,290         | \$9,196,424                     | \$1,790,058                   | \$20,706,975    | \$8,643,855                 | \$552,464,582                |
| 36     | 4Q 2023 | \$31,968,674                                          | \$944,600                                    | \$2,666,290         | \$9,292,180                     | \$1,808,697                   | \$20,867,797    | \$8,490,631                 | \$560,955,213                |
| 37     | 1Q 2024 | \$32,241,125                                          | \$927,436                                    | \$2,666,290         | \$9,387,080                     | \$1,827,169                   | \$21,026,876    | \$8,338,937                 | \$569,294,150                |
| 38     | 2Q 2024 | \$32,515,982                                          | \$910,120                                    | \$2,666,290         | \$9,482,819                     | \$1,845,804                   | \$21,187,359    | \$8,190,027                 | \$577,484,177                |
| 39     | 3Q 2024 | \$32,793,266                                          | \$892,650                                    | \$2,666,290         | \$9,579,403                     | \$1,864,604                   | \$21,349,259    | \$8,043,848                 | \$585,528,025                |
| 40     | 4Q 2024 | \$33,072,999                                          | \$875,024                                    | \$2,666,290         | \$9,676,840                     | \$1,883,570                   | \$21,512,589    | \$7,900,349                 | \$593,428,375                |
| Future |         | \$1,944,900,394                                       | \$13,402,028                                 | \$73,436,423        | \$608,843,302                   | \$118,509,651                 | \$1,217,547,441 | \$447,135,870               | \$1,040,564,245              |

1/ From Table C, Column (10) + Repaving and Rail Grinding Capital Costs from [].

2/ From Table D, Column (8).

3/ Line 1 + Line 2.

4/ Table F Column (8).

5/ Line 3 + Line 4.

6/ Michigan, Illinois, and Indiana corporate income tax rates weighted on CERR 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 CERR and is calculated by taking the Period 40, Column (3) value and dividing it by the CERR'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)**

