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Ms. Cynthia Brown
Chief, Section of Administration
Office of Proceedings, Surface Transportation Board
395 E. Street, S.W.
Washington, DC 20423-0001

Re: Application of the National Railroad Passenger Corporation under 49 U.S.C. § 24308(a) — Canadian National Railway Company (Docket No. FD 35743)

Dear Ms. Brown:

At the request of the Board's staff, enclosed for filing in the above-captioned proceeding are revised Highly Confidential and Public versions of the Opening Evidence of Illinois Central Railroad Company and Grand Trunk Western Railroad Company, which were originally filed September 4, 2015. These versions incorporate CN's errata, which were previously filed separately on September 23, 2015, and conform the pagination and footnote numbering of the Public version to the Highly Confidential version. The pagination of the Highly Confidential version has not changed.

The Highly Confidential version is being filed under seal.

Counsel for Amtrak has authorized me to state that Amtrak has no objection to this refiling.

Very truly yours,

/s/ David A. Hirsh

Counsel for Illinois Central Railroad Company and
Grand Trunk Western Railroad Company

Enclosures

cc: Kevin M. Sheys, Esquire

PUBLIC VERSION – REDACTED

BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

OPENING EVIDENCE OF OF ILLINOIS CENTRAL RAILROAD COMPANY AND GRAND TRUNK WESTERN RAILROAD

Volume 1

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PUBLIC VERSION – REDACTED

BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

OPENING SUBMISSION OF ILLINOIS CENTRAL RAILROAD COMPANY AND GRAND TRUNK WESTERN RAILROAD COMPANY

Illinois Central Railroad Company ("IC") and Grand Trunk Western Railroad Company ("GTW") (together, "CN") hereby submit their opening evidence regarding reasonable terms and compensation for Amtrak's use of CN's facilities and services. That opening evidence consists of the following verified statements (with, where applicable, supporting workpapers and exhibits).

VOLUME I

A. **Joint Verified Statement of Paul E. Ladue and Scott Kuxmann.** Messrs. Ladue and Kuxmann are CN employees who are in charge of administering CN's Operating Agreement with Amtrak. They describe Amtrak's operations on CN's lines, the terms of the current Operating Agreement, the benefits of its structure, issues relating to specific provisions of and omissions in the Operating Agreement, CN's performance as a host railroad for Amtrak, and the advantages of the current Operating Agreement's methodology for assessing that performance and determining incentives and penalties. They then describe CN's proposals for modifications to the Operating Agreement.

VOLUME II

B. **Verified Statement of Robert D. Willig.** Professor Willig, Professor of Economics and Public Affairs at the Woodrow Wilson School and the Economics Department at Princeton University, provides his expert opinion as to the most appropriate structure, from the standpoint of sound economic principles, of a compensation agreement for a freight railroad hosting Amtrak's passenger services. He opines that such an agreement a) should ensure that Amtrak fully compensates the host for the host's incremental costs of providing an agreed base level of performance, and b) should also include a system of incentives and penalties, assessed by reference to matters within the host's reasonable control and calibrated to the benefits to Amtrak and the public of improved performance, that will encourage the host to perform above that agreed base level, while not threatening the host's full recovery of its incremental costs. He further opines that the existing Operating Agreement is consistent with these economic principles, but could be improved in several respects proposed by CN, including by requiring Amtrak to compensate CN for, reduce, or eliminate the delays and interference to CN's freight traffic caused by Amtrak's presence.

C. **Verified Statement of Anne Morehouse.** Ms. Morehouse, Superintendent of the Regional Operations Center for the Southern Region, which includes CN's IC and GTW subsidiaries that host Amtrak services, testifies regarding the importance of network capacity to CN's freight operations, the operational problems that CN faces when capacity is constrained, and the costs imposed on CN by Amtrak specifically as a result of Amtrak's consumption of CN's rail line capacity. (Ms. Morehouse is also a co-author of the joint verified statement of John Summerfield, Gregg Girard, and Anne Morehouse, described below.)

D. **Verified Statement of Fiona Murray.** Ms. Murray, Vice President, Corporate Marketing, for Canadian National Railway Company ("CNR"), describes some of the adverse effects that CN and its customers experience as a result of Amtrak's use of CN's lines, including increased delays to and reduced reliability of CN's freight trains, lost rail capacity, and lost efficiency, and explains how these effects adversely affect shippers, increase CN's costs, and reduce CN's revenues and business opportunities. Attached as exhibits to Ms. Murray's statement are verified statements and letters from eight important CN customers (Zim American Integrated Shipping Service Co. LLC, COSCO Container Lines Americas, Inc., Hapag-Lloyd (America) LLC, UPS, Central States Enterprises, LLC, Ingredion, Inc., Zen-Noh Grain Corporation,, and Altex Energy Ltd.) regarding the effects on their businesses, and on their relationships with CN, of delays to CN freight trains, including delays caused by Amtrak.

E. **Joint Verified Statement of Michael Baranowski and Benton Fisher.** Messrs. Baranowski and Fisher are Senior Managing Directors in the Network Industries Strategies practice of FTI Consulting, Inc. Using data recorded and maintained by CN in the ordinary course of its business, they quantify certain of the significant and direct delays which Amtrak operations on CN lines cause to CN's freight trains, and they conclude that as a result of those delays, CN incurred direct costs, which it would not have incurred but for Amtrak's operations, totaling approximately $4.69 million during the 18-month period from August 2013 to January 2015.

F. **Joint Verified Statement of John Summerfield, Gregg Girard, and Anne Morehouse.** Messrs. Summerfield and Girard and Ms. Morehouse are CN employees variously responsible for collecting, recording, and storing data regarding operation of CN trains. They testify regarding the data maintained by CN and used (1) to identify and quantify delays to CN

freight trains as a result of Amtrak's use of CN lines, and (2) to provide inputs to the calculations made by Messrs. Baranowski and Fisher regarding costs incurred by CN as a result of Amtrak operations.

G. **Verified Statement of Joe Bekavac.** Mr. Bekavac is Director, System Network Operations, Asset Optimization, for CNR. He describes the analysis he conducted to estimate the incremental cost to CN for fuel consumed because of unscheduled stops for various locomotive and car consists, and reports the results of that analysis. Those results provide inputs to the calculations made by Michael Baranowski and Benton Fisher regarding costs incurred by CN as a result of Amtrak operations.

H. **Verified Statement of Harald Krueger, Brian Doyle, and Nikola Rank.** Mr. Krueger is Senior Manager, Network Planning, for CNR, and Messrs. Doyle and Rank are principals at Iron Road Software and Simulation Inc., an engineering firm that specializes in the simulation, planning, and design of rail networks. They describe the modeling they conducted of two corridors on CN lines that host Amtrak (between Chicago, IL and New Orleans, LA and between South Bend, IN and Port Huron, MI) in order to identify the specific capital investment necessary to replace the CN rail line capacity that would be consumed by Amtrak operating over those lines at various specified on-time performance levels. They conclude that, depending upon the Amtrak level of performance modeled, additional infrastructure costing between $377.5 million and $533.9 million would be necessary to replace the CN rail capacity consumed by Amtrak.

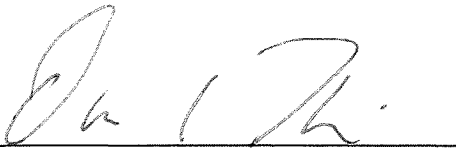
I. **Verified Statement of Jeffrey A. Dubin.** Professor Dubin is Adjunct Professor of Economics and Statistics at the University of California Los Angeles Anderson School of Management, and a retired Professor of Economics at the California Institute of Technology. He

draws upon Amtrak data regarding delays to its trains on CN's lines reported by Amtrak's conductors, and calculates, for specific Amtrak trains, the maximum combined level of freight train interference (FTI) and passenger train interference (PTI) (using Amtrak's categorization of these and other delays) that the train could incur while meeting various specified on-time performance levels. These conclusions provide inputs into the modeling reported by Messrs. Krueger, Doyle, and Rank.

VOLUME III

J. **Verified Statement of David A. Hirsh.** Mr. Hirsh, outside counsel for CN in this proceeding, verifies the authenticity of certain documents that are attached as exhibits to his statement and to the Joint Verified Statement of Messrs. Ladue and Kuxmann, which were either obtained from Amtrak or produced by CN in discovery in this proceeding, and describes the documents attached to his statement, which were obtained from Amtrak in discovery.

Respectfully submitted,



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September 4, 2015

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

JOINT VERIFIED STATEMENT OF
PAUL E. LADUE AND SCOTT KUXMANN

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

JOINT VERIFIED STATEMENT OF
PAUL E. LADUE AND SCOTT KUXMANN

My name is Paul E. Ladue. I am Region Director Contracts and Administration, Southern Region, for Canadian National,[1] a position I have held since 2003. I have almost 37 years of experience at CN and its operating subsidiaries; my previous positions include Director Contracts and Joint Facilities (for GTW, Duluth, Winnipeg and Pacific Railway Company ("DWP"), and Wisconsin Central Ltd. ("WC"), Director Real Estate (for IC), Director Interline Management, Manager Contracts (for GTW), Manager Asset Utilization (for GTW), Assistant Treasurer (for GTW), and Manager Accounting (for DWP). In my current position, I am responsible for negotiation and administration (including monitoring contract compliance) of all joint facility, interline, operating, and passenger agreements for CN's Southern Region, including the CN-Amtrak Operating Agreement that is the subject of this proceeding.[2]

[1] "Canadian National" or "CN" is the name under which Canadian National Railway Company and its railroad subsidiaries (including Illinois Central Railroad Company ("IC") and Grand Trunk Western Railroad Company ("GTW")) conduct business. In this Verified Statement, we use "CN" to refer to IC and GTW, both of which are part of Canadian National's Southern Region.

[2] In this Verified Statement, we use the term "Operating Agreement" to refer to the current CN-Amtrak Operating Agreement, dated May 1, 2011, or to a successor agreement, as indicated by context.

My name is Scott Kuxmann. I am Manager of Passenger Operations working in the Contracts department of CN's Southern Region. I am also the designated NRPC Officer[3] for CN. I have held this position since August 2012. My previous positions at CN include Sr. Manager Operations, Regional Manager Crew Management, Chief Dispatcher, and Train Dispatcher. I have 17 years of experience working in the railroad industry. I began my career with Union Pacific Railroad Company ("UP") in August 1998, before joining CN (WC) in September of 1999. I graduated from the University of Wisconsin-Green Bay in 1992 with a bachelor's degree in business. In my current position, I am responsible for handling all passenger-related issues in CN's Southern Region,[4] which involves overseeing CN's relationship with various Amtrak departments such as the Host Railroad Group, Operations, Accounting, Information Technology, Consolidated National Operations Center, Engineering, Mechanical, Charter and Special Moves. I am familiar with all of Amtrak's services on CN and oversee the administration of the current Operating Agreement. Moreover, through my previous experience as a Train Dispatcher and Chief Dispatcher, I have first-hand knowledge of the relationship between passenger and freight needs in a given corridor, and my background in the intermodal industry provides insight into the customer perspective on rail traffic and transportation of time-sensitive materials.

In this verified statement, we discuss in Section I Amtrak's operations on CN's lines (including its existing and historic train volumes, failure to contribute to infrastructure, and scheduling issues), in Section II the terms of the current Operating Agreement (including the disputed terms for compensation, and the manner in which CN's performance under the

[3] "NRPC" refers to National Railroad Passenger Corporation, or "Amtrak."

[4] The Southern Region includes all CN lines in the United States, with the exception of certain lines near the Canadian border.

Operating Agreement is assessed), in Section III CN's performance under the Operating Agreement (including the performance of each Amtrak service operating on CN's lines and the reasons CN believes that the Operating Agreement's methodology for assessing CN's performance is far more revealing than various more general performance measures), and finally, in Section IV, CN's proposal for the terms and conditions of a new Operating Agreement. A copy of the existing Operating Agreement is attached as Exhibit 1.

I. AMTRAK'S OPERATIONS ON CN'S LINES AND ITS LACK OF INVESTMENT

A. Amtrak's Present Services on CN's Lines

Amtrak regularly operates six passenger train services on CN lines. These six services are split between two of CN's operating subsidiaries: four Amtrak services, accounting for approximately 80% of the total route-miles hosted by CN, operate over the lines of the Illinois Central Railroad Company ("IC Lines") and the remaining two services operate over the lines of the Grand Trunk Western Railroad ("GTW Lines"). These services are:

- City of New Orleans (Trains 58 and 59), a long-distance service[5] operating daily in each direction over the IC Lines between Chicago and New Orleans.
- Illini/Saluki (Trains 390, 391, 392, and 393), a corridor service operating twice daily in each direction over the IC Line between Chicago and Carbondale, Illinois.
- Lincoln (Trains 300, 301, 302, 303, 304, 305, 306, and 307), a corridor service operating four times a day in each direction over the IC Lines between Chicago and Joliet, Illinois. (Amtrak's Lincoln service trains also operate over lines of between Joliet and St. Louis.)
- Texas Eagle (Trains 21 and 22), a long-distance service operating daily in each direction over the IC Lines between Chicago and Joliet. (Amtrak's Texas Eagle

[5] The 15 Amtrak services operating on routes greater than 600 miles in length (including the City of New Orleans and Texas Eagle services) have been designated by Amtrak as "long-distance" services. All other Amtrak services (including all other Amtrak services operating on CN lines) are designated as "corridor" services.

trains also operate over lines of BNSF Railway ("BNSF") and UP between Joliet and San Antonio.)

- Blue Water (Trains 364 and 365), a corridor service operating daily in each direction over the GTW Lines between Battle Creek and Port Huron, Michigan. (Amtrak's Blue Water trains also operate over lines of Norfolk Southern Railway Company ("NS") and Michigan Department of Transportation ("MiDOT")[6] between Chicago and Battle Creek.)

- Wolverine (Trains 350, 351, 352, 353, 354, and 355), a corridor service operating three times a day in each direction over a 1.2 mile stretch of the GTW Lines between Gord and Baron (which are interlockings located in Battle Creek, Michigan) and between Vinewood (an interlocking in Detroit) and Pontiac, Michigan. (Amtrak's Wolverine trains also operate over lines of NS, MiDOT, and Amtrak itself between Chicago and Gord and between Baron and Vinewood.)

Key aspects of these services are presented in the following table, and graphic representations of each of these services are attached as Exhibit 2 to this Verified Statement.

[6] Although Amtrak reports MiDOT as the "host" of the line, Amtrak itself operates the line.

Table 1
Amtrak Services Hosted by CN

Service & Train Nos.	Service Endpoints	Service Route Miles	CN Segment Endpoints	CN Segment Route Miles	Number of Trains and Frequency of Operation	Number of Railroads Other than CN in Route (including Amtrak)
Blue Water 364-365	Chicago to Port Huron	318.5	Gord to Port Huron	158.7	2 daily	2
City of New Orleans, 58-59	Chicago to New Orleans	933.8	Clark Street to Southport Jct.	927.8	2 daily	1
Illini/Saluki, 390-393	Chicago to Carbondale	308.9	Clark Street to Carbondale	306.7	4 daily	1
Lincoln, 300-307	Chicago to St. Louis	284.1	21st Street to Joliet	34.9	8 daily	3
Texas Eagle, 21-22	Chicago to San Antonio	1305.4	21st Street to Joliet	34.9	2 daily	4
Wolverine, 350-355	Chicago to Pontiac	304.1	Pontiac to Vinewood; Gord to Baron	26.5	6 daily	3

B. The Growth of Amtrak Service on CN's Lines, Without Any Accompanying Amtrak Investment in Capacity

Amtrak began operations on May 1, 1971, with a total of 12 trains a day on what are now the IC Lines: one train in each direction between Chicago and New Orleans, one train in each direction between Chicago and Carbondale, two trains in each direction between Chicago and Kankakee, and two trains in each direction between Chicago and St. Louis (on what was at that time a line of Gulf, Mobile and Ohio Railroad Company).[7] (There were no Amtrak trains on the

[7] Harold A. Edmonson (ed.), Journey to Amtrak: The Year History Rode the Passenger Train 103 (1972); Amtrak Trains as of May 1, 1971,

GTW Lines at that time.) In November 1971, the Chicago-Kankakee trains were rerouted to other railroads' lines, reducing the number of Amtrak trains on what are now the IC Lines to 8 per day. Since 1971, the number of Amtrak trains using the IC Lines has grown from 8 to 16 per day, while the number using the GTW Lines has grown from 0 to 8 per day.

Despite this dramatic increase in Amtrak's traffic, no infrastructure on CN's lines has ever been added at Amtrak's expense or through public funding sponsored by Amtrak.[8] At the time that Amtrak began providing service on what would become CN's lines, there was more available capacity on those lines. Since then, however, as a result of significant increases in both passenger and freight traffic, the capacity of CN's lines has become much more constrained, resulting in increased incremental costs to CN caused by delays and interference with its freight trains due to Amtrak. CN has continued to invest in its lines as required by and for the benefit of its own services. In addition, CN has in the past developed at its own expense and shared with Amtrak several detailed proposals for track and signal work to reduce delays to Amtrak and delays to CN's freight caused by Amtrak. CN developed cost estimates for each element of its proposals, and detailed the benefits that could be anticipated from each.[9]

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http://ctr.trains.com/en/Railroad%20Reference/Operations/2001/05/Amtrak%20trains%20on%20May%201%201971.aspx.

[8] In 2010 Amtrak contributed $2 million for certain Chicago Region Environmental and Transportation Efficiency Program ("CREATE") projects, including among them Project P-6, which would grade separate the crossing at Argo, Illinois, between CN and the Indiana Harbor Belt Rail Railroad. The project has not advanced beyond the preliminary engineering phase and is not funded for construction. Moreover, we have no reason to believe it will be fully funded or constructed within the foreseeable future.

[9] CN presented Amtrak with nine such proposals (detailed in the PowerPoint presentation attached at Exhibit 3) at a meeting held August 19, 2012. (At IDOT's request, CN subsequently transmitted the same proposals to it) (*see* Email from Scott Kuxmann to Joe Shacter (Director of Public and Intermodal Transportation, IDOT) (July 2, 2014) (attached as Exhibit 4).

Because infrastructure improvements proposed by CN would not be necessary but for Amtrak services, CN asked Amtrak to bear the burden of funding those improvements, either by itself or through public funding. Amtrak, however, has either been unwilling or unable to provide or secure funds for capital improvements to address locations where added line capacity is necessary to address Amtrak's delay concerns. It has instead demanded that CN "make concrete operational improvements that will reduce delays to Amtrak trains,"[10] without identifying any feasible "operational improvements" that would enable CN to meet Amtrak's performance demands without significantly impairing CN's service to its freight customers. At other times, Amtrak representatives have told us orally that they would not even consider the possibility of funding capital improvements unless and until CN was already meeting the PRIIA performance goals established by Amtrak and FRA. That position turns logic on its head by ignoring that the purpose for which the capacity improvements are sought is to improve Amtrak performance.

The high cost of the infrastructure necessary to accommodate high quality passenger service is illustrated by the public investments made for Amtrak services on the lines of other host railroads and Amtrak itself. Over $1.5 billion is being spent for construction and upgrades intended to improve performance, passenger comfort, and safety on UP's lines between Joliet,[11] IL and St. Louis, MO, and nearly $800 million is being spent for construction and upgrades intended to increase frequency, reduce travel time, and improve performance principally on

[10] Letter from Paul Vilter to Paul Ladue and Mark Nordling at 2 (Sept. 30, 2011) (attached as Exhibit 5); *see also* Email from Paul Vilter to Paul Ladue and Mark Nordling (Jun. 24, 2011)) (attached as Exhibit 6 ("Please provide me in writing what immediate actions CN plans to take to reduce host-responsible delays so that all Amtrak trains operating on CN meet the PRIIA standard.").

[11] *See* Tim Landis, *Final downstate construction begins for 110-mph trains*, The State Journal-Register, May 31, 2014 (http://www.sj-r.com/article/20140531/News/140539907).

BNSF's lines along the Pacific Northwest Rail Corridor in Washington State,[12] and almost $550 million is being spent to improve safety and reliability of Amtrak's Piedmont service, which is hosted on NS's lines between Charlotte and Raleigh, NC.[13] Amtrak likewise continues to invest heavily in the lines that it owns and operates. For example, it has invested approximately $2.6 billion in infrastructure on the Northeast Corridor between fiscal years 2004 and 2013, in addition to the $3.4 billion invested by the states and federal government.[14]

The lack of any public funding of infrastructure to address the capacity needs of Amtrak's services on CN's lines, despite CN having demonstrated the need for such investments, goes a long way toward explaining the difficulty of maintaining – much less improving – the quality of Amtrak services in the face of growing rail line congestion. It also underscores why CN is experiencing significant delay and interference costs due to hosting Amtrak's services.[15]

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[12] Cascades High-Speed Rail Program (http://www.wsdot.wa.gov/NR/rdonlyres/41E2C41C-9425-448C-A7C6-9E89D4009D57/0/CHSRonepager.pdf).

[13] See NC DOT's Piedmont Improvement Program, (http://www.ncdot.gov/projects/pip/).

[14] *See* NEC Commission Five-Year Capital Plan FY2016-2020 (http://www.nec-commission.com/five-year-capital-plan/report/Northeast%20Corridor%20Five-Year%20Capital%20Plan.pdf)

[15] CN has developed, and presents in the joint statement of Messrs. Krueger, Doyle, and Rank, the investment in CN's lines that would be required to compensate for the capacity consumed by three of Amtrak's services on CN's lines (the City of New Orleans, Illini/Saluki, and Blue Water) at different levels of Amtrak endpoint on-time performance. The total estimated cost for these investments is $377.5 million at 80% endpoint OTP for the City of New Orleans and Illini/Saluki services (estimated annualized cost of approximately $32 million), and total cost of $533.9 million at 90% endpoint OTP for the Illini/Saluki and Blue Water and 85% for the City of New Orleans service (estimated annualized cost of approximately $45 million). (Our annual cost estimates are based on our understanding of CN's typical capital cost recovery, which takes into account the company's average cost of capital and the expected useful life of rail assets installed in the U.S.)

C. Amtrak's Outdated Schedules for Services on CN's Lines Harm Its On-Time Performance.

Amtrak publishes schedules for each of the trains it operate on CN's lines. Those schedules are important to Amtrak's passengers. In order to serve its passengers well, Amtrak's schedules must be realistically achievable, taking into account such matters as the limitations of the host railroad and its own infrastructure, passenger and freight traffic volumes, performance expectations for Amtrak's equipment and personnel, and unavoidable real world events that can impede Amtrak's operations. Unrealistically short schedules are bound to lead to late arriving trains, and poor on-time performance, regardless of how well a host carrier or Amtrak may be performing.

Amtrak's schedules are also incorporated into and form a central element of the Operating Agreement. As explained further in Section II, for purposes of performance payments and penalties, the Operating Agreement measures Amtrak's performance against its schedules, but appropriately focuses on the contribution of the host railroad to that performance. Therefore, if Amtrak's schedules are unrealistically short, one cannot expect that even high quality host performance will translate into high quality Amtrak on-time performance. Even with strong host performance, as recognized under the Operating Agreement, many Amtrak trains may arrive late because their schedules are too short. As we elaborate below, the City of New Orleans and Illini/Saluki services exemplify this problem.

Unfortunately, with respect to its services over CN's lines, Amtrak's schedules are out of date and some are unrealistically short. As discussed in Section III.A., the basic building blocks of Amtrak's schedules have not been checked and verified in decades, and it is evident from modeling that key aspects of Amtrak's schedules for services on CN's lines are too short, which is hurting Amtrak's on-time performance.

Another issue that undermines Amtrak's schedules is their year-round application and general inflexibility. There is known seasonality in freight schedules (due to recurring events such as the transportation of the annual grain harvest), which can lead to temporary capacity constraints and increased delays; summer maintenance programs can cause delays due to work blocks; extreme heat and cold conditions can cause slow orders due to heat kinks or frozen switches; and seasonal changes in passenger demand can lead to longer dwell times to accommodate more passengers and their bags. Amtrak's schedules on CN's lines, however, apply year-round, regardless of weather, maintenance-of-way programs, emergencies, or seasonal conditions.[16]

Despite the evident inefficiencies in Amtrak's schedules, the parties have not been successful in addressing them. CN's efforts to suggest reasonable lengthening of schedules have too often been met with steadfast Amtrak refusals,[17] and the existing Operating Agreement is not conducive to joint efforts to modify Amtrak's schedule. Accordingly, CN proposes below that the Operating Agreement be amended to address these issues by requiring regular, binding, model-driven reviews of Amtrak's schedules for services on CN's lines. Until Amtrak's schedules are modernized and corrected, and public funds are found to pay for major capacity

[16] These issues do not require that Amtrak change its schedules in response to every seasonal fluctuation. Amtrak can balance the use of seasonal or temporary schedules against additions to its schedule to assure there is sufficient time to account for periods when it can be expected to operate at lower speeds or with more delays.

[17] *See, e.g.*, ATK0000030554 [redacted]

improvements on CN's lines required to meet Amtrak's service demands, many of its trains are likely to continue to have on-time performance issues, despite the best efforts of CN and Amtrak.

II. THE EXISTING AGREEMENT AND ITS WELL-DESIGNED STRUCTURE FOR COMPENSATION AND EFFICIENT INCENTIVES

CN's provision of services and facilities to Amtrak for intercity rail passenger operations is governed by the Operating Agreement. The Operating Agreement covers all aspects of the CN/Amtrak relationship, including schedules, standards of performance, a requirement that CN maintain its tracks to a certain level of utility, base compensation paid by Amtrak for the incremental costs to CN of hosting Amtrak services,[18] performance payments and penalties for service above or below the base level of service, and provisions for allocating liability between the parties and for dispute resolution. The primary matters in dispute between the parties in this proceeding relate to the base compensation and performance payments and penalties under the Operating Agreement.

[redacted][19]

[18] [redacted]

[19] [redacted]

[redacted][20]

[redacted]

[redacted]

[20] [redacted]

[redacted]

A. The Operating Agreement Is Intended to Cover All Incremental Costs for Base Levels of Performance.

[redacted][21]

[redacted]

[21] [redacted]

[redacted] As detailed in the verified statement of Anne Morehouse, CN's freight trains suffer significant delays due to Amtrak. V.S. Morehouse, Section II. In the ordinary course of operations CN suffers operating delay, for example, when CN trains are held in sidings or yards for meets with or overtakes by Amtrak trains in order to minimize delays to those Amtrak trains. *Id.* In addition, CN can suffer serious delays to its trains as a result of events involving Amtrak trains, such as derailments, crossing and other accidents, mechanical breakdowns, running out of fuel, or expiration of crews under the Hours of Service Act. *Id.* As

a result of such delays, CN incurs substantial incremental costs, including added costs for fuel, train and engine crews, locomotives, and railcars.[22]

CN also incurs significant costs due to Amtrak's consumption of CN's limited line capacity that are not recorded as delays, or that cannot practicably be quantified. Some of the operating costs of this nature, for example the costs associated with running shorter freight trains (so they can fit in sidings, so that Amtrak can pass them), or limiting certain trains to night-time operation to minimize any conflicts with Amtrak, are described by Ms. Morehouse in her statement. *Id.* Other practically unquantifiable costs related to impacts on CN's business are outlined in the verified statement of Fiona Murray, and also reflected in statements and letters submitted by several CN freight customers and attached to Ms. Murray's statement, which also highlight the costs suffered by those customers due to Amtrak-related congestion. As explained in the verified statement of Robert D. Willig, all such costs to CN are incremental costs for which Amtrak should compensate CN, insofar as it chooses not to eliminate them by funding capacity additions. V.S. Willig, Section I.B.

Prior to advances over recent years in train tracking technology, it would not have been practicable to track the duration and root causes of freight train delays. Moreover, as noted above, in the 1970s, when Amtrak's agreements were originally negotiated, there was less passenger and freight traffic, so such delay and interference costs to freight were less substantial than they are now. The Operating Agreement therefore evolved without a provision to track or compensate for these costs. Moreover, the Operating Agreement does not provide for Amtrak to pay for capacity improvements – even if needed to reduce delays to Amtrak and/or Amtrak-

[22] *See generally* Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher of FTI Consulting.

caused delays to freight traffic – unless Amtrak approves such investments.[23] As a result, under the Operating Agreement, CN is presently incurring without compensation substantial incremental delay and interference costs associated with hosting Amtrak's services. As discussed in Subsection IV.A., below, CN proposes that the Operating Agreement be amended to address this significant deficiency.

B. The Operating Agreement Allows CN to Earn More than Its Base Incremental Costs Through Performance Payments and Penalties Based on Quality of Service.

In addition to the recovery of CN's base incremental costs through the base compensation provision, the Operating Agreement provides (in Appendix V) a system for Performance Payments and Penalties that provides CN an opportunity to earn compensation above the base level of incremental cost compensation for hosting Amtrak's services. Performance Payments and Penalties have been integral parts of the basic Amtrak Operating Agreement (and, we understand, the operating agreements of other host railroads) for decades.[24] The prospect of

[23] *See* Agreement § 4.3.B.

[24] When Amtrak first assumed responsibility for the operation of intercity passenger trains in 1971, it did not enjoy a strong working relationship with the freight railroads, and its initial performance was unsatisfactory. The first incentive arrangements with host railroads were negotiated in 1974 and were intended to improve that performance by aligning the host railroads' interests with Amtrak's. Penalty provisions (which are required by the Rail Passenger Service Act) were added to host railroad operating agreements beginning in 1980.

Since then, it has been widely accepted that payments for performance exceeding a base level of performance provide a critical incentive for host railroads. Without the possibility of earning such payments, the limitation of host base compensation to incremental costs would leave hosts with no economic incentive to perform on behalf of Amtrak. To the contrary, absent incentive payments, host railroads would receive *less* than their incremental costs for performance exceeding the base level, to the extent that the base compensation provided for in their operating agreements is limited to the amount calculated to cover the cost of providing the base level of performance and does not take into account additional costs incurred to provide service at a higher level of quality. James L. Larson, Nat'l R.R. Passenger Corp., The Art of Scheduling Trains, The Impact of Delays, and The Art of Schedule Analysis 50-51 (2d ed. 1996).

earning Performance Payments plays an important role in providing CN with incentives to manage our network to meet and exceed performance goals. Our operating team closely monitors the performance of Amtrak's trains with the goal of helping each of Amtrak's trains to arrive within its scheduled run time (*i.e.*, that it arrives on time in accordance with its published schedule and tolerance).[25]

In the following sections, we describe how the Performance Payments and Penalties are calculated under the Operating Agreement for Amtrak's services on IC's lines and some of the key elements of the system that are integral to its proper functioning.

1. Determining the level of performance payments and penalties under the Operating Agreement

[redacted]

[25] *See* V.S. Morehouse, Section IV.

[redacted]

[redacted][26]

[redacted]

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26 [redacted]

2. The Operating Agreement calculation of net performance payments includes a "lookback" provision that prevents CN from earning less than its base compensation for incremental costs for any 12 months

[redacted][27][redacted][28][redacted]

[27] [redacted]

[28] [redacted]

[redacted]

[redacted][29] [redacted]

[redacted]

[redacted]

29 [redacted]

[redacted]

3. Performance Payments and Penalties are based on the quality of CN's service, including whether a delay is within CN's reasonable control.

[redacted][30]

[30] [redacted]

[redacted]

[redacted][31]

[redacted]

4. Information and dispute resolution for determining responsibility for delays

[redacted]

[31] [redacted]

[redacted]

C. Reviewing and Updating Amtrak's Schedules

[redacted]

[redacted]

III. THE STRUCTURE OF THE OPERATING AGREEMENT IS SOUND, AND IT OPERATES AS INTENDED TO INCENTIVIZE STRONG CN PERFORMANCE

A. The Quality of CN's Service to Amtrak Is Most Accurately Measured by CN's Performance Under the Operating Agreement

1. CN has performed well as an Amtrak host, as demonstrated by its strong KOTP under the Operating Agreement

As explained above, KOTP provides the best measure of CN performance because it measures CN's actual contribution to Amtrak's performance against its schedules. It is

structured to measure only the delays that are CN-responsible, which is critical to any efficient incentive/penalty provision. As the following table demonstrates, CN's performance under the KOTP measure of the Operating Agreement has been strong.[32]

Table 2
Average Monthly KOTP for Amtrak Services Hosted by CN
January 2012 – December 2014 and Q1-Q2, 2015

Service	Average Monthly KOTP, 2012-2014	2015	
		Q1	Q2
City of New Orleans	90.2%	78.6%	91.7%
Illini/Saluki	84.1%	90.6%	89.9%
Texas Eagle	91.6%	91.0%	91.2%
Lincoln	96.2%	96.9%	96.0%
Blue Water	94.8%	96.6%	96.2%
Wolverine	88.6%	90.2%	87.9%

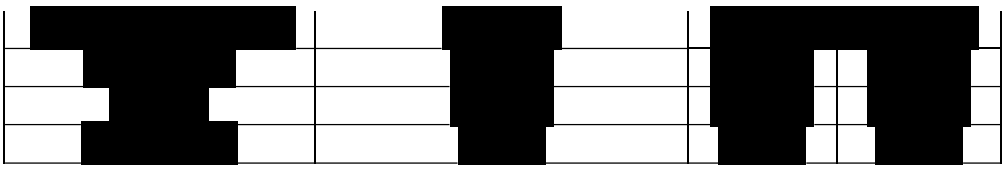
CN consistently averages KOTP above 80% across all six services – meaning that CN is on average performing above the base level of performance that was negotiated with Amtrak (70-79% KOTP). In fact, five of the six services have a monthly average KOTP of 89% or higher over the past 3 years. The average KOTP for all Amtrak services operating on CN was 90.8% in 2012, 93.8% in 2013, 88.0% for 2014, and 91.6% for the first 7 months of 2015.

[redacted]

Table 3
Average Monthly Performance Payments for Amtrak Services Hosted by CN on the IC Lines
January 2012 – December 2014 and Q1-Q2, 2015



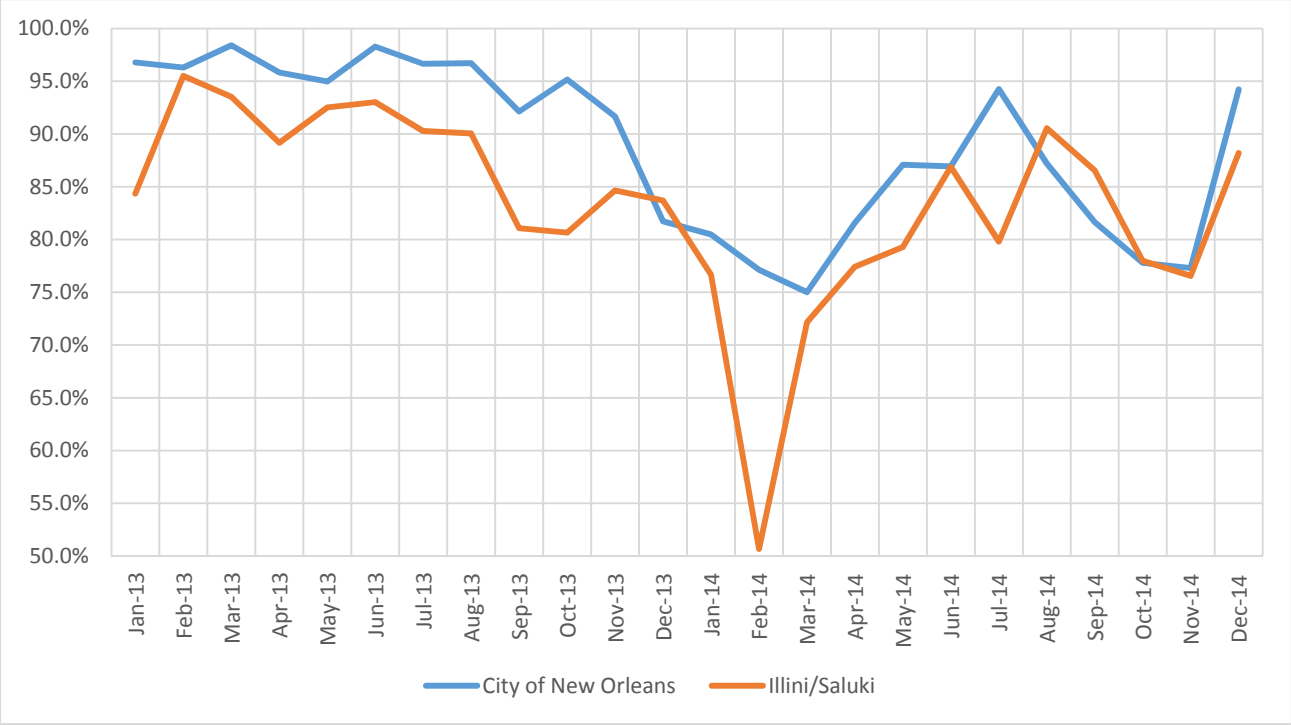
[32] *See* Ladue/Kuxmann workpaper "CN KOTP and Performance Payments.xlsx" for the monthly KOTP and Performance Payment source data for this table and the following discussion. The Illini/Saluki KOTP is based on CN's billing, and thus does not reflect the dispute between the parties concerning operating restrictions imposed to prevent short shunts by Amtrak's equipment, which is discussed in Section III.B.2, below.



A significant exception to that generally high performance was February 2014, when CN was battling severe weather conditions that hurt the performance of all trains operating on its lines, whether freight or passenger. As a result of that decline in performance, CN earned net penalties during that month.[33] As one would expect of a well-functioning agreement, however, following this slip in performance, with CN's desire to avoid further penalties and the prospect of increased Performance Payments, CN improved its performance as soon as the weather conditions made it feasible to do so. The following Figure, showing monthly KOTP for the City of New Orleans and the Illini/Saluki service between January 2013 and December 2014, illustrates this effect.

[33] Because CN had performed well in earlier months, the contractual "lookback" provision did not apply, and CN suffered the full extent of those penalties.

Figure 1
Monthly KOTP for City of New Orleans and Illini/Saluki services



CN's strong performance under the terms of the existing Operating Agreement demonstrates that the Performance Payments and Penalties system is working as intended: it is incentivizing CN to reduce CN-attributable delays and drive a high level of service from CN. As discussed above in Section II.B.2., since the current Agreement went into effect in 2011, CN has always been in a position where it had a reasonable opportunity to earn incentive payments.[34]

2. <u>The PRIIA metrics provide little insight into CN's performance as a host for Amtrak's services</u>

In the Metrics and Standards issued pursuant to PRIIA,[35] Amtrak and FRA created several measures and indicators Amtrak on-time performance, including Endpoint OTP and All-

[34] In addition to such financial considerations, CN also takes seriously its legal obligations toward Amtrak and the public interest served by Amtrak's transportation services to its passengers.

[35] Federal Railroad Administration, Metrics and Standards for Intercity Passenger Rail Service at 13 (Docket No. FRA-2009-0016) ("Metrics and Standards"), *available at*

Stations OTP. Those nationwide metrics do not take any account of the specific factors affecting, and contractual agreements and compensation arrangements relating to, specific routes and specific Amtrak host relationships, and they do not provide nearly the useful insight into the quality of CN's performance that is provided by KOTP. Endpoint OTP and All-Stations OTP do not isolate the performance of individual hosts when services have multiple hosts. All six Amtrak services hosted by CN include at least one other railroad,[36] and both Endpoint OTP and All-Stations OTP can be very substantially affected by delays that occur on the lines of those hosts (including Amtrak's own lines). For the shorter services that operate on CN's lines, many trains can and do operate with no delays at all on CN's lines, yet fail to meet either the Endpoint OTP or All-Stations OTP standard.[37] The PRIIA OTP metrics also fail to account for delays which, although they occur on CN's lines, are caused by matters outside CN's reasonable control (such as delays caused by Amtrak or third parties).[38]

http://www.fra.dot.gov/rpd/Downloads/Section_207_Metrics_and_Standards_2010-05-05_Final.pdf.

[36] Only two of Amtrak's services hosted by CN operate without a major share of their movements over other host carriers. Amtrak's Texas Eagle, Lincoln, and Wolverine services operate a substantial majority of their route-miles over non-CN lines.

[37] Delays on the non-CN portion of the route can also be an issue on the services for which CN hosts the substantial majority of the Amtrak route. Between 2012 and 2014, 8.5% of delays recorded on the Illini/Saluki service occurred on the 0.7% of the route that is controlled by Amtrak. *See* Ladue/Kuxmann workpaper "Illini-Saluki Delay Analysis 2012-2015.xlsx," tab "Non-CN delays."

[38] In addition, All-Stations OTP cannot meaningfully be applied to Amtrak's existing schedules for services on CN's lines, because recovery time in those schedules, which is an essential component of scheduled run time, has not been rationally spread between stations. Instead, in many cases, recovery time is presently "back loaded," that is, concentrated in the final segment of a movement. Although this back loading does not present an issue when measuring KOTP or endpoint OTP, it understates the reasonably achievable run times between intermediate stations and thus undermines any meaningful measure of All-Stations OTP.

The other primary PRIIA metric, "Host-Responsible Delay," or "HRD," which ostensibly focuses on individual host performance, nonetheless has deficiencies that make it far less meaningful than KOTP for purposes of measuring CN's performance as a host. First, while HRD purports to be limited to delays that are the "responsibility" of the host, Amtrak's use of broad codes sweeps in many delays that are clearly outside of the host's ability to control. A prime example of this are delays at interlockings not controlled by the host carrier – because the host railroad does not control the signal at an interlocking, it cannot prevent delays due to cross traffic at that location. Yet, for HRD purposes, Amtrak would attribute those delays to the host railroad.

Second, because the PRIIA HRD metric cumulates delay minutes per train miles, it fails to recognize and incentivize the efforts of CN to help Amtrak make up time against its schedule when (for whatever reason) it has fallen behind.

Third, the standard for HRD developed by Amtrak and FRA under PRIIA, 900 HRD per 10,000 train miles, was originally developed as an estimate of the number of host-responsible delay minutes that could be incurred for Amtrak per 10,000 train miles in order to achieve endpoint on-time performance nationwide and then arbitrarily increased because of complaints it was so unreasonably low. The standard is therefore not specific to the Amtrak routes or schedules on CN's lines, and certainly is not meaningful as an indicator of required performance by CN as an Amtrak host for those routes.

Finally, the PRIIA HRD metric ignores the ultimate goal of on time performance in another way. Because it cumulates delays across a large number of trains (*i.e.*, all trains that operated during a month) and expresses those delays per 10,000 train miles, it is subject to having large individual train delays overshadow and distort the overall measure. For example,

CN can fail to meet Amtrak's HRD standard even if 90% of Amtrak's trains arrive on time if a few delays to the remaining 10% are large enough. For services that have a small number of train miles on a host, such as the Wolverine, Texas Eagle, and Lincoln services on CN, a small number of major delays can easily overwhelm the general measure of HRD under PRIIA, because it is measured per 10,000 train miles. Under KOTP, by contrast, each failure to meet on-time performance standards counts once towards the KOTP performance percentage, so no one failure can overwhelm the overall performance metric.

The following chart compares KOTP and various other measures sometimes applied as a means of judging the performance of host carriers. It highlights that none of the alternatives measures is nearly as revealing or useful as KOTP in developing a clear understanding of the quality of a host's performance.

Measurements of Amtrak Host Performance

(% KOTP vs. measures as adopted under PRIIA)

	Measures Performance of Individual Host for Multi-Host Moves?	*Measures Host-Responsible Delay & Bases It On Specifics, Not General Codes?*	*Reflects Made Up Lost Time?*	*Standards, Measures & Route/Schedule Developed Together?*	*Prevents Outliers From Over-whelming the General Measure?*
% KOTP	✓	✓	✓	✓	✓
%Endpoint OTP	X	X	✓	X	✓
% All-Station OTP	X	X	✓	X	✓
HRD/10k Miles	✓	X	X	X	X

3. Proper schedules are critical to Amtrak on-time performance

Finally, as noted above in Section I.C., and elaborated in Section III.B., below, for Amtrak's Illini/Saluki and City of New Orleans services, the inadequate running time in Amtrak's schedules is another important factor explaining why Amtrak's on-time performance does not always reflect CN's strong KOTP performance. Amtrak's schedules have three basic components: "pure" run time ("PRT"), recovery and/or miscellaneous time,[39] and dwell time.[40] Having the right amount of each element in the schedule is critical to achieving high OTP for a service.

PRT is the theoretically shortest time, given established track speeds, in which a given Amtrak train can traverse its assigned route if there is no other traffic on the rail line and all operating conditions are perfect. As a basic building block for schedules, it is critical. If PRT is understated, a service will struggle to achieve high OTP, regardless of the quality of the on-the-ground performance of Amtrak and the host carrier.[41] In addition, correcting understated PRT for a service is likely to decrease the number of minutes of reported delay for the service for purposes of HRD. When Amtrak reviews a train's performance, any actual run time in excess of PRT and scheduled station dwell is considered delay, even if the train arrives on schedule (given

[39] Defined as an amount of time added to the schedule to compensate for all reasonably foreseeable contingencies and delays (regardless of source) encountered along the route so that the train's schedule can be met with regularity.