| <b>Time<br/>Period</b> | <b>Taxable<br/>Income<br/>B/4 NOL's<br/>IRR 1/</b> | <b>Net<br/>Operating<br/>Losses<br/>Generated 2/</b> | <b>NOL's<br/>Generated<br/>Plus<br/>Carryforward 3/</b> | <b>Carryforward<br/>Utilized 4/</b> | <b>Carryforward<br/>Remaining 5/</b> | <b>Carryback<br/>Available 6/</b> | <b>Carryback<br/>Utilized 7/</b> | <b>Carryback<br/>Remaining 8/</b> | <b>Annual<br/>Taxable<br/>Income 9/</b> | <b>Annual<br/>Tax<br/>Liability 10/</b> |
|------------------------|----------------------------------------------------|------------------------------------------------------|---------------------------------------------------------|-------------------------------------|--------------------------------------|-----------------------------------|----------------------------------|-----------------------------------|-----------------------------------------|-----------------------------------------|
| (1)                    | (2)                                                | (3)                                                  | (4)                                                     | (5)                                 | (6)                                  | (7)                               | (8)                              | (9)                               | (10)                                    | (11)                                    |
| 2012                   | (\$79,867)                                         | (\$79,867)                                           | (\$79,867)                                              | \$0                                 | (\$79,867)                           | (\$79,867)                        | \$0                              | (\$79,867)                        | \$0                                     | \$0                                     |
| 2013                   | (\$1,618,841)                                      | (\$1,618,841)                                        | (\$1,698,708)                                           | \$0                                 | (\$1,698,708)                        | (\$1,698,708)                     | \$0                              | (\$1,698,708)                     | \$0                                     | \$0                                     |
| 2014                   | (\$4,524,879)                                      | (\$4,524,879)                                        | (\$6,223,586)                                           | \$0                                 | (\$6,223,586)                        | (\$6,223,586)                     | \$0                              | (\$6,223,586)                     | \$0                                     | \$0                                     |
| 1Q 2015                | (\$17,236,363)                                     | (\$17,236,363)                                       | (\$23,459,949)                                          | \$0                                 | (\$23,459,949)                       | (\$23,459,949)                    | \$0                              | (\$23,459,949)                    | \$0                                     | \$0                                     |
| 2Q 2015                | (\$17,067,340)                                     | (\$17,067,340)                                       | (\$40,527,290)                                          | \$0                                 | (\$40,527,290)                       | (\$40,527,290)                    | \$0                              | (\$40,527,290)                    | \$0                                     | \$0                                     |
| 3Q 2015                | (\$17,138,611)                                     | (\$17,138,611)                                       | (\$57,665,901)                                          | \$0                                 | (\$57,665,901)                       | (\$57,665,901)                    | \$0                              | (\$57,665,901)                    | \$0                                     | \$0                                     |
| 4Q 2015                | (\$16,915,580)                                     | (\$16,915,580)                                       | (\$74,581,480)                                          | \$0                                 | (\$74,581,480)                       | (\$74,581,480)                    | \$0                              | (\$74,581,480)                    | \$0                                     | \$0                                     |
| 1Q 2016                | (\$690,031)                                        | (\$690,031)                                          | (\$75,271,511)                                          | \$0                                 | (\$75,271,511)                       | (\$75,271,511)                    | \$0                              | (\$75,271,511)                    | \$0                                     | \$0                                     |
| 2Q 2016                | (\$669,606)                                        | (\$669,606)                                          | (\$75,941,116)                                          | \$0                                 | (\$75,941,116)                       | (\$75,941,116)                    | \$0                              | (\$75,941,116)                    | \$0                                     | \$0                                     |
| 3Q 2016                | (\$489,675)                                        | (\$489,675)                                          | (\$76,430,792)                                          | \$0                                 | (\$76,430,792)                       | (\$76,430,792)                    | \$0                              | (\$76,430,792)                    | \$0                                     | \$0                                     |
| 4Q 2016                | (\$225,544)                                        | (\$225,544)                                          | (\$76,656,336)                                          | \$0                                 | (\$76,656,336)                       | (\$76,656,336)                    | \$0                              | (\$76,656,336)                    | \$0                                     | \$0                                     |
| 1Q 2017                | \$5,033,565                                        | \$0                                                  | (\$76,656,336)                                          | \$5,033,565                         | (\$71,622,771)                       | (\$71,622,771)                    | \$0                              | (\$71,622,771)                    | \$0                                     | \$0                                     |
| 2Q 2017                | \$5,272,881                                        | \$0                                                  | (\$71,622,771)                                          | \$5,272,881                         | (\$66,349,891)                       | (\$66,349,891)                    | \$0                              | (\$66,349,891)                    | \$0                                     | \$0                                     |
| 3Q 2017                | \$5,586,580                                        | \$0                                                  | (\$66,349,891)                                          | \$5,586,580                         | (\$60,763,311)                       | (\$60,763,311)                    | \$0                              | (\$60,763,311)                    | \$0                                     | \$0                                     |
| 4Q 2017                | \$5,783,228                                        | \$0                                                  | (\$60,763,311)                                          | \$5,783,228                         | (\$54,980,083)                       | (\$54,980,083)                    | \$0                              | (\$54,980,083)                    | \$0                                     | \$0                                     |
| 1Q 2018                | \$9,721,695                                        | \$0                                                  | (\$54,980,083)                                          | \$9,721,695                         | (\$45,258,388)                       | (\$45,258,388)                    | \$0                              | (\$45,258,388)                    | \$0                                     | \$0                                     |
| 2Q 2018                | \$9,991,055                                        | \$0                                                  | (\$45,258,388)                                          | \$9,991,055                         | (\$35,267,333)                       | (\$35,267,333)                    | \$0                              | (\$35,267,333)                    | \$0                                     | \$0                                     |
| 3Q 2018                | \$10,263,086                                       | \$0                                                  | (\$35,267,333)                                          | \$10,263,086                        | (\$25,004,248)                       | (\$25,004,248)                    | \$0                              | (\$25,004,248)                    | \$0                                     | \$0                                     |
| 4Q 2018                | \$10,537,814                                       | \$0                                                  | (\$25,004,248)                                          | \$10,537,814                        | (\$14,466,433)                       | (\$14,466,433)                    | \$0                              | (\$14,466,433)                    | \$0                                     | \$0                                     |
| 1Q 2019                | \$12,722,897                                       | \$0                                                  | (\$14,466,433)                                          | \$12,722,897                        | (\$1,743,536)                        | (\$1,743,536)                     | \$0                              | (\$1,743,536)                     | \$0                                     | \$0                                     |
| 2Q 2019                | \$12,266,227                                       | \$0                                                  | (\$1,743,536)                                           | \$1,743,536                         | \$0                                  | \$0                               | \$0                              | \$0                               | \$10,522,691                            | \$3,682,942                             |
| 3Q 2019                | \$12,400,884                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$12,400,884                            | \$4,340,309                             |
| 4Q 2019                | \$12,649,021                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$12,649,021                            | \$4,427,157                             |
| 1Q 2020                | \$15,860,697                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$15,860,697                            | \$5,551,244                             |
| 2Q 2020                | \$16,103,551                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$16,103,551                            | \$5,636,243                             |
| 3Q 2020                | \$16,348,581                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$16,348,581                            | \$5,722,003                             |
| 4Q 2020                | \$16,595,807                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$16,595,807                            | \$5,808,533                             |
| 1Q 2021                | \$17,033,191                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$17,033,191                            | \$5,961,617                             |
| 2Q 2021                | \$17,303,710                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$17,303,710                            | \$6,056,298                             |
| 3Q 2021                | \$17,576,808                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$17,576,808                            | \$6,151,883                             |
| 4Q 2021                | \$17,852,513                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$17,852,513                            | \$6,248,380                             |
| 1Q 2022                | \$23,861,621                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$23,861,621                            | \$8,351,567                             |
| 2Q 2022                | \$24,128,818                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$24,128,818                            | \$8,445,086                             |
| 3Q 2022                | \$24,398,458                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$24,398,458                            | \$8,539,460                             |
| 4Q 2022                | \$24,670,564                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$24,670,564                            | \$8,634,697                             |
| 1Q 2023                | \$25,735,561                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$25,735,561                            | \$9,007,446                             |
| 2Q 2023                | \$26,004,328                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$26,004,328                            | \$9,101,515                             |
| 3Q 2023                | \$26,275,497                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$26,275,497                            | \$9,196,424                             |
| 4Q 2023                | \$26,549,087                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$26,549,087                            | \$9,292,180                             |
| 1Q 2024                | \$26,820,230                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$26,820,230                            | \$9,387,080                             |
| 2Q 2024                | \$27,093,767                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$27,093,767                            | \$9,482,819                             |
| 3Q 2024                | \$27,369,722                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$27,369,722                            | \$9,579,403                             |

**TABLE J - PART 1: COMPUTATION OF FEDERAL TAX LIABILITY - TAXABLE INCOME**  
**(Road Property)**

| <b>Time<br/>Period</b><br><b>(1)</b> | <b>Taxable<br/>Income<br/>B/4 NOL's<br/>IRR 1/<br/>(2)</b> | <b>Net<br/>Operating<br/>Losses<br/>Generated 2/<br/>(3)</b> | <b>NOL's<br/>Generated<br/>Plus<br/>Carryforward 3/<br/>(4)</b> | <b>Carryforward<br/>Utilized 4/<br/>(5)</b> | <b>Carryforward<br/>Remaining 5/<br/>(6)</b> | <b>Carryback<br/>Available 6/<br/>(7)</b> | <b>Carryback<br/>Utilized 7/<br/>(8)</b> | <b>Carryback<br/>Remaining 8/<br/>(9)</b> | <b>Annual<br/>Taxable<br/>Income 9/<br/>(10)</b> | <b>Annual<br/>Tax<br/>Liability 10/<br/>(11)</b> |
|--------------------------------------|------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------------------------------------------|-------------------------------------------|------------------------------------------|-------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| 4Q 2024                              | \$27,648,115                                               | \$0                                                          | \$0                                                             | \$0                                         | \$0                                          | \$0                                       | \$0                                      | \$0                                       | \$27,648,115                                     | \$9,676,840                                      |
| Future                               | \$1,739,552,293                                            | \$0                                                          | \$0                                                             | \$0                                         | \$0                                          | \$0                                       | \$0                                      | \$0                                       | \$1,739,552,293                                  | \$608,843,302                                    |

1/ Table I Column (3) - Table E Columns (2),(4) & (6) - Table G, Column (14) / 4 - Table J - Part 2, Column (11). Values for 2012 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)**