[40] Defined as the amount of time required to perform work while a train is stopped at a station, including loading and unloading passengers and bags, changing crews, and/or servicing the locomotive or cabin cars.

[41] *See* ATK 0000338386) [redacted]

recovery time). Thus, if there is too little PRT in a schedule, it can artificially inflate the minutes of delay reported by Amtrak.[42]

There is no agreed process for the establishment of PRT, but minimum PRT can be established easily and objectively by modeling the two factors it chiefly depends upon – maximum authorized track speeds and a train's power-to-weight ratio (which varies by the number and type of locomotives and the number and type of cars). Insofar as CN is aware, the PRTs for the various Amtrak services that operate on CN have not been regularly checked by Amtrak to ensure they are accurate and Amtrak has not undertaken to have the PRTs verified through modeling or any other objective process during the period in which we have overseen administration of the Operating Agreement.[43]

As reported in the joint verified statement of Messrs. Krueger, Doyle, and Rank, by using its Train Performance Calculator ("TPC"), CN has analyzed the minimum run time for Amtrak trains on various services, and that analysis shows that the schedules for both the Illini/Saluki and the City of New Orleans services have insufficient PRT.[44] The specific results of CN's

[42] *See id.*

[43] *See* ATK0000030459

[44] *See* ATK0000030554

analysis for these two services and its impact on Amtrak's performance is discussed in the context of the broader analysis of those services in Section III.B., below.

B. Amtrak's Performance Under Various PRIIA Standards Does Not Properly Reflect the High Quality of CN's Host Services

Focused and objective analysis demonstrates that CN's performance as a host has been strong, and that Amtrak's failures to meet various PRIIA standards do not demonstrate otherwise; nor are they primarily due to CN. Amtrak's failure to meet PRIIA standards has been driven by (i) events that occur off of CN's lines,[45] (ii) delays that occur on CN's lines but are outside of CN's reasonable control,[46] (iii) insufficient PRT in Amtrak's schedules, and (iv), in the case of the PRIIA HRD standard, misleading aggregation of a relatively small number of unusually lengthy delays. In the following sections, we review in turn each of the Amtrak services that operate on CN's lines.[47]

1. The City of New Orleans: Amtrak's top performing long-distance service

The City of New Orleans service consists of two trains per day (1 northbound and 1 southbound) that operate between Chicago and New Orleans; 927.8 of the 933.8 total route miles (99.4%) are on the IC Lines. From January, 2012 to July, 2015, CN's monthly average KOTP

[45] *See* ATK0000032327 [redacted]

[46] *See id.* [redacted]

[47] Data in this and the following sections related to the PRIIA metrics comes from Amtrak's Monthly Performance Reports, which are available on the "Reports and Documents" section of its website, and Amtrak's CDR database, and included in the Ladue/Kuxmann workpaper "CN KOTP and Performance Payments.xlsx," tab "PRIIA Metrics."

for this service was 89.6%, and has been 96.4% over the last three months for which data is available (May – July 2015).[48] Because of the route's length, it represents almost half of all Amtrak route miles hosted by CN (47.5%), and accounts for a significant portion of CN's Performance Payments [redacted] Given CN's control over approximately 99% of the route miles for this service, it is also an excellent example of how the structure of the current agreement effectively aligns CN's and Amtrak's interest in high quality service.

According to Amtrak's key PRIIA measures, the City of New Orleans service is Amtrak's best performing long-distance service, and has been for a long time.[49] The service's Endpoint OTP is regularly the highest among Amtrak's long-distance services.[50] According to published Amtrak data, it is also the only long-distance service to have a monthly average Endpoint OTP above 80% for the period January 2012 through July 2015, and it has had the fewest months during that period (12 of 43) where the service operated with an Endpoint OTP below 80% (the next-best long-distance service, the Auto Train, had 21 months with an Endpoint OTP below 80%). The following table summarizes the Endpoint OTP performance of the long-distance services, based on Amtrak's monthly reports for the period January 2012 through July 2015.[51]

[48] *See* Ladue/Kuxmann workpaper "CN KOTP and Performance Payments.xlsx."

[49] *See* ATK0000091272 [redacted]

[50] Endpoint OTP is particularly meaningful with regard to this service because over 99% of the route is on CN, and high Endpoint OTP on this route tends to confirm the correlation between KOTP and CN's contribution to the overall performance of the service.

[51] *See* Ladue/Kuxmann workpaper "CNO delay analysis," tab "Long-Distance OTP."

Table 3
Endpoint OTP Performance of Long-Distance Services
January 2012 through July 2015

Service	Average Monthly Endpoint OTP, Jan. 2012 – Jul. 2015	Number of months below 80% Endpoint OTP, Jan. 2012 – Jul. 2015
Auto Train	78.0%	21
California Zephyr	52.7%	38
Capitol Limited	55.3%	32
Cardinal	47.2%	42
City of New Orleans	81.2%	12
Coast Starlight	78.8%	22
Crescent	65.1%	32
Empire Builder	47.8%	41
Lake Shore Ltd	54.3%	37
Palmetto	70.8%	32
Silver Meteor	56.8%	42
Silver Star	56.5%	42
Southwest Chief	68.0%	29
Sunset Limited	65.8%	34
Texas Eagle	56.0%	36

This performance is particularly remarkable given the results of CN's analysis of the PRT underlying the schedule for the City of New Orleans. That analysis, which is summarized in Table 4, demonstrates that the PRT is deficient for Amtrak's northbound Train No. 58 by at least 19 minutes, and for the southbound Train No. 59 by at least 36 minutes.[52]

Table 4
Run-time Deficiencies in the City of New Orleans Schedules
(based on 1 P42 locomotive and 9 Superliner cars)

Trains	Segment Endpoints	Minutes of PRT in Amtrak Schedule	Minimum Run Time from TPC	Schedule Deficiency	
				Mins.	Percent
58	Southport Jct.-Clark St.	914.0	933.0	(19.0)	-2.1%
59	Clark St.–Southport Jct.	892.0	928.0	(36.0)	-4.0%

[52] CN's TPC analysis and results are described more fully in the Joint Verified Statement of Harald Krueger, Brian Doyle, and Nikola Rank, Section V.A.

If this PRT deficiency were corrected in Amtrak's schedule, the on-time performance for this service would be even greater than at present. The following table compares the percentage of trains that experienced less than the "allowable" amount of delay (based on the recovery, miscellaneous, and tolerance minutes in the schedule) with and without the necessary adjustment to PRT in the schedule.[53]

Table 5
Estimated Effect of Insufficient Run Time on City of New Orleans Endpoint OTP
January 2012 – May 2015

Train	Average Unadjusted OTP	Average OTP with Corrected PRT in Schedule
58	63.7%	78.2%
59	77.1%	87.0%
Service	70.4%	82.6%

As discussed in Section IV.E., CN proposes to develop a new provision for the Operating Agreement to formalize a process to address Amtrak schedule issues.

2. The Illini/Saluki: CN performs well, despite being hindered by unrealistic schedules and Amtrak equipment issues.

The Illini/Saluki service consists of four trains per day (2 northbound and 2 southbound) that operate between Chicago and Carbondale, IL. Over 99% of the route (306.7 out of 308.9 total miles) operate on the IC Lines. During the period January 2012 through July 2015, CN's monthly average KOTP was 85.2% for this service, and has been 89.7% over the last three

[53] Amtrak does not publish the list of trains that it considers on time for purposes of the Endpoint OTP metric. Therefore, we have used the "allowable" amount of delay as a means of estimating whether a train is on time at its endpoint. A train cannot be on time if it experiences more minutes of delay than there are minutes of recovery, miscellaneous, and tolerance time in the schedule. The data underlying these calculations is derived from Amtrak's CDRs, and can be found in the Ladue/Kuxmann Workpaper "CNO delay analysis.xlsx," tab "OTP Analysis."

months for which data is available (May – July 2015).[54] Unfortunately, this relatively high level of performance under the Operating Agreement has not translated into better performance as measured by Amtrak's other metrics.

One reason it has not done so is unrealistic schedules.[55] A summary of the results of CN's modeling analysis of the schedules for the Illini/Saluki trains is presented in the following table:[56]

Table 6
Run-time Deficiencies in the City of New Orleans Schedules
(based on 1 P42 locomotive and 7 Horizon/Amfleet cars)

Trains	Segment Endpoints	Minutes of PRT in Amtrak Schedule	Minimum Run Time from TPC	Schedule Deficiency	
				Mins.	Percent
390/392	Carbondale-Clark St.	265.0	280.5	(15.5)	-5.8%
391/393	Clark St.-Carbondale	265.0	279.1	(14.1)	-5.3%

As shown in Table 6, PRT is deficient for Amtrak's northbound Train Nos. 390 and 392 by at least 15.5 minutes, and for the southbound Train Nos. 391 and 393 by at least 14 minutes. In each case, this is over 5% of the existing run time in the schedule.

Amtrak's own data likewise indicate that PRT is insufficient on this service, as Amtrak's conductors frequently code delays as "OTH," indicating that their train was unable to make its running time over a segment.[57] These delays, while generally of short duration, can in the

[54] As discussed in more detail below, a dispute over the proper attribution of some delays on this service arose in September 2014. The cited KOTP figures are based on CN's calculation of KOTP for the months since the dispute arose.

[55] As discussed in Section III.A., above, the lack of sufficient run time in the schedule affects performance under all three key PRIIA metrics.

[56] As noted above, CN's TPC analysis is described more fully in the Joint Verified Statement of Harald Krueger, Brian Doyle, and Nikola Rank.

[57] *See also* ATK0000140872 [redacted]

aggregate cause significant delays (and thus harm to on-time performance), as shown on the following table.[58]

Table 7
OTH Delays on the Illini/Saluki Service, January 2012 - December 2014

Train	Percent of trains with an OTH Delay	OTH delay minutes as a percent of total delay minutes	Average train's OTH delay minutes
390	73.4%	11.1%	7.5
391	79.1%	8.3%	5.5
392	71.1%	5.5%	4.7
393	72.5%	8.1%	5.8
Service	**74.0%**	**8.1%**	**5.9**

One final analysis demonstrates the poor design of the Illini/Saluki's schedules. When compared to the schedules of every other corridor service operated by Amtrak, the Illini/Saluki's schedule is among the shortest relative to its distance. In other words, the ratio of the route miles of the service to the schedule time allotted to cover that distance is very high for the Illini/Saluki service when compared to other corridor services. Many factors can affect the length of schedules, but the fact that the Illini/Saluki's schedule is such a significant outlier as compared to the schedules of the services to which is it most alike strongly suggests once again that it has inadequate run time.

[redacted]

[58] The data underlying these calculations is derived from Amtrak's CDRs, and can be found in the Ladue/Kuxmann Workpaper "Illini-Saluki Delay Analysis.xlsx," tab "OTP Analysis."

The following table compares the distance and schedule time for all Amtrak corridor services. The first four columns show (1) the average total schedule time,[59] (2) the average estimated scheduled dwell time,[60] (3) the average adjusted schedule time less estimated scheduled dwell, and (4) the average distance traveled for each train that comprises the service.[61] The final two columns divide the distance by the schedule time to calculate the average speed (in miles per hour) that a train must travel in order to arrive at its endpoint at the scheduled time, both with and without scheduled dwell taken into account.

[59] The schedule time is the sum of run time, station dwell time, and recovery/miscellaneous time and can be calculated through the schedules posted on Amtrak's website.

[60] In order to provide a better comparison of true run times allowed by the schedule, we have adjusted them to account for scheduled dwell. However, scheduled dwell times are not publicly available except at a few major stations. We have therefore conservatively estimated that the scheduled dwell at all non-major stations is 2 minutes.

[61] Schedule and distance data is current as of August 24, 2015. Because not all trains on a service operate between the same origins and destinations or have the same scheduled running time between the same origin and destination pairs, we use an average for all trains that comprise a particular service. Data for individual trains can be found in our workpaper "Illini-Saluki schedule comparison.xlsx," tab "Corridor services data."

Table 8
Comparison of Schedule Time in Amtrak Corridor Services

Service	Total schedule time (mins)	Estimated Dwell Time (mins)	Estimated Run Time w/o Scheduled Dwell	Average Distance (Miles)	Scheduled miles per hour	Scheduled miles per hour (w/o dwell)
IL Zephyr/Carl Sandburg	263	16	247	258	58.9	62.7
Hiawatha	91	6	85	86	57.0	61.1
New York - Albany	151	9	142	142	56.4	59.8
Illini/Saluki	330	12	318	309	56.2	58.3
Piedmont	191	12	179	173	54.5	58.2
San Joaquin	350	24	326	315	54.0	57.9
Carolinian	564	24	520	479	53.0	56.3
New York - Niagara Falls	535	40	495	461	51.7	55.9
Heartland Flyer	238	10	228	206	51.9	54.2
Pennsylvanian	557	65	492	444	47.9	54.2
Lincoln	333	17	316	284	51.2	54.0
Maple Leaf	553	41	512	460	49.9	53.9
Missouri River Runner	340	16	324	283	49.9	52.4
Blue Water	392	18	374	319	48.9	51.2
Wolverine	380	21	359	304	48.0	50.9
Cascades	278	20	257	218	47.0	50.8
Downeaster	173	21	152	128	44.2	50.2
Capitol Corridor	159	18	140	114	43.1	48.8
Pacific Surfliner	269	35	234	188	41.8	48.0
Ethan Allen	337	34	303	241	43.0	47.7
Adirondack	483	46	437	332	41.3	45.6
Vermonter	566	64	502	379	40.2	45.3
Pere Marquette	250	6	244	176	42.2	43.3
Hoosier	305	8	297	196	38.6	39.6
Average All Corridors	337	25	312	271	48.7	52.5

As the table shows, the schedules for only three services require average speeds greater than the Illini/Saluki. None of those three services are comparable to the Illini/Saluki. The BNSF line that hosts the IL Zephyr service is double tracked for almost two-thirds of its route (162 of 258 route miles), allowing the trains to achieve and maintain significantly higher speeds

for longer periods of time.[62] Likewise, the CP and Metra line that hosts the Hiawatha service is double (and in some areas triple) tracked for the entire length of the route, and the New York-to-Albany line is double-tracked for its entire route. Unlike those three services, the Illini/Saluki service operates over no substantial portions of double track. This is a critical factor given that the Illini/Saluki operates over one of the busiest stretches of CN's main line, and that this is a corridor for which CN has demonstrated there is a need for additional infrastructure if Amtrak wishes to reduce delays for this service. *See* Section I.B., supra.

Many Illini/Saluki trains miss their endpoint arrival time by a few minutes, and eliminating the delays caused by insufficient run time could significantly increase the on-time performance of these trains. The following table shows the estimated increase in OTP that could be achieved by lengthening the schedule in order to eliminate delays caused by insufficient run time.

Table 9
Estimated Effect of Insufficient Run Time on Illini/Saluki Endpoint OTP
January 2012 – December 2014

Train	Average Unadjusted OTP	Average Estimated OTP With Corrected PRT In Schedule	Average Estimated OTP with OTH Delays Eliminated (no PRT adjustment)
390	66.7%	82.6%	73.8%
391	66.8%	79.4%	71.0%
392	41.9%	65.1%	47.4%
393	66.3%	78.6%	70.6%
Service	60.4%	76.4%	65.7%

While a more rigorous process may be necessary to identify the specific locations with insufficient run time and make corrections and adjustment for those locations and other Amtrak

[62] The extent of double tracking was estimated from satellite images or other public sources, such as https://en.wikipedia.org/wiki/Illinois_Zephyr, and http://www.amtrak.com/ccurl/492/133/NorthCoastHiawathaServiceStudy.pdf

schedule problems, the above analysis demonstrates that even small changes in PRT can have significant positive effects on a train's performance. As noted above, in Section IV.E., CN proposes to develop a new provision for the Operating Agreement to formalize a process to address Amtrak schedule issues.

In addition to scheduling issues, another issue has significantly harmed the performance of this service. Amtrak is operating some of its train in this service with single-level Horizon/Amfleet cars. Those trains have on occasion failed to properly close an electric circuit or "shunt" for purposes of crossing signals on CN's lines (the error is commonly called a "short shunt," meaning the train does not activate the crossing signals in a timely manner). As a result, CN has had to impose operating restrictions for purposes of protecting the public safety that prevent those trains from traveling at their maximum operating speeds. These delays have significantly affected the on time performance of Amtrak's trains. Without these delays, the average HRD for this service would have improved in August 2015 from 1551 per 10,000 train miles to 937 per 10,000 train miles.

The parties disagree as to responsibility for delays resulting from the operating restrictions that affect these trains. CN has been trying to engage Amtrak in an effort to establish definitively the cause of the short shunts experienced with the Amtrak equipment (single-level Horizon Amfleet cars) and to explore potential means of addressing them so that the operating restriction may be lifted. Notably, if Amtrak switched to using Superliner cars these delays would not be incurred. CN also believes Amtrak could add shunt enhancers to its locomotives to eliminate these delays, even if it wished to continue to use its single-level Horizon Amfleet cars. CN is hopeful that this issue can and will be resolved jointly by the parties in a way that will allow the Illini/Saluki service to operate without a speed restriction.

In sum, Amtrak's service issues for the Illini/Saluki are not due any general CN service deficiency. Amtrak's performance for this service would markedly improve if (1) reasonably achievable schedules, including updated PRT, were adopted, (2) as part of that process, Amtrak considers potential infrastructure investments to increase the capacity of congested segments of the service, and (3) the short shunt issue is resolved.

3. Lincoln and Texas Eagle: Delays outside of CN's reasonable control and flaws in Amtrak's metrics obscure CN's true performance

Two Amtrak services – the Lincoln and the Texas Eagle – operate over a 34.9-mile portion of CN's Joliet Subdivision. The Lincoln service covers a total distance of approximately 284 miles between Chicago and St. Louis, and the Texas Eagle service covers a total distance of approximately 1,305 miles between Chicago and San Antonio. CN's portion of the route therefore represents 12.3% of the Lincoln service and 2.7% of the Texas Eagle service. Between January, 2012 and July, 2015, CN's monthly average KOTP was 91.5% for the Texas Eagle and 96.2% for the Lincoln service.[63]

CN's excellent KOTP for these services is not reflected in their average monthly Endpoint OTP under PRIIA for the same period: 68.8% for the Lincoln service and 56.0% for the Texas Eagle. But that is not surprising, since CN hosts only a very small portion of these routes, and thus contributes little to overall OTP.[64] Moreover, both in absolute terms and proportionately, there are fewer delays on CN's portion of these routes than on the remainder of the route.

[63] *See* Ladue/Kuxmann workpaper "CN KOTP and Performance Payments.xlsx."

[64] *See, e.g.,* [redacted]

Although Amtrak generally reports high average HRD (under PRIIA) for the CN portion of these routes, that is more indicative of the deficiencies with that metric than it is with CN's performance. These services exemplify three of the primary problems with the HRD metric: (i) on short segments, low absolute minutes of HRD can nonetheless exceed the standard, (ii) cumulating delays obscures strong performance by the majority of trains, and (iii) delays that are outside the reasonable control of the host are nonetheless counted as HRD by Amtrak.

Because these services operate over a very short segment of CN, to remain under the PRIIA standard of 900 HRD per 10,000 train miles, CN must keep HRD below 3.1 minutes per train. Avoiding such a small number of delay minutes is challenging given that the CN portion of the route is along a dense industrial corridor between Chicago and Joliet, which, in addition to CN's trains, hosts daily Metra commuter trains plus another freight carrier's trackage rights trains. Moreover, because CN's share of this route is so short, exceeding this number of delay minutes by even a small number results in a hugely magnified number of delay minutes when restated on the basis of minutes per 10,000 train miles; each minute of delay is equivalent to 287 minutes per 10,000 train miles. Thus, a relatively minor 5 minute delay would be the equivalent of 1433 minutes of HRD per 10,000 train miles.

Because of the way HRD reporting works, delays are aggregated monthly for all trains in a service, so that a single, lengthy delay experienced by one train can obscure low or no delays on other trains. For example, if a single train on the Texas Eagle service incurs 188 minutes of HRD (which could occur in the case of a derailment or crossing accident requiring a lengthy investigation) then the PRIIA HRD metric for the entire service will exceed 900 for the month, even if every other train experiences no HRD whatsoever.

Amtrak's high reported HRD for these movements is even more misleading given the nature of the HRD it is reporting. For PRIIA reporting, Amtrak categorizes delays at interlockings not controlled by the host railroad as HRD. By contrast, the Operating Agreement correctly recognizes that such delays are not within CN's reasonable control, and does not count them against CN. Much of the supposed-HRD Amtrak counts against CN for these services is actually for delays at interlockings controlled by foreign carriers: in 2014, 46% of all HRD on CN's portion of the Lincoln service (6,582 minutes of the total 14,308 minutes of HRD) and 61% of all HRD on the Texas Eagle (3,536 minutes of the total 5,780 minutes of HRD). If these delays were removed from Amtrak's calculation of HRD (as the Operating Agreement would correctly do), HRD per 10,000 train miles for would have been below 900 in 9 of the 12 months of 2014 for the Lincoln service and 7 of the 12 months for the Texas Eagle.[65]

4. Blue Water: CN's superior performance on its portion of the route cannot overcome delays experienced on segments hosted by other carriers

The Blue Water service consists of two daily trains (one eastbound and one westbound) between Chicago and Port Huron, MI. Just under 50% of the total route (158.7 of the 318.5 total route miles) is hosted by CN. CN's performance on its portion of the route has generally been exemplary, and is characterized by high KOTP and low HRD. The service's failure to achieve high levels of Endpoint OTP is primarily due to the performance of other host railroads, including Amtrak.[66]

[65] *See* Ladue/Kuxmann workpapers "Lincoln delay analysis.xlsx" and "Texas Eagle delay analysis.xlsx."

[66] *See, e.g.,* ATK0000032327 [redacted]

During the period January, 2012 to July, 2015, CN's monthly average KOTP for this service was 95.0%. In addition, in sixteen of those months, Train #364 had a KOTP of 100%; in ten of those months, Train #365 had a KOTP of 100%, and there were eight months in which both trains simultaneously achieved 100% KOTP. Between January 2012 and July 2015, the monthly average HRD as calculated by Amtrak was 959. Recent performance has been even better: the monthly average HRD in the first seven months of 2015 was 810, and HRD in five of those seven months has been below the 900-minute standard sought by Amtrak.

However, because CN's portion of the route is less than 50% of the total, the superior performance on the CN portion of the route cannot overcome the delays experienced on other host railroads. This service has experienced major delays on the non-CN portion of the route due to ongoing track improvement work. Since January 2014, monthly average HRD per 10,000 train miles has been 5,827 on the NS portion of the route, 1,354 on the MiDOT portion of the route (which Amtrak reports as MiDOT, even though Amtrak operates the line), and 806 on the Amtrak portion of the route. Between January 2012 and June 2015, HRD attributed to CN (by Amtrak) was just 35.8% of the total HRD and 20.5% of the total delay minutes, despite CN hosting 50% of the route. It is delays on the non-CN portion of this route that have driven down the Blue Water's on-time performance.[67]

5. Wolverine: Amtrak experiences very little delay on CN's portion of this service, and flaws in Amtrak's metrics obscure CN's true performance

The Wolverine service consists of 6 daily trains (3 eastbound and 3 westbound)[68] between Chicago and Detroit; CN hosts only 8.7% of the route (26.5 of 304.1 total route miles).

[67] *See* Ladue/Kuxmann workpaper "Blue Water delay analysis.xlsx."

[68] In addition to these trains, due to disruption caused by work on other host lines, Amtrak has been running some additional trains in this service.

CN's portion of the route is split between two non-contiguous segments: a 25.3 mile segment between West Detroit and Pontiac and a short 1.2 mile section between two interlockings (Gord and Baron) in the Battle Creek area. During the period January 2012 to July 2015, CN's monthly average KOTP was 84.2% for the Pontiac to Vinewood segment of this service and 93.2% for the Gord to Baron segment. However, the service's Endpoint OTP during the same period has been quite poor: a monthly average of 37.7%.

The Wolverine is similar to the Lincoln and Texas Eagle services in that CN's superior performance over a very short section of the overall route is masked when a measure other than KOTP is used to assess that performance. Like those other services, the host-responsible delays on the CN portion of the route are very small when measured on a per train basis – only an average of 4.5 minutes per train during the period January 2012 through July 2015.[69]

The high reported CN HRD (monthly average of 1,884 between January 2012 and July 2015) on this service is likewise not indicative of CN's actual performance. Because of the length of the route, a train can experience only 2.4 minutes of delay before it exceeds the 900 minute threshold; each minute of delay equates to 377 minutes of delay per 10,000 train miles. And a significant portion of the delay minutes Amtrak counts against CN for HRD should rightly be excluded. Some of this HRD is due to delays at interlockings CN does not control and at which CN cannot reasonably be held responsible for the cross traffic delays at these locations. Additional HRD on this service is due to permanent slow orders that were agreed to by the parties under the Operating Agreement, because it was recognized that a capital investment would be required to eliminate them, and doing so would only be for the benefit of Amtrak.

[69] *See* Ladue/Kuxmann workpaper "Wolverine delay analysis.xlsx."

Amtrak has recently sought an estimate for the capital costs necessary to eliminate these slow orders.

C. The Operating Agreement Offers the Flexibility to Change CN's Level of Service

One of the further benefits of the Operating Agreement's structure is the flexibility it provides for incentivizing varying levels of performance. [redacted]

In addition to these changes, as CN suggests in Section IV.E., the schedules underlying the Operating Agreement should themselves be modified to improve performance by addressing such issues as unrealistic PRT, Amtrak schedule conflicts with other passenger trains and with freight trains, and seasonal factors, such as changes to traffic levels and weather. Amtrak could also pay for capacity additions to the rail lines it uses, with resulting improvements reflected in the schedules and the Operating Agreement.

Notably, the effect of the changes to the Operating Agreement discussed below, especially the long-overdue addition of compensation for incremental delay and interference costs, should, if anything, result in a further increase in CN's already strong performance.

Insofar as Amtrak claims to be currently seeking improved performance, this should be a welcome development, which might satisfy its requirements. But if Amtrak determines, based on its experience under the revised Agreement, that it desires even better performance, the Operating Agreement offers the flexibility for the parties to come to terms on the appropriate mix of compensation, schedule changes, and investment to meet Amtrak's goal.

IV. PROPOSED CHANGES TO THE EXISTING AGREEMENT

For the reasons discussed above, CN believes the essential structure of the current Operating Agreement as it applies to Amtrak's services over IC's lines is sound and efficient, and it should be retained as the basis for the operating relationship between CN and Amtrak moving forward, and also applied to Amtrak's services over GTW's lines. We have also discussed above the fact that there are certain deficiencies in the Operating Agreement that can and should be addressed. In this section we outline our proposed improvements to the Operating Agreement, including the following: (1) additions to base compensation under the Operating Agreement to cover (i) the practicably quantifiable incremental costs of delay incurred by CN's trains due to Amtrak and, (ii) [redacted] (2) changes required to bring compensation for Amtrak's services on GTW under the same compensation system presently used for services on IC's lines; (3) changes to better align Performance Payments and Penalties with elements of performance that CN can reasonably control; (4) changes to improve the information and process used to establish responsibility for Amtrak delays; and (5) suggestions for the joint periodic review and updating of Amtrak's schedules.[70]

[70] For some of our proposed changes to the Operating Agreement we suggest specific language, while for others we describe our proposal in more general terms. In each case, our

A. Base Compensation Under the Operating Agreement Should Include Additional Incremental Costs

1. Recovery of quantifiable incremental costs incurred by CN as a result of freight delays due to Amtrak's consumption of CN's line capacity

CN proposes to add an item to Appendix IV that would allow it to capture the incremental cost of delays and interference to its freight trains caused by Amtrak that are practically quantifiable. As discussed in Section II.A., above, these costs are not presently provided for in the Operating Agreement, and as explained by Professor Willig, such costs are clearly incremental costs that should be included in CN's base compensation. V.S. Willig at 3. These incremental costs, at least initially, would be determined by (1) using CN's SRS database to identify and allocate delays to CN's freight traffic caused by Amtrak, and (2) determining the incremental costs associated with those delay minutes. The data collected in CN's SRS database concerning freight delays are described in detail in the joint verified statement of John Summerfield, Gregg Girard, and Anne Morehouse. A process for identifying and allocating delays as caused by Amtrak and determining associated incremental costs is described in the verified statement of Michael R. Baranowski and Benton V. Fisher of FTI Consulting.

In addition to describing a general methodology for determining such costs, for purposes of retroactive compensation, Messrs. Baranowski and Fisher demonstrate that the incremental costs of delays and interference to CN's freight traffic due to Amtrak for the period August 2013 through January 2015 were at least $4.69 million. After the Board renders its decision, if it

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proposals at this stage are necessarily tentative, as they are made without the benefit of Amtrak's positions or evidence. After review of Amtrak's evidence, CN will propose specific draft language for each of its proposed changes to the Operating Agreement.

approves such costs, CN would use this same methodology to determine remaining retroactive compensation between the date of the decision and February 2015.

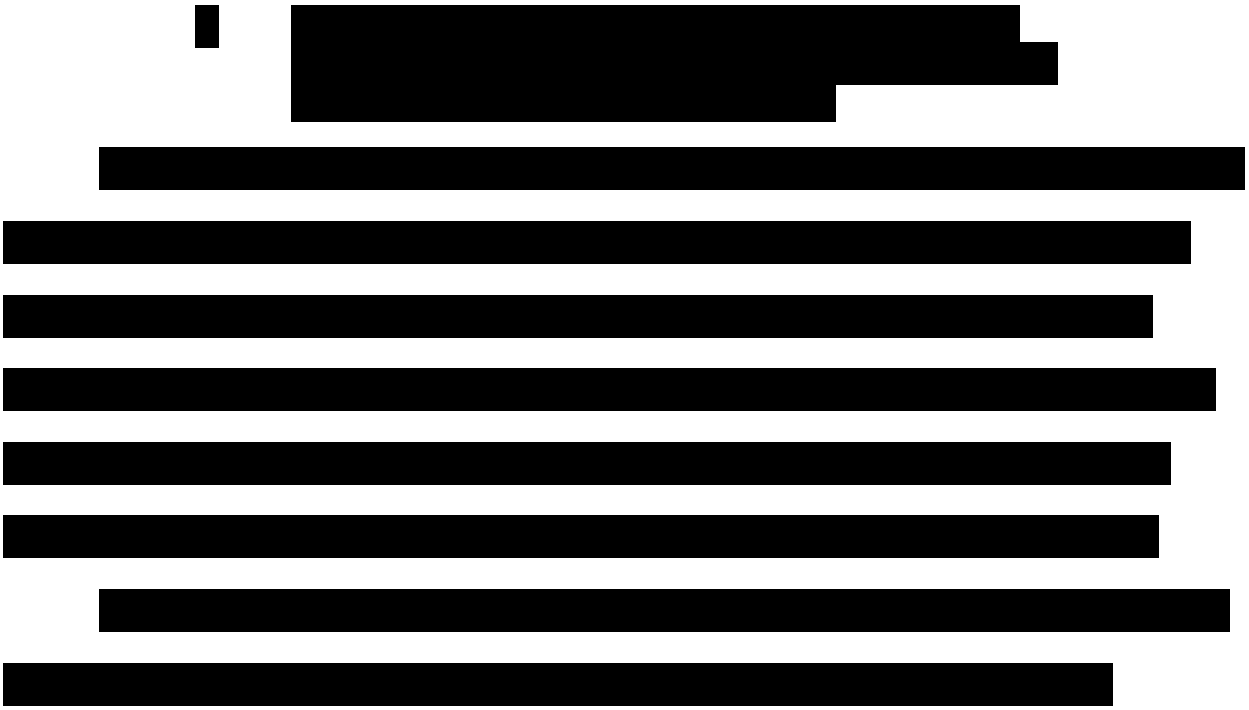
For the future, if approved by the Board, CN would use this process monthly to determine its quantifiable delay costs and bill Amtrak for those costs, subject to Amtrak review and audit. This process would be similar to the review and audit by CN of Amtrak's coding of the delays to its own trains. Further, if Amtrak would like to do so, CN would be willing to discuss simplifying this process. As a simplified process, for example, the parties might agree on fixed compensation for CN's average base delay and interference costs or they might continue to determine the number of delay minutes suffered by CN, but establish an average cost per delay minute for purposes of compensation.

The process described above will not come close to providing CN with full compensation for all of its incremental costs of delay and interference due to Amtrak. It is limited to direct, practically quantifiable, labor, fuel, and equipment costs, and it underestimates even these because the SRS database does not include all freight delays due to Amtrak. See V.S. Summerfield, et al., Section III.B. It also does not address the significant additional operating and marketing costs as described in the separate verified statements of Anne Morehouse and Fiona Murray. Insofar as additional incremental costs due to Amtrak can be quantified, the Operating Agreement should provide for their recovery by CN.

Alternatively, as a way to eliminate or reduce these costs, the Board could order Amtrak, or Amtrak could agree, to modify its schedules, to run fewer trains, and/or to fund the capital projects necessary to restore the capacity Amtrak consumes on CN's lines. CN has determined, conservatively, through detailed modeling, the specific infrastructure that would be required at different levels of service to return the capacity lost by CN due to Amtrak. *See generally* Joint

V.S. Krueger, Doyle, and Rank. In order to put this infrastructure into perspective, CN has estimated the approximate total cost of that infrastructure, which is between $377 million and $534 million, depending upon the level of CN and Amtrak service. *Id*. at Section VII. The estimated annual cost of these improvements would be on the order of $32 million and $45 million, respectively. *See* note 15, supra. Although CN's modelers explain that their determination of required infrastructure is conservatively low and would not fully prevent future freight delays due to Amtrak, CN would accept funding from Amtrak for this infrastructure as fully discharging Amtrak from further responsibility for the incremental costs of CN freight train delays due to Amtrak's existing services.

CN hopes that, once the principle is established that CN is entitled as part of its base compensation to recover its quantifiable incremental delay costs, Amtrak will negotiate with CN an efficient mix of schedule changes, infrastructure improvements, and compensation, so that the interests of both parties will be served by having the right mix of performance, infrastructure, and compensation.



[redacted]

[redacted][71]

[redacted]

[redacted]

[redacted]

[71] [redacted]

C. Performance Payments and Penalties Should Be Aligned More Simply and Clearly With the Delays CN Can Reasonably Control

As explained in Section II.B.3., "relief items" play an important role under the Operating Agreement by helping to establish responsibility for Amtrak delays. Distinguishing the cause of delays is critical because it means that CN is rewarded for the efforts it makes to reduce Amtrak delays, and is not penalized for delays that are not within its reasonable control. In the subsections below, we discuss CN's proposal (1) to reduce the number of existing relief items under the Operating Agreement by formalizing the initial use of Amtrak's coding of responsibility for delays and by merging the separate lists of relief items for Amtrak services on IC and GTW; (2) to add several new relief items to clarify further certain delays that are not within CN's reasonable control; and (3) to modify the current provisions of the Operating Agreement relating to the data and procedures used for implementing the relief items, that is, for determining responsibility for delays. As noted in Subsection IV.B., the effect of CN's proposed changes on the relief items in the Operating Agreement is shown in the draft Mark Up of Appendices in Exhibit 15.

1. By incorporating Amtrak's existing delay codes into the Operating Agreement and merging GTW's and IC's relief items, many existing relief items can be eliminated

CN proposes to reduce the current number of relief items by providing that delays that should presently be coded by Amtrak conductors as non-host-responsible for purposes of PRIIA will not be counted as CN-responsible delays for purposes of performance payments and penalties, and by merging the separate lists of relief codes for Amtrak services on IC and GTW.

The Operating Agreement presently relies as an initial source of data on Amtrak's conductor delay coding. Agreement, App. V, Sec. A.3. The Operating Agreement, however, does not incorporate definitions of Amtrak's codes and does not provide that delays coded by

Amtrak as non-Host-responsible will be treated as such for purposes of the Operating Agreement. As a result, relief items must now be listed in the Operating Agreement even for types of delays that Amtrak recognizes in its conductor coding are not the responsibility of the host carrier. By specifying Amtrak's conductor delay codes in the Operating Agreement and providing that delays categorized by Amtrak conductors' in accordance with those codes as non-Host-responsible (*i.e.,* Amtrak or third-party responsible) will be recognized as such under the Operating Agreement, many existing relief items under the Operating Agreement can be eliminated.

To implement this, CN would add to the Operating Agreement an appendix setting forth Amtrak's conductor delay codes and the definitions of those codes based on the coding instructions provided to conductors. (These definitions tend to be more specific and instructive than Amtrak's abbreviated definitions published with its monthly PRIIA reports.) A draft list of those codes and definitions is shown in the draft Mark Up of Appendices in Exhibit 15. The Operating Agreement would specify that delays coded by a conductor in accordance with those codes as Amtrak or third-party responsible (that is coded as ADA, CAR, CCR, CON, CTC, ENG, HLD, INJ, ITI, MTI, OTH, SVS, SYS, BSP, CUI, MBO, NOD, POL, TRS, UTL, or WTR) do not count against CN for purposes of the run time calculation.[72] This would efficiently account for numerous delays recognized to be caused by third-parties or Amtrak. The only additional relief codes that would then be required are those that, as compared to Amtrak's conductor delay codes, clarify or recognize additional or more specific circumstances in which a delay should not be treated as under CN's reasonable control (such as delays due to foreign dispatchers or at

[72] CN's code definitions would be drawn from Amtrak's instruction manual of Service Standards for Train Service & On-Board Service Employees, relevant pages of which are attached hereto as Exhibit 16.

interlockings controlled by third parties or caused by Amtrak's failure to pick up a reading from a correctly functioning wayside detector).

In addition to eliminating numerous relief items through this change, CN's proposal to place GTW services under the same compensation system as services on IC allows for the merger of the remaining relief items related to services on GTW and IC (*i.e.*, those not rendered superfluous by incorporating Amtrak's non-host-responsible conductor delay codes as a relief item). Currently, some relief items apply only to IC services, some only to GTW services, and some apply to both.[73] All of these relief items, however, address circumstances where a delay is caused by factors outside of CN's reasonable control. Therefore, in order to avoid an erroneous assignment of delay to CN, it is appropriate to merge and include the items on these lists, while eliminating overlapping items and those rendered unnecessary by the formal addition of Amtrak non-Host-responsible codes as a relief item.

These changes in relief items are reflected in the draft Mark Up of Appendices, Exhibit 15.

2. New relief items for additional delays CN cannot reasonably avoid

a. Delays required for safety reasons specific to Amtrak's equipment

[redacted]

[73] Insofar as a relief item on the GTW Lines is treated as a "Do Not Count" item for the IC Lines, CN proposes to keep it as a "Do Not Count" item in the new Agreement.

[redacted]

In order to address any delays attributed by Amtrak to CN that are in fact due to safety issues specific to Amtrak equipment, CN proposes the following relief item:

- "Delays caused by operating restrictions imposed to address safety issues specific to Amtrak's equipment."

b. Delays caused by Amtrak's late and unanticipated arrival at an entry point to CN's lines

CN proposes a relief item for delays caused when Amtrak arrives late and unannounced at an entry point to CN's line and is therefore unable to immediately move onto that line due to freight operations. At multiple entry points onto CN's lines, Amtrak trains regularly arrive late. Because CN is not privy to Amtrak's operations off its lines, it cannot tell when the Amtrak train is likely to arrive at CN's lines. Nor does Amtrak regularly inform CN of when its late trains are likely to arrive, despite its recognition that such communication could reduce delays.[74]

CN regularly holds its freight trains to provide a sizeable window on either side of Amtrak's scheduled arrival time, but it cannot do so indefinitely. As a result, after waiting for a

[74] *See* note [redacted]

late-arriving Amtrak train, CN will eventually run its freight train. Occasionally, Amtrak will arrive at the entry point to CN's line before that freight train has cleared, resulting in a delay that Amtrak will attribute to CN.[75]

These delays could be reduced or eliminated with better communication from Amtrak. In order to incentivize Amtrak to communicate with CN when it is running behind schedule, and to provide relief to CN when Amtrak does not, CN proposes the following relief item:

- "Delays caused by Amtrak's train being prevented from entering CN's line, when the train arrived at the entry point to CN's line more than 15 minutes after its scheduled arrival time and without having provided CN with notification of such late arrival at least 30 minutes in advance."

c. Delays for trains crossing over between main lines should be capped at a maximum of two minutes

Amtrak records delays as host-responsible when its trains use a crossover to move between main lines in areas of double track. These delays typically involve a train slowing down from 79 mph to 40 mph in order to move through the crossover, then accelerating back to 79 mph. The physics of the movement should not, under proper train handling techniques, cause the train to run more than two minutes longer than its pure run time.[76] Amtrak has acknowledged as

[75] For example, on November 1, 2014, Amtrak Train #355 incurred a 10 minute delay at control point Baron (the entry point to the portion of CN's line that traverses Battle Creek) due to CN cross traffic. However, train 355 was almost an hour behind its schedule at that point, and had not timely notified CN of its late arrival time. A copy of the CDR showing that delay is attached as Exhibit 17.

[76] *See* Joint V.S. Krueger, Doyle, Rank at Section V.A.

much,[77] but conductors will sometimes attribute four or five minutes to a crossover move.[78] Whether this time in excess of 2 minutes is the result of overstatement or a failure by Amtrak to operate efficiently, such excess time should not properly be treated as a CN- responsible delay caused by the crossover. Accordingly, CN proposes the following relief item:

- "Delay in excess of two minutes for each instance of delay attributed to an Amtrak train traversing a crossover between tracks."

d. Commuter interference delays when Amtrak leaves late

Amtrak schedules for its Lincoln and Texas Eagle services are designed to avoid interference from Metra traffic on IC's Joliet Sub. However, Amtrak (particularly Amtrak Train No. 305) occasionally arrives late at its entrance point to CN's line, and gets caught behind a Metra train. When that happens, the Amtrak train is likely to be delayed because the commuter train makes many more station stops than the Amtrak train. As a result, the conductor will code all the delay the train incurs following Metra as commuter train interference, which counts against CN.[79]

[77] *See, e.g.,* [redacted]

[78] For example, on November 27, 2012, Amtrak Train #365 reported a crossover delay of 5 minutes coded to "RTE," a host-responsible delay code. A copy of the CDR showing that delay is attached as Exhibit 19.

[79] For example, on June 17, 2015, Amtrak Train #305 departed Union Station 30 minutes late due to "Servicing, Turning or Wyeing Train." As result, it was stuck behind Metra train 919, and incurred a 30 minute delay that was attributed by Amtrak to CN. If the train had departed on time, it would have been in front of Metra and would not have incurred that delay. A copy of the CDR showing that delay is attached as Exhibit 20.

CN, of course, cannot delay or hold Metra traffic. Further, CN cannot prevent Amtrak's late arrivals to its line. Therefore, CN proposes the following relief item:

- If an Amtrak train is operating 10 or more minutes late on IC's Joliet Subdivision, the amount of time a train is delayed following a Metra train.

e. Revised catchall for delays outside of CN's control

The Operating Agreement currently has a "catchall" relief item provision that covers delays not specifically enumerated. Pursuant to that provision, "CN may request special relief for delays not specifically listed, supplying such information as may be reasonably requested by Amtrak to support such a claim for relief." We propose to modify this relief item to clarify that the basis for this relief item (as it is for all they relief items) is delay outside of CN's reasonable control, and that should CN demonstrate that this standard is met, it should be entitled to relief. Therefore, we would propose the item read: "CN shall be entitled to relief for a delay not specifically listed above if it supplies information demonstrating that such delay was outside its reasonable control."

3. Improved processes for determining responsibility for delays

While the structure of the Performance Payment and Penalty system under the current Operating Agreement has worked well, CN believes the administration of that system should be streamlined and improved, and that with respect to the attribution of delays the pre-eminence of root cause information should be clearly established.

CN has too often experienced lengthy delays in Amtrak response time, conflicting decisions from different Amtrak representatives, and refusals by Amtrak to follow or even recognize the relevance of precedent, particularly with respect to the consideration and processing of relief items. CN proposes therefore that the Operating Agreement be amended to

promote more expeditious, equitable, and efficient consideration and resolution of issues regarding relief items and related invoices.