| <b>Time<br/>Period</b> | <b>Taxable<br/>Income<br/>B/4 NOL's<br/>IRR 1/</b> | <b>Net<br/>Operating<br/>Losses<br/>Generated 2/</b> | <b>NOL's<br/>Generated<br/>Plus<br/>Carryforward 3/</b> | <b>Carryforward<br/>Utilized 4/</b> | <b>Carryforward<br/>Remaining 5/</b> | <b>Carryback<br/>Available 6/</b> | <b>Carryback<br/>Utilized 7/</b> | <b>Carryback<br/>Remaining 8/</b> | <b>Annual<br/>Taxable<br/>Income 9/</b> | <b>Annual<br/>Tax<br/>Liability 10/</b> |
|------------------------|----------------------------------------------------|------------------------------------------------------|---------------------------------------------------------|-------------------------------------|--------------------------------------|-----------------------------------|----------------------------------|-----------------------------------|-----------------------------------------|-----------------------------------------|
| <b>(1)</b>             | <b>(2)</b>                                         | <b>(3)</b>                                           | <b>(4)</b>                                              | <b>(5)</b>                          | <b>(6)</b>                           | <b>(7)</b>                        | <b>(8)</b>                       | <b>(9)</b>                        | <b>(10)</b>                             | <b>(11)</b>                             |
| 2012                   | (\$79,867)                                         | (\$79,867)                                           | (\$79,867)                                              | \$0                                 | (\$79,867)                           | (\$79,867)                        | \$0                              | (\$79,867)                        | \$0                                     | \$0                                     |
| 2013                   | (\$1,618,841)                                      | (\$1,618,841)                                        | (\$1,698,708)                                           | \$0                                 | (\$1,698,708)                        | (\$1,698,708)                     | \$0                              | (\$1,698,708)                     | \$0                                     | \$0                                     |
| 2014                   | (\$4,524,879)                                      | (\$4,524,879)                                        | (\$6,223,586)                                           | \$0                                 | (\$6,223,586)                        | (\$6,223,586)                     | \$0                              | (\$6,223,586)                     | \$0                                     | \$0                                     |
| 1Q 2015                | (\$17,236,363)                                     | (\$17,236,363)                                       | (\$23,459,949)                                          | \$0                                 | (\$23,459,949)                       | (\$23,459,949)                    | \$0                              | (\$23,459,949)                    | \$0                                     | \$0                                     |
| 2Q 2015                | (\$17,067,340)                                     | (\$17,067,340)                                       | (\$40,527,290)                                          | \$0                                 | (\$40,527,290)                       | (\$40,527,290)                    | \$0                              | (\$40,527,290)                    | \$0                                     | \$0                                     |
| 3Q 2015                | (\$17,138,611)                                     | (\$17,138,611)                                       | (\$57,665,901)                                          | \$0                                 | (\$57,665,901)                       | (\$57,665,901)                    | \$0                              | (\$57,665,901)                    | \$0                                     | \$0                                     |
| 4Q 2015                | (\$16,915,580)                                     | (\$16,915,580)                                       | (\$74,581,480)                                          | \$0                                 | (\$74,581,480)                       | (\$74,581,480)                    | \$0                              | (\$74,581,480)                    | \$0                                     | \$0                                     |
| 1Q 2016                | (\$690,031)                                        | (\$690,031)                                          | (\$75,271,511)                                          | \$0                                 | (\$75,271,511)                       | (\$75,271,511)                    | \$0                              | (\$75,271,511)                    | \$0                                     | \$0                                     |
| 2Q 2016                | (\$669,606)                                        | (\$669,606)                                          | (\$75,941,116)                                          | \$0                                 | (\$75,941,116)                       | (\$75,941,116)                    | \$0                              | (\$75,941,116)                    | \$0                                     | \$0                                     |
| 3Q 2016                | (\$489,675)                                        | (\$489,675)                                          | (\$76,430,792)                                          | \$0                                 | (\$76,430,792)                       | (\$76,430,792)                    | \$0                              | (\$76,430,792)                    | \$0                                     | \$0                                     |
| 4Q 2016                | (\$225,544)                                        | (\$225,544)                                          | (\$76,656,336)                                          | \$0                                 | (\$76,656,336)                       | (\$76,656,336)                    | \$0                              | (\$76,656,336)                    | \$0                                     | \$0                                     |
| 1Q 2017                | \$5,033,565                                        | \$0                                                  | (\$76,656,336)                                          | \$5,033,565                         | (\$71,622,771)                       | (\$71,622,771)                    | \$0                              | (\$71,622,771)                    | \$0                                     | \$0                                     |
| 2Q 2017                | \$5,272,881                                        | \$0                                                  | (\$71,622,771)                                          | \$5,272,881                         | (\$66,349,891)                       | (\$66,349,891)                    | \$0                              | (\$66,349,891)                    | \$0                                     | \$0                                     |
| 3Q 2017                | \$5,586,580                                        | \$0                                                  | (\$66,349,891)                                          | \$5,586,580                         | (\$60,763,311)                       | (\$60,763,311)                    | \$0                              | (\$60,763,311)                    | \$0                                     | \$0                                     |
| 4Q 2017                | \$5,783,228                                        | \$0                                                  | (\$60,763,311)                                          | \$5,783,228                         | (\$54,980,083)                       | (\$54,980,083)                    | \$0                              | (\$54,980,083)                    | \$0                                     | \$0                                     |
| 1Q 2018                | \$9,721,695                                        | \$0                                                  | (\$54,980,083)                                          | \$9,721,695                         | (\$45,258,388)                       | (\$45,258,388)                    | \$0                              | (\$45,258,388)                    | \$0                                     | \$0                                     |
| 2Q 2018                | \$9,991,055                                        | \$0                                                  | (\$45,258,388)                                          | \$9,991,055                         | (\$35,267,333)                       | (\$35,267,333)                    | \$0                              | (\$35,267,333)                    | \$0                                     | \$0                                     |
| 3Q 2018                | \$10,263,086                                       | \$0                                                  | (\$35,267,333)                                          | \$10,263,086                        | (\$25,004,248)                       | (\$25,004,248)                    | \$0                              | (\$25,004,248)                    | \$0                                     | \$0                                     |
| 4Q 2018                | \$10,537,814                                       | \$0                                                  | (\$25,004,248)                                          | \$10,537,814                        | (\$14,466,433)                       | (\$14,466,433)                    | \$0                              | (\$14,466,433)                    | \$0                                     | \$0                                     |
| 1Q 2019                | \$12,722,897                                       | \$0                                                  | (\$14,466,433)                                          | \$12,722,897                        | (\$1,743,536)                        | (\$1,743,536)                     | \$0                              | (\$1,743,536)                     | \$0                                     | \$0                                     |
| 2Q 2019                | \$12,983,101                                       | \$0                                                  | (\$1,743,536)                                           | \$1,743,536                         | \$0                                  | \$0                               | \$0                              | \$0                               | \$11,239,565                            | \$716,874                               |
| 3Q 2019                | \$13,245,713                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$13,245,713                            | \$844,829                               |
| 4Q 2019                | \$13,510,755                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$13,510,755                            | \$861,734                               |
| 1Q 2020                | \$16,941,231                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$16,941,231                            | \$1,080,534                             |
| 2Q 2020                | \$17,200,630                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$17,200,630                            | \$1,097,079                             |
| 3Q 2020                | \$17,462,353                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$17,462,353                            | \$1,113,772                             |
| 4Q 2020                | \$17,726,422                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$17,726,422                            | \$1,130,615                             |
| 1Q 2021                | \$18,193,603                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$18,193,603                            | \$1,160,412                             |
| 2Q 2021                | \$18,482,551                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$18,482,551                            | \$1,178,842                             |
| 3Q 2021                | \$18,774,255                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$18,774,255                            | \$1,197,447                             |
| 4Q 2021                | \$19,068,743                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$19,068,743                            | \$1,216,230                             |
| 1Q 2022                | \$25,487,230                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$25,487,230                            | \$1,625,609                             |
| 2Q 2022                | \$25,772,630                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$25,772,630                            | \$1,643,812                             |
| 3Q 2022                | \$26,060,640                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$26,060,640                            | \$1,662,182                             |
| 4Q 2022                | \$26,351,283                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$26,351,283                            | \$1,680,720                             |
| 1Q 2023                | \$27,488,835                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$27,488,835                            | \$1,753,274                             |
| 2Q 2023                | \$27,775,913                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$27,775,913                            | \$1,771,584                             |
| 3Q 2023                | \$28,065,555                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$28,065,555                            | \$1,790,058                             |
| 4Q 2023                | \$28,357,784                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$28,357,784                            | \$1,808,697                             |
| 1Q 2024                | \$28,647,399                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$28,647,399                            | \$1,827,169                             |
| 2Q 2024                | \$28,939,572                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$28,939,572                            | \$1,845,804                             |
| 3Q 2024                | \$29,234,326                                       | \$0                                                  | \$0                                                     | \$0                                 | \$0                                  | \$0                               | \$0                              | \$0                               | \$29,234,326                            | \$1,864,604                             |

**TABLE J - PART 2: COMPUTATION OF STATE TAX LIABILITY - TAXABLE INCOME**  
**(Road Property)**

| <b><u>Time</u></b><br><b><u>Period</u></b><br><b>(1)</b> | <b><u>Taxable</u></b><br><b><u>Income</u></b><br><b><u>B/4 NOL's</u></b><br><b><u>IRR 1/</u></b><br><b>(2)</b> | <b><u>Net</u></b><br><b><u>Operating</u></b><br><b><u>Losses</u></b><br><b><u>Generated 2/</u></b><br><b>(3)</b> | <b><u>NOL's</u></b><br><b><u>Generated</u></b><br><b><u>Plus</u></b><br><b><u>Carryforward 3/</u></b><br><b>(4)</b> | <b><u>Carryforward</u></b><br><b><u>Utilized 4/</u></b><br><b>(5)</b> | <b><u>Carryforward</u></b><br><b><u>Remaining 5/</u></b><br><b>(6)</b> | <b><u>Carryback</u></b><br><b><u>Available 6/</u></b><br><b>(7)</b> | <b><u>Carryback</u></b><br><b><u>Utilized 7/</u></b><br><b>(8)</b> | <b><u>Carryback</u></b><br><b><u>Remaining 8/</u></b><br><b>(9)</b> | <b><u>Annual</u></b><br><b><u>Taxable</u></b><br><b><u>Income 9/</u></b><br><b>(10)</b> | <b><u>Annual</u></b><br><b><u>Tax</u></b><br><b><u>Liability 10/</u></b><br><b>(11)</b> |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 4Q 2024                                                  | \$29,531,685                                                                                                   | \$0                                                                                                              | \$0                                                                                                                 | \$0                                                                   | \$0                                                                    | \$0                                                                 | \$0                                                                | \$0                                                                 | \$29,531,685                                                                            | \$1,883,570                                                                             |
| Future                                                   | \$1,858,061,943                                                                                                | \$0                                                                                                              | \$0                                                                                                                 | \$0                                                                   | \$0                                                                    | \$0                                                                 | \$0                                                                | \$0                                                                 | \$1,858,061,943                                                                         | \$118,509,651                                                                           |

1/ Table I Column (3) - Table E Columns (2),(4) & (6) - Table G, Column (14) ÷ 4 - Table J - Part 2, Column (11). Values for 2012 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: CERR OPERATING EXPENSES**