CN proposes that the Operating Agreement be amended to provide that resolution of disputes between the parties regarding appropriate delay coding will have precedential effect when similar situations arise in the future. CN has frequently found that, when it challenges Amtrak's determination of the cause of delay to one of its trains, as coded by the conductor on the CDR, Amtrak may ultimately agree to change the delay code as requested by CN with respect to the invoice immediately at issue, but conditions its agreement with disclaimers to the effect that "this change will not set any precedent" and "will apply to that individual delay entry only," and that "Amtrak does not agree or imply that the Conductor's original delay coding was incorrect."[80] By issuing such disclaimers, Amtrak puts CN on notice that if a similar delay should arise in the future and be coded by the conductor with the same attribution of cause as in the first case, CN will be required to challenge the conductor's coding and present its arguments afresh for the correct attribution of cause, as if no such situation had ever previously arisen and been resolved. This is an extremely inefficient use of the parties' resources. If CN and Amtrak go to the trouble of examining the cause of a delay for purposes of billing, they should regard their conclusions as a correct determination of the actual cause of and responsibility of that delay, and they should be able to conclude further that to the extent that a future delay arises out of the same circumstances, the attribution of cause for that delay should also be the same.

[80] *E.g.*, [redacted]

CN also proposes that each party be required to designate a single point of contact, with authority to resolve disputes over amounts billed, including assignment of causes for delays to Amtrak trains for purposes of computing incentives and penalties. In recent years, CN has frequently reached what it believed was agreement with Amtrak's Director, Contract Operations, on the proper characterization of delays for purposes of billing, only to be informed later that another Amtrak department or group had rejected that resolution.[81] This has unnecessarily complicated and lengthened the process of billing and payment. CN should not be required to deal with various Amtrak offices with divided responsibility for billing issues, or with personnel who lack the authority to make necessary decisions regarding billing. Accordingly, CN proposes that both parties be required to designate a single point of contact with the authority and resources to resolve delay coding, relief, and related billing issues. In addition, CN proposes that the Operating Agreement provide that billing disputes that cannot be resolved by these two designated individuals be subject to a formal escalation process that would, if necessary, culminate in discussions of the matter between CN's Senior Vice President, Southern Region (*i.e.*, the U.S.), presently John Orr, and his Amtrak counterpart.

In addition to these general process changes, CN proposes that Section A.3 of Appendix V be amended to reflect the pre-eminence of root cause information, where it is available, in determining responsibility for delays. Section A.3. discusses the data sources to be used in determining the calculation of performance payments and penalties. It states that Amtrak conductor delay reports shall be the initial source for data required by Appendix V (*i.e.*, for

[81] See ATK0000060582 [redacted]

performance payments and penalties). Those reports are required by Amtrak to be based on the cause of delay directly observed by conductors (i.e., their "windshield view"), rather than the actual root cause of a delay. Section A.3. provides that CN may supplement these data with various information from other sources, but nothing in the provision clarifies the relative weight to be accorded between evidence of direct or proximate cause and root cause. CN proposes to address this issue by amending Section A.3. to provide that insofar as evidence of the root cause of a delay is adduced by a party, the delay shall be classified based on root cause, not direct or proximate cause.[82]

D. Provision to Address Any Consistent Failure by CN to Meet Base Performance Standards

The parties have a mutual interest in establishing an Agreement under which CN's performance under the Operating Agreement will generally meet or exceed the base performance required under the Operating Agreement. Amtrak's interest is in strong performance in support of its passenger rail services, and CN's interest is in exceeding the base level of performance so it can earn positive Performance Payments.

In order to help assure that the parties' expectations regarding performance are not disappointed, CN proposes to develop a new provision for the Operating Agreement to assure that if CN performance under the Operating Agreement is so poor that it incurs performance penalties for six consecutive months for a train group (as categorized for purposes of performance payments and incentives), the parties will work together to determine why and develop remedial measures to address the issue. Such a provision would require that the parties

[82] CN's specific proposed change is to add the following as a new third sentence of Appendix V, A.3.: "In determining the cause of a particular delay, evidence of root cause, as opposed to proximate cause, shall be taken as the best evidence of the cause of a delay."

assure that performance payments and penalties are being properly determined and that only delays within CN's control are being attributed to CN. If that does not address the issue, the parties would be bound to use their best efforts and work in good faith to determine if there are impediments to CN achieving the base level of performance and, if so, how those could be reduced or eliminated and what changes could be made to the Agreement to do so. The availability of such remedial measures should provide an added level of assurance that the reasonable expectation of the parties under the Operating Agreement will not be disappointed.

E. A Process for Regular Schedule Assessment and Adjustment Should Be Adopted

As discussed in Section I.C., above, the base assumptions underlying the schedules for many of Amtrak's services under the Operating Agreement have not been jointly examined by the parties in many years, and CN's evidence shows that at least some key elements of those schedules are outdated and inaccurate (*i.e.,* PRT is too low for the Illini/Saluki and City of New Orleans services). Although Section 3.2.D. of the Operating Agreement provides for either party to propose a schedule change, it requires the proposing party to tender a full revised schedule at the outset of the process. Agreement, Sec. 3.2.D.(2). This is not conducive to a productive joint process of schedule development. In addition, CN has learned from experience that it can be difficult or impossible to win Amtrak's agreement to a schedule modification that calls for any lengthening of the schedule. *See, e.g.,* note 17, above.

In order to address this dysfunctional process, CN proposes that the Operating Agreement require the parties to jointly review Amtrak's schedules on a regular basis, utilizing appropriate modeling techniques, and that the schedules be modified as appropriate. (These modifications, for example, should increase PRT for the Illini/Saluki and City of New Orleans services.) Specifically, CN proposes that a regular review be scheduled for one or more individual Amtrak

services each year so that all services can be reviewed on a staggered basis at least once every five years. (By comparison, CN and VIA jointly review VIA's schedules every year.) Such review would be mandatory, unless both parties agree it is unnecessary. Further, although CN should by right be entitled to all incremental costs it incurs related to this process, CN proposes that each party bear its own costs.

The Operating Agreement encompasses six Amtrak services. Two of those services – the Texas Eagle and Lincoln – run over the same IC line, and could be reviewed simultaneously. Therefore, all Amtrak services could be cycled through a review process on a rolling basis every five years. CN suggests these reviews commence immediately and, based on the degree of concern with schedules and the distance they operate over CN, CN proposes that reviews proceed in the following order: Illini/Saluki (yr. 1), City of New Orleans (yr. 2) , Blue Water (yr. 3), Lincoln & Texas Eagle (together, yr. 4), and Wolverine (yr. 5).

In addition, in order to improve the quality of the parties' joint efforts, CN proposes that the scheduling take full advantage of modern modeling techniques to produce achievable, sustainable schedules. Modeling can and should take into account such things as (1) the specific Amtrak consists proposed to operate on the route; (2) the specific infrastructure and capacity constraints that exist on the route; and (3) the level of existing and projected freight and passenger traffic on the route. In addition, the parties may wish to consider seasonal factors, anticipated construction of new railroad capacity, and cyclical maintenance of way work. Finally, in order to facilitate adoption of more realistic schedules, CN proposes that the Parties agree in advance to the procedures and parameters related to setting the schedule, and then abide by the results of that process regardless of the outcome.

By employing such techniques with respect to VIA trains, CN has had great success improving their performance. There is no reason that a similar process should not be employed for the benefit of Amtrak, its passengers, and CN.

VERIFICATION

I, Paul E. Ladue, declare under penalty of perjury that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 3, 2015

Paul E. Ladue

VERIFICATION

I, Scott Kuxmann, declare under penalty of perjury that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 3, 2015

Scott Kuxmann

EXHIBIT 1

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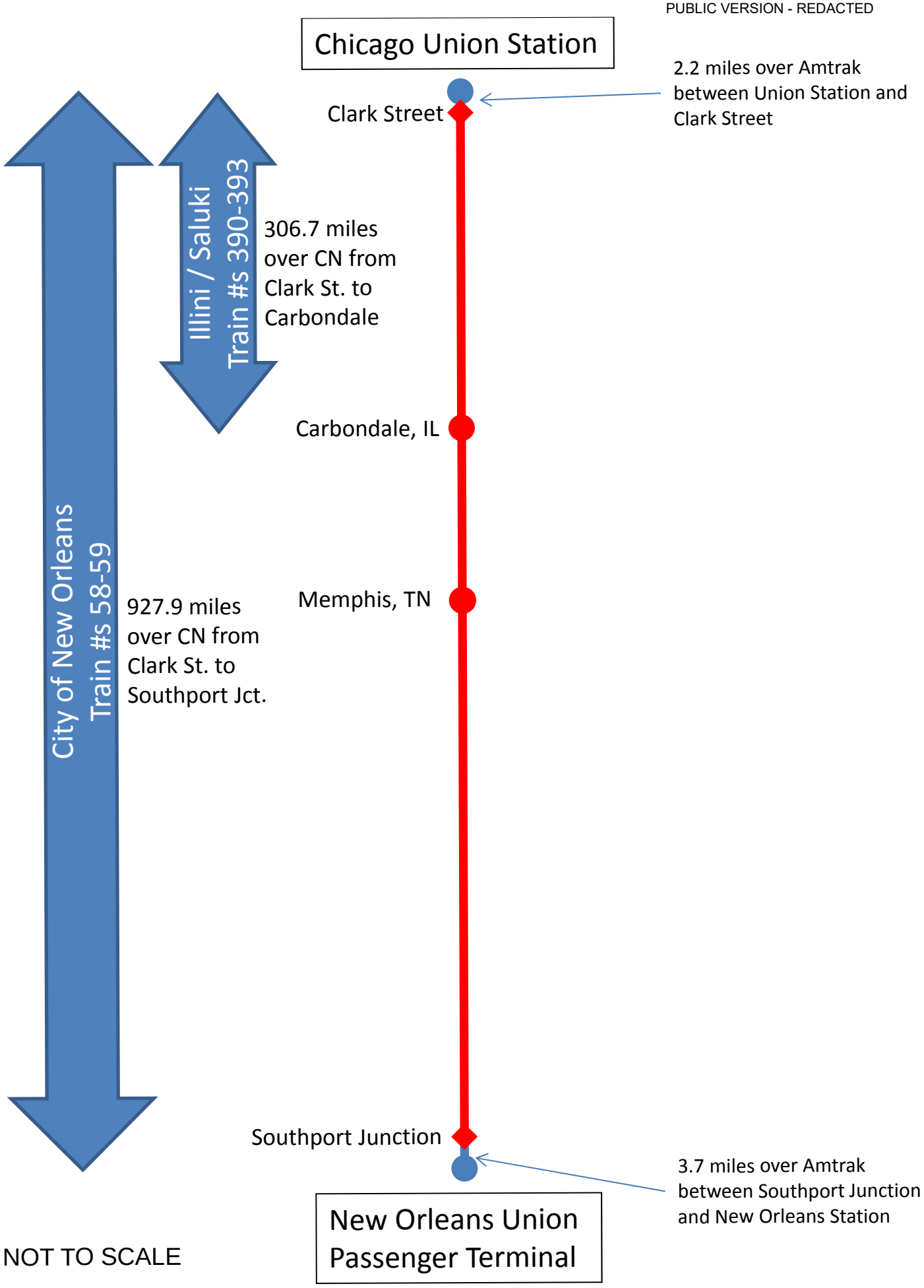
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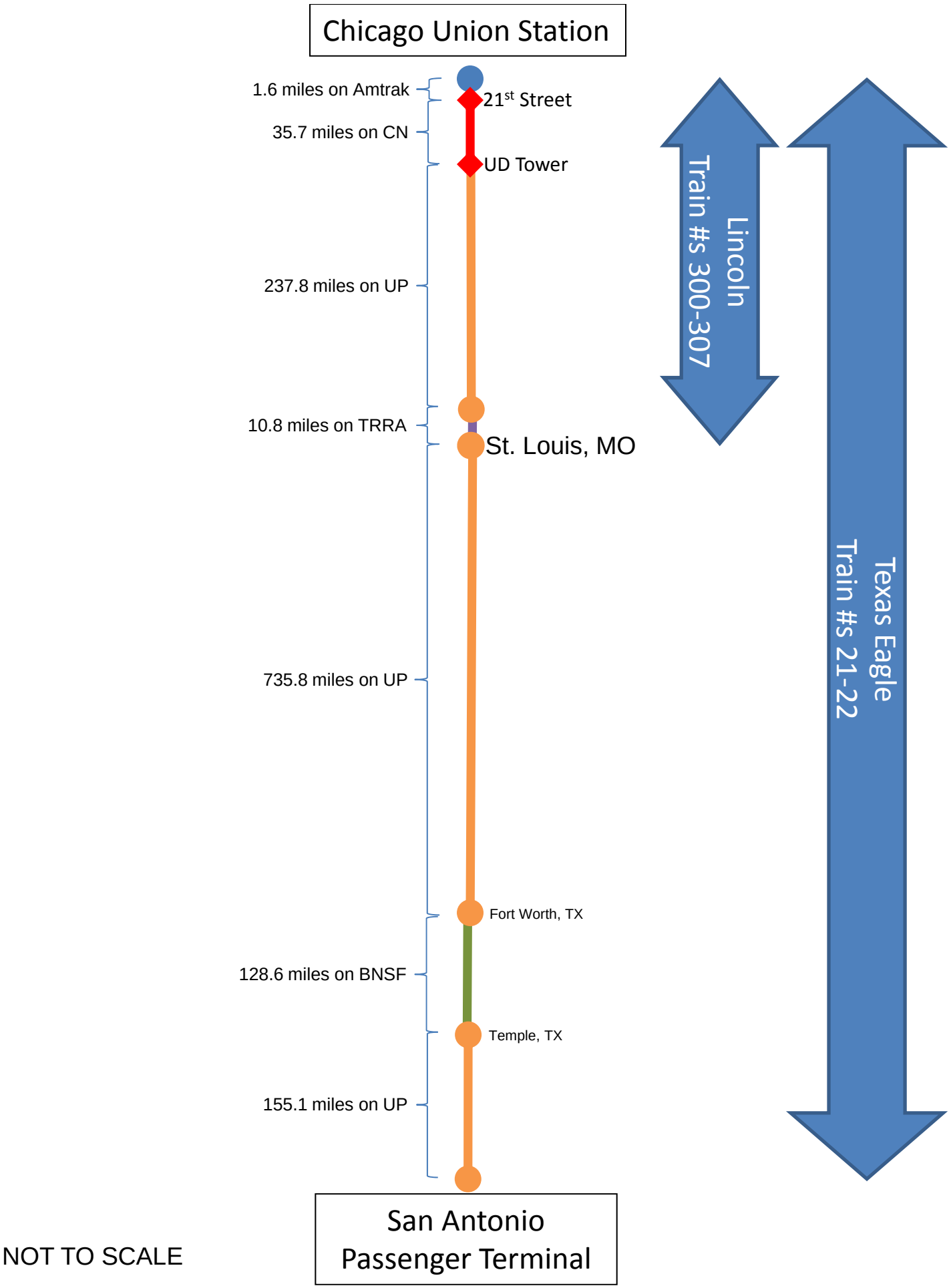
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EXHIBIT 2

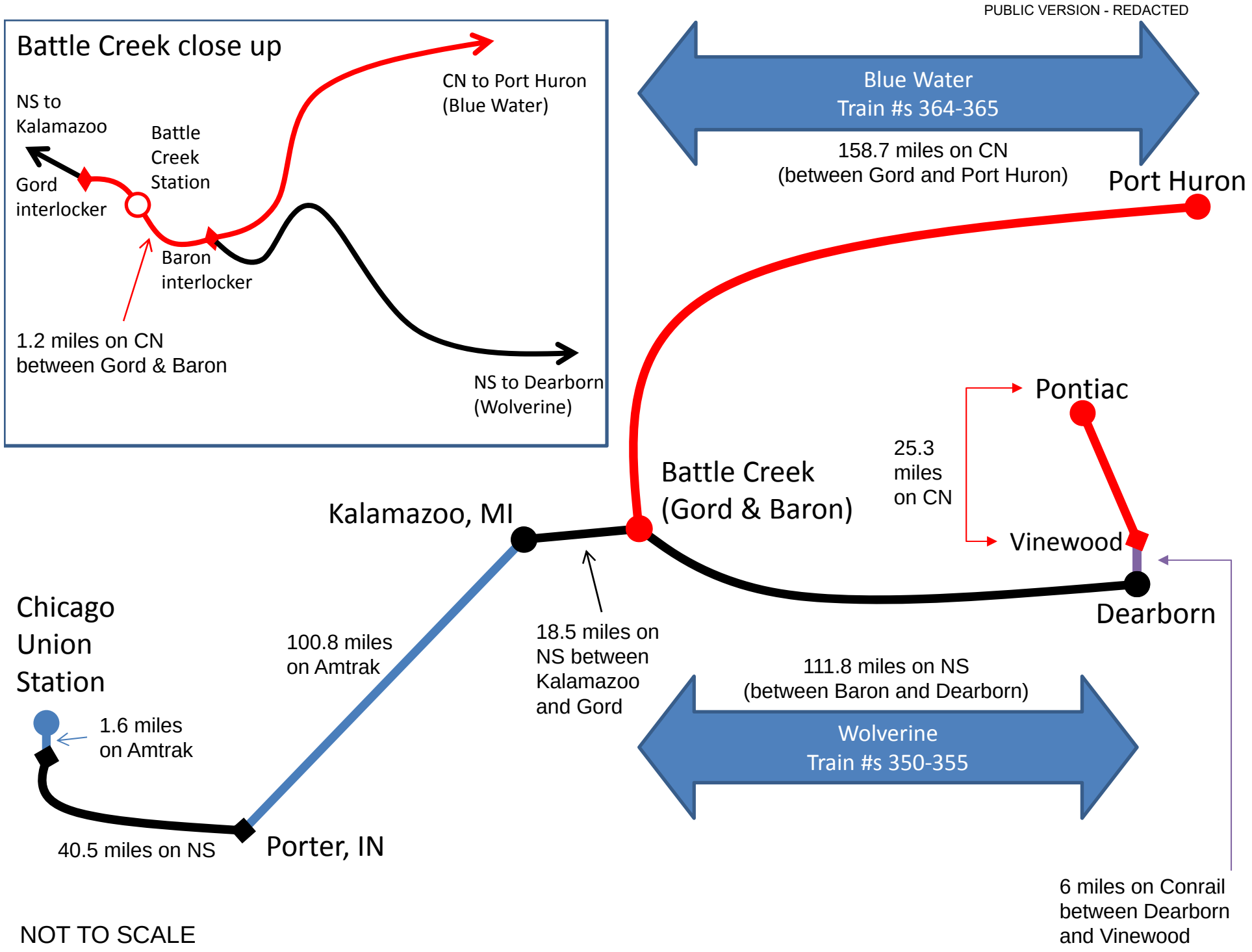
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PUBLIC VERSION - REDACTED




Chicago Union Station
1.6 miles on Amtrak
21st Street
35.7 miles on CN
UD Tower
237.8 miles on UP
10.8 miles on TRRA
St. Louis, MO
735.8 miles on UP
Fort Worth, TX
128.6 miles on BNSF
Temple, TX
155.1 miles on UP
San Antonio
Passenger Terminal
Lincoln
Train #s 300-307
Texas Eagle
Train #s 21-22
NOT TO SCALE

PUBLIC VERSION - REDACTED



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EXHIBIT 3

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Infrastructure Capacity Improvements for Improved Amtrak Performance

FTI Delays on CN Between Carbondale and Chicago, February through April 2011 (as reported by Amtrak from Conductor Delay Reports)

Showing Total Minutes of FTI Delay

Train	Trips	CHI - HMW	HMW - KKI	KKI - CHM	CHM - MAT	MAT - EFG	EFG - CEN	CEN - CDL	Total
390	87	63	152	534	370	118	305	19	1561
391	87	4	66	736	210	367	361	60	1804
392	89	21	143	764	121	74	435	55	1613
393	89	4	111	228	242	132	256	61	1034
58	89	19	213	445	445	59	187	104	1472
59	89	6	148	297	354	87	396	716	2004
Total	530	117	833	3004	1742	837	1940	1015	9488

Showing Minutes of FTI Delay Per Trip

Train	Trips	CHI - HMW	HMW - KKI	KKI - CHM	CHM - MAT	MAT - EFG	EFG - CEN	CEN - CDL	Total
390	87	0.7	1.7	6.1	4.3	1.4	3.5	0.2	17.9
391	87	0.0	0.8	8.5	2.4	4.2	4.1	0.7	20.7
392	89	0.2	1.6	8.6	1.4	0.8	4.9	0.6	18.1
393	89	0.0	1.2	2.6	2.7	1.5	2.9	0.7	11.6
58	89	0.2	2.4	5.0	5.0	0.7	2.1	1.2	16.5
59	89	0.1	1.7	3.3	4.0	1.0	4.4	8.0	22.5
Total	530	0.2	1.6	5.7	3.3	1.6	3.7	1.9	17.9

Showing Minutes of FTI Delay Per 10K Train Miles

Train	Trips	CHI - HMW	HMW - KKI	KKI - CHM	CHM - MAT	MAT - EFG	EFG - CEN	CEN - CDL	Total
390	87	320	549	847	954	506	649	42	589
391	87	20	239	1167	541	1574	768	131	680
392	89	104	505	1184	305	310	905	118	595
393	89	20	392	353	610	553	533	131	381
58	89	94	753	690	1121	247	389	223	543
59	89	30	523	460	892	365	824	1532	739
Total	530	98	494	782	737	589	678	365	587

Miles	22.6	31.8	72.5	44.6	26.8	54.0	52.5	304.8

FTI Delays on CN Between Carbondale and Southport Jct, February through April 2011 (as reported by Amtrak from Conductor Delay Reports)

Showing Total Minutes of FTI Delay

Train	Trips	CDL - FTN*	FTN - NBN*	NBN - MEM*	MEM - GWD	GWD - YAZ	YAZ - JAN	JAN - HAZ	HAZ - BRH	BRH - MCB	MCB - HMD	HMD - XSU	Grand Total
58	89	163	56	506	890	160	246	831	147	105	187	85	3376
59	89	376	294	416	787	584	812	265	93	109	539	93	4368
Grand Total	178	539	350	922	1677	744	1058	1096	240	214	726	178	7744

Showing Minutes of FTI Delay Per Trip

Train	Trips	CDL - FTN*	FTN - NBN*	NBN - MEM*	MEM - GWD	GWD - YAZ	YAZ - JAN	JAN - HAZ	HAZ - BRH	BRH - MCB	MCB - HMD	HMD - XSU	Grand Total
58	89	1.9	0.7	6.0	10.0	1.8	2.8	9.3	1.7	1.2	2.1	1.0	37.9
59	89	4.5	3.5	5.0	8.8	6.6	9.1	3.0	1.0	1.2	6.1	1.0	49.1
Grand Total	178	3.2	2.1	5.5	9.4	4.2	5.9	6.2	1.3	1.2	4.1	1.0	43.5

Showing Minutes of FTI Delay Per 10K Train Miles

Train	Trips	CDL - FTN*	FTN - NBN*	NBN - MEM*	MEM - GWD	GWD - YAZ	YAZ - JAN	JAN - HAZ	HAZ - BRH	BRH - MCB	MCB - HMD	HMD - XSU	Grand Total
58	89	194	186	696	852	363	675	2803	850	525	427	204	644
59	89	448	978	572	754	1324	2227	894	537	545	1232	223	833
Grand Total	178	321	582	634	803	844	1451	1848	693	535	829	214	739

Miles	99.9	35.8	86.6	124.3	52.5	43.4	35.3	20.6	23.8	52.1	49.6	623.9

*Train 58 and 59 trips originating on April 26 through April 30 are not included for segments between Carbondale and Memphis due to service disruption during that time period.

Segment 1 – Kankakee to Champaign

1. Double track Paxton to Leverett Jct. with crossovers (including Rantoul)

    - Work Champaign without interfering and avoid 8.3 mile run to meet
    - Track and bridge $25.2 million / Signal $1.6 million

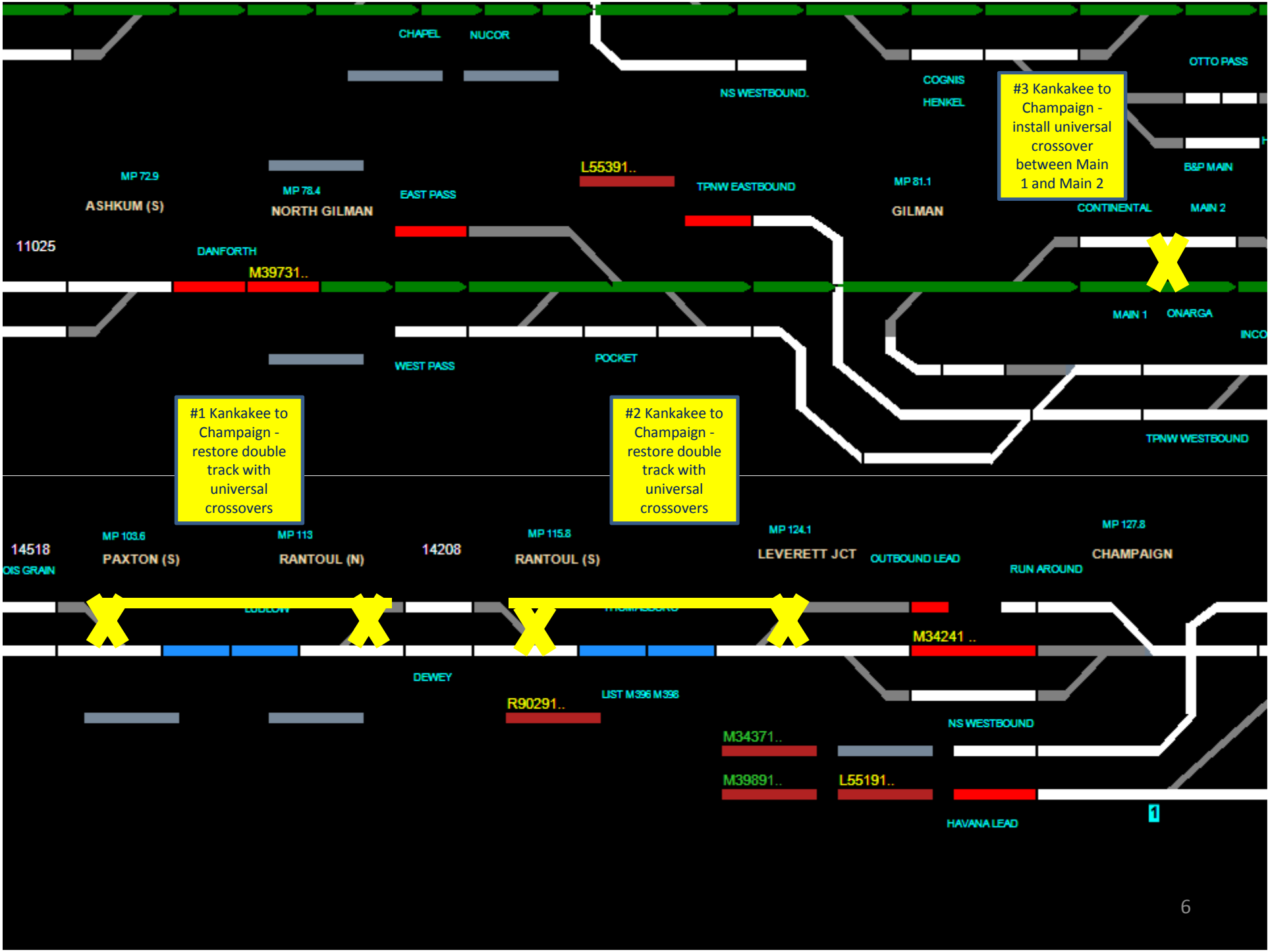
2. Double track Rantoul to Leverett Jct. with crossovers (subset of #1)

    - Same as #1, except double track only Rantoul to Leverett Jct.
    - Track and bridge $13.1 million / Signal $1.4 million

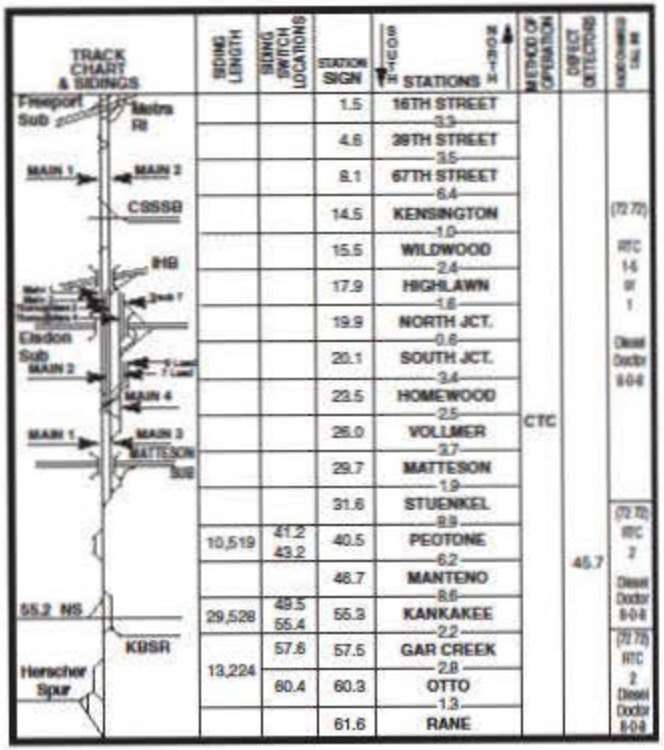
(cont.)

3. Universal crossover between Gilman and Delrey

- Eliminate three way meets
- Eliminate need to hold trains 8 miles north or 13.5 miles south
- Track $700,000 / Signal $1.0 million


CHAPEL
NUCOR
NS WESTBOUND.
COGNIS
HENKEL
OTTO PASS
#3 Kankakee to Champaign - install universal crossover between Main 1 and Main 2
B&P MAIN
MP 72.9
ASHKUM (S)
MP 78.4
NORTH GILMAN
EAST PASS
L55391..
TPNW EASTBOUND
MP 81.1
GILMAN
CONTINENTAL
MAIN 2
11025
DANFORTH
M39731..
MAIN 1
ONARGA
INCO
WEST PASS
POCKET
#1 Kankakee to Champaign - restore double track with universal crossovers
#2 Kankakee to Champaign - restore double track with universal crossovers
TPNW WESTBOUND
14518
MP 103.6
PAXTON (S)
MP 113
RANTOUL (N)
14208
MP 115.8
RANTOUL (S)
MP 124.1
LEVERETT JCT
OUTBOUND LEAD
MP 127.8
CHAMPAIGN
RUN AROUND
M34241 ..
DEWEY
R90291..
LIST M396 M396
NS WESTBOUND
M34371..
M39891..
L55191..
HAVANA LEAD
1

12 CHICAGO SUBDIVISION



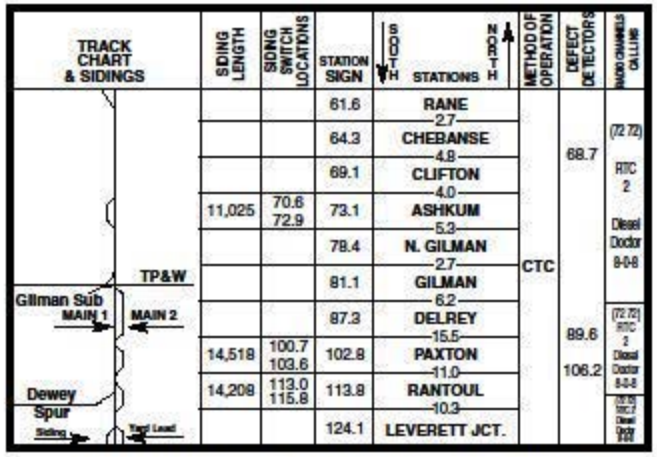
Chicago Subdivision south of Rane is in Central Division Timetable.

MAXIMUM SPEED	*Freight* MPH	*Passenger* MPH
16th Street to Homewood	65	50
Homewood to Rane	79	60

SPEED RESTRICTIONS	*Passenger* MPH	*Freight* MPH
16th Street to MP 2.2 - Mains 1 & 2 - curves	10	10
MP 2.2 to MP 2.7 - Mains 1 & 2	25	25
MP 4 - Curve - Mains 1 & 2	60	40
Kensington Interlocking – Mains 1 & 2 – crossings	25	25
Kensington Interlocking – Mains 1 & 2 – through all turnouts	10	10
Wildwood - through DCS turnouts	25	25

T.T.66

CHICAGO SUBDIVISION 5



Chicago Subdivision north of Rane is in the Chicago Division Timetable.

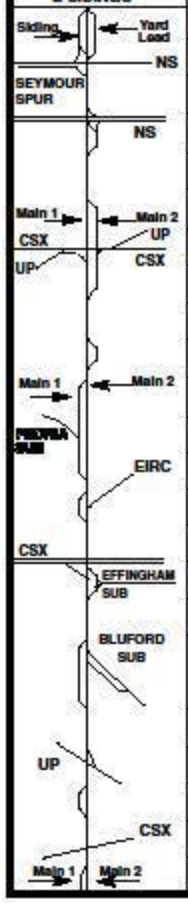
	Passenger MPH	Freight MPH
MAXIMUM SPEED	79	60

SPEED RESTRICTIONS	Passenger MPH	Freight MPH
MP 91.1 - TP&W Crossing	50	30
Gilman – through turnout North end Main 2	40	40
Delrey – through turnout South end Main 2	40	40
MP 113 to MP 114	60	—

SIDING SPEEDS	Turnouts MPH	Siding MPH
Ashkum	40	40
Paxton	40	40
Rantoul - Freight Trains	40	40
Rantoul - Passenger Trains	40	60

T.T.#5

CHAMPAIGN SUBDIVISION 7



TRACK CHART & SIDINGS	SIDING LENGTH	SIDING SWITCH LOCATIONS	STATION SIGN	STATIONS (SOUTH ↓ NORTH ↑)	METHOD OF OPERATION	DEFECT DETECTORS	RADIO CHANNELS CALL RS
	15,928	124.2 127.4	124.1	LEVERETT JCT.	CTC		(72 72) RTC 2 Diesel Doctor 8-0-8
				3.7			
			127.8	CHAMPAIGN			
				1.8			
			129.6	HILLCREST			
				7.5		135.1	
	9,984	137.1 139.3	137.1	TOLONO			
				4.8			
			141.9	PESOTUM			
				6.4			(72 72) RTC 2 Diesel Doctor 8-0-8
			148.3	NORTH TUSCOLA			
				1.5			
			149.8	TUSCOLA			
				2.8			
			152.6	SOUTH TUSCOLA			
				5.3			
			157.9	ARCOLA			
				5.7			
	11,193	161.2 163.5	163.6	HUMBOLDT		165.3	
				7.2			(72 72) RTC 2 Diesel Doctor 8-0-8
			170.8	NORTH MATTOON			
				1.6			
			172.4	MATTOON			
				2.2			
			174.6	SOUTH MATTOON			
				9.7			
	11,248	184.4 186.7	184.3	NEOGA			
				12.5			
			196.8	N. EFFINGHAM			(72 72) RTC 2 Diesel Doctor 8-0-8
				2.4			
	17,793	199.5 203.1	199.2	EFFINGHAM			
				6.5			
			205.7	WATSON		206.1	
				9.1			
	19,166	214.8	214.8	EDGEWOOD JCT.			
				3.8			
		218.6	218.6	LACLEDE			
				4.5			(72 72) RTC 2 Diesel Doctor 8-0-8
			223.1	FARINA			
				6.3			
			229.4	KINMUNDY			
				9.6			
	15,470	234.9 238.0	239.0	TONTI		238.8	
				5.2			
			244.2	ODIN			
				3.0			
			247.2	SANDOVAL JCT.			

	Passenger MPH	Freight MPH
MAXIMUM SPEED	79	60

T.T.#5

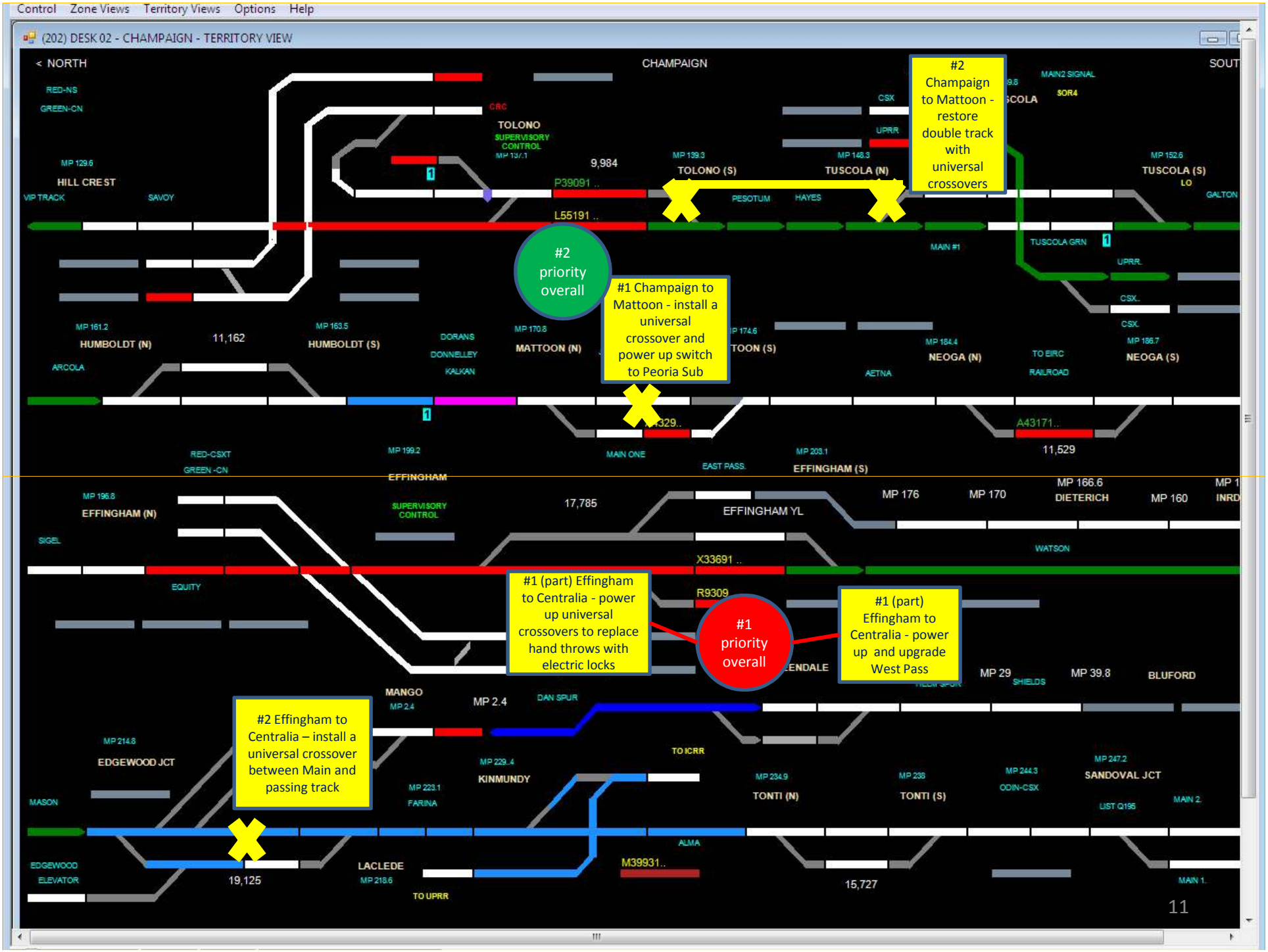
Segment 2 – Champaign to Mattoon

1. Universal crossover between North Mattoon and South Mattoon and power switch to Peoria Sub (#2 priority overall)

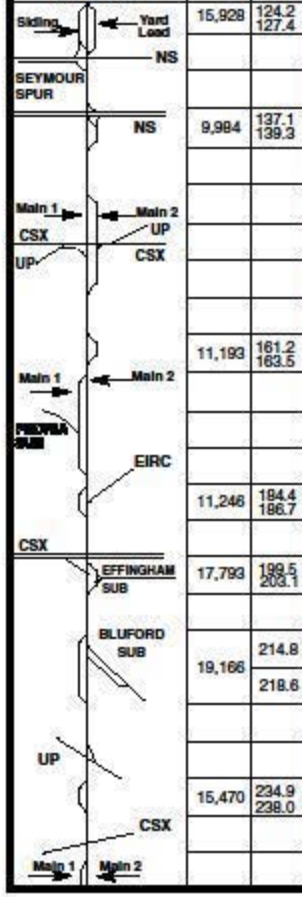
   - Eliminate three ways and holding 7.2 miles north or 9.8 miles south
   - Eliminate time-consuming hand throws
   - Track $860k / Signal $3.3 million (inc. $ 1.1 million in existing AFE)

2. Double track Tolono to Tuscola with crossovers at Tolono and Tuscola

   - Allow multiple meets and avoid holding 9.7 miles north or 8.6 miles south
   - Expedite UP Tuscola interlocking and NS Tolono interlocking moves
   - Track $11.4 million / Signal $1.3 million


Control Zone Views Territory Views Options Help
(202) DESK 02 - CHAMPAIGN - TERRITORY VIEW
< NORTH
CHAMPAIGN
SOUT
#2 Champaign to Mattoon - restore double track with universal crossovers
#2 priority overall
#1 Champaign to Mattoon - install a universal crossover and power up switch to Peoria Sub
TOLONO
SUPERVISORY CONTROL
9,984
P39091 ..
L55191 ..
TOLONO (S)
TUSCOLA (N)
TUSCOLA (S)
HILL CREST
PESOTUM
HAYES
MAIN #1
TUSCOLA GRN
HUMBOLDT (N)
11,162
HUMBOLDT (S)
MATTOON (N)
NEOGA (N)
NEOGA (S)
A43171..
11,529
EFFINGHAM
EFFINGHAM (N)
EFFINGHAM (S)
17,785
EFFINGHAM YL
DIETERICH
X33691 ..
R9309
#1 (part) Effingham to Centralia - power up universal crossovers to replace hand throws with electric locks
#1 priority overall
#1 (part) Effingham to Centralia - power up and upgrade West Pass
#2 Effingham to Centralia – install a universal crossover between Main and passing track
MANGO
MP 2.4
DAN SPUR
EDGEWOOD JCT
KINMUNDY
TONTI (N)
TONTI (S)
SANDOVAL JCT
LACLEDE
19,125
15,727
M39931..
BLUFORD
11

CHAMPAIGN SUBDIVISION 7



TRACK CHART & SIDINGS	SIDING LENGTH	SIDING SWITCH LOCATIONS	STATION SIGN	STATIONS (SOUTH ↓ NORTH ↑)	METHOD OF OPERATION	DEFECT DETECTORS	RADIO CHANNELS CALL RS
	15,928	124.2 127.4	124.1	LEVERETT JCT.	CTC	135.1	(72 72) RTC 2 Diesel Doctor 8-0-8
				3.7			
			127.8	CHAMPAIGN			
				1.8			
			129.6	HILLCREST			
	9,984	137.1 139.3	137.1	7.5 TOLONO			(72 72) RTC 2 Diesel Doctor 8-0-8
				4.8			
			141.9	PESOTUM			
				6.4			
			148.3	NORTH TUSCOLA			
				1.5			
			149.8	TUSCOLA			
				2.8			
			152.6	SOUTH TUSCOLA			
				5.3			
			157.9	ARCOLA		165.3	
				5.7			
	11,193	161.2 163.5	163.6	HUMBOLDT			(72 72) RTC 2 Diesel Doctor 8-0-8
				7.2			
			170.8	NORTH MATTOON			
				1.6			
			172.4	MATTOON			
				2.2			
			174.6	SOUTH MATTOON			
				9.7			
	11,248	184.4 186.7	184.3	NEOGA			
				12.5			
			196.8	N. EFFINGHAM			(72 72) RTC 2 Diesel Doctor 8-0-8
				2.4			
	17,793	199.5 203.1	199.2	EFFINGHAM			
				6.5			
			205.7	WATSON		206.1	
				9.1			
	19,166	214.8	214.8	EDGEWOOD JCT.			
				3.8			
		218.6	218.6	LACLEDE			
				4.5			
			223.1	FARINA			(72 72) RTC 2 Diesel Doctor 8-0-8
				6.3			
			229.4	KINMUNDY			
				9.6			
	15,470	234.9 238.0	239.0	TONTI		238.8	
				5.2			
			244.2	ODIN			
				3.0			
			247.2	SANDOVAL JCT.			