| <u>Item</u><br>(1)                | <u>2015</u><br>(2)  | <u>2016</u><br>(3)  | <u>2017</u><br>(4)  | <u>2018</u><br>(5)  | <u>2019</u><br>(6)  | <u>2020</u><br>(7)  | <u>2021</u><br>(8)  | <u>2022</u><br>(9)  | <u>2023</u><br>(10) | <u>2024</u><br>(11) |
|-----------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| 1. Train & Engine Personnel       | \$8,228,722         | \$6,881,380         | \$7,409,531         | \$7,000,750         | \$7,113,152         | \$7,436,385         | \$7,411,908         | \$7,648,814         | \$7,385,507         | \$7,796,974         |
| 2. Locomotive Lease Expense       | \$1,717,312         | \$1,436,125         | \$1,546,349         | \$1,461,038         | \$1,484,496         | \$1,551,953         | \$1,546,845         | \$1,596,287         | \$1,541,335         | \$1,627,207         |
| 3. Locomotive Maintenance Expense | \$2,394,639         | \$2,002,549         | \$2,156,246         | \$2,037,287         | \$2,069,997         | \$2,164,061         | \$2,156,938         | \$2,225,880         | \$2,149,255         | \$2,268,996         |
| 4. Locomotive Operating Expense   | \$4,030,020         | \$3,370,159         | \$3,628,821         | \$3,428,620         | \$3,483,669         | \$3,641,973         | \$3,629,985         | \$3,746,010         | \$3,617,055         | \$3,818,572         |
| 5. Railcar Lease Expense          | \$4,599,318         | \$3,846,242         | \$4,141,444         | \$3,912,962         | \$3,975,788         | \$4,156,453         | \$4,142,773         | \$4,275,187         | \$4,128,016         | \$4,358,000         |
| 6. Material & Supply Operating    | \$642,403           | \$642,403           | \$642,403           | \$642,403           | \$642,403           | \$642,403           | \$642,403           | \$642,403           | \$642,403           | \$642,403           |
| 7. Ad Valorem Tax                 | \$1,188,285         | \$1,188,285         | \$1,188,285         | \$1,188,285         | \$1,188,285         | \$1,188,285         | \$1,188,285         | \$1,188,285         | \$1,188,285         | \$1,188,285         |
| 8. Operating Managers             | \$6,332,757         | \$6,332,757         | \$6,332,757         | \$6,332,757         | \$6,332,757         | \$6,332,757         | \$6,332,757         | \$6,332,757         | \$6,332,757         | \$6,332,757         |
| 9. General & Administration       | \$10,402,428        | \$10,666,572        | \$10,666,572        | \$10,666,572        | \$10,666,572        | \$10,666,572        | \$10,666,572        | \$10,666,572        | \$10,666,572        | \$10,666,572        |
| 10. Loss and Damage               | \$108,455           | \$90,697            | \$97,658            | \$92,270            | \$93,751            | \$98,012            | \$97,689            | \$100,811           | \$97,341            | \$102,764           |
| 11. Trackage Rights               | \$4,347,727         | \$3,635,846         | \$3,914,900         | \$3,698,916         | \$3,758,305         | \$3,929,088         | \$3,916,155         | \$4,041,327         | \$3,902,206         | \$4,119,609         |
| 12. Intermodal Lift Costs         | \$0                 | \$0                 | \$0                 | \$0                 | \$0                 | \$0                 | \$0                 | \$0                 | \$0                 | \$0                 |
| 13. Insurance 3.75%               | \$2,156,926         | \$2,010,728         | \$2,071,919         | \$2,024,558         | \$2,037,581         | \$2,075,031         | \$2,072,195         | \$2,099,643         | \$2,069,136         | \$2,116,808         |
| 14. Maintenance of Way            | <u>\$13,532,178</u> | <u>\$13,532,178</u> | <u>\$13,532,178</u> | <u>\$13,532,178</u> | <u>\$13,532,178</u> | <u>\$13,532,178</u> | <u>\$13,532,178</u> | <u>\$13,532,178</u> | <u>\$13,532,178</u> | <u>\$13,532,178</u> |
| 15. Total Operating Expenses      | \$59,681,169        | \$55,635,922        | \$57,329,064        | \$56,018,597        | \$56,378,934        | \$57,415,150        | \$57,336,684        | \$58,096,154        | \$57,252,046        | \$58,571,126        |
| 16. Expense Per Quarter           | \$14,920,292        | \$13,908,980        | \$14,332,266        | \$14,004,649        | \$14,094,733        | \$14,353,788        | \$14,334,171        | \$14,524,038        | \$14,313,011        | \$14,642,782        |
| 17. Net-Ton Miles                 | 1,811,768,797       | 1,515,116,308       | 1,631,402,608       | 1,541,398,683       | 1,566,146,926       | 1,637,315,032       | 1,631,925,908       | 1,684,086,862       | 1,626,112,914       | 1,716,708,330       |