	Passenger MPH	Freight MPH
MAXIMUM SPEED	79	60

T.T.#5

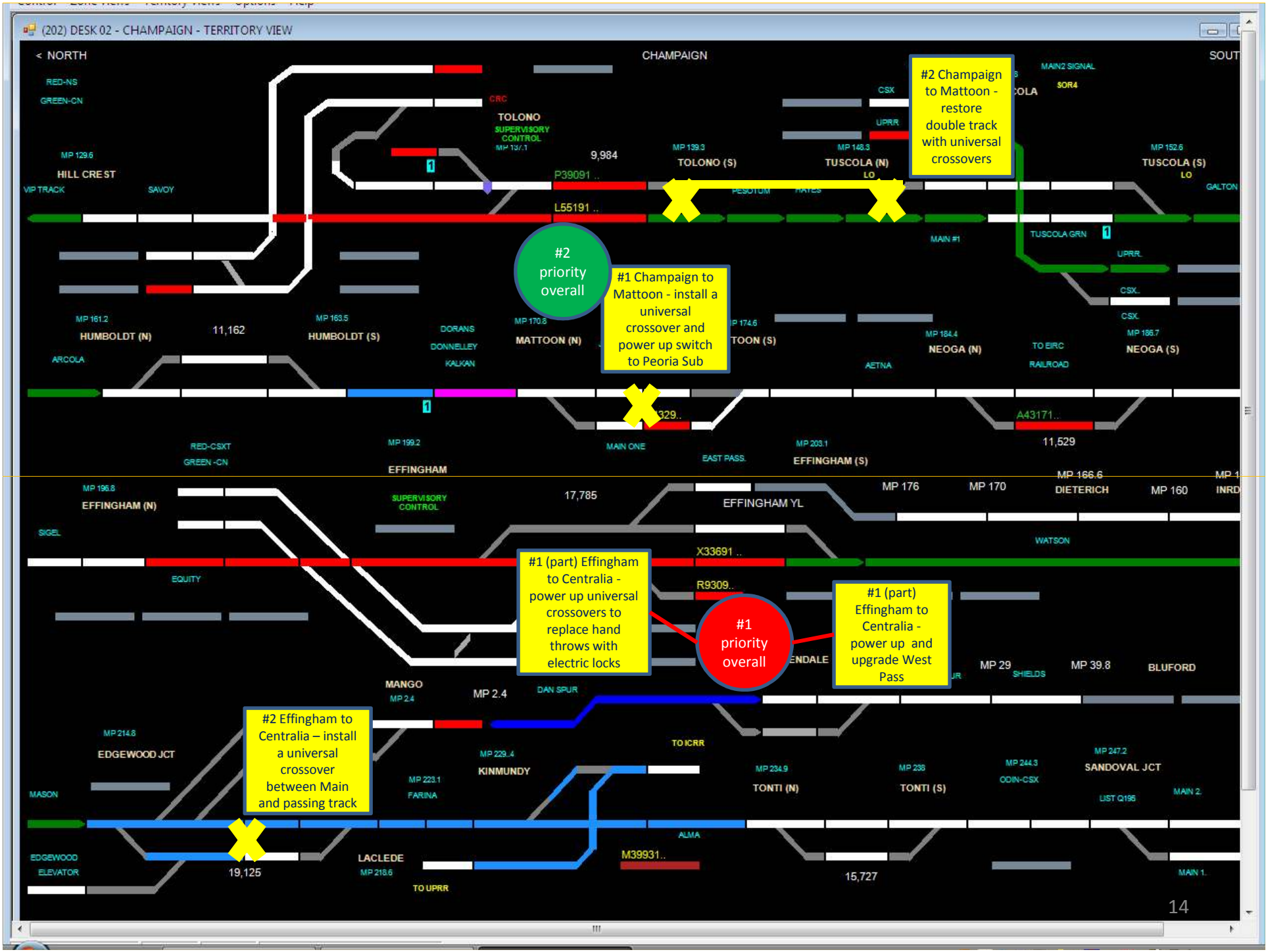
Segment 3 – Effingham to Centralia

1. Upgrade and power up the West Pass at the south end of Effingham, and power up the universal crossovers at Effingham (#1 priority overall)

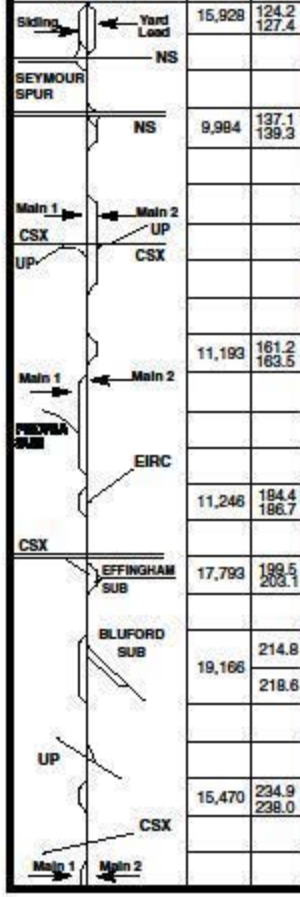
    - Eliminate three way meets with yard assignments and core trains
    - Track $400,000 / Signal $1.2 million

2. Universal crossover between Edgewood Jct. and Laclede

    - Eliminate three way meets and delays from 34.8 mile run to next meeting point
    - Free up staging area for trains held out by UP at Kinmundy
    - Track $700,000 / Signal $1.8 million


(202) DESK 02 - CHAMPAIGN - TERRITORY VIEW
< NORTH
CHAMPAIGN
SOUT
#2 Champaign to Mattoon - restore double track with universal crossovers
#2 priority overall
#1 Champaign to Mattoon - install a universal crossover and power up switch to Peoria Sub
#1 (part) Effingham to Centralia - power up universal crossovers to replace hand throws with electric locks
#1 priority overall
#1 (part) Effingham to Centralia - power up and upgrade West Pass
#2 Effingham to Centralia – install a universal crossover between Main and passing track
TOLONO
HILL CREST
HUMBOLDT (N)
HUMBOLDT (S)
MATTOON (N)
TOLONO (S)
TUSCOLA (N)
TUSCOLA (S)
NEOGA (N)
NEOGA (S)
EFFINGHAM
EFFINGHAM (N)
EFFINGHAM (S)
EFFINGHAM YL
DIETERICH
BLUFORD
MANGO
EDGEWOOD JCT
KINMUNDY
TONTI (N)
TONTI (S)
SANDOVAL JCT
LACLEDE
9,984
11,162
17,785
19,125
15,727
11,529
P39091 ..
L55191 ..
X33691 ..
R9309..
A43171..
M39931..
14

CHAMPAIGN SUBDIVISION 7

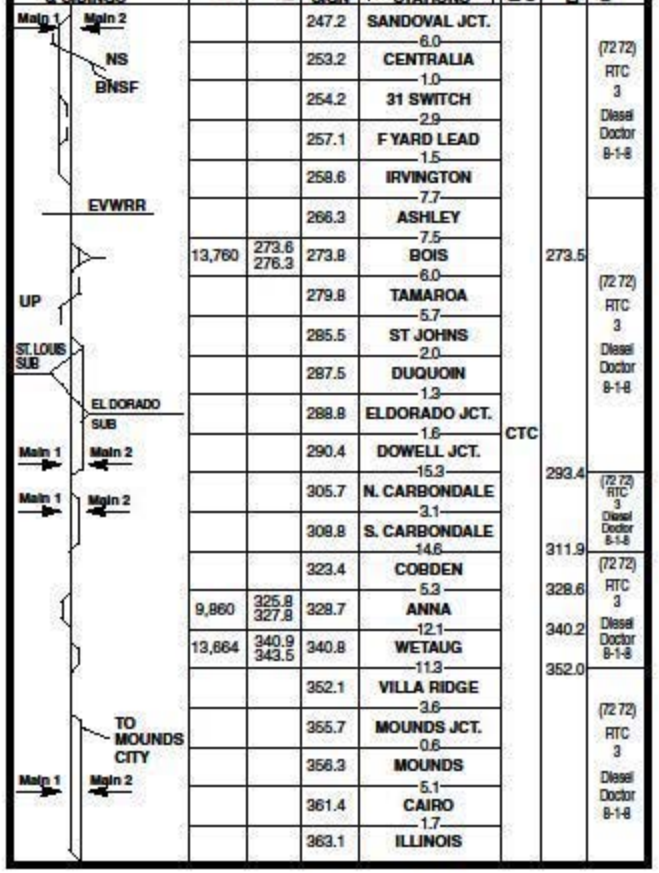


TRACK CHART & SIDINGS	SIDING LENGTH	SIDING SWITCH LOCATIONS	STATION SIGN	STATIONS (SOUTH ↓ NORTH ↑)	METHOD OF OPERATION	DEFECT DETECTORS	RADIO CHANNELS CALL RR
	15,928	124.2 127.4	124.1	LEVERETT JCT.	CTC		(72 72) RTC 2 Diesel Doctor 8-0-8
				3.7			
			127.8	CHAMPAIGN			
				1.8			
			129.6	HILLCREST			
				7.5		135.1	
	9,984	137.1 139.3	137.1	TOLONO			
				4.8			
			141.9	PESOTUM			
				6.4			(72 72) RTC 2 Diesel Doctor 8-0-8
			148.3	NORTH TUSCOLA			
				1.5			
			149.8	TUSCOLA			
				2.8			
			152.6	SOUTH TUSCOLA			
				5.3			
			157.9	ARCOLA			
				5.7			
	11,193	161.2 163.5	163.6	HUMBOLDT		165.3	(72 72) RTC 2 Diesel Doctor 8-0-8
				7.2			
			170.8	NORTH MATTOON			
				1.6			
			172.4	MATTOON			
				2.2			
			174.6	SOUTH MATTOON			
				9.7			
	11,248	184.4 186.7	184.3	NEOGA			
				12.5			
			196.8	N. EFFINGHAM			(72 72) RTC 2 Diesel Doctor 8-0-8
				2.4			
	17,793	199.5 203.1	199.2	EFFINGHAM			
				6.5			
			205.7	WATSON		206.1	
				9.1			
	19,166	214.8	214.8	EDGEWOOD JCT.			
				3.8			
		218.6	218.6	LACLEDE			
				4.5			
			223.1	FARINA			(72 72) RTC 2 Diesel Doctor 8-0-8
				6.3			
			229.4	KINMUNDY			
				9.6			
	15,470	234.9 238.0	239.0	TONTI		238.8	
				5.2			
			244.2	ODIN			
				3.0			
			247.2	SANDOVAL JCT.			

	Passenger MPH	Freight MPH
MAXIMUM SPEED	79	60

T.T.#5

22 CENTRALIA SUBDIVISION



T.T.#5

Segment 4 – Yazoo City to Jackson

1. New track connecting north switch Delta to yard/storage track on west side of Main at Yazoo City

   - Allow trains to work without affecting main line trains

   - Track and bridge $12.0 million / Signal $2.0 million


(402) DESK 04 - YAZOO - TERRITORY VIEW
< NORTH
YAZOO
SOU
SHELBY
B HALL
LAKEVIEW
LO
LAKE CORMORANT
LAKE CORMORANT
10058
W71472..
Q19491..
M1
M2
HBD 15.2
RIALS (N)
10126
RIALS (S)
CRENSHAW (N)
9737
CRENSHAW (S)
SLEDGE MP 54.2
DARLING (N)
10098
DARLING (S)
MARKS
SAVAGE MP 40
HBD 52.4
LAMBERT (N)
9533
LAMBERT (S)
BRAZIL (N)
10134
BRAZIL (S)
SWAN LAKE (N)
10729
SWAN LAKE (S)
MONEY (N)
9440
MONEY (S)
C72291..
C70471..
L5367..
C7017..
A4437
HBD 69.2
HBD 78.6
PHILLIPS 104.4
HBD MP 107.2
HUNTER
S. GREENWOOD
MP 127.2
SIDON (N)
SIDON (S)
CRUGER (N)
11340
CRUGER (S)
GWIN (N)
9514
GWIN (S)
A41971..
HBD 126.4
HBD 142.2
#1 Yazoo City to Jackson – connect North Delta to yard/storage track on west side of Main at Yazoo City
DELTA (N)
10760
DELTA (S)
P05971 ..*
YAZOO CITY
VALLEY (N)
11800
VALLEY (S)
ANDING (N)
8960
ANDING (S)
Q1957
HBD 163.3
HBD 192.7
FLORA (N)
9741
FLORA (S)
CYNTHIA (N)
8710
CYNTHIA (S)
N. JACKSON
RAGIN MP 197.6
MAIN 2
HBD 209.15
ROAD XING
MAIN 1
18
Mail - Inbox - IBM L...
Microsoft PowerPoi...
TRAIN MANAGEME...
EN
10:38 AM

50 YAZOO SUBDIVISION

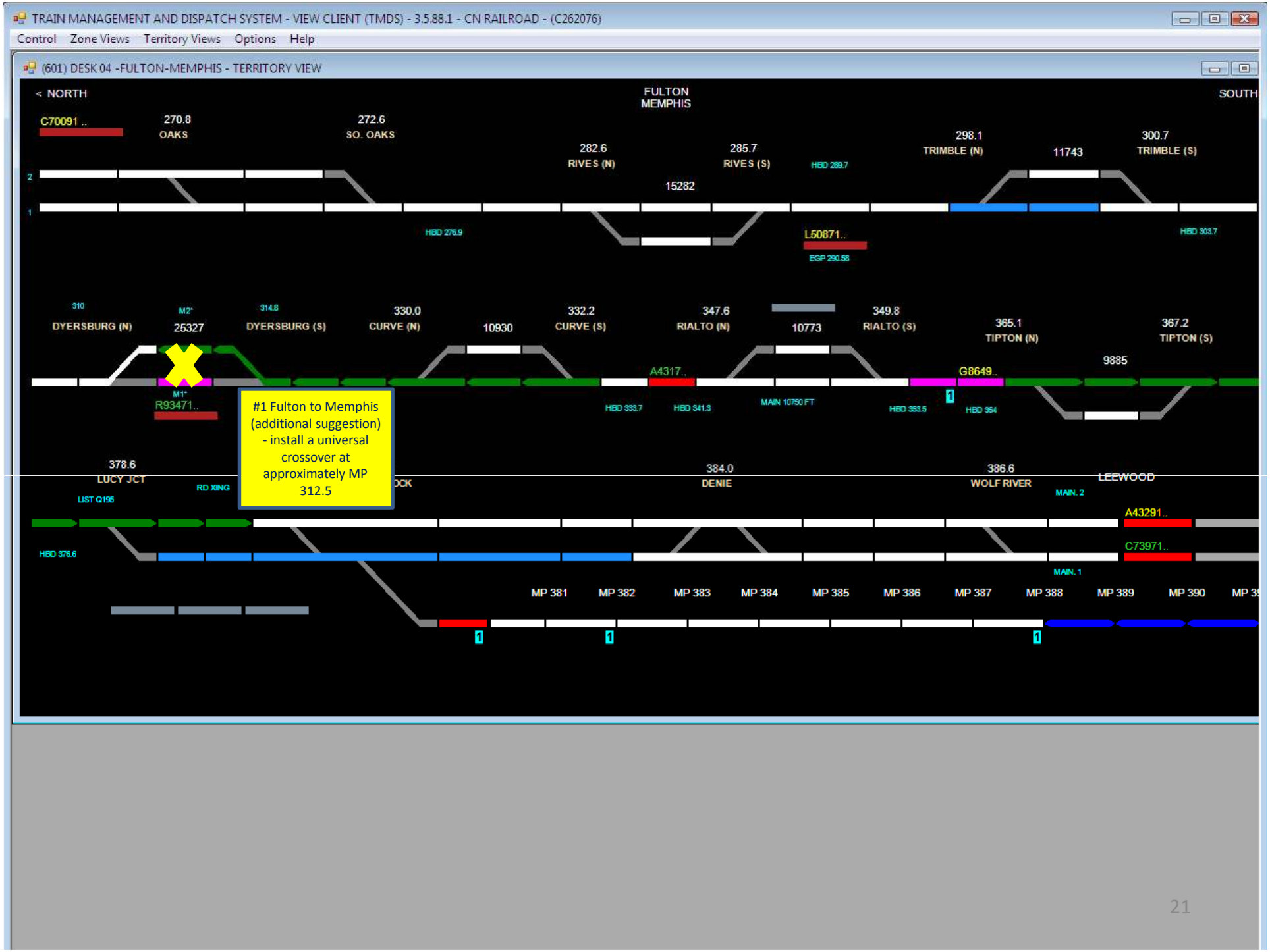
TRACK CHART & SIDINGS	SIDING LENGTH	SIDING SWITCH LOCATIONS	STATION SIGN	SOUTH ↓ STATIONS ↑ NORTH	METHOD OF OPERATION	DEFECT DETECTORS	RADIO ON RAILS CALL ME
MAIN 1 — MAIN 2			13.1	LAKEVIEW		15.2	
				7.4			
	10,058	18.3 20.4	20.5	LAKE CORMORANT			(72 72) RTC 4 Diesel Doctor 8-2-8
				9.7			
	10,126	29.8 31.8	30.2	RIALS		34.2	
				18.6			
	9,737	46.8 48.7	48.8	CRENSHAW		52.4	
				13.6			
	10,098	60.4 62.4	62.4	DARLING			
				4.0			
			66.4	MARKS		69.2	
				4.8			(72 72) RTC 4 Diesel Doctor 8-2-8
	9,533	71.1 73.1	71.2	LAMBERT		78.6	
				12.1			
	10,134	81.3 83.3	83.3	BRAZIL			
MSDR 93.6				10.4			
	10,729	92.7 94.3	93.7	SWAN LAKE		95.7	
				11.3			
			105.0	PHILIPP		107.2	
				7.8			
	9,440	112.3 114.2	112.8	MONEY			
				7.8			
			120.6	HUNTER			(72 72) RTC 4 Diesel Doctor 8-2-8
				1.3			
			121.9	YALOBUSHA			
				0.8	CTC		
122.4 — CAGY			122.7	GREENWOOD			
				2.4			
			125.1	SOUTH GREENWOOD		126.4	
				5.9			
	10,207	128.8 130.9	131.0	SIDON			
				6.8			
	11,340	136.9 139.2	137.8	CRUGER		142.2	(72 72) RTC 4 Diesel Doctor 8-2-8
				10.5			
	9,514	148.0 149.9	148.3	GWIN		163.3	
				20.9			
	10,760	167.7 169.9	169.2	DELTA			
				6.0			
			175.2	YAZOO CITY		177.6	
				5.0			(72 72) RTC 4 Diesel Doctor 8-2-8
	11,800	180.1 182.5	180.2	VALLEY			
				9.5			
	8,960	189.9 191.8	189.7	ANDING		192.7	
				7.9			
			197.6	RAGIN			
				7.4			
	9,741	203.7 205.7	205.0	FLORA			
				6.3		209.3	
	8,750	211.0 212.8	211.3	CYNTHIA			
				5.9			
Main 1 — Main 2			217.2	NORTH JACKSON			
Canton Sub				1.4			
			218.6	JACKSON	YL		

T.T.#5

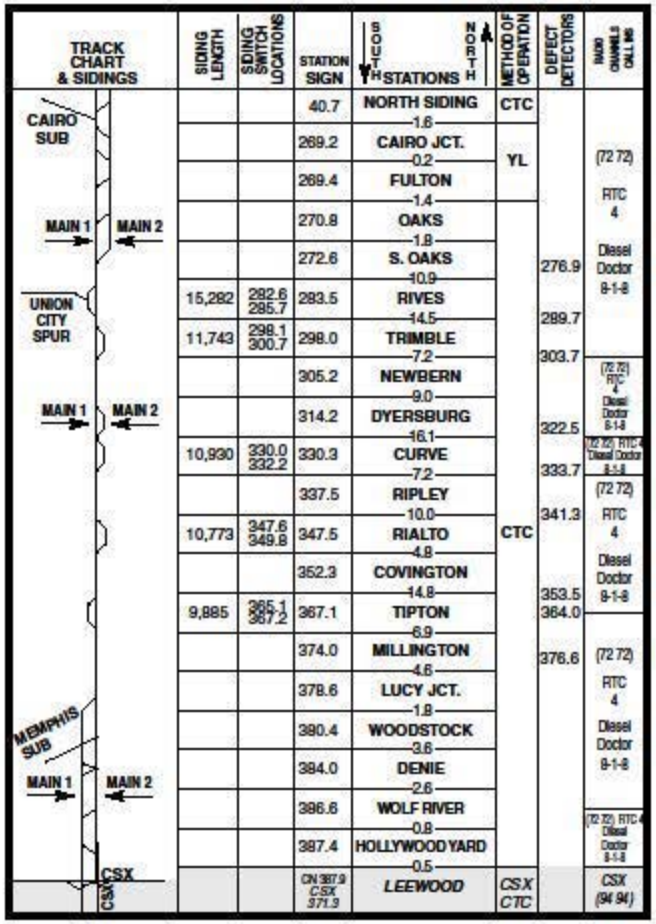
Improvement not in Top 4 Delay Segments

1. Universal crossover near Dyersburg (approximately MP 312.5 Fulton Sub)

- Eliminate three way meets with core trains and yard assignment working Main 1
- Optimize use of 25,000’ Main 2
- Track $800,000 / Signal $2.0 million

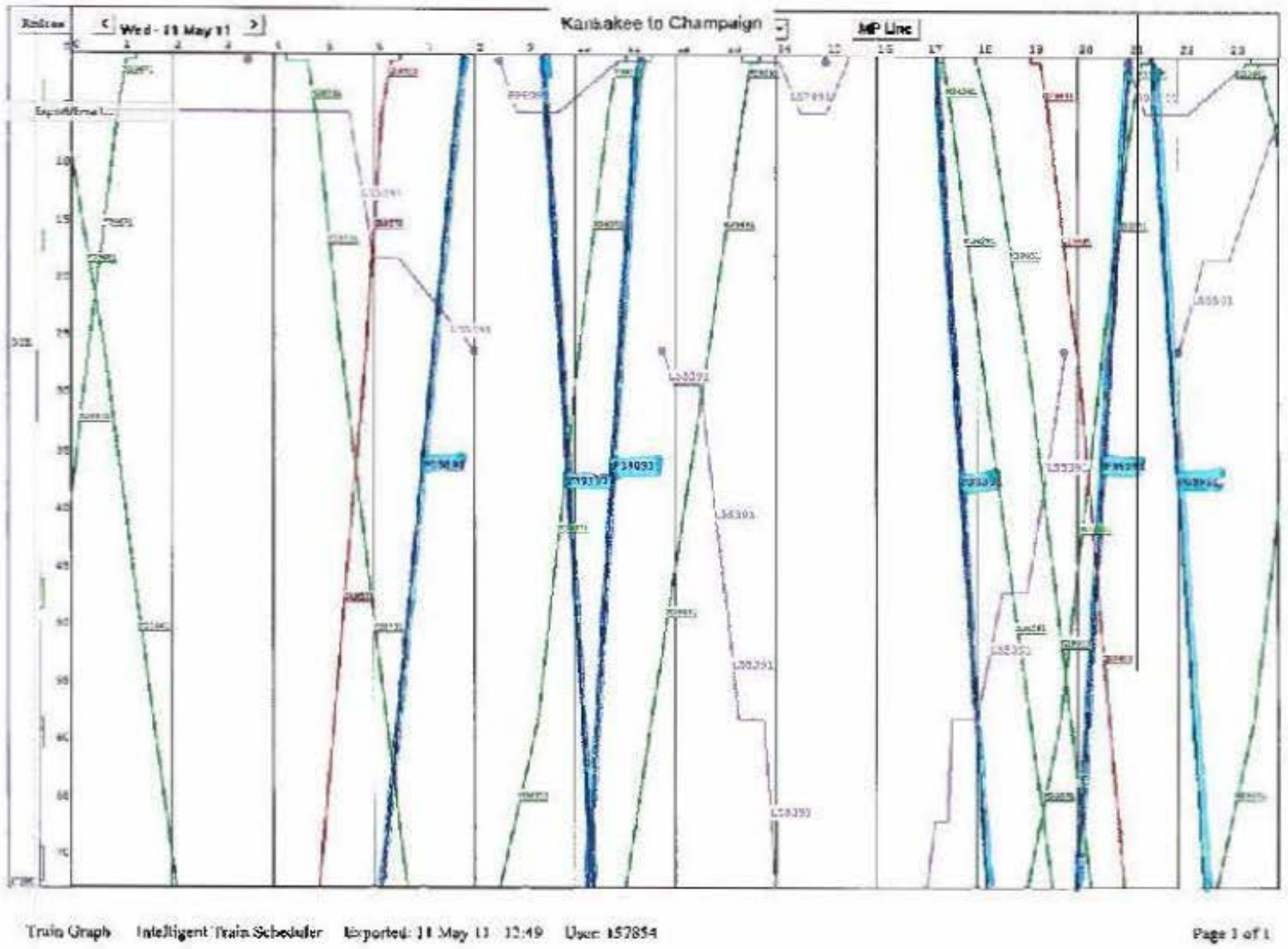

TRAIN MANAGEMENT AND DISPATCH SYSTEM - VIEW CLIENT (TMDS) - 3.5.88.1 - CN RAILROAD - (C262076)
Control
Zone Views
Territory Views
Options
Help
(601) DESK 04 -FULTON-MEMPHIS - TERRITORY VIEW
< NORTH
FULTON
MEMPHIS
SOUTH
C70091 ..
270.8
OAKS
272.6
SO. OAKS
282.6
RIVES (N)
285.7
RIVES (S)
HBD 289.7
298.1
TRIMBLE (N)
11743
300.7
TRIMBLE (S)
15282
HBD 276.9
L50871..
EGP 290.58
HBD 303.7
310
DYERSBURG (N)
M2*
25327
314.8
DYERSBURG (S)
330.0
CURVE (N)
10930
332.2
CURVE (S)
347.6
RIALTO (N)
10773
349.8
RIALTO (S)
365.1
TIPTON (N)
367.2
TIPTON (S)
9885
A4317..
G8649..
M1*
R93471..
HBD 333.7
HBD 341.3
MAIN 10750 FT
HBD 353.5
HBD 354
#1 Fulton to Memphis (additional suggestion) - install a universal crossover at approximately MP 312.5
378.6
LUCY JCT
RD XING
LIST Q195
384.0
DENIE
386.6
WOLF RIVER
MAIN. 2
LEEWOOD
A43291..
C73971..
HBD 376.6
MAIN. 1
MP 381
MP 382
MP 383
MP 384
MP 385
MP 386
MP 387
MP 388
MP 389
MP 390

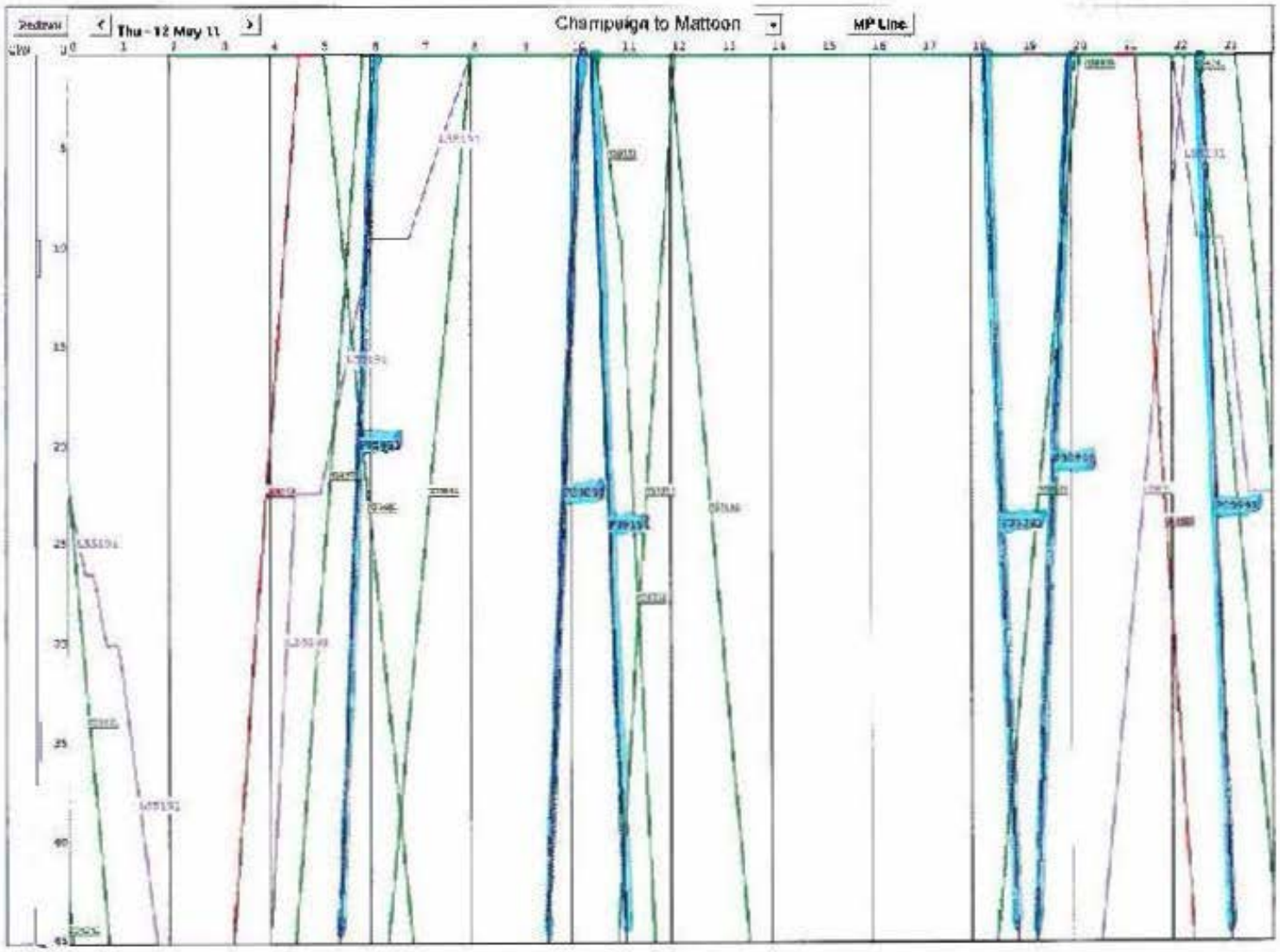
36 FULTON SUBDIVISION



	Passenger MPH	Freight MPH
MAXIMUM SPEED	79	60

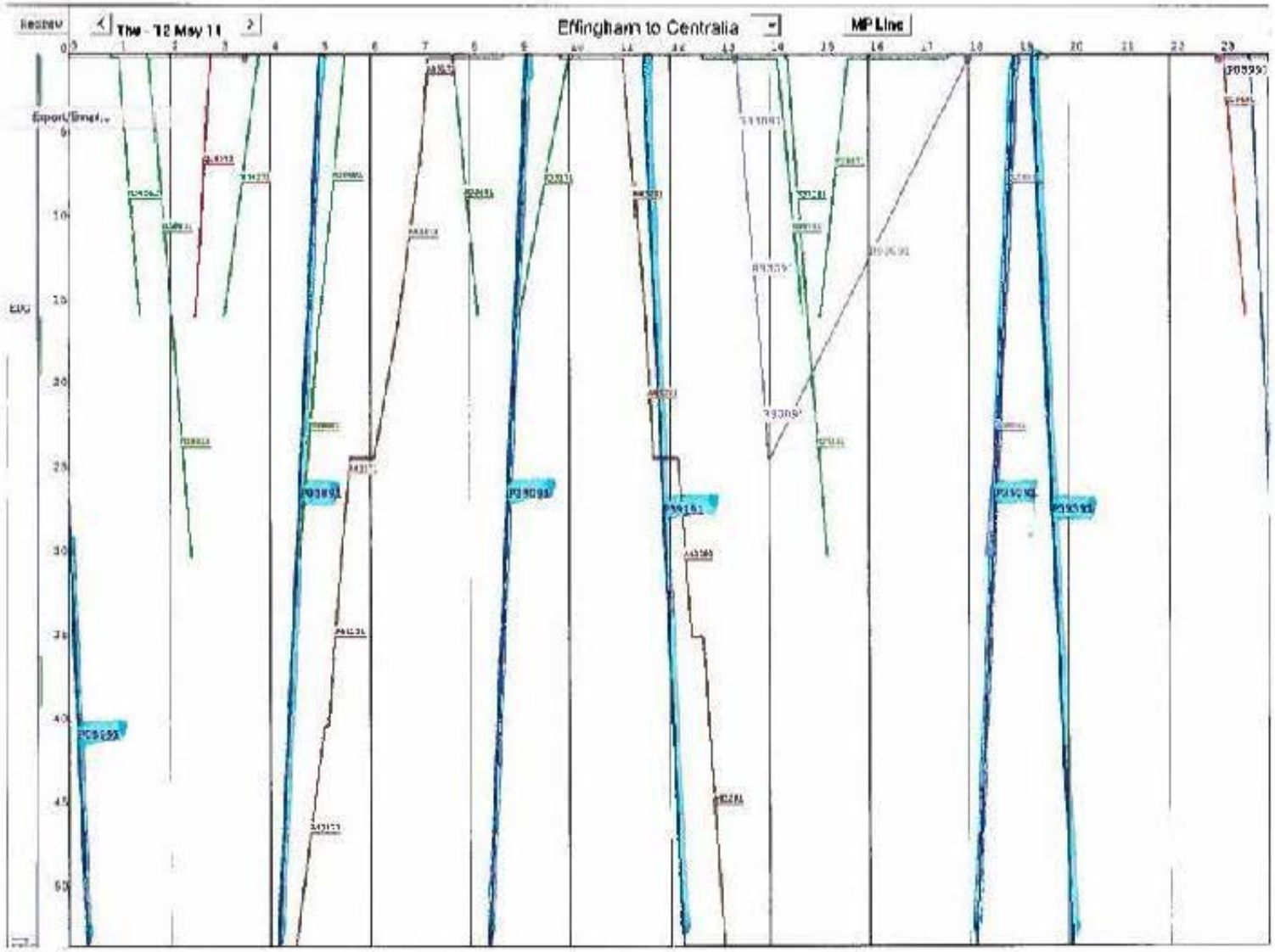
T.T.#5


Wed - 11 May 11
Kankakee to Champaign
MP Line
Train Graph
Intelligent Train Scheduler
Page 1 of 1



Train Graph Intelligent Train Scheduler Exported: 12 May 11 08:44 User: 157854

Page 1 of 1



Train Graph Intelligent Train Scheduler Exported: 12 May 11 08:45 User: 157854 Page 1 of 1

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EXHIBIT 4

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From: Scott Kuxmann
Sent: Wednesday, July 02, 2014 1:29 PM
To: Shacter, Joseph E.; Paul Ladue
Cc: Popish, Todd A
Subject: RE: Following up on OTP

Joe…. Attached is a copy of the capacity infrastructure outline that CN had previously provided to Amtrak, however, since infrastructure improvements are an issue in our ongoing litigation with Amtrak, it is therefore possible that updated infrastructure requirements could emerge from the litigation. If they do, and we are able to share them, we will.

Scott

From: Shacter, Joseph E. [mailto:Joseph.Shacter@Illinois.gov]
Sent: Tuesday, June 24, 2014 1:54 PM
To: Paul Ladue; Scott Kuxmann
Cc: Popish, Todd A
Subject: Following up on OTP

Paul, per our meeting on 6/16, I'm hoping you'll soon be able to send me:

1) Results of modeling 392 with different departure times in the 3:30-5:30 window we discussed
2) The proposed Champaign-Tolono infrastructure improvements you mentioned
3) Related to Rockford-Dubuque, whether any of the grade crossings in that segment were yet modified per the ICC order.

Also, last week's OTP was not good – only 50%. 392 was the main culprit yet again, later than 15 minutes on 5 of the 7 days of the week. But the other three trains also had at least one, if not two, really bad delay during the week as well. What happened?

Joe Shacter
Director of Public and Intermodal Transportation
Illinois Dept. of Transportation
312-793-2116
Please consider the environment before printing this e-mail.



213 Response Exhibit I.PDF

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EXHIBIT 5

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PUBLIC VERSION - REDACTED

NATIONAL RAILROAD PASSENGER CORPORATION
60 Massachusetts Avenue, NE, Washington, DC 20002

September 30, 2011

Mr. Paul Ladue, Regional Director Contracts and Administration
Mr. Mark Nordling, NRPC Operations Officer
CN North America
17641 South Ashland Ave.
Homewood, Illinois 60430-1345

Dear Paul and Mark:

Thank you for your hospitality in hosting Jason Maga, Charles Zak, and myself at your Homewood offices on August 19, 2011.

I received Mark's September 1, 2011 e-mail regarding the meeting. Amtrak's view of the meeting and appropriate next steps differs from CN's summary.

As you know, back in October 2009, CN's Mr. Vena and Amtrak's Mr. Crosbie met to discuss unacceptable levels of Freight Train Interference ("FTI") and other delays on CN's rail lines. CN promised to look into these issues and provide Amtrak with a plan to reduce delay. Nevertheless, despite a series of communications since that time, CN has not provided a comprehensive plan to ameliorate this serious situation, while FTI and other host-responsible delays on CN's rail lines have continued to fall far short of the standards prescribed by PRIIA Section 207.

On June 24, 2011, I sent CN an email (attached) again asking that CN provide me, in writing, a specific outline of the immediate actions CN would take to reduce host-responsible delays so that all Amtrak trains operating on CN meet the PRIIA Section 207 standards. In response, CN proposed the August 19 meeting, which I understood would be a chance to discuss a concrete plan for operating improvements to reduce delays. Unfortunately, when we met, CN failed to provide such a plan.

CN's primary focus at the meeting was: (1) to challenge how host-responsible delay minutes are calculated under PRIIA Section 207, and (2) to propose publicly-funded capacity improvements on CN's Chicago-Carbondale-New Orleans route used by Amtrak's *Illini/Saluki* and the *City of New Orleans*. With respect to the first issue, Section 207 does not entitle a host railroad to exclude certain delays. With respect to the second issue, when I asked (a) if the proposed capital improvements would result in CN meeting the PRIIA Section 207 standards, (b) if the proposed capital improvements were the only way to meet the PRIIA Section 207 standards, and (c) if CN has a plan for how to bring itself into compliance

PUBLIC VERSION - REDACTED

with the PRIIA Section 207 standards on the Carbondale / New Orleans line, or on any other CN lines over which Amtrak operates – CN's answer to each of these questions was "no."

Amtrak continues to look to CN to make concrete operational improvements that will reduce delays to Amtrak trains. Mark's email of September 1 says that, "By mutual agreement, the meeting was viewed as the beginning of a dialogue about ways to improve OTP." Amtrak has sought for two years, via dialogue, for CN to improve performance, but very little has been accomplished. We have worked with CN on specific issues such as improving communication between CN dispatchers and the dispatchers of railroads crossing CN's route to Joliet, but CN has not made meaningful changes. We have repeatedly called attention to high FTI delays in Michigan, but have seen only limited improvement by CN.

After Mark's email, CN proposed another meeting, this time between Jim Vena and Mr. Crosbie's successor Jeff Geary. Paul and I have discussed this, but Amtrak remains unclear on how this meeting will differ from the meeting with Mr. Vena two years ago. Given the numerous meetings and discussions Amtrak and CN have already had over the last two years, and the poor performance that continues to this day, at this point Amtrak would prefer that CN first focus on making concrete operational improvements that will reduce delays to Amtrak trains.

Sincerely,

Paul Vilter
Assistant Vice President – Host Railroads

cc: Jeffrey Geary
Richard Phelps
Jason Maga

Attachment

From: Vilter, Paul
Sent: Friday, June 24, 2011 9:18 AM
To: mark.nordling@cn.ca; paul.ladue@cn.ca
Cc: Phelps, Richard; Maga, Jason; Blair, Jim
Subject: Delays to Amtrak Trains on CN
Attachments: CN 110624 PRIIA 207 Delays and OTP.xls

Mark,

I am writing to follow up on the various discussions and emails between Amtrak and CN staff in recent months regarding Freight Train Interference (FTI) delays on CN. Unfortunately, these communications do not appear to be resulting in the needed improvement, and an unacceptable level of FTI delays continues to persist.

As you know based on the Host Railroad Report that Amtrak distributes to host railroads including CN each month, no Amtrak route on CN met the PRIIA standard for Host-Responsible Delays in either of the past two quarters. Only one train (#364) met this standard in either quarter (see attached). In addition, very few routes or trains operating on CN met the PRIIA standard for On-Time Performance in either of the past two quarters. CN is the only major Amtrak host railroad to exhibit this level of performance. The attached exhibit summarizes the performance of Amtrak trains on CN relative to these standards.

In FY 2011 Q2, the largest category of delay on CN for Trains 21, 22, 58, 59, 300, 301, 302, 303, 304, 305, 306, 307, 364, 390, 391, 392, and 393 was FTI. FTI was the second-largest category of delay on trains 350, 353, 354, 355, and 365.

I would like to focus your and CN's attention on reducing CN delays to Amtrak trains. Please provide to me in writing what immediate actions CN plans to take to reduce host-responsible delays so that all Amtrak trains operating on CN meet the PRIIA standard. Amtrak appreciates CN's attention to this matter.

Thanks,
Paul

Train	Host-Responsible Delay Minutes per 10,000 Train Miles (CN)		Endpoint OTP		All-Stations OTP	
	FY2011 Q1	FY2011 Q2	FY2011 Q1	FY2011 Q2	FY2011 Q1	FY2011 Q2
Standard	*900*	*900*	*80%*	*80%*	*80%*	*80%*
58	**1378**	**1134**	**68.5%**	84.4%	**54.3%**	**66.1%**
59	**1528**	**1233**	**70.7%**	87.8%	**47.1%**	**58.3%**
300	**3042**	**3149**	**47.8%**	**57.5%**	**68.2%**	**68.3%**
301	**3816**	**1058**	**67.4%**	**75.9%**	**77.6%**	**78.9%**
302	**2886**	**2590**	**47.8%**	**54.4%**	**68.9%**	**70.8%**
303	**3351**	**2906**	**60.9%**	**75.3%**	**58.3%**	**61.0%**
304	**2737**	**2427**	**75.0%**	84.1%	**69.7%**	**76.0%**
305	**1593**	**1749**	**68.1%**	**72.7%**	**70.3%**	**65.5%**
306	**2228**	**2027**	85.7%	85.6%	85.3%	86.2%
307	**1803**	**2660**	**65.9%**	**75.6%**	**62.6%**	**67.2%**
364	884	811	88.0%	85.2%	82.0%	80.1%
365	**1843**	**2207**	**45.7%**	**35.2%**	**79.9%**	**70.8%**
390	**1575**	**1203**	**44.6%**	**70.5%**	**55.9%**	**62.0%**
391	**1535**	**1455**	**44.6%**	**48.9%**	**29.1%**	**28.7%**
392	**1705**	**1433**	**26.1%**	**43.3%**	**51.4%**	**56.3%**
393	**1004**	**980**	**63.0%**	**76.7%**	**35.9%**	**61.3%**
350	**1236**	**1532**	**51.1%**	**32.2%**	**46.3%**	**37.3%**
351	**2326**	**2130**	**33.7%**	**16.9%**	81.5%	**63.7%**
352	**2953**	**3570**	**26.1%**	**5.6%**	**35.4%**	**28.8%**
353	**2018**	**2797**	**45.7%**	**36.7%**	**71.2%**	**56.0%**
354	**2043**	**3463**	**35.9%**	**17.8%**	**33.1%**	**36.1%**
355	**1579**	**2075**	**55.4%**	**40.0%**	**62.4%**	**42.4%**
21	**1408**	**2738**	83.7%	82.2%	**53.5%**	**61.3%**
22	**1366**	**1268**	**56.5%**	**72.2%**	**64.8%**	**62.9%**

Corrected August 3, 2011

EXHIBIT 6

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From: "Vilter, Paul" <VilterP@amtrak.com>
To: "mark.nordling@cn.ca" <mark.nordling@cn.ca>, "paul.ladue@cn.ca" <paul.ladue@cn.ca>
cc "Phelps, Richard" <Phelpsr@amtrak.com>, "Maga, Jason" <MagaJ@amtrak.com>, "Blair, Jim" <BlairJ@amtrak.com>
Subject: Delays to Amtrak Trains on CN
06/24/2011 08:18 AM

Mark,

I am writing to follow up on the various discussions and emails between Amtrak and CN staff in recent months regarding Freight Train Interference (FTI) delays on CN. Unfortunately, these communications do not appear to be resulting in the needed improvement, and an unacceptable level of FTI delays continues to persist.

As you know based on the Host Railroad Report that Amtrak distributes to host railroads including CN each month, no Amtrak route on CN met the PRIIA standard for Host-Responsible Delays in either of the past two quarters. Only one train (#364) met this standard in either quarter (see attached). In addition, very few routes or trains operating on CN met the PRIIA standard for On-Time Performance in either of the past two quarters. CN is the only major Amtrak host railroad to exhibit this level of performance. The attached exhibit summarizes the performance of Amtrak trains on CN relative to these standards.

In FY 2011 Q2, the largest category of delay on CN for Trains 21, 22, 58, 59, 300, 301, 302, 303, 304, 305, 306, 307, 364, 390, 391, 392, and 393 was FTI. FTI was the second-largest category of delay on trains 350, 353, 354, 355, and 365.

I would like to focus your and CN's attention on reducing CN delays to Amtrak trains. Please provide to me in writing what immediate actions CN plans to take to reduce host-responsible delays so that all Amtrak trains operating on CN meet the PRIIA standard. Amtrak appreciates CN's attention to this matter.

Thanks,
Paul

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EXHIBIT 7

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REDACTED

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EXHIBIT 8

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Southern Region

Mark R. Nordling
Manager Passenger Operations

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Homewood, IL 60430-1345
T 708.332.4516
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11 October 2011

Mr. Paul Vilter
Assistant Vice President – Host Railroads
Amtrak
30th St. Station, Room 4N-163
P. O. Box 20
Philadelphia, PA 19104

Dear Paul:

Paul and I received your letter of September 30, 2011. It appears we have a different view not only of our August 19, 2011 meeting, but across a range of issues.

As an initial matter, we appear to have a very different view of Section 207 and the standards and measures FRA and Amtrak have adopted under it. These provisions are first and foremost standards and measures not of host-carrier performance, but of the performance of Amtrak's trains, which are operated by Amtrak crews, with Amtrak equipment. While the performance of those trains is certainly influenced by the fluidity of operations on host railroad lines, the repeated theme in your letter (as well as prior communications) asking CN to provide unilateral solutions to performance issues with Amtrak's trains ignores Amtrak's own necessary role and responsibility in the operation of its trains. We continue to believe that the only productive way forward is through a cooperative approach in which Amtrak and CN work together toward constructive solutions.

We further believe that this is consistent with the intent and meaning of Section 207. If Amtrak trains are failing to meet the standards or measures adopted under Section 207, that does not by itself demonstrate that Amtrak, a host carrier, or a third party is acting unreasonably or can or should be subjected to a remedy or penalty. The primary purpose of these goals and standards is to help the parties, and if necessary the Surface Transportation Board, identify routes that appear to require the attention of Amtrak and/or host railroads in order to address Amtrak's sub-par performance over those routes. Amtrak's failure to meet performance standards on certain routes over CN's rail lines does not demonstrate that CN is failing to take reasonable measures, or that CN can unilaterally assure that Amtrak begins to meet those standards, any more than it demonstrates those things with respect to Amtrak; what it does demonstrate is that these are locations where it makes sense for Amtrak and CN to work together to identify and address the issues that are hampering Amtrak performance.

The fact that the standards and measures adopted by FRA and Amtrak under Section 207 are ill-suited to demonstrate that Amtrak or a host railroad has acted unreasonably is underscored by the nature of the measures and standards themselves, particularly as developed and implemented by Amtrak and FRA. The on-time performance (OTP) measures adopted by Amtrak and FRA under Section 207 do not provide exceptions for or distinguish between various reasons that an Amtrak train may fall behind schedule; at most these measures reveal that there appears to be a problem that may need to be addressed.

Similarly, for a variety of reasons that we have discussed with you at length, the delay standards and measures adopted by Amtrak and FRA pursuant to Section 207, and the data generated by Amtrak pursuant to those standards also fail to indicate reliably the cause or responsibility for delays, much less indicate that a carrier is failing to provide Amtrak trains with reasonable preference. "Host-responsible delays," for example, include items that are not within the host carrier's control, such as weather, crossing accidents and delays at interlockings not controlled by the host carrier despite a timely request for a signal. In addition, Amtrak's assignment of delay minutes relies on Conductor Delay Reports (CDRs), and in filling out those reports conductors routinely do not seek to determine and assign root causes for delays. During our recent meeting, Mr. Carroll suggested a process whereby CN's RTC could attempt to communicate causes of delays to the Amtrak conductor in order to improve accuracy of the CDR. You indicated, however, that the Amtrak conductors are trained to show FTI regardless of the root cause of the delay unless the incident causing the delay was specific to the Amtrak train itself. But without root causes, the assignment of responsibility for delay minutes is often meaningless. Further, despite the fact that these CDRs are frequently incorrect, Amtrak has to date refused to update its PRIIA reports with corrected information, even when it has agreed to the correction for other purposes. Notably, nothing in Section 207 dictated any of these approaches; these deficiencies are due to decisions made by FRA and Amtrak in promulgating standards and metrics pursuant to that section or Amtrak in implementing them.

CN has expended considerable resources on these and other data issues for a very good reason -- it believes data can play a useful role in helping to identify problems, trends, and progress in addressing Amtrak operating issues. From Amtrak's heavy reliance on PRIIA data to suggest deficient CN performance, it appears that you share this view. We would hope, therefore, that you would also share our concerns with respect to the quality of the PRIIA data you are presently generating and take it upon yourself to try to improve that data (whether through changes in practices or by modifying the standards and metrics themselves through a further rulemaking) so they provide more meaningful information. Indeed, CN believes that such efforts should be at the top of any list of plans to address Amtrak train performance issues.

Given the deficiencies in the PRIIA data being generated by Amtrak, particularly with respect to actual host-railroad performance, and in the spirit of working with Amtrak to identify and address performance issues, CN has sought to understand and analyze its performance through more accurate data. One obvious source that is superior to the present PRIIA data is data jointly generated by Amtrak and CN for the Amtrak Operating Agreement. Although imperfect because, among other things, it still relies heavily on CDRs, this data is a significant improvement because it more accurately assigns responsibility for delays and includes agreed-

upon corrections to CDR reports. As we pointed out at the meeting - and have reiterated on several occasions - end point OTP based upon Operating Agreement data approaches 90%, and has shown steady overall improvement. This can be seen in Attachment 1, which provides a summary of Operating Agreement performance.

CN has also tried to assess its performance more accurately by refining PRIIA data to make it more meaningful. For example, Attachment 2 is a table comparing Amtrak's calculation of host-related delays per 10,000 train miles with CN"s calculation of that figure, but with delays removed where they were beyond the reasonable control of CN. Again, this suggests that CN's performance has been far better than Amtrak's PRIIA data would indicate.

Nonetheless, in an effort to help Amtrak improve its performance, at CN's own initiative, and without seeking compensation from Amtrak (despite the fact that CN will not be automatically compensated for most of the work under the Amtrak-IC/GTW Operating Agreement), CN developed for and presented at the August 19 meeting nine (9) detailed capital improvement proposals to address specific FTI concerns that Amtrak had identified on two of its major routes over CN lines. Your dismissive response to those efforts is disappointing. You complain that CN would not guarantee that it will meet PRIIA standards if the capital improvements were made. That is hardly surprising, however, since most of the PRIIA standards do not even apply directly to CN, but rather to Amtrak's overall train performance, which can be impacted by numerous factors beyond CN's control, and, as noted above, even the FTI measure, which is most closely related to a host-carrier's own performance, is a poor and unreliable measure. In any event, the improvements CN proposed were never intended to resolve all delay issues on these routes, they were instead intended to remedy only the specific FTI delays identified by Amtrak, and CN did commit that they would do so. In addition, of course, Amtrak performance and PRIIA-related metrics would also ultimately be improved.

You also fault CN for proposing possible capital improvements because there may be other means of trying to achieve improved Amtrak performance. But the other potential means of improving performance that Amtrak would prefer to be considered before funding infrastructure upgrades - improving maintenance, altering schedules, and operational changes - were each, in turn, discussed and analyzed for its potential benefits. Maintenance changes would likely have little impact since there are no permanent slow orders in effect. Schedule changes would be challenging, at best given CN's pre-existing contractual freight obligations and Amtrak's stated unwillingness to alter its schedules or operate in the alternative windows that CN has identified as available due to Amtrak's passenger convenience requirements . Moreover, we do not see it as generally efficient to attempt to consider various options for operating changes and infrastructure improvements in isolation of one another. They are intimately related and best considered together.

It is unclear to us what "concrete operational improvements" or "other meaningful changes" Amtrak believes CN should be making; Amtrak certainly has not suggested any that could reasonably address our mutual needs and concerns. As reflected in our Operating Agreement compliance OTP and incentive payments, CN's Rail Traffic Controllers and their managers already fully understand the importance of maintaining Amtrak's schedules and they work hard

to keep Amtrak's trains moving across our very busy network. (It is important to remember that both your traffic and ours have increased several times over since the inception of Amtrak. On May 1, 1971, Amtrak's operation on IC and GTW consisted of 8 daily trains; that number today is 32.) CN has also made effort in other areas, such as the Joliet Subdivision, where it has had several discussions with Amtrak, Metra and the freight railroads regarding improved signaling at crossing locations not controlled by CN. CN does all that it can to assure that its RTC promptly requests the route for Amtrak trains, but execution is the responsibility of the controlling railroad(s), a fact that is recognized in our Operating Agreement, and which Amtrak agrees, does not attribute such delays to CN.

CN is willing to do its part to improve Amtrak's operations on its lines, but it cannot do it alone. Amtrak's trains in Michigan provide a good example of how delay and OTP problems require the attention and cooperation of both Amtrak and CN. For more than three years, Amtrak has been aware that the maintenance agreement with NS would be expiring at the end of 2010, and that upon its expiration NS was likely to substantially reduce maximum speeds on its lines. Yet this impending problem was not addressed prior to the agreement's expiration. As a consequence, in February, 2011, NS began downgrading the speeds on their line between Jackson and Dearborn which began delaying Amtrak trains from 30 to 90 minutes. This has caused Amtrak trains to operate on CN's lines between Detroit and Pontiac and between Baron and Gord (Battle Creek) significantly outside of the designated passenger train slots, placing these trains into conflict with CN's scheduled freights, and, at times, other Amtrak trains. The resulting delays caused Amtrak trains to exceed the delay tolerance in the Operating Agreement, which unfairly resulted in CN receiving no compensation for these trains. It is unreasonable to expect CN to compensate fully for Amtrak's poor performance on another carrier, and to be judged as deficient on that basis, despite our best efforts.

It is the importance of sharing information concerning operational developments, schedules, flexibility, and Amtrak funding, and the difficulty of crafting potential solutions that meet both our needs that we believe makes a joint, comprehensive approach to Amtrak performance issues critical. It is the only way we can efficiently explore the full gamut of potential solutions. We do not believe it is productive, reasonable, or responsible for Amtrak to adopt the attitude that it may simply sit back, point to its seriously flawed FTI or host-railroad delay data (neither of which demonstrates that a host-railroad is at fault), and on that basis expect CN to develop unilaterally a "comprehensive plan" addressing delays that may not even be attributable to it.

Accordingly, we believe that a meeting between Messrs. Geary and Vena would be a productive next step to help us work together to address Amtrak performance issues. In the meantime, CN will continue to look for ways in which it can reduce and eliminate delays to Amtrak's trains on its lines.

Best regards,

CC Jeffrey Geary
Richard Phelps
Jason Maga
Jim Vena
Paul Ladue
Ted Kalick
David Hirsh

2 Attachments

Attachment 1

PUBLIC VERSION - REDACTED

IC	Trains	Miles	Month End SEPT '11 OTP%	Month End AUG '11 OTP%	Month End JUL '11 OTP%	Month End JUN '11 OTP%	Month End MAY '11 OTP%	Month End APR '11 OTP%	Month End MAR '11 OTP%	Month End FEB '11 OTP%	Month End JAN '11 OTP %	Month End DEC '10 OTP %	Month End NOV '10 OTP %	Month End OCT '10 OTP %	Month End SEPT '10 OTP%	Month End AUG '10 OTP%	Month End JULY '10 OTP%	Month End JUNE '10 OTP%	Month End MAY '10 OTP%	Month End APR '10 OTP %	Month End MAR '10 OTP%	Month End FEB '10 OTP%	Month End JAN '10 OTP%
NOLA to	58-1	401.6	92.6%	96.8%	90.0%	86.2%	91.7%	75.0%	70.0%	81.5%	80.6%	77.4%	50.0%	60.7%	73.3%	78.6%	87.1%	75.9%	89.3%	89.3%	90.0%	77.8%	70.0%
Memphis to CUS	58-2	526.2	90.0%	100.0%	96.8%	100.0%	100.0%	77.3%	87.1%	92.0%	80.0%	76.7%	56.7%	80.6%	86.2%	96.7%	90.3%	71.4%	96.2%	86.2%	96.8%	88.9%	70.0%
CUS to Memphis	59-1	526.2	86.2%	87.1%	96.7%	90.0%	90.9%	66.7%	83.9%	100.0%	83.3%	74.2%	73.3%	80.0%	89.7%	96.8%	100.0%	96.6%	88.5%	92.6%	96.8%	92.9%	77.4%
Memphis to	59-2	401.6	80.8%	96.8%	100.0%	96.7%	100.0%	70.0%	96.8%	92.3%	90.3%	83.9%	73.3%	63.3%	96.7%	90.0%	96.7%	100.0%	96.4%	90.0%	90.3%	89.3%	67.7%
Chicago Union Station to Carbondale	390	306.7	86.2%	83.9%	83.9%	72.4%	80.6%	89.7%	90.3%	69.2%	90.3%	56.7%	53.3%	80.0%	89.7%	100.0%	96.8%	93.3%	80.6%	90.0%	83.9%	82.1%	64.5%
	391	306.7	89.7%	96.8%	80.6%	75.0%	87.1%	72.4%	80.6%	73.1%	74.2%	56.7%	66.7%	80.0%	86.2%	89.7%	93.5%	83.3%	83.3%	90.0%	83.9%	89.3%	66.7%
	392	306.7	86.7%	69.0%	83.3%	100.0%	70.0%	79.3%	87.1%	74.1%	64.5%	40.0%	72.4%	63.3%	86.7%	80.0%	67.7%	73.3%	73.3%	85.7%	90.3%	85.7%	61.3%
	393	306.7	100.0%	96.8%	100.0%	86.2%	80.6%	96.7%	87.1%	85.2%	87.1%	64.5%	90.0%	89.7%	86.7%	96.7%	83.9%	86.7%	93.5%	93.3%	93.5%	96.4%	93.5%
Chicago Union Station to Joliet	321	34.9	56.7%	74.2%	71.4%	75.0%	69.2%	84.6%	83.3%	88.9%	90.3%	88.2%	85.7%	85.7%	84.6%	83.3%	93.1%	80.0%	87.1%	79.3%	87.1%	84.6%	83.9%
	322	34.9	63.3%	88.9%	75.0%	83.3%	71.4%	92.3%	90.3%	85.7%	93.3%	82.4%	100.0%	100.0%	92.3%	77.4%	72.4%	65.5%	64.5%	80.0%	83.9%	76.0%	86.7%
	300	34.9	75.9%	93.5%	90.0%	92.3%	96.3%	96.7%	100.0%	80.0%	80.6%	73.3%	76.7%	90.3%	80.0%	96.7%	86.2%	86.7%	90.3%	90.0%	87.1%	84.6%	83.9%
	301	34.9	96.7%	96.8%	92.9%	91.7%	96.0%	100.0%	100.0%	88.0%	100.0%	90.0%	96.7%	100.0%	100.0%	100.0%	100.0%	96.7%	100.0%	93.3%	93.5%	96.2%	100.0%
	302	34.9	70.0%	90.3%	62.5%	100.0%	80.0%	90.0%	96.8%	96.3%	96.8%	80.0%	93.3%	93.5%	83.3%	96.8%	93.1%	72.4%	90.3%	73.3%	90.3%	88.5%	96.7%
	303	34.9	36.7%	61.3%	50.0%	63.6%	92.3%	83.3%	83.9%	66.7%	74.2%	66.7%	83.3%	87.1%	76.7%	80.0%	65.5%	70.0%	64.5%	83.3%	54.8%	80.8%	87.1%
	304	34.9	76.7%	96.8%	91.7%	100.0%	92.3%	90.0%	87.1%	92.3%	93.3%	93.3%	90.0%	83.9%	90.0%	96.8%	96.6%	83.3%	83.9%	90.0%	100.0%	76.9%	93.5%
	305	34.9	76.7%	93.5%	71.4%	100.0%	96.2%	96.7%	96.8%	88.5%	80.6%	80.0%	93.3%	96.8%	89.7%	90.3%	89.7%	83.3%	96.8%	90.0%	93.5%	92.3%	90.3%
	306	34.9	80.0%	90.3%	84.6%	100.0%	92.3%	83.3%	100.0%	92.9%	96.7%	93.3%	90.0%	100.0%	100.0%	96.8%	86.2%	93.3%	93.3%	86.2%	83.3%	92.3%	90.0%
	307	34.9	82.8%	93.5%	64.3%	100.0%	84.6%	89.7%	90.0%	85.7%	93.5%	73.3%	80.0%	93.5%	90.0%	90.3%	96.6%	70.0%	80.6%	93.3%	87.1%	84.6%	82.1%
IC AVERAGE OTP			83.2%	89.9%	86.1%	89.1%	87.5%	82.5%	89.5%	85.1%	86.1%	74.5%	78.3%	84.6%	87.9%	90.9%	88.6%	82.3%	86.2%	87.5%	88.1%	86.6%	81.4%
IC TOTAL INCENT. COMP.			$173,180	$332,171	$297,977	$256,868	$154,547	$72,940	$177,360	$165,701	$100,286	($92,678)	($115,577)	$14,861	$159,860	$288,531	$275,794	$177,658	$193,454	$190,563	$263,115	$162,025	$11,977
IC YTD TOTAL INCENTIVE COMP.			$1,731,030	$1,557,850	$1,225,679	$927,702	$670,834	$516,286	$443,347	$265,987	$100,286	$1,529,583	$1,622,261	$1,737,838	$1,722,977	$1,563,117	$1,274,586	$998,792	$821,134	$627,680	$437,117	$174,002	$11,977

GTW	Trains	Miles	Month End SEPT '11 OTP%	Month End AUG '11 OTP%	Month End JUL '11 OTP%	Month End JUN '11 OTP%	Month End MAY '11 OTP%	Month End APR '11 OTP%	Month End MAR '11 OTP%	Month End FEB '11 OTP%	Month End JAN '11 OTP %	Month End DEC '10 OTP %	Month End NOV '10 OTP %	Month End OCT '10 OTP %	Month End SEPT '10 OTP%	Month End AUG '10 OTP%	Month End JULY '10 OTP%	Month End JUNE '10 OTP%	Month End MAY '10 OTP%	Month End APR '10 OTP %	Month End MAR '10 OTP%	Month End FEB '10 OTP%	Month End JAN '10 OTP%
Pt Huron to Baron	364	158.7	93.3%	93.5%	96.7%	90.0%	96.8%	93.3%	96.8%	92.3%	93.3%	93.5%	100.0%	93.5%	96.7%	96.8%	96.8%	96.7%	96.8%	96.7%	100.0%	88.9%	90.3%
	365	158.7	83.3%	93.5%	90.3%	93.3%	87.1%	93.3%	87.1%	85.2%	86.7%	71.0%	86.7%	93.5%	76.7%	77.4%	83.9%	100.0%	93.5%	96.7%	87.1%	67.9%	54.8%
Pontiac to Vinewood (Detroit)	350	25.3	88.9%	85.7%	96.4%	92.9%	64.5%	73.3%	80.0%	85.2%	100.0%	100.0%	83.3%	80.0%	76.7%	76.7%	93.1%	93.3%	83.9%	80.0%	83.9%	96.4%	92.9%
	351	25.3	80.0%	83.9%	80.6%	86.2%	80.6%	83.3%	74.2%	88.9%	87.1%	93.5%	86.7%	93.5%	90.0%	93.5%	93.5%	86.7%	90.3%	96.7%	90.3%	89.3%	96.8%
	352	25.3	80.8%	87.1%	90.3%	92.9%	71.0%	20.0%	22.6%	26.9%	56.7%	87.1%	90.0%	74.2%	90.0%	77.4%	65.5%	76.7%	83.9%	83.3%	80.6%	89.3%	45.2%
	353	25.3	91.3%	92.3%	76.7%	80.0%	71.0%	43.3%	29.0%	23.1%	51.6%	83.9%	96.7%	83.9%	90.0%	74.2%	86.7%	86.7%	90.3%	83.3%	83.3%	92.9%	77.4%
	354	25.3	86.7%	87.1%	93.5%	93.1%	90.3%	40.0%	35.5%	53.6%	77.4%	77.4%	76.7%	90.3%	70.0%	71.0%	67.7%	76.7%	100.0%	90.0%	90.3%	75.0%	83.9%
	355	25.3	90.0%	87.1%	93.1%	75.0%	86.7%	90.0%	80.6%	92.9%	90.3%	93.5%	90.0%	90.0%	86.7%	76.7%	87.1%	86.7%	77.4%	69.0%	80.6%	82.1%	67.7%
Gord to Baron (Battle Creek)	350	1.2	85.2%	95.2%	100.0%	96.4%	90.3%	90.0%	96.7%	100.0%	93.5%	96.8%	93.3%	93.3%	86.7%	90.0%	96.6%	93.3%	90.3%	86.7%	96.8%	92.9%	85.7%
	351	1.2	83.3%	96.8%	93.5%	100.0%	87.1%	93.3%	93.5%	96.3%	96.8%	96.8%	93.3%	93.5%	73.3%	87.1%	93.5%	96.7%	96.8%	100.0%	96.8%	89.3%	93.5%
	352	1.2	84.6%	93.5%	90.3%	89.3%	96.8%	93.3%	93.5%	100.0%	100.0%	90.3%	96.7%	96.8%	90.0%	96.8%	86.2%	96.7%	90.3%	93.3%	93.5%	89.3%	87.1%
	353	1.2	87.0%	92.3%	100.0%	100.0%	96.8%	96.7%	100.0%	96.2%	87.1%	93.5%	93.3%	90.3%	66.7%	80.6%	90.0%	90.0%	83.9%	83.3%	83.3%	92.9%	80.6%
	354	1.2	83.3%	96.8%	96.8%	96.6%	83.9%	96.7%	96.8%	92.9%	100.0%	93.5%	100.0%	96.8%	90.0%	100.0%	93.5%	90.0%	96.8%	96.7%	83.9%	96.4%	96.8%
	355	1.2	86.7%	80.6%	89.7%	89.3%	93.3%	93.3%	100.0%	89.3%	100.0%	96.8%	90.0%	83.3%	83.3%	93.3%	90.3%	86.7%	96.8%	93.1%	77.4%	89.3%	90.3%
Thornton - Munster (Chgo)	317/51	5.8	93.3%	90.3%	86.2%	93.3%	93.5%	90.0%	90.3%	96.0%	87.1%	83.3%	90.0%	90.0%	96.6%	79.3%	96.7%	100.0%	87.1%	90.0%	96.7%	89.3%	79.3%
	318/50	5.8	90.0%	100.0%	93.5%	93.3%	100.0%	90.0%	87.1%	88.0%	93.5%	90.3%	75.9%	93.5%	96.7%	74.2%	90.3%	93.3%	90.3%	80.0%	90.3%	92.9%	96.8%
GTWAVERAGE OTP			86.7%	91.0%	91.7%	91.4%	86.9%	80.0%	78.9%	81.7%	87.6%	90.1%	90.2%	89.8%	85.0%	84.1%	88.2%	90.6%	90.5%	88.7%	88.4%	88.4%	82.4%
GTW TOTAL INCENT. COMP.			$67,951	$73,710	$74,832	$71,716	$73,004	$64,599	$66,611	$57,144	$69,275	$65,355	$67,441	$67,727	$60,358	$62,265	$65,611	$66,904	$68,943	$63,856	$66,628	$55,090	$55,038
GTW YTD TOTAL INCENT. COMP.			$618,841	$550,890	$477,179	$402,348	$330,632	$257,628	$193,029	$126,418	$69,275	$765,217	$699,862	$632,421	$564,694	$504,336	$442,071	$376,459	$309,555	$240,612	$176,756	$110,128	$54,930
AVERAGE OTP FOR IC AND GTW			85.0%	90.4%	88.9%	90.2%	87.2%	81.2%	84.2%	83.4%	86.8%	82.3%	84.2%	87.2%	86.4%	87.5%	88.4%	86.5%	88.4%	88.1%	88.3%	87.5%	81.9%
GRAND TOTAL YTD COMP. FOR IC AND GTW			$2,349,871	$2,108,740	$1,702,858	$1,330,049	$1,001,466	$773,915	$636,376	$392,405	$169,561	$2,294,800	$2,322,122	$2,370,259	$2,287,671	$2,067,453	$1,716,657	$1,375,251	$1,130,689	$868,292	$613,873	$284,130	$66,907
YTD OTP % FOR IC & GTW			86.4%	86.6%	86.0%	85.5%	84.6%	83.9%	84.8%	85.1%	86.8%	86.4%	86.8%	87.0%	87.0%	87.1%	87.0%	86.8%	86.8%	86.5%	85.9%	84.7%	81.9%

Attachment 2

Monthly Comparison - Minutes of Delay per 10k Train Miles

legend: Amtrak | CN relief

IC Trains	Data Description	Oct. 2010	Nov. 2010	Dec. 2010	Jan. 2011	Feb. 2011	Mar. 2011	Apr. 2011	May. 2011	June. 2011	July. 2011	Aug. 2011	Sept. 2011	Oct. 2011	Nov. 2011	Dec. 2011
58-1	Amtrak Raw															
	CN w/relief	1749	1617	1347	1437	1243	1544		690	925	514	1074	1111			
58-2	Amtrak Raw															
	CN w/relief	1101	1032	1115	1027	792	736		491	557	563	834	786			
58	Amtrak Raw	1411	1493	1235	1242	1056	1094	1518	1469	1409	1085	1088				
	CN w/relief	1382	1285	1216	1208	995	1086	1169	621	716	541	938	907			
59-1	Amtrak Raw															
	CN w/relief	1099	1024	1388	1007	879	1041		272	873	869	969	1033			
59-2	Amtrak Raw															
	CN w/relief	2558	2063	1245	1260	1276	1730		274	970	980	1215	1062			
59	Amtrak Raw	1736	1570	1279	1180	1167	1345	1815	1902	1465	1056	1188				
	CN w/relief	1730	1473	1326	1119	1050	1339	1276	273	878	916	1075	1031			
21	Amtrak Raw	601	685	2953	1608	3743	2961	1275	746	718	2961	4231				
	CN w/relief	450	553	860	659	2176	1220	1609	1697	836	4032	1590	2627			
22	Amtrak Raw	451	347	3316	868	1760	1225	992	3175	859	1215	1252				
	CN w/relief	368	0	910	305	696	305	242	1842	1839	406	913	2168			
300	Amtrak Raw	2678	2274	4176	3043	4181	2422	1992	2161	1865	2064	2458				
	CN w/relief	1239	1738	3305	2191	2728	1081	821	1369	1411	659	1248	3142			
301	Amtrak Raw	893	785	9820	393	2368	667	1029	1972	1959	3662	1197				
	CN w/relief	434	573	2187	314	1822	287	602	1307	979	2108	1035	1452			
302	Amtrak Raw	2572	1909	4176	2202	4027	1681	2096	2380	4249	2762	3244				
	CN w/relief	730	725	1977	1405	2154	1100	1137	1777	1089	1540	1128	3142			
303	Amtrak Raw	1980	2950	5154	2367	3599	2842	2597	3301	4769	5281	4560				
	CN w/relief	980	1786	2130	1691	2409	1017	1757	1267	3985	2824	2200	4479			
304	Amtrak Raw	3199	2804	2180	2522	3051	1809	3437	2081	921	2104	2385				
	CN w/relief	1303	755	1079	1137	1532	1128	1652	1080	549	597	527	2923			
305	Amtrak Raw	636	1361	2845	1782	2380	1206	491	1286	897	2996	1517				
	CN w/relief	305	783	1671	1183	1620	508	487	617	478	2620	823	1805			
306	Amtrak Raw	1759	2475	2471	941	3814	1499	2814	2484	2314	4148	1937				
	CN w/relief	453	688	1117	564	2589	407	1433	1157	836	705	1063	2063			
307	Amtrak Raw	1167	1379	2910	2403	3713	1965	840	2648	873	2934	1764				
	CN w/relief	434	888	1710	1627	2702	1012	564	1389	812	1494	952	1671			

Monthly Comparison - Minutes of Delay per 10k Train Miles

IC Trains	Data Description	Oct. 2010	Nov. 2010	Dec. 2010	Jan. 2011	Feb. 2011	Mar. 2011	Apr. 2011	May. 2011	June. 2011	July. 2011	Aug. 2011	Sept. 2011	Oct. 2011	Nov. 2011	Dec. 2011
390	Amtrak Raw	1403	1505	1811	1082	1469	1101	1483	1179	1485	1156	1112				
	CN w/relief	1236	1275	1586	1012	1188	1014	994	806	1157	842	1001	1017			
391	Amtrak Raw	1353	1377	1868	1504	1633	1256	1721	1500	2040	1307	1236				
	CN w/relief	1142	1057	1545	1028	1388	1065	1146	990	1422	940	1007	1017			
392	Amtrak Raw	1542	1490	2078	1601	1623	1100	1650	1844	1215	1216	1502				
	CN w/relief	1338	1373	1988	1427	1427	1077	924	1436	740	873	1389	1101			
393	Amtrak Raw	822	938	1250	904	1338	745	1323	928	1185	682	910				
	CN w/relief	766	783	1239	807	1281	696	671	610	983	572	844	512			
GTW Trains	**Data Description**	**Oct. 2010**	**Nov. 2010**	**Dec. 2010**	**Jan. 2011**	**Feb. 2011**	**Mar. 2011**	**Apr. 2011**	**May. 2011**	**June. 2011**	**July. 2011**	**Aug. 2011**	**Sept. 2011**	**Oct. 2011**	**Nov. 2011**	**Dec. 2011**
364	Amtrak Raw	1155	630	858	676	1139	669	811	982	1363	1493	821				
	CN w/relief	1150	599	858	653	1129	659	781	821	1243	794	821	536			
365	Amtrak Raw	1722	1680	2122	2048	2266	2315	1853	2333	2157	1667	1791				
	CN w/relief	1669	1661	2157	1561	1473	1583	815	1514	1575	453	1714	1972			
350	Amtrak Raw	1871	1208	628	1023	1265	2298	3157	4431	1513	1301	1090				
	CN w/relief	1748	1119	268	962	1174	2075	2013	3469	1051	701	881	1104			
351	Amtrak Raw	4163	1899	901	1741	1941	2678	3899	2666	1819	3591	2313				
	CN w/relief	3640	1283	779	1716	1468	2167	3057	1838	1054	2094	1668	2629			
352	Amtrak Raw	3092	2352	3396	2478	3469	4711	3069	2264	1625	2009	2386				
	CN w/relief	1984	1736	1923	1950	3077	2958	2742	1814	1213	1509	1582	1988			
353	Amtrak Raw	2337	1509	2198	2520	2992	2897	4201	2702	2352	4954	4006				
	CN w/relief	2398	1384	2130	2520	2787	2629	2591	1339	1484	2138	2032	2034			
354	Amtrak Raw	1753	2201	2179	3128	3248	3993	3447	2532	1221	1534	2483				
	CN w/relief	1509	1535	1789	1765	2925	2897	2428	2215	1041	828	998	1585			
355	Amtrak Raw	1909	1434	1400	1436	2739	2135	2566	2617	3762	4701	4633				
	CN w/relief	1447	1245	1302	1242	1900	1570	1786	1799	1685	1353	2142	918			

EXHIBIT 9

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PUBLIC VERSION - REDACTED

Service Standards

for
Train Service & On-Board Service Employees

Effective 12:01am, April 30, 2011

Manual No. 6

Transportation – Service Delivery

AMTRAK®

a) **Mandatory Data** – All columns in the "Explanation of Delays" section must be filled out in order for the delay to register in Amtrak's On-Time Performance Reporting System and provide other vital information.

b) **General Versus Specific** –With delay explanations, avoid being too general. For example, the term "Running Time" should be used only to mean the train is losing time on the run for no apparent reason; otherwise, the term can be used too generally and becomes meaningless. Avoid being too specific or citing operating rule numbers or Timetable Special Instruction numbers without explanation.

11. Categories of Delay

The following category codes may be used:

Code	Title, Reason or Examples
ADA	Passenger-Related delays specifically related to disabled passengers (wheelchair lifts, exercising guide dogs, etc.)
CAR	Car Failure (includes HEP failure, legitimate HBD or DED actuations, set out/pick up defective/repaired cars)
CCR	Cab Car Failure (all en route delays caused by mechanical failure of working cab cars.) A non-working cab car, i.e., one being used simply as another passenger car in the trailing consist of a train, will not be considered a Cab Car for purposes of delay coding. "Cab Car" includes NPCU's (de-powered F-40's) and all variations of passenger type Cab Cars.
CON	Hold for Connection (holds for train or bus connections, including en route holds)
CUI	Customs and Immigration delays
CTI	Commuter Train Interference (meets, following, overtakes)
DBS	Debris Strike (emergency braking, damage, set-outs from same also debris blocking track ahead, or removal of debris from train).
DCS	Signal Delays (false wayside detector actuations, defective road crossing protection, restrictive wayside or cab signals from unknown cause or from signal, power-switch or CTC-system failure; efficiency tests of the crew; drawbridge stuck open).
DET	Delays caused by catenary or wayside electric-power-system failure. (Note: This Delay Code is to be used ONLY between XSH and NHV (by Conductors working between NYP and NHV).)
DMW	M of W Work (holding for defect repair or M of W forces to clear; inability to contact M or W Foreman on radio; routed around M of W work).
DSR	Temporary Speed Restrictions (slow orders, slows through M of W site) Exception: heat/cold orders; see "WTR."
DTR	Detour Delays (all delay or time lost while operating on a detour, regardless of actual cause).

Categories of Delay *(Continued)*

Code	Title, Reason or Examples
ENG	Engine Failure (HEP Failure, legitimate HBD or DED actuations, or any on-board HBD alarm, cab signal failure on engine, set out/pick up defective/repaired engines, operating with freight engine, undesired emergency applications, air problems, radio failure on engine)
FTI	Freight Train Interference (meets, following, overtakes, restrictive signals known to be caused by freight trains, holds due to freight train derailments, non-scheduled stop to pick-up/drop-off freight train crew)
HLD	Passenger Related (multiple spots, checked bags, large groups, smoke breaks, EMS, disorderly, other passenger-related delays; except for disabled passengers, see delay code "ADA"; or sick/injured, see "INJ")
INJ	Injury Delays (injured or sick passenger or employee).
ITI	Initial Terminal Delay due to late-arriving inbound train causing late release of equipment or late crew rest, where mechanical-failure delay is NOT involved.
MBO	Drawbridge openings for marine traffic
NOD	Wait for scheduled departure time at stations, kill time to prevent early arrival at stations.
OTH	Miscellaneous Amtrak-responsible delays (unable to make normal speed, heavy train, isolation of engine[s] for fuel conservation, etc. Also, person pulling emergency cord)
POL	Police Related (DEA; police/fire department holds on right-of-way, bomb threat delays).
PTI	Passenger Train Interference (meets, following, etc.—does *not* include commuter trains)
RTE	Routing (crossover moves, lining manual or spring switch, run via siding, late track bulletins, inability to contact DS, dispatcher-holds). Also includes delays resulting directly from being routed to abnormal track at stations.
SVS	Servicing (fuel, water, toilet/trash dumping, inspections, switching private/office cars or section of train, normal engine changes, loading/ unloading non-carload express).
SYS	System (late crew, unscheduled re-crew, single engineer copying authorities or restroom break, hold due to passenger train derailment; alleged crew rules violation; delayed-in-block after station stop)
TRS	Trespasser Incidents (includes crossing accidents, trespasser or animal strikes, vehicle on track ahead; "near-miss" delays; bridge strikes by vehicle or boat)
WTR	Weather (includes heat/cold orders; storms, floods, fallen trees, washouts, landslides; earthquake-related delays; slippery rail due to leaves; burning leaves caught under truck of car; snow-removal equipment working ahead).

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EXHIBIT 17

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355 01NOV14

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_UNIT 030 EDI at CP-513 IL X 10MI   CHICAGO IL
2014/11/02 00:38:00
E          PNT             0540P   (    /NTMS)  DP 0540P ON TIME
                    RMK:..  (7072 01NOV14) COND CELL 202-230-8758
E        8 TRM             0553P   (NTMS/NTMS)  AR 0553P DP 0554P 1 MI LATE
E        5 ROY             0600P   (NTMS/NTMS)  AR 0601P DP 0611P 11 MI LATE
E       10 DET     0620P   0623P   (NTMS/NTMS)  AR 0641P DP 0645P 22 MI LATE
                    RMK:..  (4167 01NOV14) BC REAR, CNDR HILMAN,
E          XVI             0629P   (NTMS/    )  AR 0653P 24 MI LATE
                    RMK:..  (9709 01NOV14) 651P
E          XT6             0640P   (NTMS/eDr )  AR 0701P DP 0701P 21 MI LATE
E       11 DER             0645P   (9709/9709)  AR 0704P DP 0706P 21 MI LATE
E          XYP             0705P   (NS  /NS  )  AR 0752P DP 0752P 47 MI LATE
E       27 ARB             0721P   (NTMS/NTMS)  AR 0803P DP 0806P 45 MI LATE
E          X0L             0735P   (NS  /NS  )  AR 0821P DP 0821P 46 MI LATE
E       38 JXN             0801P   (NTMS/NTMS)  AR 0853P DP 0855P 54 MI LATE
E          XA5             0823P   (NS  /NS  )  AR 0919P DP 0919P 56 MI LATE
E          XB0             0845P   (eDr /eDr )  AR 0942P DP 0942P 57 MI LATE
E       45 BTL             0855P   (NTMS/NTMS)  AR 0956P DP 1000P 1 HR 5 MI LATE
E          XGO             0856P   (eDr /eDr )  AR 1001P DP 1001P 1 HR 5 MI LATE
E          XUM             0900P   (NS  /NS  )  AR 1007P DP 1007P 1 HR 7 MI LATE
E       22 KAL             0926P   (eDr /NTMS)  AR 1031P DP 1034P 1 HR 8 MI LATE
E          X47             0930P   (CHCC/CHCC)  AR 1039P DP 1039P 1 HR 9 MI LATE
E          X60             0938P   (CHCC/CHCC)  AR 1047P DP 1047P 1 HR 9 MI LATE
E          XLW             0939P   (CHCC/CHCC)  AR 1047P DP 1047P 1 HR 8 MI LATE
E          X5G             0944P   (CHCC/    )  AR 1053P 1 HR 9 MI LATE
E          X6G             0945P   (CHCC/CHCC)  AR 1054P DP 1054P 1 HR 9 MI LATE
E          X78             0948P   (CHCC/CHCC)  AR 1057P DP 1057P 1 HR 9 MI LATE
E       36 DOA             0951P   (NTMS/NTMS)  AR 1058P DP 1059P 1 HR 8 MI LATE
E          X80             0954P   (CHCC/CHCC)  AR 1100P DP 1100P 1 HR 6 MI LATE
E          X90             1000P   (CHCC/CHCC)  AR 1107P DP 1107P 1 HR 7 MI LATE
E       12 NLS             1003P   (NTMS/eDr )  AR 1109P DP 1110P 1 HR 7 MI LATE
E          X92             1005P   (CHCC/CHCC)  AR 1111P DP 1111P 1 HR 6 MI LATE
E          X00             1011P   (CHCC/CHCC)  AR 1117P DP 1117P 1 HR 6 MI LATE
E          X02             1012P   (CHCC/CHCC)  AR 1118P DP 1118P 1 HR 6 MI LATE
E          X3O             1017P   *DEPARTED*
E          X9M             1018P   (CHCC/CHCC)  AR 1125P DP 1125P 1 HR 7 MI LATE
E       27 NBU             1024P   (NTMS/NTMS)  AR 1129P DP 1130P 1 HR 6 MI LATE
C          X26             0930P   (CHCC/    )  AR 1036P 1 HR 6 MI LATE
C          XMC             0932P   (CHCC/CHCC)  AR 1038P DP 1038P 1 HR 6 MI LATE
C       10 MCI             0934P   (NTMS/eDr )  AR 1039P DP 1040P 1 HR 6 MI LATE
C          X10             0936P   (CHCC/CHCC)  AR 1042P DP 1042P 1 HR 6 MI LATE
C          X38             0943P   (CHCC/    )  AR 1048P 1 HR 5 MI LATE
C          XPI             0945P   (eDr /eDr )  AR 1051P DP 1051P 1 HR 6 MI LATE
C          XPJ             1002P   (NS  /NS  )  AR 1119P DP 1119P 1 HR 17 MI LATE
C       37 HMI             1008P   (eDr /eDr )  AR 1129P DP 1129P 1 HR 21 MI LATE
C          XH6             1011P   *DEPARTED*
C          X13             1020P   *DEPARTED*
C          X40             1027P   *DEPARTED*
C          XTF             1052P   (eDr /eDr )  AR 1154P DP 1254A 2 HR 2 MI LATE
```

C 16 CHI 1057P (eDr /) AR 1259A 2 HR 2 MI LATE

PNT-BTL Conductor=00803833

0	CEN	PNT-TRM	OTH	001	CC	Insufficient Run Time
1	CEN	TRM-ROY	FTI	001	CC	Crossing Over Or Going Around cn116, Control Point, raven
2	CEN	ROY-ROY	SYS	009	CC	Copy Authority / Restriction Other, roy
3	CEN	ROY-DET	RTE	005	CC	Lining Manual or Spring Switch Other, sugar house wye
4	CEN	ROY-DET	FTI	002	CC	Crossing Over Or Going Around 116, Control Point, moterm
5	CEN	ROY-DET	DSR	003	CC	Per Dispatcher's Bulletin Milepost, 8.0, 5.0, 25, 2
6	CEN	DET-DET	SYS	001	CC	Release track authority 8204 Milepost, 53.7, 53.7
7	CEN	DET-XVI	DSR	002	CC	Per Dispatcher's Bulletin Milepost, 52.12, 52.12, 52, 1
8	CEN	XT6-DER	OTH	002	MI	Insufficient Run Time
9	CEN	DER-ARB	PTI	017	MI	Meeting 352, Control Point, wayne jnt
10	CEN	DER-ARB	FTI	010	MI	Following 38e, Milepost, 13.0, 18.1
12	CEN	ARB-JXN	DCS	010	MI	Problem or issue with automatic road crossing protection Activation Failure, Milepost, 62.9, 62.9
13	CEN	JXN-XA5	OTH	002	MI	Insufficient Run Time
14	CEN	XA5-XB0	OTH	001	MI	Insufficient Run Time
15	CEN	XB0-BTL	FTI	010	CC	Delay Due To Cross Traffic unknown, Control Point, baron

BTL-CHI Conductor=00063181

XGO-CHI Conductor=00086270

16	CEN	XGO-KAL	DSR	003	MI	Per Dispatcher's Bulletin Milepost, 123, 124, 30, 2, Milepost, 135.1, 135.1, 60, 1, Milepost, 139, 140.1, 30, 1
17	CEN	XPI-HMI	FTI	015	NS	Meeting 22w, Control Point, 482
18	CEN	HMI-XTF	DSR	002	NS	Per Dispatcher's Bulletin Milepost, 517, 518, 25, 1

EXHIBIT 18

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EXHIBIT 19

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E          PTH             0600A   (    /NTMS)  DP 0600A ON TIME
                    RMK:..  (2310 27NOV12) B.C..H.E./COND. ANDRE
E       44 LPE             0645A   (NTMS/NTMS)  AR 0647A DP 0649A 4 MI LATE
                    RMK:..  (9235 27NOV12) PURPLE PHONE
E       20 FLN             0711A   (NTMS/NTMS)  AR 0709A DP 0716A 5 MI LATE
E       17 DRD             0747A   (NTMS/NTMS)  AR 0738A DP 0747A ON TIME
E       30 LNS             0828A   (NTMS/7603)  AR 0820A DP 0828A ON TIME
E       47 BTL     0950A   0954A   (NTMS/1185)  AR 0925A DP 0954A ON TIME
E          XGO             0955A   (5255/5255)  AR 0955A DP 0955A ON TIME
E          XUM             0959A   (NS  /NS  )  AR 1000A DP 1000A 1 MI LATE
E       22 KAL             1025A   (NTMS/NTMS)  AR 1023A DP 1028A 3 MI LATE
E          X47             1029A   (CETC/CETC)  AR 0933A DP 0934A 55 MI EARLY
E          X60             1037A   (CETC/    )  AR 0941A 56 MI EARLY
E          XLW             1038A   (CETC/CETC)  AR 0947A DP 0947A 51 MI EARLY
E          X5G             1043A   *DEPARTED*
E          X6G             1044A   (CETC/CETC)  AR 0954A DP 0954A 50 MI EARLY
E          X78             1047A   (CETC/    )  AR 0958A 49 MI EARLY
E       36 DOA             1050A   (NTMS/NTMS)  AR 1100A DP 1102A 12 MI LATE
E          X80             1053A   (CETC/CETC)  AR 1003A DP 1003A 50 MI EARLY
E          X90             1059A   (CETC/    )  AR 1010A 49 MI EARLY
E       12 NLS             1103A   (4998/4998)  AR 1112A DP 1114A 11 MI LATE
E          X92             1105A   *DEPARTED*
E          X00             1111A   (CETC/    )  AR 1020A 51 MI EARLY
E          X02             1112A   *DEPARTED*
E          X3O             1117A   (CETC/    )  AR 1027A 50 MI EARLY
E          X9M             1118A   (CETC/CETC)  AR 1029A DP 1030A 48 MI EARLY
E       27 NBU             1124A   (NTMS/NTMS)  AR 1134A DP 1135A 11 MI LATE
C          X26             1030A   *DEPARTED*
C          XMC             1032A   (CETC/5255)  AR 1043A DP 1044A 12 MI LATE
C          X10             1034A   *DEPARTED*
C          X38             1041A   (CETC/    )  AR 1051A 10 MI LATE
C          XPI             1043A   (NS  /NS  )  AR 1054A DP 1054A 11 MI LATE
C          XPJ             1100A   (NS  /NS  )  AR 1113A DP 1113A 13 MI LATE
C          XH6             1106A   (NS  /NS  )  AR 1123A DP 1123A 17 MI LATE
C          X13             1115A   (NS  /NS  )  AR 1131A DP 1131A 16 MI LATE
C          X40             1122A   (NS  /NS  )  AR 1142A DP 1142A 20 MI LATE
C          XTF             1140A   (5255/5255)  AR 1148A DP 1148A 8 MI LATE
C       63 CHI     1145A           (7089/    )  AR 1154A 9 MI LATE
```