**TABLE K - PART 2: CERR OPERATING EXPENSES INDEXED**

| <b><u>Period</u></b><br><b>(1)</b> | <b><u>Quarter</u></b><br><b>(2)</b> | <b><u>Hybrid</u></b><br><b><u>Index 1/</u></b><br><b>(3)</b> | <b><u>Operating</u></b><br><b><u>Expense</u></b><br><b><u>Indexed</u></b><br><b><u>For</u></b><br><b><u>Inflation 2/</u></b><br><b>(4)</b> |
|------------------------------------|-------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                  | 1Q 2015                             | 100.000                                                      | \$15,698,657                                                                                                                               |
| 2                                  | 2Q 2015                             | 93.014                                                       | \$14,656,335                                                                                                                               |
| 3                                  | 3Q 2015                             | 87.621                                                       | \$13,851,658                                                                                                                               |
| 4                                  | 4Q 2015                             | 91.095                                                       | \$14,370,051                                                                                                                               |
| 5                                  | 1Q 2016                             | 91.309                                                       | \$12,700,083                                                                                                                               |
| 6                                  | 2Q 2016                             | 88.728                                                       | \$12,341,167                                                                                                                               |
| 7                                  | 3Q 2016                             | 91.452                                                       | \$12,720,041                                                                                                                               |
| 8                                  | 4Q 2016                             | 92.897                                                       | \$12,921,018                                                                                                                               |
| 9                                  | 1Q 2017                             | 93.157                                                       | \$13,351,517                                                                                                                               |
| 10                                 | 2Q 2017                             | 94.499                                                       | \$13,543,779                                                                                                                               |
| 11                                 | 3Q 2017                             | 96.129                                                       | \$13,777,409                                                                                                                               |
| 12                                 | 4Q 2017                             | 96.773                                                       | \$13,869,718                                                                                                                               |
| 13                                 | 1Q 2018                             | 97.668                                                       | \$13,678,036                                                                                                                               |
| 14                                 | 2Q 2018                             | 98.734                                                       | \$13,827,366                                                                                                                               |
| 15                                 | 3Q 2018                             | 99.812                                                       | \$13,978,326                                                                                                                               |
| 16                                 | 4Q 2018                             | 100.902                                                      | \$14,130,934                                                                                                                               |
| 17                                 | 1Q 2019                             | 102.033                                                      | \$14,381,230                                                                                                                               |
| 18                                 | 2Q 2019                             | 103.161                                                      | \$14,540,324                                                                                                                               |
| 19                                 | 3Q 2019                             | 104.303                                                      | \$14,701,178                                                                                                                               |
| 20                                 | 4Q 2019                             | 105.456                                                      | \$14,863,812                                                                                                                               |
| 21                                 | 1Q 2020                             | 106.655                                                      | \$15,309,012                                                                                                                               |
| 22                                 | 2Q 2020                             | 107.847                                                      | \$15,480,194                                                                                                                               |
| 23                                 | 3Q 2020                             | 109.053                                                      | \$15,653,290                                                                                                                               |
| 24                                 | 4Q 2020                             | 110.273                                                      | \$15,828,322                                                                                                                               |
| 25                                 | 1Q 2021                             | 111.375                                                      | \$15,964,647                                                                                                                               |
| 26                                 | 2Q 2021                             | 112.463                                                      | \$16,120,687                                                                                                                               |
| 27                                 | 3Q 2021                             | 113.563                                                      | \$16,278,253                                                                                                                               |
| 28                                 | 4Q 2021                             | 114.673                                                      | \$16,437,358                                                                                                                               |
| 29                                 | 1Q 2022                             | 115.578                                                      | \$16,786,620                                                                                                                               |
| 30                                 | 2Q 2022                             | 116.463                                                      | \$16,915,087                                                                                                                               |
| 31                                 | 3Q 2022                             | 117.354                                                      | \$17,044,537                                                                                                                               |
| 32                                 | 4Q 2022                             | 118.252                                                      | \$17,174,978                                                                                                                               |
| 33                                 | 1Q 2023                             | 119.169                                                      | \$17,056,632                                                                                                                               |
| 34                                 | 2Q 2023                             | 120.065                                                      | \$17,184,883                                                                                                                               |
| 35                                 | 3Q 2023                             | 120.968                                                      | \$17,314,099                                                                                                                               |
| 36                                 | 4Q 2023                             | 121.877                                                      | \$17,444,286                                                                                                                               |
| 37                                 | 1Q 2024                             | 122.850                                                      | \$17,988,699                                                                                                                               |
| 38                                 | 2Q 2024                             | 123.806                                                      | \$18,128,601                                                                                                                               |
| 39                                 | 3Q 2024                             | 124.769                                                      | \$18,269,592                                                                                                                               |
| 40                                 | 4Q 2024                             | 125.739                                                      | \$18,411,679                                                                                                                               |

1/ 1Q15 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) ÷ 1Q15. Start-up costs have been distributed over the first 12 months in periods 1 - 4.