CEN PTHBTL,E=REEVES,C=HILMON,C/6,E/28,26,LSC@WIL TPC136

```
1 CEN  PTH-LPE  OTH  002  CC  INSUFCNT RUN TIME
2 CEN  PTH-LPE  DCS  003  CC  CP TAPPAN STOP SGL UNK
3 CEN  LPE-FLN  OTH  004  CC  INSUFCNT RUN TIME
4 CEN  DRD-DRD  NOD  007  CC  WAIT FOR TIME
5 CEN  LNS-LNS  NOD  008  CC  WAIT FOR TIME
6 CEN  LNS-BTL  RTE  005  CC  X/O @ MCCALLISTER
```

CEN BTLCHI,E=TAGUE,C=GARCIA,C/6,E/28-26,FM-WIL TPC/175

```
7 CEN  BTL-BTL  NOD  024  CC  WAIT FOR TIME
```

PUBLIC VERSION - REDACTED

8	CEN	XGO-KAL	OTH	002	NS	CP COMSTOCK- LTD CLR SIGNAL
9	CEN	XGO-KAL	DSR	001	NS	MP143.2 15MPH S/O
10	CEN	KAL-DOA	DSR	002	AM	MP173.0-173.2 60MPH
11	CEN	NLS-NBU	DCS	002	AM	CP211 - APPR SIGNAL
12	CEN	XPI-HMI	DCS	001	NS	489 - APPR SIGNAL
13	CEN	XPI-HMI	RTE	002	NS	CP491 X/O 1-2
14	CEN	XPI-HMI	RTE	002	NS	CP503 X/O 2-1
15	CEN	HMI-XTF	DSR	001	NS	503.9-510.1 25MPH S/O
16	CEN	HMI-XTF	PTI	004	NS	CP513 - 21ST FOLLOWING 49
17	CEN	XTF-CHI	OTH	001	AM	TAYLOR ST - APPR SIGNAL

EXHIBIT 20

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```
_UNIT 052 EDI 32MI   BALLARD IL X at PONTIAC IL
2015/06/17 22:15:00
C          CHI             0515P  (    /9426)  DP 0545P 30 MI LATE
                    RMK:.. (1759 17JUN15) LATE TURN OF EQP
C          X9H             0518P  (CHCC/CHCC)  AR 0546P DP 0546P 28 MI LATE
C          X9R             0519P  (CHCC/CHCC)  AR 0547P DP 0547P 28 MI LATE
C          X8L             0521P  (CHCC/CHCC)  AR 0548P DP 0548P 27 MI LATE
C          XTF             0522P  (NTMS/NTMS)  AR 0550P DP 0550P 28 MI LATE
C          X7B             0528P  (NTMS/NTMS)  AR 0559P DP 0559P 31 MI LATE
C          X66             0531P  (NTMS/NTMS)  AR 0602P DP 0602P 31 MI LATE
C          X1L             0535P  (NTMS/NTMS)  AR 0606P DP 0606P 31 MI LATE
C       12 SMT             0537P  (NTMS/NTMS)  AR 0611P DP 0611P 34 MI LATE
C          XNL             0539P  (NTMS/NTMS)  AR 0613P DP 0613P 34 MI LATE
C          XUD             0601P  (NTMS/NTMS)  AR 0704P DP 0704P 1 HR 3 MI LATE
C       25 JOL             0605P  (NTMS/NTMS)  AR 0706P DP 0709P 1 HR 4 MI LATE
C          X4L             0613P  (NTMS/NTMS)  AR 0717P DP 0717P 1 HR 4 MI LATE
C          XM2             0630P  *DEPARTED*
C       33 DWT             0639P  (NTMS/NTMS)  AR 0744P DP 0745P 1 HR 6 MI LATE
                    RMK:.. (0585 17JUN15) CNDR PHONE 202-417-1033
C          XO3             0647P  *DEPARTED*
C       22 PON             0656P  (NTMS/NTMS)  AR 0759P DP 0759P 1 HR 3 MI LATE
C          XB3             0709P  (UPRR/UPRR)  AR 0813P DP 0813P 1 HR 4 MI LATE
C       29 BNL             0729P  (eDr /    )  AR 0829P 1 HR LATE
                    RMK:.. (2405 17JUN15) TERM BNL - SEE OS FOR BUS 3305
C          XML             0744P  *SUSPENDED*
C          XAT             0755P  *SUSPENDED*
C       35 LCN             0802P  *SUSPENDED*
C          XEI             0812P  *SUSPENDED*
C          XR5             0822P  *SUSPENDED*
C       29 SPI             0839P  *SUSPENDED*
C          XIL             0844P  *SUSPENDED*
C          XHZ             0846P  *SUSPENDED*
C          XA3             0854P  *SUSPENDED*
C          XGD             0905P  *SUSPENDED*
C       38 CRV             0919P  *SUSPENDED*
C          XS2             0932P  *SUSPENDED*
C          XG5             0942P  *SUSPENDED*
C       34 ALN             0950P  *SUSPENDED*
C          XW1             0955P  *SUSPENDED*
C          XWR             1022P  *SUSPENDED*
C          XQT             1032P  *SUSPENDED*
C       28 STL     1045P           *SUSPENDED*
```

CHI-BNL Conductor=00020094

```
  0 CEN  CHI-CHI  ITI  030  AM  Servicing, Turning or Wyeing Train Combo
                                train 300 and 302, 300302
  1 CEN  XTF-SMT  DSR  001  CC  Per Dispatcher's Bulletin Milepost, 7.9, 7.9,
                                10, mt 1 mt 2
  2 CEN  SMT-XUD  CTI  030  CC  Following metra, 919, Other, signal 32.9,
                                Control Point, stateville
```

PUBLIC VERSION - REDACTED

3	CEN	JOL-JOL	HLD	001	UP	Psgr with an oversize/weight bag
5	CEN	JOL-DWT	DSR	002	UP	Per Dispatcher's Bulletin Milepost, 37.6, 38.6, 20, mt
4	CEN	PON-BNL	OTH	002	UP	Lost Time - No Apparent Reason (N.A.R)

EXHIBIT 21

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From: Walton, Albert [mailto:AsW@amtrak.com]
Sent: Monday, December 09, 2013 1:58 PM
To: Scott Kuxmann
Cc: Salmon, Dick; Vilter, Paul; Blair, Jim; Jagodzinski, Christopher; Hunt Cary; Savoy, Moe; Cunningham, Kelly A; Maga, Jason; Hyer, Richard; Harrell, Jason; Cunningham, Kelly A; Sheets, Benjamin; Paul Ladue; Awnyadda Tameria BURNEY
Subject: RE: Dec - 2013 CNMDR-CDR Except list [3 items: Dec. 4th & 5th]

Scott, please see attachment.

Also please note re: Excel Row 5 on your spreadsheet (Train 353 [04 Dec.], 09-min. delay at BTL): Re-coding from "RTE" to "SYS" will be subject to the following:

1. **This change will not set any precedent. It will apply to that individual delay entry only.**

2. **In making this change, Amtrak does not agree or imply that the Conductor's original delay coding was incorrect. This is a change, not a "correction" to the Conductor's delay reporting.**

3. **This change should not be construed to affect anything in the Operating Agreement between Amtrak and CN, including performance-incentive status, relief items, etc. The change affects only the coding of the affected delay in our OTP System database.**

Thanks -- ASW

From: Scott Kuxmann [mailto:Scott.Kuxmann@cn.ca]
Sent: Monday, December 09, 2013 12:49 PM
To: Walton, Albert
Cc: Salmon, Dick; Vilter, Paul; Blair, Jim; Jagodzinski, Christopher; Hunt Cary; Savoy, Moe; Cunningham, Kelly A; Maga, Jason; Hyer, Richard; Harrell, Jason; Cunningham, Kelly A; Sheets, Benjamin; Paul Ladue; Awnyadda Tameria BURNEY
Subject: Dec - 2013 CNMDR-CDR Except list

Al, three corrections on December sheet.

Thank you

Scott



Dec - 2013 CNMDR-CDR Except List.xls

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EXHIBIT 22

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EXHIBIT 23

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REDACTED

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EXHIBIT 24

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REDACTED

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PUBLIC VERSION – REDACTED

BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

OPENING EVIDENCE OF OF ILLINOIS CENTRAL RAILROAD COMPANY AND GRAND TRUNK WESTERN RAILROAD

Volume 2

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September 4, 2015

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF ROBERT D. WILLIG

My name is Robert D. Willig. I am Professor of Economics and Public Affairs at the Woodrow Wilson School and the Economics Department of Princeton University. From 1989 to 1991, I served as Deputy Assistant Attorney General for Economics in the Antitrust Division of the U.S. Department of Justice, where I led the development of the 1992 Merger Guidelines. I have served as a consultant and adviser for the Federal Trade Commission and the Department of Justice on antitrust policy, for OECD, the Inter-American Development Bank, and the World Bank on global trade, competition, regulatory, and privatization policy, and for governments of diverse nations on microeconomic reforms. I have advised many corporations on antitrust and regulatory issues, and on consumer pricing, transfer pricing, costing, and business organization. I have testified about economic issues before Congress and State, Federal, and international courts and administrative agencies.

I have become especially familiar with railroad economics. I began work in the industry in the late 1970s when I was retained to help Conrail determine the most efficient way for railroads to be regulated consistent with the public interest. Since then, I have been consulted by many industry participants on a wide variety of general and specific railroad issues and have testified often before this agency and its predecessor on railroad economics at the request of

various carriers and the Association of American Railroads. A copy of my curriculum vitae is attached to this statement.

In this proceeding I was asked by counsel to CN to analyze, from the perspective of economics, the proper compensation structure for freight railroads hosting Amtrak's passenger services, consistent with applicable law. I present my analysis and conclusions below.

I. ELEMENTS OF AN EFFICIENT COMPENSATION STRUCTURE

A. Overall Agreement Structure and Potential Improvements

The public interest – and the interests of Amtrak, host carriers, passengers, and freight shippers – in a vital, market-responsive freight rail system and in the optimum amount and quality of intercity passenger rail service are best served by a host railroad compensation system consistent with sound economic principles. No other approach is as likely to assure the provision of sustainable freight and passenger service. A compensation agreement structured to cover incremental costs of a base level of performance (which I will refer to as "base compensation"), plus performance standards and incentives that properly induce higher levels of performance desired by both host railroads and Amtrak, would be economically efficient and would serve all these interests while avoiding any cross-subsidization of such services either by the host carrier or by other users or beneficiaries of the rail network.

As I understand it, the existing Amtrak-CN Operating Agreement ("Agreement"), as regards Amtrak services operating over Illinois Central Railroad, follows this structure. (I offer no opinion about the structure of the Agreement regarding Amtrak's services over the lines of Grand Trunk Western Railway, which I understand CN is not seeking to perpetuate.) However, several deficiencies in the Agreement should be addressed to further conform the Agreement to

fundamental economic requirements. CN is proposing amendments to the Agreement that would help achieve that goal.

One deficiency that warrants special emphasis is that Amtrak's consumption of CN's network capacity imposes incremental costs on CN for which CN is not compensated. Some of these incremental costs can practicably be quantified (*e.g.*, a portion of the cost of delay to freight trains) and some cannot (*e.g.*, certain adverse impacts on CN's freight business and operating efficiency). Absent agreement on or acceptance of an estimated value of CN's full incremental costs, CN can be fully compensated for all incremental costs only if any practicably unquantifiable costs are reduced by Amtrak (i) investing in additional CN capacity; (ii) reducing or modifying its use of CN's lines to eliminate its interference and limitation on CN's operations; or a combination of both.

By understanding and adhering to the essential principles outlined in this statement, the parties will have the correct incentives to negotiate the details of any such revised agreement. Amtrak will have a much improved understanding of the true costs of various levels of performance it might consider and would be able to make a more reasoned determination of the optimal level of service to seek, balancing changes in public and private benefits against anticipated costs.

B. Compensation for Incremental Costs

The incremental cost standard for base compensation, which I understand is embodied in the law and has been interpreted by this agency and its predecessor as being equivalent to avoidable cost (a term that economics applies to costs avoidable over any period of time), permits base compensation to host railroads to be established in a manner that would be fully consistent with the principles of economic efficiency and sustainability.

Sound economics and the public interest require that Amtrak compensate host railroads for all incremental costs attributable to Amtrak operations, and that compensation not be reduced by the imposition of net performance penalties. Incremental cost compensation a) requires Amtrak to internalize all costs that the host could avoid absent Amtrak, giving Amtrak the incentive to make efficient decisions concerning the amounts and levels of service it demands from the host; and b) eliminates the net burden Amtrak's operations would otherwise impose on the host's freight service and its capacity to meet its common carrier obligation to freight service customers. If Amtrak did not have to bear the full incremental costs it imposes on hosts, other parties – including the host carrier and its shippers – would have to subsidize Amtrak's operations. Conversely, there is no economic basis for sacrificing the benefits of having Amtrak bear the full incremental costs associated with its service. As discussed below, incentivizing host performance does not require penalties that could deprive the host carrier of recovery of its full incremental costs for base performance, since host behavior can and should be induced with net positive incentives.

Incremental costs in this context include all the direct and indirect costs that the host railroad experiences and incurs because of Amtrak's operations on its lines, *i.e.*, all the costs the host could avoid if Amtrak did not require service. These include more obvious costs, such as the costs of added wear and tear on railroad infrastructure, services required by Amtrak's operations (*e.g.*, clearing wrecks), CN-owned station facilities used by Amtrak, and CN personnel performing functions for Amtrak. They also include any costs of freight service capacity lost to Amtrak's presence (which I refer to as "delay and interference costs"), including (i) increased operational costs; (ii) lost business; (iii) reduced demand for additional service; (iv) any resulting price suppression; and (v) the costs of additional capacity required to replace

capacity utilized to accommodate hosting requirements. Many railroad incremental costs will depend upon the level of service required by Amtrak. Changes to Amtrak train schedules, train frequency, and desired levels of predictability of train performance can substantially change the host's incremental costs (as can Amtrak's performance on and off the host railroad (*e.g.*, Amtrak delays on either the host railroad or another railroad)).

The host railroad's delay and interference costs may be best understood as belonging to one of three basic categories.

- Costs that are practicably measurable.
- Costs that are not practicably measurable.
- Costs to add capacity, such as those estimated through engineering modeling, needed to mitigate or eliminate elements of delay and interference costs, recognizing that such capacity costs would only be efficiently charged to Amtrak to the extent they would not exceed the delay and interference costs they would be incurred to prevent.

There will be an optimal mix of measures intended to compensate or eliminate all host costs caused by Amtrak's consumption of capacity, including (i) non-Host-funded capacity additions to replace lost capacity; (ii) adjustments to Amtrak schedules and service requirements to reduce or eliminate the costs of lost capacity; and (iii) payment by Amtrak for the freight delay and interference costs it causes. Where CN's witnesses demonstrate additional incremental costs due to Amtrak's consumption of capacity that cannot be practicably measured, the quantifiable costs for freight delay and capacity loss will not fully cover CN's incremental costs. Instead, an available feasible way to assure that CN does not bear uncompensated incremental costs would be for the Agreement to address those uncompensated costs through a mix of the first two means noted above – changes to Amtrak's service demands to reduce or

eliminate freight delay and interference costs, or the provision of the funds for infrastructure investment to replace any additional capacity to eliminate delay and interference costs that cannot be practicably quantified.

Outside of arm's-length bargaining, in which either party can walk away from the negotiations, establishing the optimal mix by objective measurement may prove, for some costs, to be unreasonably difficult. I understand, however, that CN has modeled the cost of replacing capacity consumed by Amtrak. Such modeling can estimate a reasonable proxy for the outer bound of total incremental delay and interference costs Amtrak should bear. The lower bound will be defined by CN's practicably quantifiable delay and interference costs. Costs that remain between these outer and lower limits would, absent agreement, have to be established by the Board on the basis of evidence adduced by the parties. In reviewing that evidence, the Board should determine whether the cost of offsetting the overall direct and opportunity costs of delay and interference experienced by CN, its customers, connections, and the private and public interests in commerce generally warrant the capacity cost CN would charge Amtrak to eliminate those costs.

C. Compensation to Incentivize Optimum Passenger Train Performance

As I understand it, the Agreement includes a level of base compensation intended to cover CN's incremental costs at a base level of performance, and a system of performance compensation (incentives and penalties) to encourage performance above the "base" level of performance implicitly established in the Agreement, which is the level of service at which CN neither earns positive incentives nor incurs penalties. Performance compensation is structured around the principles that it should be based on matters within CN's reasonable control and that penalties over any 12-month period cannot reduce CN's overall compensation below incremental

costs (which the Agreement accomplishes through a so-called "lookback" provision). The lookback provision has rarely been invoked because CN's past performance as measured under the Agreement has generally been within the positive or neutral performance range specified by the Agreement, which has generally resulted in the payment of positive net incentives.

If the levels of the positive and negative elements of the incentive payments are consistent with the social benefits and costs of the incremental performance levels (which, in the absence of contrary evidence, the Board may presume them to be), the Board can mandate the continuation of this principled approach to performance-based compensation and penalties in any new agreement with confidence it will be adhering to sound economics.

The statute requires any scheme of compensation to include penalties. Improperly structured, penalties could reduce the host's compensation below its incremental costs; that result, as discussed above, would contravene essential economic principles. The lookback provision precludes that result. If that limit were removed, the public interest in efficient, sustainable rail freight and passenger transportation would require additional base compensation to cover the incremental cost of the risk that penalties would reduce the host railroad's net compensation below incremental costs. Approaching this issue through such an addition would significantly complicate the calculation of base compensation and provide no benefit not provided by the system embodied in the Agreement as it has been functioning.

Maintaining the availability of incentive payments is important as it provides the motivation for the host to provide service above the base level when it is efficient to do so. Positive incentives provide the only economic reason that Amtrak can expect CN to further adapt its freight operations and to divert management resources to achieve performance for Amtrak over the base level. In keeping with the principles discussed above, within the Agreement's

broader framework, the goals of performance compensation are therefore best met by a system that offsets the risk of penalties with the opportunity for the host to profit by earning positive incentives over otherwise compensated costs.

Absent agreement between the parties, such as that reflected in the Agreement, the specific level of performance payments should be established by reference to the public and private benefits realized through service performance sought by Amtrak above the base level. If the otherwise uncompensated incremental cost to the host of an additional increment of service is less than the incentive payment, the host will be financially motivated to accomplish the extra service. And, because the performance payment is calibrated to be no greater than the public and private benefits of the extra service sought by Amtrak, it will enhance total welfare for the additional service to be provided. Conversely, if the uncompensated cost to the host is larger than the performance payment, the host will not be motivated to perform the extra service, and this would be the economically efficient outcome since that cost would also exceed the public and private benefit of the extra service sought by Amtrak.

By this same logic, absent agreement among the parties, the level of penalties for service below the base performance level should be calibrated referring to the public and private harms expected to result from service shortfalls that would trigger penalties. The host will be motivated to incur the costs of avoiding the service deficit when they are less than the penalty, and welfare will be enhanced because the performance costs are less than the harms resulting from substandard service. At times, the costs to the host of avoiding substandard service will outweigh the penalty, leading to the host underperforming the base level. This would be the economically efficient result because at such times the costs of providing better service would exceed the benefits.

When the parties cannot agree, the proper measure of the benefits and costs to Amtrak and the public from service above or below the base level cannot be limited to Amtrak's private benefits. Amtrak may well strive to limit the level of the losses it incurs as an entity in providing passenger rail services, but Amtrak was created and is required by statute to provide passenger rail services to the public with the recognition those services cannot be solely sustained by a private, for-profit entity. Instead, those services are subsidized by governments, and railroads are forced to provide basic service to Amtrak at incremental costs – which is not economically profitable compensation – because Amtrak's services are deemed to confer public benefits. Those public benefits together with Amtrak's private benefits should be considered in establishing the level of incentives and penalties for service above or below the base performance.

For any system of host performance payments to function efficiently, it must be based on performance within the host's reasonable control. The Agreement appropriately provides that delays not within CN's responsibility or not reasonably controlled by CN are not to be penalized. I understand CN is proposing several amendments to the Agreement that would more definitively delineate CN's responsibility for delays to matters within its reasonable control. Such amendments should improve the efficient operation of the Agreement.

Conversely, requiring that CN be penalized for delays not within its responsibility or reasonable control would inefficiently skew the costs and incentives for CN's freight and Amtrak's passenger operations. Penalties for events beyond CN's control serve only to transfer the risk of certain costs from Amtrak to CN and serve no socially useful function. Any such transferred risk would require compensation that would otherwise be unnecessary, and thus raise

the cost of the commercial relationship of the parties and the cost of the beneficial activities that underlie it.

Likewise, performance compensation arrangements should recognize any costs to or effects on CN's performance caused on or off CN's lines either by Amtrak's performance or by the actions of any railroad or other third party to the Amtrak-CN arrangements. The basic principle that incentive compensation can only promote better performance by a party that can act in response to the incentive bars any effort that might be made to deny incentive payments (or impose penalties) for events that are beyond the direct control of the party eligible for performance compensation. This principle extends in this case to events that are within Amtrak's control – such as late arrival at CN's lines because Amtrak left its Chicago station late – or within the control of a third party to the Amtrak-CN arrangements, such as another railroad delaying Amtrak or CN by a failure to afford CN or Amtrak movement through an interchange controlled by that railroad.

Finally, one circumstance not addressed by these arguments for an efficient system of compensation to stimulate optimum performance is where there is a risk that performance of one party to the Agreement will be so poor it disappoints the reasonable expectations of the parties in establishing the Agreement. Given the lengthy course of dealing of the parties under the existing Agreement and the amendments proposed by CN, which should enhance performance, the level of that risk would appear to be small. Nonetheless, a means of addressing that risk may be desirable. If so, the risk should be addressed independent of the incentive system. I understand CN is proposing to address this risk through an amendment to the Agreement allowing for remedial measures to address this issue independent of the incentive system. This would be an efficient means of addressing unforeseen risks without impairing the essential system of

incentives and penalties designed and calibrated to incentivize behavior within the range contemplated by both parties.

In summary, incentives and penalties should a) be tailored exclusively to performance within the control of the party to which they apply; b) reflect the costs incurred by or benefits to the party (including the public whose interests are served by Amtrak) not in control but affected by the performance at issue; c) be calibrated to performance above or below a base performance level set simultaneously with base compensation intended to cover the incremental costs of base performance; and d) preclude the risk that penalties could erode base compensation. If there is further arm's-length bargaining between the parties, and it is governed by these principles, the parties would be likely to set base performance levels and their corresponding incremental cost compensation, with their corresponding systems of service penalty and positive incentive payments, at levels that reflect their mutual expectation as to the most likely, predictably sustainable, balance of costs and benefits.

II. THE AGREEMENT, WITH CN'S PROPOSED AMENDMENTS, WOULD EFFICIENTLY COMPENSATE CN AND PROMOTE AMTRAK'S SERVICE GOALS

With CN's proposed amendments, the Agreement would serve the public interest by efficiently and sustainably compensating CN and incentivizing the performance sought by Amtrak under the Agreement.

- The amendments proposed by CN to assure compensation for incremental costs follow economic principles:
    - CN should receive at a minimum its practicably measured costs of freight train delays and interference attributable to Amtrak operations as part of its base compensation.

- To the extent CN's witnesses demonstrate there are costs related to Amtrak's consumption of capacity that cannot be otherwise compensated, the Board can only assure that CN is compensated for its full incremental costs of hosting Amtrak by requiring Amtrak to enter arrangements with CN that, by modifying Amtrak's service demands, compensating CN for the cost of replacing its lost capacity, or some combination of both, efficiently eliminate those costs. The Board should recognize that a reasonable proxy for an outer bound of CN's incremental delay and interference costs would be the cost of replacing the capacity consumed by Amtrak.

- The amendments proposed by CN to preserve and enhance the fundamental performance payment structure of the Agreement follow economic principles:
  - Performance would be measured against an agreed-upon schedule, and that schedule would be periodically reviewed and updated to assure that it is reasonably achievable in the context of the Agreement. I understand Amtrak's schedules have not been thoroughly updated or validated in many years and that CN is proposing a change to the Agreement to address this issue. Such a change is warranted because any effort to enhance on-time performance and reliability must have as a predicate operating schedules that are realistically achievable, given physical and practical operating limitations; no reasonable operating agreement can otherwise be expected to result in strong Amtrak performance.
  - Performance incentives and penalties would be tied more closely to actual performance within CN's control, by recognizing additional delays on and off

CN's lines that are outside CN's reasonable unilateral control and by providing for a methodology to determine responsibility for the root causes of delay.

- The amendments proposed by CN to increase the ability of the parties to negotiate modified performance requirements follow economic principles:
    - The structure of the Agreement, with CN's proposed amendments, provides flexibility to accommodate the specification of modified performance goals. This can be accomplished, for example, by raising or lowering the neutral point in the performance standards or modifying the rates of compensation for varying performance.
    - The parties would be required periodically to review and revise underlying Amtrak schedules, which might otherwise be a barrier to levels of desired, sustainable performance.
    - The Agreement would provide remedial measures in the event CN consistently performs below base level expectations. This would allow the risk of such outlying performance to be addressed without modifying the basic structure of the Agreement's otherwise efficient incentive system.

VERIFICATION

I, Robert D. Willig, declare under penalty of perjury that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement.

Executed on September 3, 2015

Robert D. Willig

EXHIBIT 1

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August 2015

Curriculum Vitae

Name: **Robert D. Willig**

Address: 220 Ridgeview Road, Princeton, New Jersey 08540

Birth: 1/16/47; Brooklyn, New York

Marital Status: Married, four children

Education:

Ph.D. Economics, Stanford University, 1973
Dissertation: Welfare Analysis of Policies Affecting Prices and Products.
Advisor: James Rosse

M.S. Operations Research, Stanford University, 1968.

A.B. Mathematics, Harvard University, 1967.

Professional Positions:

Professor of Economics and Public Affairs, Princeton University, 1978-.

Principal External Advisor, Infrastructure Program, Inter-American Development Bank, 6/97-8/98.

Deputy Assistant Attorney General, U.S. Department of Justice, l989-1991.

Supervisor, Economics Research Department, Bell Laboratories, 1977-1978.

Visiting Lecturer (with rank of Associate Professor), Department of Economics and Woodrow Wilson School, Princeton University, 1977-78 (part time).

Economics Research Department, Bell Laboratories, 1973-77.

Lecturer, Economics Department, Stanford University, 1971-73.

Other Professional Activities

ABA Section of Antitrust Law Economics Task Force, 2010-2012

Advisory Committee, Compass Lexecon 2010 -

OECD Advisory Council for Mexican Economic Reform, 2008 - 2009

Senior Consultant, Compass Lexecon, 2008 -

Director, Competition Policy Associates, Inc., 2003-2005

Advisory Bd., Electronic Journal of I.O. and Regulation Abstracts, 1996-2008.

Advisory Board, Journal of Network Industries, 2004-2010.

Visiting Faculty Member (occasional), International Program on Privatization and Regulatory Reform, Harvard Institute for International Development, 1996-2000.

Member, National Research Council Highway Cost Allocation Study Review Committee, 1995-98.

Member, Defense Science Board Task Force on the Antitrust Aspects of Defense Industry Consolidation, 1993-94.

Editorial Board, Utilities Policy, 1990-2001.

Leif Johanson Lecturer, University of Oslo, November 1988.

Member, New Jersey Governor's Task Force on Market-Based Pricing of Electricity, 1987-89.

Co-editor, Handbook of Industrial Organization, 1984-89.

Associate Editor, Journal of Industrial Economics, 1984-89.

Director, Consultants in Industry Economics, Inc., 1983-89, 1991-94.

Fellow, Econometric Society, 1981-.

Organizing Committee, Carnegie-Mellon-N.S.F. Conference on Regulation, 1985.

Board of Editors, American Economic Review, 1980-83.

Nominating Committee, American Economic Association, 1980-1981.

Research Advisory Committee, American Enterprise Institute, 1980-1986.

Editorial Board, M.I.T. Press Series on Government Regulation of Economic Activity, 1979-93.

Program Committee, 1980 World Congress of the Econometric Society.

Program Committee, Econometric Society, 1979, 1981, 1985.

Organizer, American Economic Association Meetings: 1980, 1982.

American Bar Association Section 7 Clayton Act Committee, 198l.

Principal Investigator, NSF grant SOC79-0327, 1979-80; NSF grant 285-6041, 1980-82; NSF grant SES-8038866, 1983-84, 1985-86.

Aspen Task Force on the Future of the Postal Service, 1978-80.

Organizing Committee of Sixth Annual Telecommunications Policy Research Conference, 1977-78.

Visiting Fellow, University of Warwick, July 1977.

Institute for Mathematical Studies in the Social Sciences, Stanford University, 1975.

Published Articles and Book Chapters:

"Unilateral Competitive Effects" (with Bryan Keating), in The Oxford Handbook on International Antitrust Economics, (Roger D. Blair and D. Daniel Sokol, eds.), Oxford University Press, 2014.

“Activating Actavis: A More Complete Story” (with Barry C. Harris, Kevin M. Murphy, and Matthew B. Wright), Antitrust, vol. 28, No. 2 (Spring), 2014.

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"The Delta-Northwest Merger: Consumer Benefits from Airline Network Effects (2008)" (with Mark Israel, Bryan Keating and Daniel Rubinfeld), in The Antitrust Revolution (Sixth Edition), (J. Kwoka and Laurence White, eds.), Oxford University Press, 2013.

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"The Liftoff of Consumer Benefits from the Broadband Revolution" (with Mark Dutz and Jon Orszag), Review of Network Economics (2012) vol. 11, issue 4, article 2.

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"Economies of Scope," (with J. Panzar), American Economic Review, Vol. 72, No. 2, May 1981, pp. 268-272.

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"Customer Equity and Local Measured Service," in Perspectives on Local Measured Service, J. Baude, etal. (ed.), 1979, pp. 71-80.

"The Role of Information in Designing Social Policy Towards Externalities," (with J. Ordover),

Journal of Public Economics, V. 12, 1979, pp. 271-299.

"Economies of Scale and the Profitability of Marginal-Cost Pricing: Reply," (with J. Panzar), Quarterly Journal of Economics, Vol. 93, No. 4, Novmber 1979, pp. 743-4.

"Theoretical Determinants of the Industrial Demand for Electricity by Time of Day," (with J. Panzar) Journal of Econometrics, V. 9, 1979, pp. 193-207.

"Industry Performance Gradient Indexes," (with R. Dansby), American Economic Review, V. 69, No. 3, June 1979, pp. 249-260.

"The Economic Gradient Method," (with E. Bailey), American Economic Review, Vol. 69, No. 2, May 1979, pp. 96-101.

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"Decisions with Estimation Uncertainty," (with R. Klein, D. Sibley, and L. Rafsky), Econometrica, V. 46, No. 6, November 1978, pp. 1363-1388.

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Books

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Unpublished Papers and Reports:

"Brief for Amici Curiae J. Gregory Sidak, Robert D. Willig, David J. Teece, and Keith N. Hylton, Scholars and Experts in Antitrust Economics in Support of Defendants-Appellants and Supporting Reversal," 15-1672 In the United States Court of Appeals for the Second Circuit; United States of America, et al., v. American Express Company, et al., 8/10/2015.

"Commentary on Economics at the FTC: Hospital Mergers, Authorized Generic Drugs, and Consumer Credit Markets" (with Nauman Ilias, Bryan Keating, and Paolo Ramezzana), under revision for Review of Industrial Organization**.**

"Recommendations for Excessive-Share Limits in the Surfclam and Ocean Quahog Fisheries" (with Glenn Mitchell and Steven Peterson), Report to National Marine Fisheries Service and the Mid-Atlantic Fishery Management Council, 5/23/2011.

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"An Econometric Analysis of the Matching Between Football Student-Athletes and Colleges," (with Yair Eilat, Bryan Keating and Jon Orszag)

Supreme Court Amicus Brief Regarding Morgan Stanley Capital Group Inc. v. Public Utility District No. 1 of Snohomish County, Washington, (co-authored), AEI-Brookings Joint Center Brief No. 07-02, 12/2/07

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"An Economic-Demographic Model of the Housing Sector," (with B. Hickman and M. Hinz), Center for Research in Economic Growth, Stanford University, 1973.

Invited Conference Presentations:

Economic Studies at Brookings: Railroads, Policy and the Economy
"The Industry Perspective" 2015

Georgetown University McDonough School of Business Railroad Economics Symposium
"The Role of Economic Theory in the 'Deregulated' Rail Industry" 2015

Brazilian School of Economics and Finance (FGV EPGE) Seminario
"Public Interest Regulation: Lessons from Railroads" 2015

NYU School of Law Conference on the Fiftieth Anniversary of United States v. Philadelphia National Bank: The Past, Present and Future of Merger Law
"Discussion with Agency Economists" 2013

Brookings Institution Conference on The Economics of the Airline Industry
"Airline Network Effects and Consumer Welfare" 2012

AGEP Public Policy Conference on Pharmaceutical Industry Economics, Regulation and Legal Issues; Law and Economics Center, George Mason University School of Law
"Pharmaceutical Brand-Generic Disputes" 2012

U.S.-EU Alliance Study Peer Review Conferences
"Review of Cooperative Agreements in Transatlantic Airline Markets" 2012
"The Research Agenda Ahead" 2012

Antitrust in the High Tech Sector Conference
"Developments in Merger Enforcement" 2012

Georgetown Center for Business and Public Policy, Conference on the Evolution of Regulation
"Reflections on Regulation" 2011

Antitrust Forum, New York State Bar Association
"Upward Price Pressure, Market Definition and Supply Mobility" 2011

American Bar Association, Antitrust Section, Annual Convention
"The New Merger Guidelines' Analytic Highlights" 2011

OECD and World Bank Conference on Challenges and Policies for Promoting Inclusive Growth
"Inclusive Growth From Competition and Innovation" 2011

Villanova School of Business Executive MBA Conference
"Airline Network Effects, Competition and Consumer Welfare" 2011

NYU School of Law Conference on Critical Directions in Antitrust
"Unilateral Competitive Effects" 2010

Conf. on the State of European Competition Law and Enforcement in a Transatlantic Context
"Recent Developments in Merger Control" 2010

Center on Regulation and Competition, Universidad de Chile Law School
"Economic Regulation and the Limits of Antitrust Law" 2010

Center on Regulation and Competition, Universidad de Chile Law School
"Merger Policy and Guidelines Revision" 2010

Faculty of Economics, Universidad de Chile
"Network Effects in Airlines Markets" 2010

Georgetown Law Global Antitrust Enforcement Symposium
"New US Merger Guidelines" 2010

FTI London Financial Services Conference
"Competition and Regulatory Reform" 2010

NY State Bar Association Annual Antitrust Conference
"New Media Competition Policy" 2009

Antitrust Law Spring Meeting of the ABA
"Antitrust and the Failing Economy Defense" 2009

Georgetown Law Global Antitrust Enforcement Symposium
"Mergers: New Enforcement Attitudes in a Time of Economic Challenge" 2009

Phoenix Center US Telecoms Symposium
"Assessment of Competition in the Wireless Industry" 2009

FTC and DOJ Horizontal Merger Guidelines Workshop
"Direct Evidence is No Magic Bullet" 2009

Northwestern Law Research Symposium: Antitrust Economics and Competition Policy
"Discussion of Antitrust Evaluation of Horizontal Mergers" 2008

Inside Counsel Super-Conference
"Navigating Mixed Signals under Section 2 of the Sherman Act" 2008

Federal Trade Commission Workshop on Unilateral Effects in Mergers
"Best Evidence and Market Definition" 2008

European Policy Forum, Rules for Growth: Telecommunications Regulatory Reform
"What Kind of Regulation For Business Services?" 2007

Japanese Competition Policy Research Center, Symposium on M&A and Competition Policy
"Merger Policy Going Forward With Economics and the Economy" 2007

Federal Trade Commission and Department of Justice Section 2 Hearings
"Section 2 Policy and Economic Analytic Methodologies" 2007

Pennsylvania Bar Institute, Antitrust Law Committee CLE
"The Economics of Resale Price Maintenance and Class Certification" 2007

Pennsylvania Bar Institute, Antitrust Law Committee CLE
"Antitrust Class Certification – An Economist's Perspective" 2007

Fordham Competition Law Institute, International Competition Economics Training Seminar
"Monopolization and Abuse of Dominance" 2007

Canadian Bar Association Annual Fall Conference on Competition Law
"Economic Tools for the Competition Lawyer" 2007

Conference on Managing Litigation and Business Risk in Multi-jurisdiction Antitrust Matters
"Economic Analysis in Multi-jurisdictional Merger Control" 2007

World Bank Conference on Structuring Regulatory Frameworks for Dynamic and Competitive South Eastern European Markets
"The Roles of Government Regulation in a Dynamic Economy" 2006

Department of Justice/Federal Trade Commission Section 2 Hearings
"(Allegedly) Monopolizing Tying Via Product Innovation" 2006

Fordham Competition Law Institute, Competition Law Seminar
"Monopolization and Abuse of Dominance" 2006

Practicing Law Institute on Intellectual Property Antitrust
"Relevant Markets for Intellectual Property Antitrust" 2006

PLI Annual Antitrust Law Institute
"Cutting Edge Issues in Economics" 2006

World Bank's Knowledge Economy Forum V
"Innovation, Growth and Competition" 2006

Charles University Seminar Series
"The Dangers of Over-Ambitious Antitrust Regulation" 2006

NY State Bar Association Antitrust Law Section Annual Meeting
"Efficient Integration or Illegal Monopolization?" 2006

World Bank Seminar
"The Dangers of Over-Ambitious Regulation" 2005

ABA Section of Antitrust Law 2005 Fall Forum
"Is There a Gap Between the Guidelines and Agency Practice?" 2005

Hearing of Antitrust Modernization Commission
"Assessment of U.S. Merger Enforcement Policy" 2005

LEAR Conference on Advances in the Economics of Competition Law
"Exclusionary Pricing Practices" 2005

Annual Antitrust Law Institute
"Cutting Edge Issues in Economics" 2005

PRIOR Symposium on States and Stem Cells
"Assessing the Economics of State Stem Cell Programs" 2005

ABA Section of Antitrust Law – AALS Scholars Showcase
"Distinguishing Anticompetitive Conduct" 2005

Allied Social Science Associations National Convention
"Antitrust in the New Economy" 2005

ABA Section of Antitrust Law 2004 Fall Forum
"Advances in Economic Analysis of Antitrust" 2004

Phoenix Center State Regulator Retreat
"Regulatory Policy for the Telecommunications Revolution" 2004

OECD Competition Committee
"Use of Economic Evidence in Merger Control" 2004

Justice Department/Federal Trade Commission Joint Workshop
"Merger Enforcement" 2004

Phoenix Center Annual U.S. Telecoms Symposium
"Incumbent Market Power" 2003

Center for Economic Policy Studies Symposium on Troubled Industries
"What Role for Government in Telecommunications?" 2003

Princeton Workshop on Price Risk and the Future of the Electric Markets
"The Structure of the Electricity Markets" 2003

2003 Antitrust Conference
"International Competition Policy and Trade Policy" 2003

International Industrial Organization Conference
"Intellectual Property System Reform" 2003

ABA Section of Antitrust Law 2002 Fall Forum
"Competition, Regulation and Pharmaceuticals" 2002

Fordham Conference on International Antitrust Law and Policy
"Substantive Standards for Mergers and the Role of Efficiencies" 2002

Department of Justice Telecom Workshop
"Stimulating Investment and the Telecommunications Act of 1996" 2002

Department of Commerce Conference on the State of the Telecom Sector
"Stimulating Investment and the Telecommunications Act of 1996" 2002

Law and Public Affairs Conference on the Future of Internet Regulation
"Open Access and Competition Policy Principles" 2002
Center for Economic Policy Studies Symposium on Energy Policy
"The Future of Power Supply" 2002

The Conference Board: Antitrust Issues in Today's Economy
"The 1982 Merger Guidelines at 20" 2002

Federal Energy Regulatory Commission Workshop
"Effective Deregulation of Residential Electric Service" 2001

IPEA International Seminar on Regulation and Competition
"Electricity Markets: Deregulation of Residential Service" 2001
"Lessons for Brazil from Abroad" 2001

ABA Antitrust Law Section Task Force Conference
"Time, Change, and Materiality for Monopolization Analyses" 2001

Harvard University Conference on American Economic Policy in the 1990s
"Comments on Antitrust Policy in the Clinton Administration" 2001

Tel-Aviv Workshop on Industrial Organization and Anti-Trust
"The Risk of Contagion from Multimarket Contact" 2001

2001 Antitrust Conference
"Collusion Cases: Cutting Edge or Over the Edge?" 2001
"Dys-regulation of California Electricity" 2001

FTC Public Workshop on Competition Policy for E-Commerce
"Necessary Conditions for Cooperation to be Problematic" 2001

HIID International Workshop on Infrastructure Policy
"Infrastructure Privatization and Regulation" 2000

Villa Mondragone International Economic Seminar
"Competition Policy for Network and Internet Markets" 2000

New Developments in Railroad Economics: Infrastructure Investment and Access Policies
"Railroad Access, Regulation, and Market Structure" 2000

The Multilateral Trading System at the Millennium
"Efficiency Gains From Further Liberalization" 2000

Singapore – World Bank Symposium on Competition Law and Policy
"Policy Towards Cartels and Collusion" 2000

CEPS: Is It a New World?: Economic Surprises of the Last Decade
"The Internet and E-Commerce" 2000

Cutting Edge Antitrust: Issues and Enforcement Policies
"The Direction of Antitrust Entering the New Millennium" 2000

The Conference Board: Antitrust Issues in Today's Economy
"Antitrust Analysis of Industries With Network Effects" 1999

CEPS: New Directions in Antitrust
"Antitrust in a High-Tech World" 1999

World Bank Meeting on Competition and Regulatory Policies for Development
"Economic Principles to Guide Post-Privatization Governance" 1999

1999 Antitrust Conference
"Antitrust and the Pace of Technological Development" 1999
"Restructuring the Electric Utility Industry" 1999

HIID International Workshop on Privatization, Regulatory Reform and Corporate Governance
"Privatization and Post-Privatization Regulation of Natural Monopolies" 1999

The Federalist Society: Telecommunications Deregulation: Promises Made, Potential Lost?
"Grading the Regulators" 1999

Inter-American Development Bank: Second Generation Issues In the Reform Of Public Services
"Post-Privatization Governance" 1999
"Issues Surrounding Access Arrangements" 1999

Economic Development Institute of the World Bank -- Program on Competition Policy
"Policy Towards Horizontal Mergers" 1998

Twenty-fifth Anniversary Seminar for the Economic Analysis Group of the Department of

Justice
"Market Definition in Antitrust Analysis" 1998

HIID International Workshop on Privatization, Regulatory Reform and Corporate Governance
"Infrastructure Architecture and Regulation: Railroads" 1998

EU Committee Competition Conference – Market Power
"US/EC Perspective on Market Definition" 1998

Federal Trade Commission Roundtable
"Antitrust Policy for Joint Ventures" 1998

1998 Antitrust Conference
"Communications Mergers" 1998

The Progress and Freedom Foundation Conference on Competition, Convergence, and the Microsoft Monopoly
Access and Bundling in High-Technology Markets 1998

FTC Program on The Effective Integration of Economic Analysis into Antitrust Litigation
The Role of Economic Evidence and Testimony 1997

FTC Hearings on Classical Market Power in Joint Ventures
Microeconomic Analysis and Guideline 1997

World Bank Economists --Week IV Keynote
Making Markets More Effective With Competition Policy 1997

Brookings Trade Policy Forum
Competition Policy and Antidumping: The Economic Effects 1997

University of Malaya and Harvard University Conference on The Impact of Globalisation and Privatisation on Malaysia and Asia in the Year 2020
Microeconomics, Privatization, and Vertical Integration 1997

ABA Section of Antitrust Law Conference on The Telecommunications Industry
Current Economic Issues in Telecommunications 1997

Antitrust 1998: The Annual Briefing
The Re-Emergence of Distribution Issues 1997

Inter-American Development Bank Conference on Private Investment, Infrastructure Reform and Governance in Latin America & the Caribbean
Economic Principles to Guide Post-Privatization Governance 1997

Harvard Forum on Regulatory Reform and Privatization of Telecommunications in the Middle East
Privatization: Methods and Pricing Issues 1997

American Enterprise Institute for Public Policy Research Conference
Discussion of Local Competition and Legal Culture 1997

Harvard Program on Global Reform and Privatization of Public Enterprises
"Infrastructure Privatization and Regulation: Freight" 1997

World Bank Competition Policy Workshop
"Competition Policy for Entrepreneurship and Growth" 1997

Eastern Economics Association Paul Samuelson Lecture
"Bottleneck Access in Regulation and Competition Policy" 1997

ABA Annual Meeting, Section of Antitrust Law
"Antitrust in the 21st Century: The Efficiencies Guidelines" 1997

Peruvian Ministry of Energy and Mines Conference on Regulation of Public Utilities
"Regulation: Theoretical Context and Advantages vs. Disadvantages" 1997

The FCC: New Priorities and Future Directions
"Competition in the Telecommunications Industry" 1997

American Enterprise Institute Studies in Telecommunications Deregulation
"The Scope of Competition in Telecommunications" 1996

George Mason Law Review Symposium on Antitrust in the Information Revolution
"Introduction to the Economic Theory of Antitrust and Information" 1996

Korean Telecommunications Public Lecture
"Market Opening and Fair Competition" 1996

Korea Telecommunications Forum
"Desirable Interconnection Policy in a Competitive Market" 1996

European Association for Research in Industrial Economics Annual Conference
"Bottleneck Access: Regulation and Competition Policy" 1996

Harvard Program on Global Reform and Privatization of Public Enterprises
"Railroad and Other Infrastructure Privatization" 1996

FCC Forum on Antitrust and Economic Issues Involved with InterLATA Entry
"The Scope of Telecommunications Competition" 1996

Citizens for a Sound Economy Policy Watch on Telecommunications Interconnection
"The Economics of Interconnection" 1996

World Bank Seminar on Experiences with Corporatization
"Strategic Directions of Privatization" 1996

FCC Economic Forum on the Economics of Interconnection
Lessons from Other Industries 1996

ABA Annual Meeting, Section of Antitrust Law
The Integration, Disintegration, and Reintegration
of the Entertainment Industry 1996

Conference Board: 1996 Antitrust Conference
How Economics Influences Antitrust and Vice Versa 1996

Antitrust 1996: A Special Briefing
Joint Ventures and Strategic Alliances 1996

New York State Bar Association Section of Antitrust Law Winter Meeting
Commentary on Horizontal Effects Issues 1996

FTC Hearings on the Changing Nature of Competition in a Global and Innovation-Driven Age
Vertical Issues for Networks and Standards 1995

Wharton Seminar on Applied Microeconomics
Access Policies with Imperfect Regulation 1995

Antitrust 1996, Washington D.C.
Assessing Joint Ventures for Diminution of Competition 1995

ABA Annual Meeting, Section of Antitrust Law
Refusals to Deal -- Economic Tests for Competitive Harm 1995

FTC Seminar on Antitrust Enforcement Analysis
Diagnosing Collusion Possibilities 1995

Philadelphia Bar Education Center: Antitrust Fundamentals
Antitrust--The Underlying Economics 1995

Vanderbilt University Conference on Financial Markets

Why Do Christie and Schultz Infer Collusion From Their Data? 1995

ABA Section of Antitrust Law Chair=s Showcase Program
Discussion of Telecommunications Competition Policy 1995

Conference Board: 1995 Antitrust Conference
Analysis of Mergers and Joint Ventures 1995

ABA Conference on The New Antitrust: Policy of the '90s
Antitrust on the Super Highways/Super Airways 1994

ITC Hearings on The Economic Effects of Outstanding Title VII Orders
"The Economic Impacts of Antidumping Policies" 1994

OECD Working Conference on Trade and Competition Policy
"Empirical Evidence on The Nature of Anti-dumping Actions" 1994

Antitrust 1995, Washington D.C.
"Rigorous Antitrust Standards for Distribution Arrangements" 1994

ABA -- Georgetown Law Center: Post Chicago-Economics: New Theories - New Cases?
"Economic Foundations for Vertical Merger Guidelines" 1994

Conference Board: Antitrust Issues in Today's Economy
"New Democrats, Old Agencies: Competition Law and Policy" 1994

Federal Reserve Board Distinguished Economist Series
"Regulated Private Enterprise Versus Public Enterprise" 1994

Institut d'Etudes Politiques de Paris
"Lectures on Competition Policy and Privatization" 1993

Canadian Bureau of Competition Policy Academic Seminar Series, Toronto.
"Public Versus Regulated Private Enterprise" 1993

CEPS Symposium on The Clinton Administration: A Preliminary Report Card
"Policy Towards Business" 1993

Columbia Institute for Tele-Information Conference on Competition in Network Industries, New York, NY
"Discussion of Deregulation of Networks: What Has Worked and What Hasn't" 1993

World Bank Annual Conference on Development Economics
"Public Versus Regulated Private Enterprise" 1993

Center for Public Utilities Conference on Current Issues Challenging the Regulatory Process
"The Economics of Current Issues in Telecommunications Regulation" 1992
"The Role of Markets in Presently Regulated Industries" 1992

The Conference Board's Conference on Antitrust Issues in Today's Economy, New York, NY
"Antitrust in the Global Economy" 1992
"Monopoly Issues for the '90s" 1993

Columbia University Seminar on Applied Economic Theory, New York, NY
"Economic Rationales for the Scope of Privatization" 1992

Howrey & Simon Conference on Antitrust Developments, Washington, DC
"Competitive Effects of Concern in the Merger Guidelines" 1992

Arnold & Porter Colloquium on Merger Enforcement, Washington, DC
"The Economic Foundations of the Merger Guidelines" 1992

American Bar Association, Section on Antitrust Law Leadership Council Conference, Monterey, CA
"Applying the 1992 Merger Guidelines" 1992

OECD Competition Policy Meeting, Paris, France
"The Economic Impacts of Antidumping Policy" 1992

Center for Public Choice Lecture Series, George Mason University Arlington, VA
"The Economic Impacts of Antidumping Policy" 1992

Brookings Institution Microeconomics Panel, Washington, DC,
"Discussion of the Evolution of Industry Structure" 1992

AT&T Conference on Antitrust Essentials
"Antitrust Standards for Mergers and Joint Ventures" 1991

ABA Institute on The Cutting Edge of Antitrust: Market Power
"Assessing and Proving Market Power: Barriers to Entry" 1991

Second Annual Workshop of the Competition Law and Policy Institute of New Zealand
"Merger Analysis, Industrial Organization Theory, and Merger Guidelines" 1991
"Exclusive Dealing and the Fisher & Paykel Case" 1991

Special Seminar of the New Zealand Treasury
"Strategic Behavior, Antitrust, and The Regulation of Natural Monopoly" 1991

Public Seminar of the Australian Trade Practices Commission
"Antitrust Issues of the 1990's" 1991

National Association of Attorneys General Antitrust Seminar
"Antitrust Economics" 1991

District of Columbia Bar's 1991 Annual Convention
"Administrative and Judicial Trends in Federal Antitrust Enforcement" 1991

ABA Spring Meeting
"Antitrust Lessons From the Airline Industry" 1991

Conference on The Transition to a Market Economy - Institutional Aspects
"Anti-Monopoly Policies and Institutions" 1991

Conference Board's Thirtieth Antitrust Conference
"Antitrust Issues in Today's Economy" 1991

American Association for the Advancement of Science Annual Meeting
"Methodologies for Economic Analysis of Mergers" 1991

General Seminar, Johns Hopkins University
"Economic Rationales for the Scope of Privatization" 1991

Capitol Economics Speakers Series
"Economics of Merger Guidelines" 1991

CRA Conference on Antitrust Issues in Regulated Industries
"Enforcement Priorities and Economic Principles" 1990

Pepper Hamilton & Scheetz Anniversary Colloquium
"New Developments in Antitrust Economics" 1990

PLI Program on Federal Antitrust Enforcement in the 90's
"The Antitrust Agenda of the 90's" 1990

FTC Distinguished Speakers Seminar
"The Evolving Merger Guidelines" 1990

The World Bank Speakers Series
"The Role of Antitrust Policy in an Open Economy" 1990

Seminar of the Secretary of Commerce and Industrial Development of Mexico
"Transitions to a Market Economy" 1990

Southern Economics Association
"Entry in Antitrust Analysis of Mergers" 1990
"Discussion of Strategic Investment and Timing of Entry" 1990

American Enterprise Institute Conference on Policy Approaches to the Deregulation of Network Industries
"Discussion of Network Problems and Solutions" 1990

American Enterprise Institute Conference on Innovation, Intellectual Property, and World Competition
"Law and Economics Framework for Analysis" 1990

Banco Nacional de Desenvolvimento Economico Social Lecture
"Competition Policy: Harnessing Private Interests for the Public Interest" 1990

Western Economics Association Annual Meetings
"New Directions in Antitrust from a New Administration" 1990
"New Directions in Merger Enforcement: The View from Washington" 1990

Woodrow Wilson School Alumni Colloquium
"Microeconomic Policy Analysis and Antitrust--Washington 1990" 1990

Arnold & Porter Lecture Series
"Advocating Competition" 1991
"Antitrust Enforcement" 1990

ABA Antitrust Section Convention
"Recent Developments in Market Definition and Merger Analysis" 1990

Federal Bar Association
"Joint Production Legislation: Competitive Necessity or Cartel Shield?" 1990

Pew Charitable Trusts Conference
"Economics and National Security" 1990

ABA Antitrust Section Midwinter Council Meeting
"Fine-tuning the Merger Guidelines" 1990
"The State of the Antitrust Division" 1991

International Telecommunications Society Conference
"Discussion of the Impact of Telecommunications in the UK" 1989

The Economists of New Jersey Conference
"Recent Perspectives on Regulation" 1989

Conference on Current Issues Challenging the Regulatory Process
"Innovative Pricing and Regulatory Reform" 1989
"Competitive Wheeling" 1989

Conference Board: Antitrust Issues in Today's Economy
"Foreign Trade Issues and Antitrust" 1989

McKinsey & Co. Mini-MBA Conference
"Economic Analysis of Pricing, Costing, and Strategic Business Behavior" 1989
1994

Olin Conference on Regulatory Mechanism Design
"Revolutions in Regulatory Theory and Practice: Exploring The Gap" 1989

University of Dundee Conference on Industrial Organization and Strategic Behavior
"Mergers in Differentiated Product Industries" 1988

Leif Johanson Lectures at the University of Oslo
"Normative Issues in Industrial Organization" 1988

Mergers and Competitiveness: Spain Facing the EEC
"Merger Policy" 1988
"R&D Joint Ventures" 1988

New Dimensions in Pricing Electricity
"Competitive Pricing and Regulatory Reform" 1988

Program for Integrating Economics and National Security: Second Annual Colloquium
"Arming Decisions Under Asymmetric Information" 1988

European Association for Research in Industrial Economics
"U.S. Railroad Deregulation and the Public Interest" 1987
"Economic Rationales for the Scope of Privatization" 1989
"Discussion of Licensing of Innovations" 1990

Annenberg Conference on Rate of Return Regulation in the Presence of Rapid Technical Change
"Discussion of Regulatory Mechanism Design in the Presence
of Research, Innovation, and Spillover Effects" 1987

Special Brookings Papers Meeting
"Discussion of Empirical Approaches to Strategic Behavior" 1987
"New Merger Guidelines" 1990

Deregulation or Regulation for Telecommunications in the 1990's
"How Effective are State and Federal Regulations?" 1987

Conference Board Roundtable on Antitrust
"Research and Production Joint Ventures" 1990
"Intellectual Property and Antitrust" 1987

Current Issues in Telephone Regulation
"Economic Approaches to Market Dominance: Applicability of Contestable Markets" 1987

Harvard Business School Forum on Telecommunications
"Regulation of Information Services" 1987

The Fowler Challenge: Deregulation and Competition in The Local Telecommunications Market
"Why Reinvent the Wheel?" 1986

World Bank Seminar on Frontiers of Economics
"What Every Economist Should Know About Contestable Markets" 1986
Bell Communications Research Conference on Regulation and Information
"Fuzzy Regulatory Rules" 1986

Karl Eller Center Forum on Telecommunications
"The Changing Economic Environment in Telecommunications: Technological Change and Deregulation" 1986

Railroad Accounting Principles Board Colloquium
"Contestable Market Theory and ICC Regulation 1986

Canadian Embassy Conference on Current Issues in Canadian -- U.S. Trade and Investment
"Regulatory Revolution in the Infrastructure Industries" 1985

Eagleton Institute Conference on Telecommunications in Transition
"Industry in Transition: Economic and Public Policy Overview" 1985

Brown University Citicorp Lecture
"Logic of Regulation and Deregulation" 1985

Columbia University Communications Research Forum
"Long Distance Competition Policy" 1985

American Enterprise Institute Public Policy Week
"The Political Economy of Regulatory Reform" 1984

MIT Communications Forum
"Deregulation of AT&T Communications" 1984

Bureau of Census Longitudinal Establishment Data File and Diversification Study Conference
"Potential Uses of The File" 1984

Federal Bar Association Symposium on Joint Ventures
"The Economics of Joint Venture Assessment" 1984

Hoover Institute Conference on Antitrust
"Antitrust for High-Technology Industries" 1984

NSF Workshop on Predation and Industrial Targeting
"Current Economic Analysis of Predatory Practices" 1983

The Institute for Study of Regulation Symposium: Pricing Electric, Gas, and Telecommunications Services Today and for the Future
"Contestability As A Guide for Regulation and Deregulation" 1984

University of Pennsylvania Economics Day Symposium
"Contestability and Competition: Guides for Regulation and Deregulation" 1984

Pinhas Sapir Conference on Economic Policy in Theory and Practice
"Corporate Governance and Market Structure" 1984

Centre of Planning and Economic Research of Greece
"Issues About Industrial Deregulation" 1984
"Contestability: New Research Agenda" 1984

Hebrew and Tel Aviv Universities Conference on Public Economics
"Social Welfare Dominance Extended and Applied to Excise Taxation" 1983

NBER Conference on Industrial Organization and International Trade
"Perspectives on Horizontal Mergers in World Markets" 1983

Workshop on Local Access: Strategies for Public Policy
"Market Structure and Government Intervention in Access Markets" 1982

NBER Conference on Strategic Behavior and International Trade
"Industrial Strategy with Committed Firms: Discussion" 1982

Columbia University Graduate School of Business, Conference on Regulation and New Telecommunication Networks
"Local Pricing in a Competitive Environment" 1982

International Economic Association Roundtable Conference on New Developments in the Theory of Market Structure

"Theory of Contestability" 1982
"Product Dev., Investment, and the Evolution of Market Structures" 1982

N.Y.U. Conference on Competition and World Markets: Law and Economics
"Competition and Trade Policy--International Predation" 1982

CNRS-ISPE-NBER Conference on the Taxation of Capital
"Welfare Effects of Investment Under Imperfect Competition" 1982

Internationales Institut fur Management und Verwalturg Regulation Conference
"Welfare, Regulatory Boundaries, and the Sustainability of Oligopolies" 1981
NBER-Kellogg Graduate School of Management Conference on the Econometrics of Market Models with Imperfect Competition
"Discussion of Measurement of Monopoly Behavior: An Application to the Cigarette Industry" 1981

The Peterkin Lecture at Rice University
"Deregulation: Ideology or Logic?" 1981

FTC Seminar on Antitrust Analysis
"Viewpoints on Horizontal Mergers 1982
"Predation as a Tactical Inducement for Exit" 1980

NBER Conference on Industrial Organization and Public Policy
"An Economic Definition of Predation" 1980

The Center for Advanced Studies in Managerial Economics Conference on The Economics of Telecommunication
"Pricing Local Service as an Input" 1980

Aspen Institute Conference on the Future of the Postal Service
"Welfare Economics of Postal Pricing" 1979

Department of Justice Antitrust Seminar
"The Industry Performance Gradient Index" 1979

Eastern Economic Association Convention
"The Social Performance of Deregulated Markets for Telecom Services" 1979

Industry Workshop Association Convention
"Customer Equity and Local Measured Service" 1979

Symposium on Ratemaking Problems of Regulated Industries
"Pricing Decisions and the Regulatory Process" 1979

Woodrow Wilson School Alumni Conference
"The Push for Deregulation" 1979

NBER Conference on Industrial Organization
"Intertemporal Sustainability" 1979

World Congress of the Econometric Society
"Theoretical Industrial Organization" 1980

Institute of Public Utilities Conference on Current Issues in Public Utilities Regulation
"Network Access Pricing" 1978

ALI-ABA Conference on the Economics of Antitrust
"Predatoriness and Discriminatory Pricing" 1978

AEI Conference on Postal Service Issues
"What Can Markets Control?" 1978

University of Virginia Conference on the Economics of Regulation
"Public Interest Pricing" 1978

DRI Utility Conference
"Marginal Cost Pricing in the Utility Industry: Impact and Analysis" 1978

International Meeting of the Institute of Management Sciences
"The Envelope Theorem" 1977

University of Warwick Workshop on Oligopoly
"Industry Performance Gradient Indexes" 1977

North American Econometric Society Convention
"Intertemporal Sustainability" 1979
"Social Welfare Dominance" 1978
"Economies of Scope, DAIC, and Markets with Joint Production" 1977

Telecommunications Policy Research Conference
"Transition to Competitive Markets" 1986
"InterLATA Capacity Growth, Capped NTS Charges and Long Distance Competition" 1985
"Market Power in The Telecommunications Industry" 1984
"FCC Policy on Local Access Pricing" 1983
"Do We Need a Regulatory Safety Net in Telecommunications?" 1982
"Anticompetitive Vertical Conduct" 1981
"Electronic Mail and Postal Pricing" 1980
"Monopoly, Competition and Efficiency": Chairman 1979

"A Common Carrier Research Agenda" 1978
"Empirical Views of Ramsey Optimal Telephone Pricing" 1977
"Recent Research on Regulated Market Structure" 1976
"Some General Equilibrium Views of Optimal Pricing" 1975

National Bureau of Economic Research Conference on Theoretical Industrial Organization
"Compensating Variation as a Measure of Welfare Change" 1976
Conference on Pricing in Regulated Industries: Theory & Application
"Ramsey Optimal Pricing of Long Distance Telephone Services" 1977

NBER Conference on Public Regulation
"Income Distributional Concerns in Regulatory Policy-Making" 1977

Allied Social Science Associations National Convention
"Merger Guidelines and Economic Theory" 1990
Discussion of "Competitive Rules for Joint Ventures" 1989
"New Schools in Industrial Organization" 1988
"Industry Economic Analysis in the Legal Arena" 1987
"Transportation Deregulation" 1984
Discussion of "Pricing and Costing of Telecommunications Services" 1983
Discussion of "An Exact Welfare Measure" 1982
"Optimal Deregulation of Telephone Services" 1982
"Sector Differentiated Capital Taxes" 1981
"Economies of Scope" 1980
"Social Welfare Dominance" 1980
"The Economic Definition of Predation" 1979
Discussion of "Lifeline Rates, Succor or Snare?" 1979
"Multiproduct Technology and Market Structure" 1978
"The Economic Gradient Method" 1978
"Methods for Public Interest Pricing" 1977
Discussion of "The Welfare Implications of New Financial Instruments" 1976
"Welfare Theory of Concentration Indices" 1976
Discussion of "Developments in Monopolistic Competition Theory" 1976
"Hedonic Price Adjustments" 1975
"Public Good Attributes of Information and its Optimal Pricing" 1975
"Risk Invariance and Ordinally Additive Utility Functions" 1974
"Consumer's Surplus: A Rigorous Cookbook" 1974

University of Chicago Symposium on the Economics of Regulated Public Utilities
"Optimal Prices for Public Purposes" 1976

American Society for Information Science
"The Social Value of Information: An Economist's View" 1975

Institute for Mathematical Studies in the Social Sciences Summer Seminar

"The Sustainability of Natural Monopoly" 1975

U.S.-U.S.S.R. Symposium on Estimating Costs and Benefits of Information Services
"The Evaluation of the Economic Benefits of Productive Information" 1975

NYU-Columbia Symposium on Regulated Industries
"Ramsey Optimal Public Utility Pricing" 1975

Research Seminars:

Bell Communications Research (2)
Bell Laboratories (numerous)
Department of Justice (3)
Electric Power Research Institute
Federal Reserve Board
Federal Trade Commission (4)
Mathematica
Rand
World Bank (3)
Carleton University
Carnegie-Mellon University
Columbia University (4)
Cornell University (2)
Georgetown University
Harvard University (2)
Attachment 1Hebrew University
Wyoming Johns Hopkins University (2)
University
M. I. T. (4)
New York University (4)
Northwestern University (2)
Norwegian School of Economics and
Business Administration
University of California, San Diego
University of Chicago
University of Delaware
University of Florida
University of Illinois
University of Iowa (2)
Universite Laval
University of Maryland
University of Michigan
University of Minnesota
University of Oslo
University of Pennsylvania (3)
University of Toronto
University of Virginia
University of Wisconsin
University of
Vanderbilt
Yale University (2)
Princeton University (many)
Rice University
Stanford University (5)
S.U.N.Y. Albany

BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF ANNE MOREHOUSE

My name is Anne Morehouse. I am Superintendent of the Regional Operations Center for CN's Southern Region. I have held this position since May 1, 2014. Previously I have held the positions of Rail Traffic Controller, Asst. Chief Train Dispatcher, Chief Train Dispatcher, Senior Chief Dispatcher and Senior Manager Bulk, Southern Region. In my current position, I am responsible for overseeing, coordinating and dispatching freight and passenger rail operations on all of CN's U.S. lines, with the exception of certain lines adjacent to the Canadian border that are unrelated to this proceeding. As such, I am familiar with both freight and passenger operations on the CN lines used by Amtrak, including the challenges faced and measures taken by CN as it strives to accommodate the increasing and oftentimes competing demands of freight and passenger rail customers, including Amtrak.

Successful rail operations depend on the efficient use of available capacity. In this statement, I first describe the importance of network capacity to CN's freight operations and the operational problems that arise when capacity is constrained. I then discuss more specifically Amtrak's effects on CN's operations and the costs imposed on CN by Amtrak's consumption of CN's rail line capacity. Finally, I discuss how the Performance Payments CN earns under the

Amtrak Operating Agreement incentivize CN to reduce CN-responsible delays and deliver Amtrak trains on-time.

I. RAIL LINE CAPACITY IS CENTRAL TO CN'S OPERATIONS

CN's overarching operational goal is to offer and provide to the shipping public safe and efficient service, with the highest levels of customer satisfaction. By doing so we help our customers meet their supply chain needs, thereby benefiting the North American economy as a whole; earning revenue to reinvest in the railroad, pay CN's employees, and generate value for CN shareholders; and transporting freight traffic in energy-efficient, safe, and environmentally sound ways.

In seeking to accomplish these goals, CN must plan and invest in capacity wisely and use it efficiently. CN has been a pioneer in structuring its operations to use its limited capacity efficiently by running a "precision," or scheduled, railroad. Precision railroading is at the core of CN's business model: it is a highly rigorous process whereby CN handles individual rail shipments according to a specific trip plan and manages all aspects of railroad operations to meet customer commitments efficiently and profitably. Precision railroading demands discipline to execute the trip plan, the relentless measurement of performance, and the use of data concerning operations and performance to guide efforts to improve service.

CN closely tracks freight delays and related indicators. Doing so helps CN to minimize delays and assure that CN is maintaining sufficient railroad capacity to serve our customers. Given the public interest in assuring that railroads maintain sufficient capacity to meet their common carrier obligations, CN is required to report to the Board on many of the indicators related to delay. In regular reports maintained internally or provided to the Board, CN tracks:

- freight delay minutes, and their causes;

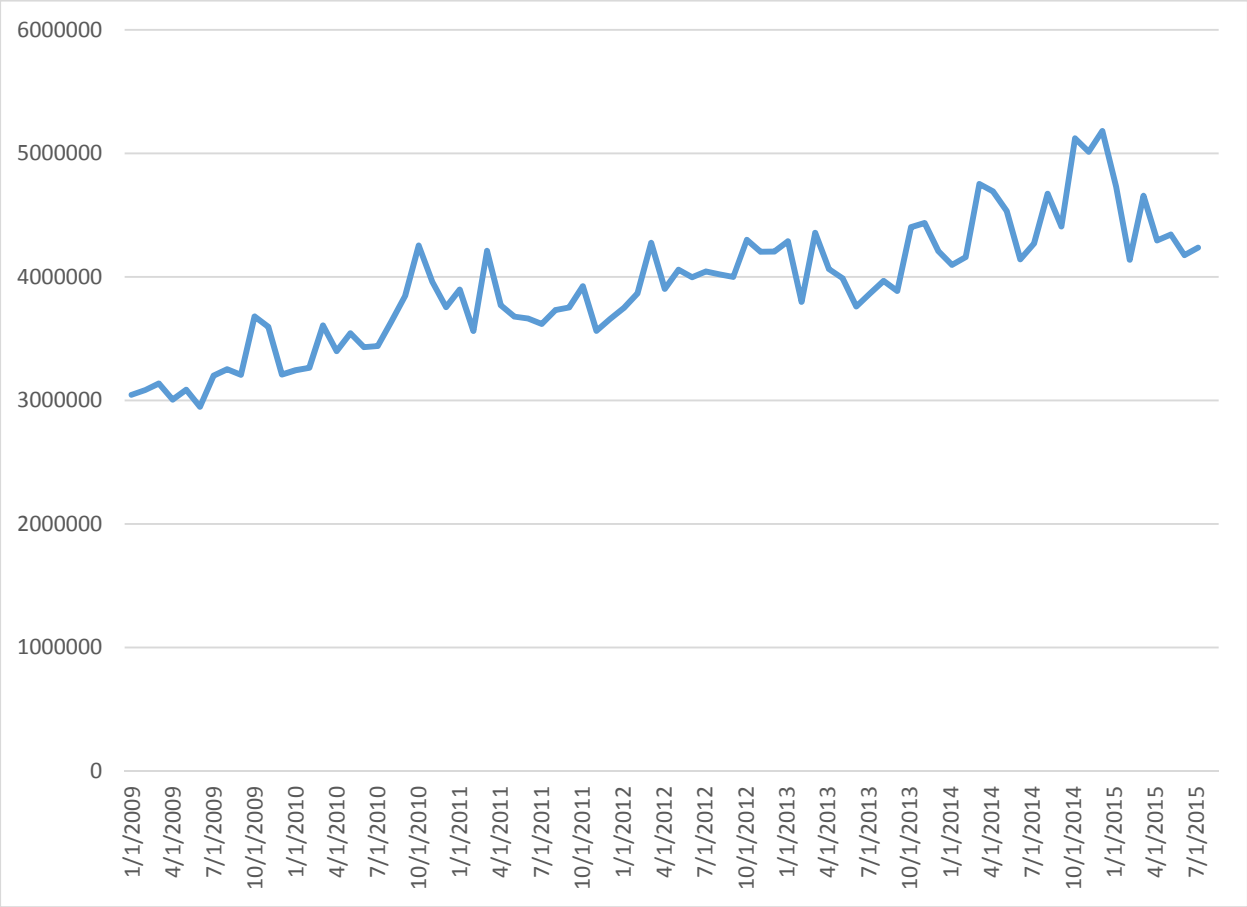
- average trip speed for different classes of traffic;
- fuel efficiency (which, as explained below, is reduced by delays);
- locomotive and car availability (which is reduced when locomotives and cars are delayed en route and thus not available for switching, loading, and unloading); and
- yard efficiency (which, as explained below, is harmed by variability).

As CN's and the Board's attention to these variables reflects, delays to CN freight trains – including delays caused by Amtrak – create a broad range of potential operational inefficiencies and added costs.

In particular, when line capacity is constrained, Amtrak's presence on our lines makes that capacity partially unavailable for other traffic, thereby increasing CN's costs and delays and decreasing the attractiveness of our freight service. As elaborated further in the Verified Statement (V.S.) of Fiona Murray, when capacity is unavailable to CN, the loss impairs our ability to seek and attract new customers, to serve existing customers at optimal levels, and to maintain and improve service. The result over time is reduced business and reduced rates and profits.