**TABLE L: CERR STAND-ALONE COSTS AND REVENUES**

Revenue Requirements to Cover Total Stand-Alone Costs

| <u>Period</u> | <u>Quarter</u> | <u>Quarterly<br/>Capital<br/>Requirement<br/>Road Property</u> | <u>Quarterly<br/>Operating<br/>Expense</u> | <u>Annual<br/>Stand-Alone<br/>Requirement</u> | <u>Annual<br/>Stand-Alone<br/>Revenues</u> | <u>Overpayments<br/>Or<br/>Shortfalls<br/>In Revenues</u> | <u>PV<br/>Difference</u> | <u>Cumulative<br/>PV<br/>Difference</u> |
|---------------|----------------|----------------------------------------------------------------|--------------------------------------------|-----------------------------------------------|--------------------------------------------|-----------------------------------------------------------|--------------------------|-----------------------------------------|
| (1)           | (2)            | (3)                                                            | (4)                                        | (5)                                           | (6)                                        | (7)                                                       | (8)                      | (9)                                     |
| 1             | 1Q 2015        | \$24,337,653                                                   | \$15,698,657                               |                                               |                                            |                                                           |                          |                                         |
| 2             | 2Q 2015        | \$24,494,083                                                   | \$14,656,335                               |                                               |                                            |                                                           |                          |                                         |
| 3             | 3Q 2015        | \$24,410,108                                                   | \$13,851,658                               |                                               |                                            |                                                           |                          |                                         |
| 4             | 4Q 2015        | \$24,620,322                                                   | \$14,370,051                               | \$156,438,866                                 | \$102,785,616                              | -\$53,653,250                                             | -\$51,237,142            | -\$51,237,142                           |
| 5             | 1Q 2016        | \$24,365,140                                                   | \$12,700,083                               |                                               |                                            |                                                           |                          |                                         |
| 6             | 2Q 2016        | \$24,372,519                                                   | \$12,341,167                               |                                               |                                            |                                                           |                          |                                         |
| 7             | 3Q 2016        | \$24,539,286                                                   | \$12,720,041                               |                                               |                                            |                                                           |                          |                                         |
| 8             | 4Q 2016        | \$24,790,138                                                   | \$12,921,018                               | \$148,749,392                                 | \$86,927,638                               | -\$61,821,755                                             | -\$53,012,305            | -\$104,249,448                          |
| 9             | 1Q 2017        | \$24,991,785                                                   | \$13,351,517                               |                                               |                                            |                                                           |                          |                                         |
| 10            | 2Q 2017        | \$25,217,584                                                   | \$13,543,779                               |                                               |                                            |                                                           |                          |                                         |
| 11            | 3Q 2017        | \$25,517,647                                                   | \$13,777,409                               |                                               |                                            |                                                           |                          |                                         |
| 12            | 4Q 2017        | \$25,700,538                                                   | \$13,869,718                               | \$155,969,978                                 | \$104,655,629                              | -\$51,314,349                                             | -\$39,715,901            | -\$143,965,349                          |
| 13            | 1Q 2018        | \$25,958,483                                                   | \$13,678,036                               |                                               |                                            |                                                           |                          |                                         |
| 14            | 2Q 2018        | \$26,213,840                                                   | \$13,827,366                               |                                               |                                            |                                                           |                          |                                         |
| 15            | 3Q 2018        | \$26,471,743                                                   | \$13,978,326                               |                                               |                                            |                                                           |                          |                                         |
| 16            | 4Q 2018        | \$26,732,219                                                   | \$14,130,934                               | \$160,990,947                                 | \$100,689,707                              | -\$60,301,240                                             | -\$42,125,211            | -\$186,090,559                          |
| 17            | 1Q 2019        | \$26,975,658                                                   | \$14,381,230                               |                                               |                                            |                                                           |                          |                                         |
| 18            | 2Q 2019        | \$27,221,354                                                   | \$14,540,324                               |                                               |                                            |                                                           |                          |                                         |
| 19            | 3Q 2019        | \$27,469,329                                                   | \$14,701,178                               |                                               |                                            |                                                           |                          |                                         |
| 20            | 4Q 2019        | \$27,719,605                                                   | \$14,863,812                               | \$167,872,490                                 | \$104,599,766                              | -\$63,272,724                                             | -\$39,895,381            | -\$225,985,941                          |
| 21            | 1Q 2020        | \$27,961,804                                                   | \$15,309,012                               |                                               |                                            |                                                           |                          |                                         |
| 22            | 2Q 2020        | \$28,206,173                                                   | \$15,480,194                               |                                               |                                            |                                                           |                          |                                         |
| 23            | 3Q 2020        | \$28,452,733                                                   | \$15,653,290                               |                                               |                                            |                                                           |                          |                                         |
| 24            | 4Q 2020        | \$28,701,503                                                   | \$15,828,322                               | \$175,593,030                                 | \$113,902,856                              | -\$61,690,174                                             | -\$35,108,504            | -\$261,094,444                          |
| 25            | 1Q 2021        | \$28,972,286                                                   | \$15,964,647                               |                                               |                                            |                                                           |                          |                                         |
| 26            | 2Q 2021        | \$29,245,662                                                   | \$16,120,687                               |                                               |                                            |                                                           |                          |                                         |
| 27            | 3Q 2021        | \$29,521,656                                                   | \$16,278,253                               |                                               |                                            |                                                           |                          |                                         |
| 28            | 4Q 2021        | \$29,800,294                                                   | \$16,437,358                               | \$182,340,844                                 | \$115,522,641                              | -\$66,818,203                                             | -\$34,322,693            | -\$295,417,138                          |
| 29            | 1Q 2022        | \$30,067,118                                                   | \$16,786,620                               |                                               |                                            |                                                           |                          |                                         |
| 30            | 2Q 2022        | \$30,336,386                                                   | \$16,915,087                               |                                               |                                            |                                                           |                          |                                         |
| 31            | 3Q 2022        | \$30,608,120                                                   | \$17,044,537                               |                                               |                                            |                                                           |                          |                                         |
| 32            | 4Q 2022        | \$30,882,342                                                   | \$17,174,978                               | \$189,815,189                                 | \$123,410,944                              | -\$66,404,245                                             | -\$30,787,374            | -\$326,204,512                          |
| 33            | 1Q 2023        | \$31,150,314                                                   | \$17,056,632                               |                                               |                                            |                                                           |                          |                                         |
| 34            | 2Q 2023        | \$31,420,678                                                   | \$17,184,883                               |                                               |                                            |                                                           |                          |                                         |
| 35            | 3Q 2023        | \$31,693,457                                                   | \$17,314,099                               |                                               |                                            |                                                           |                          |                                         |
| 36            | 4Q 2023        | \$31,968,674                                                   | \$17,444,286                               | \$195,233,022                                 | \$118,907,763                              | -\$76,325,259                                             | -\$31,940,031            | -\$358,144,543                          |
| 37            | 1Q 2024        | \$32,241,125                                                   | \$17,988,699                               |                                               |                                            |                                                           |                          |                                         |
| 38            | 2Q 2024        | \$32,515,982                                                   | \$18,128,601                               |                                               |                                            |                                                           |                          |                                         |
| 39            | 3Q 2024        | \$32,793,266                                                   | \$18,269,592                               |                                               |                                            |                                                           |                          |                                         |
| 40            | 4Q 2024        | \$33,072,999                                                   | \$18,411,679                               | \$203,421,943                                 | \$131,632,441                              | -\$71,789,501                                             | -\$27,115,538            | -\$385,260,081                          |