This is an increasingly important issue for CN because, as the Board knows, demand for freight rail transportation has been increasing and is expected to continue to increase. The following chart graphically demonstrates that increase (denominated in gross ton-miles), since the start of 2009, on the CN lines on which Amtrak operates.

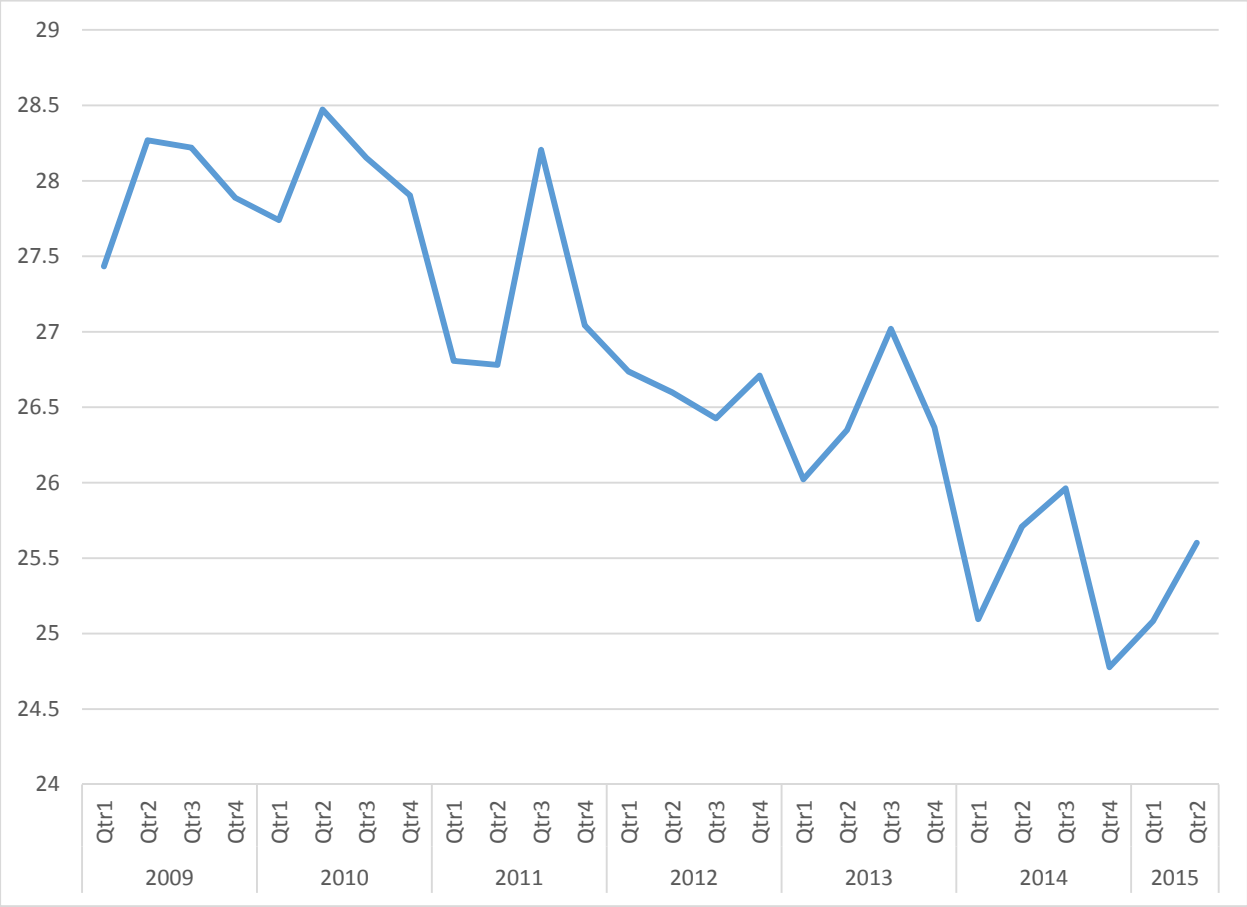
Figure 1
Total GTMs on CN Subdivisions on which Amtrak Operates



This trend is likely to continue; the Federal Highway Administration projects that nationwide, rail tonnage will increase 37 percent, from 20 billion tons in 2012 to 28 billion tons in 2040.[1] Not surprisingly, as traffic volumes have increased, congestion problems have multiplied. As shown on the following chart, average freight train speed for CN's most time sensitive traffic (intermodal) on CN's lines used by Amtrak has declined as traffic on those lines has increased.

[1] *See* http://www.ops.fhwa.dot.gov/freight/freight_analysis/nat_freight_stats/docs/13factsfigures/pdfs/fff2013.pdf at 3.

Figure 2
Average Intermodal Train Speed by Quarter on Divisions that Host Amtrak.



If freight traffic continues to grow as expected, the freight delay costs attributable to Amtrak are likely to increase more rapidly as remaining areas of excess capacity that CN can use to manage traffic growth are exhausted.

In this era of constrained capacity, operating efficiently and predictably to schedule are essential in order to make the most of our limited capacity. Delays – especially unpredictable and unavoidable delays imposed on CN by other entities, such as Amtrak – are not only an indication of capacity constraints, but an independent source of inefficiency that imposes very significant costs. Delays create both direct costs (such as crew, fuel, and equipment costs) and indirect costs (for example, by complicating yard work that needs to be managed with minimal

variability and by reducing the quality and reliability of service to present and potential CN customers, who may be lost to CN or may pay less for CN's services).

Addressing capacity constraints, however, requires capital resources – such as main line track, sidings, yards, locomotives and cars – and access to such resources is limited in the short term and expensive in the long term. CN has continued to invest in its rail capacity in order to serve its shippers. Since 1998, when CN greatly expanded its U.S. operations by acquiring the Illinois Central Railroad, CN has made capital expenditures of almost $25 billion (CAD) – close to 20% of its revenues during that time. CN recently announced that it will spend a further $2.7 billion CAD in 2015 in capital expenditures (approximately 22% of its 2014 revenue), including approximately $800 million on its U.S. operations. While CN regularly spends significant capital dollars maintaining and enhancing its rail lines, including the rail lines used by Amtrak, Amtrak has never provided funding to increase the capacity of CN's rail lines that it uses, despite significantly increasing the number of trains it operates on our rail lines. *See* Ladue/Kuxmann V.S. at § I.B.

II. AMTRAK'S CONSUMPTION OF CN'S RAIL LINE CAPACITY IMPAIRS CN'S OPERATIONS AND IMPOSES COSTS ON CN

Quantifying capacity, and quantifying the consumption of capacity by an individual train or train type, is complex and difficult, just as managing capacity is complex and difficult, because railroad capacity is multi-faceted. At the simplest level, CN track space physically occupied by an Amtrak train cannot be occupied at the same time by a freight or other passenger train. Nor can other traffic occupy space too close to an Amtrak train, for obvious safety reasons.

In that respect, Amtrak trains consume CN's capacity just as other traffic does. But because of their speed, priority, and unpredictability, Amtrak trains consume far more

capacity than other traffic. With my experience managing CN's network, I am well aware of two universal principles of railroad capacity management: (1) the more diverse the traffic is, the more capacity it will consume, and (2) the greatest burden on capacity is caused by the fastest, highest-priority traffic. Traffic traveling at uniform speed with uniform priority levels can travel on a single line separated only by a safe braking distance. But when faster trains with higher priorities are introduced, other trains have to be stopped, slowed, and moved into and/or held in sidings to let them through, and significant investments have to be made in dispatching and signaling to handle those complications.

In addition, the unpredictability with which Amtrak trains arrive at CN's lines causes additional consumption of CN's capacity. For example, the six daily Amtrak trains on the Wolverine service must transit a heavily used 1.2-mile section of CN's network just south of a large CN yard in Battle Creek, MI. Because of track work and other delays on neighboring lines operated by Amtrak and NS, these trains seldom arrive at the signal for this CN segment at their scheduled time, and CN has no independent means of anticipating when late Amtrak trains might arrive at this location. As a result, CN's dispatchers and yardmasters often lack the information they need to make optimal decisions of whether to hold freight trains to create larger windows for Amtrak, or allow a freight train to operate over the section and risk a short delay to an Amtrak train.

Unpredictable station departure times also exacerbate Amtrak's consumption of CN's capacity. Whether it is the initial station for a service (as in the case of Carbondale for northbound Illini/Saluki trains, Port Huron for westbound Blue Water trains, and Pontiac for westbound Wolverine trains) or intermediate stations, Amtrak's unpredictable dwell and departure times can disrupt CN's freight service. Amtrak trains frequently dwell at a station for

a few additional minutes to accommodate unusually high numbers of passengers and bags, and sometimes dwell for longer while awaiting a crew change. In such instances, which generally occur at stations on CN's single main line, Amtrak can cause significant disruption to CN's freight service.

For these reasons, although Amtrak trains represent only about 19% of the train miles run daily on the CN lines over which Amtrak operates, they consume a disproportionate share of CN's capacity. With the exception of local commuter trains, Amtrak trains have, and their schedule demands, the highest maximum and average speeds of any trains on our network. Moreover, in accordance with Amtrak's right of preference, we accord them the highest priority on our network. As a result, a disproportionate amount of our dispatching and signaling decisions are devoted to Amtrak traffic, and Amtrak trains regularly displace and cause delays to multiple freight trains and other Amtrak trains.

Operations over portions of CN's Champaign Subdivision illustrate the major impact Amtrak trains can have on rail traffic over a track segment with capacity constraints. CN has a relatively large yard in Champaign at which most freight trains operating through that area perform work, such as block swapping or switching.[2] These freight trains carry cars that need to be switched to or from other connecting trains for further movement anywhere from Winnipeg or Toronto to New Orleans. There is also limited infrastructure in the area: the yard is located off the single main line and includes a 16,000-foot siding that allows trains to pass when the main line is occupied. Because the yard lead is off the main line, freight trains that are too long to fit in the yard must occupy the main line to switch cars in and out of the yard. Frequently this

[2] Under CN's current schedule, there is at least one freight train scheduled to be working in Champaign at any one time between 2 a.m. and 1:30 p.m., and from 2:00 p.m. until 10:00 p.m.

means that if there is a train working the yard any trains passing the yard must use the siding. In addition to this already challenging scenario, there is an Amtrak station, located on the single track main line through Champaign, at which 6 daily Amtrak trains are scheduled to stop. In addition, both pairs of Illini/Saluki trains are scheduled to meet each other at or near the Champaign siding. Weaving the four daily Illini/Saluki trains and the two daily City of New Orleans trains between the mix of freight trains on the limited available track is a difficult exercise that leads to frequent, lengthy delays of CN trains.

Champaign is an area that would obviously and significantly benefit from infrastructure improvements. In order to address the unavoidable conflicts caused by Amtrak operations through this area, CN has in the past asked Amtrak to fund (1) additional double track between Paxton and Leverett Junction with crossovers (which would allow freights to work Champaign without interfering with Amtrak), (2) installation of a universal crossover between Gilman and Delrey (which would eliminate three-way meets and eliminate the need to hold trains 8 miles north of Gilman or 13.5 miles south of Delrey), and (3) double track between Tolono and Tuscola and additional crossovers at Tolono and Tuscola (which would allow multiple meets without the need to hold trains 9.7 miles north of Tolono or 8.6 miles south of Tuscola, and expedite moves at the Tuscola and the Tolono interlockings). Although Amtrak would be the primary beneficiary of these projects, no infrastructure on CN's lines has ever been added at Amtrak's expense or through public funding sponsored by Amtrak. *See* Ladue/Kuxmann V.S. at § I.B.

Amtrak's use of capacity on CN's lines results in two primary effects on CN's operations: (A) delays to CN's freight trains, and (B) operational adjustments that CN must make to accommodate Amtrak, but which reduce the efficiency of our freight operations.

A. Amtrak's Consumption of CN Capacity Delays CN's Freight Trains.

Given Amtrak's right to preferential dispatching priority, CN's freight trains suffer much greater delays due to Amtrak than Amtrak suffers due to freight trains. For example, during 2014 on the CN main line between Chicago and New Orleans utilized by Amtrak, CN's freight trains suffered over 390,000 minutes of delay due to Amtrak, as opposed to 80,980 minutes[3] of delay claimed by Amtrak due to freight train interference.[4]

The delays to freight traffic caused by Amtrak are of two general types: (1) delays caused by Amtrak's ordinary operations on CN's lines, and (2) delays caused by unplanned events, such as Amtrak accidents, derailments, Amtrak crews stopping because they have exceeded permissible hours of service, trains stopping because they ran out of fuel, and mechanical breakdowns on CN's lines. Both types of delay cause significant disruption and add significant costs to CN's freight operations, and CN's Service Reliability Strategy ("SRS") database system can be used to quantify, in part, both of these types of delays.

1. Delays Caused by Amtrak's Ordinary Operations on CN's Lines

Amtrak trains receive the highest dispatching priority of all trains on the CN network. In order to provide that priority, CN must often delay its own freight trains. CN suffers delays to its freight trains by holding them in sidings for Amtrak to meet or overtake them, and sometimes by holding them in sidings farther back from an optimal meet location, in order to avoid even the risk of a potential delay to Amtrak.

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[3] Conductors on the City of New Orleans trains recorded 48,176 minutes of freight train interference ("FTI"), while conductors on the Illini/Saluki trains recorded 32,804 minutes of FTI.

[4] The disparity in delay is actually much greater because the figure for CN delays is based on CN SRS data, and as explained in my joint V.S. with Gregg Girard and John Summerfield, SRS does not capture all delays caused by Amtrak.

These freight delays caused by Amtrak's trains are exacerbated by the unpredictability of, inflexibility of, and increasing demands related to Amtrak's operations. When trains arrive on time, meets between them can be planned and optimized to minimize delays.[5] However, Amtrak trains often reach the CN segments of their routes "out of slot," which complicates the management of meets and increases delays for freight and passenger trains. For example, according to Amtrak's Conductor Delay Reports ("CDRs"),[6] during 2014, Amtrak Train No. 391 (the southbound Saluki train) experienced delays of 10 minutes or more 74 times (approximately 20% of all movements) on the 2.2-mile segment of the Amtrak line out of Chicago Union Station that leads to CN's line. For Amtrak Train No. 393 (the southbound Illini train), that number was 131 (approximately 36% of all movements). In total, 205 (28%) of the 730 southbound movements made by Amtrak on this CN line experienced delays of 10 minutes or more before they even reached CN's track. Given the need to prioritize Amtrak's trains, their arrival out of slot (often with little or no warning) can be highly disruptive to other traffic and lead to conflicts and unavoidable delays.

Amtrak's operational inflexibility also increases freight delays. Optimal capacity management requires flexibility to adjust to changing circumstances. Like all other major railroads, CN adjusts its freight schedules – including its schedules for high-priority, time-sensitive intermodal traffic – in order to manage its capacity efficiently given varying demands such as high seasonal volumes of particular traffic classes, high volumes at particular times of

[5] Of course, even when these meets go exactly as planned, a CN train most often must still enter a siding, stop for some period of time, and then reaccelerate to track speed. In the absence of Amtrak, the CN train could proceed at track speed on the main line without entering the siding.

[6] Amtrak CDR data underlying these calculations can be found in the workpapers submitted with this statement.

day, severe adverse weather, and scheduled maintenance. Amtrak, however, frequently lacks either the ability or willingness to adjust its schedules to help address such capacity constraints or otherwise help CN reduce the freight train delays it suffers due to Amtrak traffic. *See* Ladue/Kuxmann V.S. at § I.C.

Finally, Amtrak's one-sided focus on reducing its own delays, and its failure to assume any responsibility for the costs that doing so would impose on CN, threatens to impose exponentially greater delay costs on CN. Amtrak has pressed CN to delay its own trains further in favor of Amtrak, in effect asking that CN create an extensive capacity bubble around Amtrak trains. Amtrak fails to appreciate, however, that given capacity limitations, doing so is not operationally sustainable along CN's main lines. Moreover, the costs of delays to CN's freight due to Amtrak would increase disproportionately if CN were required to avoid all potential Amtrak delays, regardless of how small and how unlikely. Dispatching trains so as to incur 10 minutes of freight delay to prevent 5 minutes of delay to Amtrak imposes some capacity cost; delaying freight trains for an hour or more to prevent a few minutes of delay to Amtrak trains entails far greater costs on CN and its freight customers.

2. Extraordinary Delays Caused by Amtrak Accidents, Derailments, or Mechanical Problems

In addition to the everyday delays to CN's freight trains that occur when CN subordinates its freight traffic to Amtrak trains, Amtrak trains occasionally cause extraordinary delays by stopping for extended periods of time on CN's main line, causing more significant disruption to CN's operations. These lengthy events are typically caused by Amtrak grade-crossing accidents, derailments, or mechanical breakdowns on CN's lines, when its locomotives run out of fuel, or when its crews expire under the Hours of Service Act.

For example, on September 10, 2013, Amtrak Train No. 59, a southbound train on the City of New Orleans service, derailed after striking a truck that failed to stop at a grade crossing. The Amtrak train was stopped on CN's main line for over 7 hours and directly delayed seven CN trains (including two premium intermodal trains), causing a total of over 28 hours of direct delays to CN trains.[7] Similarly, on April 24, 2014, Amtrak Train No. 392, a northbound train on the Illini/Saluki service, struck a tractor south of Champaign. The accident required a response from emergency services, and as a result the train was stopped on CN's main line for several hours. The resulting delays directly caused a total of more than 36 hours of delay, to nine CN trains. Many of the direct delays to these trains are recorded in CN's SRS database, but the indirect delays and costs of such incidents are difficult or impossible to quantify, although they are no less real. This includes costs related to such things as added network congestion and operational disruption, missed connections, added labor costs for yard work and recrews.

B. Amtrak's Consumption of CN's Rail Line Capacity Causes Restrictions, Network Effects and Losses of Efficiency that Impose Costs on CN that Cannot Reasonably Be Quantified.

Delays to CN's freight trains that can clearly be traced to Amtrak are only part of the capacity costs imposed by Amtrak. First, some of the capacity costs imposed on CN by Amtrak take the form not of delays, but of practical restrictions on CN's operations. Over time, CN has adjusted its freight schedules and operations to avoid conflicts with, and anticipate delays caused by, Amtrak. The resulting inefficiencies (relative to a system without Amtrak) are not recorded as delays, but they are nonetheless significant impediments to our freight service.

[7] Subsequent to the direct delay, the Amtrak train crew's hours of service expired, causing further delay to CN's freight trains, as they waited for an Amtrak relief crew to arrive.

One example of such practical restrictions impacts CN's local/"last-mile" service to shippers with facilities adjacent to CN's main line. Particularly along its congested single track IC main line south of Chicago, CN frequently encounters situations in which, in order to provide local service, it must cross the main line between switching yards and customer sidings, and/or temporarily block the main line. In order to avoid conflicts with Amtrak, and with higher priority freight trains that must be scheduled around Amtrak or delayed to allow Amtrak to pass, CN operates some of those local trains only during certain hours of the night. Even then, main line congestion involving Amtrak – sometimes directly (the City of New Orleans runs through the night on the IC main line), and sometimes indirectly (for example, when Amtrak delays intermodal trains that delay lower priority freight trains) – frequently disrupts both the last-mile service for those customers and the movement of their cars further along CN's lines. Amtrak trains are responsible for significant delays to local trains and road switchers that operate on CN's [redacted]. Moreover, as Fiona Murray explains in her V.S. discussing CN customers [redacted], on some days, restrictions and congestion on the main line during the limited windows of operational time available to local trains and switchers lead to service exceptions, meaning that local customers are not served at all, or are only served in one direction (inbound or outbound).[8]

Another example of inefficiencies created by CN's need to accommodate Amtrak's inflexible schedule requirements involves CN's operations and maintenance of its Bluford and Centralia Subdivisions, which run parallel to each other north of the Amtrak station in Carbondale, IL, which is located on the Centralia Sub. Were it not for Amtrak's requirements,

[8] Similar examples occur in and around Effingham, where CN must regularly hold a local train, L551, in the yard in order to avoid delays to Amtrak, and on CN's Yazoo Subdivision between Memphis and Jackson (at locations such as Greenwood and Yazoo City).

CN would shift more freight traffic from the Bluford Sub to the Centralia Sub when maintenance work is being done on the former in order to complete the maintenance work efficiently. CN does not do so, however, because the addition of that freight traffic on the Centralia Sub would make it impossible to meet Amtrak's schedule requirements. Conversely, when work is scheduled for the Centralia Sub, it would be more efficient for the railroad as a whole to shift all traffic to the Bluford Sub, but Amtrak's traffic cannot be shifted because Amtrak must continue to serve the Carbondale station on the Centralia Sub.

A further example of practical restrictions necessary to accommodate Amtrak involves freight train lengths. CN frequently limits the lengths of its freight trains – particularly trains that traverse the single-track Yazoo Subdivision – to accommodate Amtrak. In Amtrak's absence, CN would run some trains in one direction that exceed the capacity of its sidings, knowing that if they met trains coming in the other direction, those shorter trains could take the siding. For example, in Amtrak's absence, CN would frequently run Q195, a northbound, premium intermodal train out of Jackson, at 12,000 feet. Longer trains are, in general, more efficient in terms of locomotive usage and energy consumption, and adding train length is more flexible, and less expensive, than adding additional trains. Thus, generally speaking, the more cars CN can attach to a train, the lower the cost per car.

However, because there are no 12,000 foot sidings between Jackson and Memphis, in order to provide an opportunity for Amtrak to pass or overtake Q195 on the main line, and because Amtrak trains in both directions create three-way meets, CN must run Q195, and other trains, at a shorter than optimal length to ensure that they will fit in the available sidings.[9] This

[9] In the absence of Amtrak, CN would also directionally run other manifest trains that operate in the area, including A419, A420, A489, M301, M302, and M334, at lengths longer than at present.

increases CN's cost per car. Particularly in the competitive intermodal business, where margins are tight and losses to trucks are daily concerns, these operational inefficiencies caused by CN's need to accommodate Amtrak can have real effects on our ability to attract and retain business.

Second, delays and unpredictability introduced into CN's network by Amtrak have various adverse network effects that can be subtle, complex, and hard to trace and quantify, but which are nonetheless significant. As noted above, it has been my experience that variability, or unpredictability, is one of the key problems affecting railroad operational efficiency. When trains run regularly and predictably, work can be scheduled, and necessary labor and capital can be allocated and positioned, efficiently. When unpredictability is introduced into the system, resources are used inefficiently, as two trains may need the same resources at the same time, and then there may be times when more resources are on standby than are needed. This principle particularly affects yard work. Our regular, efficiency-maximizing practice is to schedule yard work ahead of time so that labor and resources will be available for each locomotive and car when it arrives at the yard and so that the yard will neither be under-utilized during normal working hours nor unduly congested. Amtrak's operations and the delays it causes to freight trains exacerbate the inherent variability of train arrivals and departures, increasing costs and reducing the efficiency of CN's operations.

Finally, delays caused by Amtrak also deprive CN of the full economic benefit of CN's investments in equipment, in ways that cannot be fully quantified. One example is the impairment of CN's ability to utilize distributed power ("DP"). About six years ago, CN acquired a limited number of DP-capable locomotives and began using DP on coal, merchandise, and grain trains. DP improves reliability, especially in cold weather, due to better air circulation, and it enables CN to move more cars with fewer locomotives. However, DP trains are generally

slower to accelerate than other trains (although in due course they can generally reach the same speed as trains not equipped with DP). This means that when DP locomotives are forced to slow or stop due to interference from Amtrak, their availability and productivity are reduced even more than other locomotives. And, like other locomotives and equipment, the full loss of reliability and efficiency suffered by CN as a result of its inability to fully utilize its DP locomotives cannot be fully quantified.

III. CN'S SRS DATABASE REPORTS DELAYS TO CN'S TRAINS CAUSED BY AMTRAK.

As discussed in more detail in the separate V.S. that I have submitted jointly with John Summerfield and Gregg Girard, some but not all of the delays to CN's trains are recorded in CN's SRS database. That database tracks the movement of scheduled CN trains, locomotives, and cars through CN's system, and automatically creates a database entry called a Delay Record when a train is delayed beyond a certain threshold. The Delay Records automatically generated by SRS prompt dispatchers to code and manually input information and comments related to the root causes of each specific delay. Using this information, Messrs. Baranowski and Fisher of FTI Consulting identify and quantify some of the costs of delays to CN freight trains caused by Amtrak. *See generally* Baranowski & Fisher V.S..

Part of Messrs. Baranowski and Fisher's analysis involved allocating to Amtrak portions of a delay with multiple causes. I understand that for delays in which the cause was attributed to multiple trains, with no non-train cause for the delay (*e.g.*, a broken rail), FTI Consulting allocated minutes of delay on a pro rata basis based on the total number of trains listed in the Delay Comment field. For delays in which the cause was attributed to both trains and a non-train cause, FTI Consulting allocated 50% of the total minutes of delay to the trains, and then further allocated that delay on a pro rata basis based on the total number of trains listed in the Delay

Comment field. I confirmed for them that in my judgment these allocation methodologies are reasonable and closely reflect the operational realities CN experiences in the field.

Another part of their analysis involved calculating additional crew costs, locomotive and car costs, and fuel costs. With respect to their analysis of crew costs, I informed them that all of CN's main line trains (*i.e.*, the types of trains that would be delayed by Amtrak and reflected in SRS data) operate with two crew members.

Finally, with respect to their analysis of fuel costs, I assisted them in understanding and analyzing the delay data to determine which delayed trains would have been forced to stop as a result of a delay caused by Amtrak. Adding an otherwise unnecessary stop will generally cause a train to consume additional fuel. I explained that based on my extensive experience with CN's operations, once delays reach 15 minutes or longer it is appropriate to assume that the train must slow to a stop, idle while waiting for clearance to proceed, and then, when cleared, accelerate back to operating speed. In my experience it is highly unlikely that a train stopped 15 minutes or longer did not suffer an added stop. As explained in more detail in the V.S. of Joe Bekavac, CN supplied to FTI Consulting for use in their costing the incremental fuel burn associated with such unscheduled stops.

IV. IN ACCORDANCE WITH THE CN-AMTRAK OPERATING AGREEMENT, CN STRIVES TO PROVIDE HIGH QUALITY SERVICE TO AMTRAK

The Operating Department strives to achieve a high level of performance for Amtrak trains. We use the performance payments earned under the agreement as a benchmark to assess our success. I, along with key members of my team, receive daily reports on the performance of each Amtrak train we host. We follow individual delayed train and track our monthly performance closely. Although we must balance many real world operational constraints, our

goal in dispatching is to help each Amtrak train we host to arrive at its station in accordance with its published schedules, including its applicable tolerance. If Amtrak performance slips for a month, we work hard to identify and resolve any issues so that Amtrak performance can recover the following month, or as soon as possible.

VERIFICATION

I, Anne Morehouse, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 3, 2015

Anne Morehouse

BEFORE THE

SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF FIONA MURRAY

My name is Fiona Murray. I am the Vice President, Corporate Marketing, for Canadian National Railway Company and its subsidiaries (collectively, "CN"), a position I have held since May 2012. I oversee corporate marketing, planning, e-business innovations, and strategic account activities, and I lead the regional sales groups that focus on business growth. Before assuming my current position, I was CN's Assistant Vice-President, Sales and Marketing (Industrial Products). I am familiar with CN's current business, including its customers, destinations, and volumes of traffic, as well as the potential for growth in that business and the effects of capacity constraints on CN's marketing efforts and growth potential. I am also familiar with the terms on which CN contracts with customers, with non-contractual customer expectations and demands, and with the effects of traffic delays on CN's relations with its customers and on its ability to attract additional traffic.

In this Verified Statement, I describe some of the adverse effects Amtrak's use of CN's lines has on CN and its customers. As Anne Morehouse explains in her Verified Statement, in order to accommodate Amtrak and give Amtrak priority, CN adjusts and limits its freight schedules, and it restricts and delays its freight trains to let Amtrak pass. This results in a loss of

capacity, delays, decreased reliability, and decreased efficiency for freight traffic. These effects hurt shippers, as reflected in the attached statements and letters of CN customers Zim American Integrated Shipping Services Co. LLC (Exhibit 1), COSCO Container Lines Americas, Inc. (Exhibit 2), and Hapag-Lloyd (America) LLC (Exhibit 3) (global transportation companies), UPS (the world's largest package delivery company) (Exhibit 4), Central States Enterprises, LLC (a grain merchandiser) (Exhibit 5), Ingredion, Inc. (a corn miller) (Exhibit 6), Zen-Noh Grain Corporation (a grain exporter) (Exhibit 7), and Altex Energy Ltd. (a crude oil carrier) (Exhibit 8), and make it harder for CN to attract, retain, and obtain favorable rates for freight business. In addition, scheduling restrictions, train-length restrictions, and delays that increase cycle times make it harder for CN to serve the business we have. The ultimate result for CN is a real and substantial, albeit not generally readily quantifiable, increase in costs and reduction in revenues. These marketing-related losses are separate from, and in addition to, CN's increased operating costs due to Amtrak described in the Verified Statements of (1) Anne Morehouse and (2) Michael Baranowski and Benton Fisher.

Efficient, reliable service is fundamental to the value proposition CN offers shippers. CN brought the "scheduled railroad" model to the U.S. freight market, and our ability to run efficiently and reliably on schedule remains critical to our competitiveness. The faster and more reliably we pick up and deliver shippers' freight, the better it is for our customers and, in turn, our business. Good service helps us retain existing business and attract new business; delays, including delays due to Amtrak and other causes, have the opposite effect. Delays also impose serious costs on freight shippers and the American economy, as the Board well knows from the concerns expressed by shippers in proceedings such as *Ex Parte 724*, U.S. Rail Service Issues – Performance Data Reporting. Delays – including not only those delays that are recorded as such

against a freight train schedule, but also delays to local trains that do not have a fixed schedule, and delays that are assumed and built into freight schedules – can cause shippers to miss their customers' deadlines, miss shipping connections, halt their production lines while awaiting supplies, incur storage costs, and/or suffer inefficiencies while waiting to load and unload. When that occurs, shippers look to other carriers, demand penalties or other concessions from CN, or question CN's rates.

CN's marketing and operational practices reflect these realities. Like other major railroads, we categorize shipments into distinct classes based largely on the urgency of the shippers' needs.[1] Competition is intense for much of CN's time-sensitive premium traffic, and speed and reliability of delivery is a critical determinant of competitive success. But even for less obviously time-sensitive traffic, freight service delays and disruptions due to Amtrak cause significant harm to shippers and to CN.

Below, I discuss examples of four types of existing freight traffic/customer to which these adverse effects apply, and I then address the problem of missed additional business opportunities. The examples given below are by no means exclusive, but they illustrate the kinds of issues that arise across different categories of freight traffic and customer.

[1] CN's ability to prioritize more time-sensitive traffic when making dispatching and resource allocation decisions is critical to our business. Amtrak presents unique problems from this perspective because it travels at greater speeds than freight service and enjoys a right to preference in dispatching (*i.e.*, the highest level of priority in dispatching), which means that it effectively consumes a disproportionate share of our capacity. Whereas CN can generally manage its meets and operations to avoid significant delays to its most time-sensitive trains from conflicts with other freight trains, it often cannot avoid delays to those trains caused by conflicts with Amtrak trains.

1. Intermodal

Intermodal traffic represents about a quarter of CN's revenue.[2] It is subject to pervasive competition from trucks and other freight railroads. (Intermodal traffic uses other modes of transport because the ultimate origin and destination of the shipment are not located directly on the rail line, so competitive alternative routes and modes are generally available.) Moreover, in general it is highly sensitive to transit times and requires great reliability.

A freight railroad's ability to deliver quickly and reliably can also play a decisive role in customers' and maritime shippers' choice of ports and carriers, driving substantial volumes of intermodal traffic. Intermodal shippers have repeatedly confirmed the critical importance of transit times and reliability to their business. Zim explains in its letter that:

> The value we provide to our customers, and in turn the value CN provides to us, depends heavily on minimizing transit times and maximizing reliability and predictability. The customer goods we transport must arrive in time to meet contractual deadlines and consumer demand; the manufacturing parts we transport must arrive in time to keep production lines moving. Delays and unpredictability along CN's lines undermine those value propositions, and they also impose costs when shipping deadlines are missed or trucks are kept waiting.
>
> We rely on CN to minimize delays by operating efficiently and prioritizing urgent intermodal shipments, and our willingness to choose CN's service and pay CN's rates depends on that efficient performance.

Ex. 1.

Likewise, COSCO explains that:

> To sustain our business and to meet the needs of our diverse U.S. and international customers, we must minimize end-to-end transportation time,

[2] In the second quarter of 2015, intermodal revenues accounted for $728 million of CN's $2.927 billion in rail freight revenue (or 24.9%). For the first half of 2015, intermodal revenues accounted for $1.417 billion of CN's $5.907 billion of rail freight revenue (or 24.0%). *See* https://www.cn.ca/-/media/Files/Investors/Investor-Financial-Quarterly/Investor-Financial-Quarterly-2015/Q2/Q2-2015-US-GAAP-MDA-en.pdf.

> maximize reliability, and minimize costs. In turn, to meet our needs, our U.S. rail partners must do the same. . . .
>
> Time is frequently of the essence for intermodal shipments. Goods we ship using CN's intermodal rail service include both consumer goods with delivery deadlines and parts that are needed in a timely manner by manufacturers to ensure that their production lines can run interrupted. As such, a critical part of the value proposition provided to us and our customers by CN lies in its efforts to expedite and ensure reliability of intermodal traffic . . . .

Ex. 2

Similarly, Hapag-Lloyd states that "burdens on the freight rail network that impair the efficiency of intermodal transport can impose significant costs on us and on our customers," including additional storage costs, delays to market, production line interruptions, planning complications and lost business. Ex. 3.

Because delays raise critical issues for shipping companies and their customers, they can imperil CN's business. As Hapag-Lloyd explains, "[r]epeated delays can threaten our business, and force us to look for alternative suppliers for transportation within North America." Ex. 3. Likewise, COSCO expresses concerns about pressures on limited railroad capacity and consequent delays, which "can mean that loading deadlines for international shipping are missed, or that trucks are standing waiting for a pickup," and states that when railroad congestion causes persistent delays, "COSCO can be forced to consider alternative carriers or routes." Ex. 2. Those statements are consistent with shipper comments filed with the Federal Maritime Commission ("FMC"), which emphasize that transit times and reliability can be critical to a shipper's choice of port and rail carrier. *See* Ex. 9 (selected shipper comments in U.S. Inland Containerized Cargo Moving Through Canadian and Mexican Seaports, FMC Docket No. 11-

19). CN's service offerings between Prince Rupert and Chicago and points beyond compete directly with the other West Coast ports served by BNSF, UP, and CP.[3]

Reflecting the critical competitive importance of efficient service, our marketing materials and negotiations emphasize reliability,[4] quote door-to-door transit times by the hour,[5] and underscore CN's efficiency and speed in relation to competitors.[6]

Likewise, our operational practices reflect the competitive imperative of minimizing transit times and maximizing reliability for our intermodal customers. In dispatching, CN accords its "Q" trains – the intermodals – the highest priority among CN freight trains (albeit lower priority than Amtrak), and our schedule designs take a similar approach. We also closely monitor and take aggressive steps to address any failures to run according to our schedules or meet our commitments: CN's Intermodal Group has a 40-person customer logistics center devoted to ensuring that we meet our customers' requirements and rectify problems involving intermodal delays.

When traffic, and particularly urgent traffic, is delayed or handled inefficiently or unreliably, our customer relations suffer and ongoing business is jeopardized. UPS, one of our largest intermodal shippers, provides an example. As Kenneth A. Buenker of UPS explains in his Verified Statement (Exhibit 4), UPS and its customers are highly "time-sensitive": "We

---

[3] CN discussed at length the competition between ports for intermodal traffic and the role and importance of CN providing fast, reliable transit times for such traffic in its comments filed January 9, 2012, with the FMC in FMC Docket No. 11-19. A copy of those comments is attached as Exhibit 10.

[4] *See, e.g.*, http://www.nxtbook.com/nxtbooks/phoenix/scw_2013fall/index.php#/44

[5] *See, e.g.*, CN CargoCool Brochure, attached as Exhibit 11.

[6] *See, e.g.*, J.J. Ruest, *Investments Delivering Planned Growth* (Feb. 2015), attached as Exhibit 12.

compete, market, price and plan our services based on delivery deadline times by the hour, and we track our shipments – and make tracking data available to our customers – on a continuous basis." Therefore, UPS "closely monitor[s]" CN's transit times and reliability, and is ready to make "substitutions" among transport providers whenever that would improve its customer service. Delays on CN can "entail very significant costs" for UPS, and Mr. Buenker expresses concern regarding "significant delay problems" experienced on trains Q194 and Q195 due to "congestion problems," "particularly between Chicago, Memphis, and Jackson."

Reflecting the time-sensitivity of UPS's business, [redacted]

Exhibit 13. [redacted]

[redacted] Amtrak was a factor in causing CN to incur those costs. According to the analysis of SRS data in Michael Baranowski and Benton Fisher's Verified Statement (at page 10), in the period August 1, 2013, through January 31, 2015, there were a total of 86 days on which train Q194 experienced a total of 60 or more minutes of delay attributable to Amtrak, and a total of 212 days on which train Q195 experienced a total of 60 or more minutes of delay attributable to Amtrak. Each train also had numerous trips with delays less than 60 minutes attributable to Amtrak. In all, train Q194 experienced 287 hours (or 16 hours per month), and train Q195 experienced 472 hours (or 26 hours per month), of delay attributable to Amtrak.

The costs of such delays extend far beyond specific contractual penalty provisions. When our trains suffer significant or repeated delays, our customers suffer. Increased transit time and unreliable service may mean that our customer's goods are delayed to market, or that their parts are delayed in reaching a production line that will be stalled until they arrive; that they miss a connection with a ship or a truck, resulting in increased transportation costs and/or storage/demurrage costs; that loading and unloading personnel and capital are idle and unproductive; or simply that scheduling and management are more complex and onerous. When such problems arise, we have to address resulting complaints and, to retain the customer's business, we may have to provide costly concessions such as free or reduced demurrage or storage, or additional services.[7] We may lose existing business, or fail to gain new business. And, even if we retain business, our ability to charge premium rates can be threatened. When customer contracts are due for renewal, delays and reliability are often critical issues in negotiations, and a failure by CN to deliver on time and reliably can lead customers to switch

[7] In section 2 below, I discuss one example in which CN had to waive $8,000 in demurrage charges for customer [redacted]

their business to rail or truck competitors or threaten to do so. Delays thus impair our pricing ability and our ability to compete for customer commitments.

2. Manufacturers and Distribution Facilities Served by CN Local Trains

CN's need to accommodate Amtrak's operations also adversely affects CN's ability to serve manufacturers and distributors at particular locations served by CN local trains. These issues are serious along single-track main-line sections of the IC spine, on which Amtrak runs six trains per day. Local trains are particularly susceptible to Amtrak-caused delays, because the network effects of delays snowball on their way down the dispatching priority list of trains: Amtrak, with the highest priority, delays intermodal trains, with the next highest priority, which delay regular through trains, with the next highest priority, which delay local trains, and at each point down the priority list, delays tend to increase. In some instances, the result is a "service exception," *i.e.*, a day when a local train does not run, and so CN does not serve certain local customers at all, because the local train cannot obtain the time it needs to run on and/or cross the mainline.

This problem is exemplified by the service disruptions suffered by three important CN customers on the congested single-track main line south of Chicago: [redacted] CN is supposed to provide [redacted] daily service, but until last year, CN was generally able to serve it only once or twice a week,

[8] [redacted]

primarily because of CN dispatchers holding the main line clear for Amtrak's City of New Orleans and Illini/Saluki trains.[9] In 2014, in order to solve that problem and maintain an important customer relationship, CN spent over $160,000 on a power switch to enable the local train to work in the [redacted] siding while Amtrak and other trains pass on the main line. [redacted][10] [redacted]

[9] Before 2014, there was a hand switch at the [redacted] siding and, under FRA regulations, CN trains could not work at [redacted] while trains passed on the main line at more than 20 mph. While CN's freight trains on the main line could work around this problem without preventing service to [redacted], Amtrak's schedule was incompatible with providing reliable service to [redacted]. CN made the investment described in the text in order to address the problem caused by Amtrak.

[10] [redacted]

[redacted][11]

[redacted]

[redacted]

[11] [redacted]

[redacted]

[redacted]

3. Grain

Grain is another major business area in which delays caused or exacerbated by Amtrak can have material adverse consequences for our shippers and our revenues. As with intermodal, these consequences can include direct, contractual penalties. In some years a substantial proportion of our Midwestern grain shipments move under our premium service train ("PST") program. For a premium rate, the PST program guarantees large grain shippers during the harvest season a dedicated train and a short cycle time (the time a car takes from loading at an elevator to deliver its load and then return to the elevator for re-loading) in order to ensure that they have sufficient capacity to move large volumes of grain expeditiously. If a PST fails to meet its guaranteed cycle time, then under our agreement we lose the PST premium and we are also obliged to pay substantial penalties to the shipper.

Delays also adversely affect the grain industry and CN's grain business more broadly. For example, as Kenneth Cupples of Central States Enterprises, LLC, explains in his Verified Statement (Exhibit 5), during the grain season, both grain elevator capacity and grain car capacity are limited resources with significant daily costs. If CN is delayed in clearing an elevator on a CN line, grain may be trucked somewhere else – resulting in a loss of business to CN and reduced margins for farmers – because of the lack of immediately available storage capacity. As Thomas Waskiewicz of Ingredion, Inc., explains in his Verified Statement (Exhibit 6), cycle times are critical to the grain industry. As Mr. Cupples explains, "[t]iming is especially

crucial for export grain markets," since the window for profitable exports before lower cost foreign crops become available can be particularly limited. As Mr. Waskiewicz adds, there are also important deadlines to be met: "If a grain delivery is delayed it may miss its next shipping connection. This can mean added expense or lost profits for the shipper, and an unhappy customer for us, who may not choose to use us next time." For all these reasons, as Mr. Cupples notes, grain shippers and CN must "closely monitor transit times and cycle times."

The above points are underscored by Ross Trentadue, of Zen-Noh Grain Corporation ("ZGC"), in his Verified Statement (Exhibit 7). ZGC is a major global grain exporter. Mr. Trentadue explains that "getting to market fast is essential," particularly when "seasonal harvests of cheap South American grain are poised to flood the market." He describes several adverse effects suffered by ZGC due to delays and congestion on CN's main line south of Chicago and around Memphis: reduced frequency and quantity of deliveries at peak time; loss of productivity of capital and labor when awaiting unpredictable delivery times; difficulties in managing elevator capacity; difficulties in fully loading an intercontinental vessel on time; and increased costs.

For all of these reasons, CN is constantly striving to minimize delays and minimize its cycle times, not merely to meet customer commitments, but to exceed them and thus add more cycles, and more revenues, per car during the grain season. When a grain train is delayed to accommodate an Amtrak train, or to accommodate an intermodal train that is delayed to accommodate an Amtrak train, CN and grain shippers are losing money.

4. Oil and Petroleum Products

Oil and petroleum products is another important area of business in which, as Randy Meyer of Altex Energy Ltd. explains in his Verified Statement, "[t]ime is money":

> Particularly when crude by rail shipments are at or near their peak, transit time is critically important to us, because our tank cars are needed to turn quickly back to Canada to clear the market. If the cars do not return in time, producers must find alternative clearing mechanisms, such as trucking, pipeline or local markets, because storage is expensive and limited. Those alternative clearing mechanisms entail increased costs of transport and/or decreased revenues for producers, increased delivered oil prices for U.S. consumers, and lost business for Altex and CN. When delays are persistent, those harmful shifts to alternative clearing mechanisms can become permanent, magnifying the losses. Moreover, the more we can shorten transit times, the more trips we can make in a given time period to maximize the value of our investment in our tank cars.
>
> In addition to pure transit time, reliability is an important issue for us. We and our customers need to plan for the arrival of tank cars so that they can be loaded and unloaded efficiently. Unpredictable delays pose a serious obstacle to such planning, and lead to inefficiencies.

Ex. 8.

Mr. Meyer also identifies a specific train, M33471, which serves a large volume of Altex's business and which suffers regular and harmful delays. According to the analysis of SRS data in Michael Baranowski and Benton Fisher's Verified Statement (at page 10), Amtrak was responsible for delaying that train 282 times, for a total of 9,039 minutes (over 8 hours per month), in the period August 2013 through January 2015.

5. Missed Additional Business Opportunities

Amtrak-caused delays and inefficiencies also adversely affect our efforts to attract and serve new business. There is significant business that we could pursue if it were not for the delays and operating constraints related to CN's efforts to meet Amtrak's service demands. If the capacity occupied by Amtrak were freed up, I believe we could offer improved premium

services (*e.g.*, guaranteed shorter cycle times for grain and oil shippers) and compete more successfully for, and win, additional traffic from trucks and other rail carriers.

For example, if we were able to run longer trains – which, as the Verified Statement of Anne Morehouse explains, we are sometimes constrained from doing by the need to limit train lengths such that they fit in sidings so that Amtrak trains can pass them – we could serve more customers and generate more revenue at relatively low additional cost. Adding capacity by lengthening a train is often much more cost-effective than adding an entirely new train, and insofar as the need to fit trains in sidings in order to accommodate Amtrak prevents us from lengthening them, it increases our costs and the rates we must charge.

Similarly, insofar as Amtrak-caused delays and schedule restrictions increase our cycle times and reduce the productivity of our cars and locomotives, they increase the cost of carrying more shipments to levels that may be prohibitive. Again, if we could make existing equipment more productive, we could serve more customers cost-effectively, whereas the costs of buying new equipment and creating new trains are often harder to sustain in our highly competitive freight markets.

Conclusion

The examples provided above are merely illustrations of a basic reality: CN is in the business of moving things from place to place, and any substantial impediment, including Amtrak-caused delays and restrictions, to doing so quickly, reliably, and efficiently, impacts the core of our business.

In many cases, the costs and revenue losses to CN's freight business and its shipper customers caused by Amtrak's use of CN's capacity cannot practicably be quantified. Delays caused by Amtrak interact with other delays and cause network effects that impact performance,

schedules, and marketing throughout our system. Likewise, given the complexity of customer relationships, there appears to be no practical way to establish systematically which customers might have been willing to pay more or might have shipped more or switched from other transportation providers to CN if CN were free to operate without the presence of Amtrak. It is clear, however, that CN, like other U.S. railroads, faces daunting challenges in its effort to provide efficient, scheduled railroad service in an era of tight capacity, and that the additional strains placed on the network by Amtrak's delays and use of CN's capacity impose real and substantial costs on CN by reducing the quality and quantity of services we can offer our existing customers and potential new customers, thereby reducing our present and future business.

VERIFICATION

I, Fiona Murray, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 3, 2015

Fiona Murray

EXHIBIT 1

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Zim American Integrated Shipping Services Co. LLC
5801 Lake Wright Drive
Norfolk, VA

Monday, August 31, 2015

Ms. Cynthia Brown
Chief, Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street, SW
Washington, DC 20423

RE: Finance Docket No. 35743
Application of the National Railroad Passenger Corporation
Under 49 U.S.C. § 24308(a) – Canadian National Railway Company

Dear Ms. Brown:

I am the Senior Vice President of Logistics of Zim American Integrated Shipping Services Co. LLC (Zim), headquartered in Norfolk, VA. I am writing to highlight to the Board the significant costs imposed on intermodal traffic, which is highly time-sensitive, by delays and unpredictability that may occur on the lines of Canadian National Railway Company (CN).

Zim is a global transportation carrier that is heavily involved in the movement of containers to and from North America. Customers worldwide depend on us as a supply chain enabler that transports consumer and industrial goods reliably and efficiently. In recent rankings by SeaIntel, we were ranked first in the world for schedule reliability on Asia-US East Coast trade.

Rail-oriented intermodal is integral to that trade, and to our business in North America as a whole. We serve every major market in the U.S. and Canada by rail from many different ports. Between the ports, we rely on U.S. railroads to keep the supply chain moving. CN is one of our principal transportation partners, and we choose to use CN, in a competitive market, because of the efficient and reliable service it provides. We use CN heavily for shipments to Chicago, Memphis and Detroit, in particular.

The value we provide to our customers, and in turn the value CN provides to us, depends heavily on minimizing transit times and maximizing reliability and predictability. The customer goods we transport must arrive in time to meet contractual deadlines and consumer demand; the manufacturing parts we transport must arrive in time to keep production lines moving. Delays and unpredictability along CN's lines undermine those value propositions, and they also impose costs when shipping deadlines are missed or trucks are kept waiting.

We rely on CN to minimize delays by operating efficiently and prioritizing urgent intermodal shipments, and our willingness to choose CN's service and pay CN's rates depends on that efficient performance. We have, however, experienced significant delays on CN trains Q116/118/119, Q148/149, Q194/195, on which a substantial portion of our shipments travel. Those trains run in part on single-track rail lines on which Amtrak also runs, and they experience significant delays suffer delays due to other traffic on those lines. If and insofar as Amtrak trains, for example, are assigned a higher priority, and cause delays to intermodal traffic, that imposes significant costs on us and our customers. I cannot speak to the extent to which Amtrak is responsible for delays to our shipments, but we have had several instances of significant, multi-hour delays to our shipments on CN's Q trains, and such delays significantly hamper both our ability to meet our customers' deadlines and our ability to plan and use our resources efficiently. When problems of that nature arise persistently, our relationship with our customers, and our relationship with CN, can be placed at risk.

Zim values CN's service, and is willing to pay its fair share for that service and for the CN railroad capacity that it uses. In the present age of frequent U.S. railroad congestion problems, it is vital that all users of the railroads, freight and passenger alike, pay their fair share for scarce railroad capacity on CN and other rail lines. If Amtrak or other railroad users are allowed to occupy scarce capacity, and unduly delay other traffic, without paying their fair share, intermodal transport and the international trade it serves will suffer.

Sincerely,

Royi Abramov
Senior Vice President of Logistics

Zim Integrated Shipping Services Co. LLC Logistics Department **www.zim.com**
5801 Lake Wright Drive, Norfolk, VA 23502 **Tel.**757-228-1300

EXHIBIT 2

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Howard S. Finkel, Executive Vice President
COSCO Container Lines Americas, Inc.
100 Lighting Way, 3rd Floor
Secaucus, NJ 07094

September 3, 2015

Ms. Cynthia Brown
Chief, Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street, SW
Washington, DC 20423

RE: Finance Docket No. 35743
Application of the National Railroad Passenger Corporation
Under 49 U.S.C. § 24308(a) – Canadian National Railway Company

Dear Ms. Brown:

I am the Executive Vice President of COSCO Container Lines Americas, Inc. (COSCO), headquartered in Secaucus, NJ. I am writing to highlight to the Board the significant costs imposed on intermodal traffic, which is highly time-sensitive, by delays and unpredictability on the lines of Canadian National Railway Company (CN), however caused.

COSCO is a global transportation carrier that is heavily involved in the movement of containers to and from North America. We handle a wide variety of consumer and industrial goods, primarily between overseas locations and points throughout North America.

Rail-oriented intermodal is integral to our business activities in North America. We serve every major market in the U.S. and Canada by rail from many different ports. COSCO owns or charters the vessels it operates, but contracts with the railroads for services in the U.S. CN is one of the main railroads we use.

Our industry, international transportation, is highly competitive; there are many different routes that international and intermodal shipments can take, and many different providers of international and intermodal transportation services. To sustain our business and to meet the needs of our diverse U.S. and international customers, we must minimize end-to-end transportation time, maximize reliability, and minimize costs. In turn, to meet our needs, our U.S. rail partners must do the same. CN is a valued business partner for us precisely because it operates a scheduled freight railroad in an efficient and reliable manner. We use CN heavily for shipments to Chicago, Memphis and Detroit, in particular.

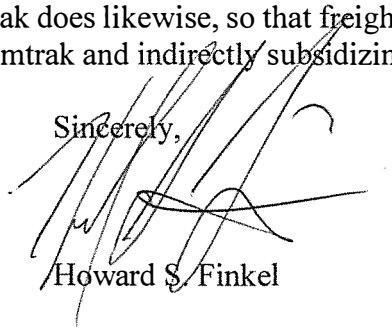
Time is frequently of the essence for intermodal shipments. Goods we ship using CN's intermodal rail service include both consumer goods with delivery deadlines and parts that are

needed in a timely manner by manufacturers to ensure that their production lines can run uninterrupted. As such, a critical part of the value proposition provided to us and our customers by CN lies in its efforts to expedite and ensure reliability of intermodal traffic, including by prioritizing intermodal traffic over other, less urgent categories of freight traffic.

Railroad capacity is limited, however. COSCO ships large volumes of traffic on CN trains Q194/195, Q196/197, and Q198/199, which run in part on single-track rail lines on which Amtrak also runs, and those trains frequently suffer delays due to other traffic on those lines. Because of the time-sensitivity of intermodal traffic, an important part of the service CN provides us, and for which we pay, involves a commitment to assign a high priority to intermodal trains. If and insofar as Amtrak trains are assigned a higher priority, and cause delays to intermodal traffic, that imposes significant costs on us and our customers. I cannot speak to the extent to which Amtrak is responsible for delays to our shipments, but we have had several instances of significant, multi-hour delays to our shipments on CN's Q trsins, and such delays significantly hamper both our ability to meet our customers' deadlines and our ability to plan and use our resources efficiently. (For example, lengthy delays at destination can mean that loading deadlines for international shipping are missed, or that trucks are standing waiting for a pickup.) When problems of that nature arise persistently, the fundamental value proposition that CN offers COSCO, and that COSCO offers its shippers, can be jeopardized, and COSCO may be forced to consider alternative carriers or routes.

COSCO appreciates that Amtrak has a right to share the railroad capacity of CN and other North American railroads. However, railroad capacity has a price – a price that COSCO pays every day. The Board should ensure that Amtrak does likewise, so that freight shippers do not suffer the double burden of being delayed by Amtrak and indirectly subsidizing it.

Sincerely,



Howard S. Finkel

Executive Vice President

EXHIBIT 3

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PUBLIC VERSION - REDACTED

Hapag-Lloyd

September 2, 2015

Hapag-Lloyd (America) LLC
399 Hoes Lane
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Ms. Cynthia Brown
Chief, Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street, SW
Washington, DC 20423

RE: Finance Docket No. 35743
Application of the National Railroad Passenger Corporation
Under 49 U.S.C. § 24308(a) – Canadian National Railway Company

Dear Ms. Brown,

I am writing to ask the Board to take into account in the above proceeding the significant costs imposed on intermodal traffic, which is highly time-sensitive, by delays and unpredictability on CN's U.S. rail lines.

I am the Corporate Logistics Director for Hapag-Lloyd (America) LLC., headquartered in Piscataway, NJ. Hapag-Lloyd is a major global transportation company with operations throughout the United States. Hapag-Lloyd utilizes intermodal services on the eastern and western railroads in the United States, including CN's network, to bring imported consumer goods to major markets, and to export U.S. agricultural and manufactured goods to markets around the world. We are able to serve our customers effectively because of the strong investments in capacity and intermodal terminals that the U.S. railroads, including CN, have made in recent decades. We and our customers, depend upon an efficient, cost-effective global supply chain, including the railroads.

We support a healthy freight rail network that supports job growth and prosperity. International transportation services, and the international product markets they serve, are subject to intense global competition, and burdens on the freight rail network that impair the efficiency of intermodal transport can impose significant costs on us and on our customers. When, for example, our containers are delayed on CN's lines, or when they are delayed awaiting the arrival of a CN train to carry them, our customers may suffer from additional storage costs, delays in getting goods to market, or delays in getting parts needed to keep a production line running. Unpredictable delays also complicate the planning process for our customers and for us. Repeated delays can threaten our business, and force us to look for alternative suppliers of transportation within North America. In short, lost time is lost money.

Hapag-Lloyd therefore urges the Board to be cognizant of the very real costs of congestion and freight delays as the Board makes decisions pertaining to the regulation of CN and other freight railroads, including regulatory decisions pertaining to their relationships with Amtrak. While freight and passenger customers share the limited capacity of CN and other U.S. railroads, they should do so on an economic basis that recognizes congestion and delay costs.

Fairness, efficiency and the continued vitality of the railroad system require that each user pay its way on a rational, market basis, rather than permitting any one user to impose costs on the system for which it does not pay and thus force other users to subsidize it.

Sincerely,

Thomas Barattini
Director, Corporate Logistics

EXHIBIT 4

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF KENNETH A. BUENKER

My name is Kenneth A Buenker. I am the Vice-President, Corporate Transportation Services, at UPS.

As one of the nation's largest corporate rail customers, UPS has a vested interest in the fluidity of the freight rail network. As you may know, UPS has previously testified before the Surface Transportation Board about the need for additional rail capacity and improved service performance.

Time is of the essence for our business. UPS is the world's largest package delivery company, and provides supply chain management solutions to a wide range of time-sensitive businesses and consumers. Our services cross multi-modes of transportation and our highly integrated network relies on every piece of our integrated network to perform at very high reliability levels. We compete, market, price and plan our services based on delivery deadline times by the hour, and we track our shipments – and make tracking data available to our customers – on a continuous basis.

We are constantly working to optimize our service to achieve maximum reliability and minimum transit time at minimum cost to our customers. That means closely monitoring the

performance of the air, rail and trucking transportation partners we use to help us transport our customers' packages, and making substitutions among them when and where appropriate.

CN is a valued business partner for us because it generally provides an efficient, reliable, scheduled railroad service that enables us to meet our customers' needs in a cost-effective manner. However, when and where it fails to deliver on that fundamental value proposition, our business compels us to consider competitive alternatives, including both other railroads and trucks. The extent to which CN is able to provide us with fast and reliable service also directly influences the rates we are willing to pay it.

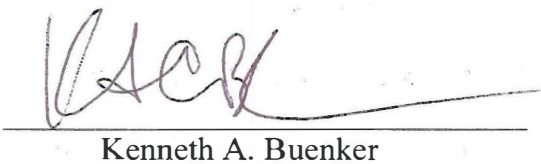
When our packages are delayed in transit, we do everything we reasonably can to ensure that our customers' needs are still met. Those efforts can entail very significant costs for us. We have to expend management resources adjusting schedules; we may have to allocate additional resources while a local truck is waiting for a rail delivery or pickup; and in some cases, we may have to arrange substitute transportation – such as a long-distance truck substituting for rail transport ("road recovery") – at the last minute, when that transportation is at its most expensive and usually least reliable. To protect ourselves against some of these costs and service impacts, we have bargained for a provision in our contract with CN which holds CN responsible for road recovery costs when it fails to meet their daily network commitments for pickup and delivery deadlines with their intermodal services.

We ship a large volume of packages daily on one particular pair of CN trains, the daily intermodal trains identified as Q194 and Q195, which travel between Chicago and New Orleans, and through Memphis, Jackson and other important locations. We closely monitor the performance of these trains because of their significance to our business and our customers' business, and in order to enforce CN's road recovery obligations under our contract. Over the

last several years, we have experienced significant delay problems on these trains, particularly between Chicago, Memphis, and Jackson, where I understand that CN's rail line is largely single-track and prone to congestion problems. These delays have caused us to continuously work to adjust operating plans and customer expectations, while interfering with prior operating plans that were developed to be cost effective, safe operating environments that deliver on our promise to our customers.

We do not generally concern ourselves with the reasons for CN delays, but I am aware of several instances where Amtrak has been contributory to delays that caused service disruptions and exceptions. We fully understand and support the right of Amtrak and other users to share CN's rail capacity. UPS trusts, however, that the Board will not impose unfunded mandates on CN that prevent it from providing efficient and reliable service to time-sensitive intermodal traffic.

I, Kenneth A. Buenker, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this verified statement. Executed on September 3, 2015.



Kenneth A. Buenker

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EXHIBIT 5

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BEFORE THE

SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF Kenneth R. Cupples, Executive Vice President, Central States Enterprises, LLC

My name is Ken Cupples. I am the Executive Vice President for Central States Enterprises, LLC. Central States Enterprises (CSE) is a service based merchandiser primarily of corn, soybeans, and wheat with elevator locations in Montpelier, IN, New Haven, IN and an elevator and feed mill at Lake City, FL. We have an extensive merchandising presence primarily operating in the states of Illinois, Indiana, Iowa, Minnesota, Mississippi, Ohio, Tennessee, and Wisconsin. From those locations, we receive and ship grain to oilseed processors, ethanol producers, poultry and livestock feed manufacturing facilities, as well as export elevators by rail. In addition to use of carrier furnished equipment, CSE employs a fleet of approximately 1,200 leased private covered hoppers to support our rail merchandising activity.

We currently use Canadian National Railway Co. ("CN") extensively for shipments to ethanol producers, feed manufacturers, and export elevators primarily located in Tennessee, Mississippi, and Louisiana for our shipments. In particular, approximately seventy-five percent of our CN originations of corn and soybean shipments travel on CN trains (unit grain trains, merchandise freight trains, and local operations) primarily from grain elevators in Illinois, Iowa,

Minnesota, Tennessee, and Wisconsin primarily to receivers in Louisiana, Mississippi, and Tennessee.

We rely on CN for dependable transportation service through their use of unit grain trains, scheduled manifest service, and local operations to reach our customers. CN's efficiency both in terms of transit time and reliability is extremely important to our business. Delays to CN grain operations can hurt agricultural customers in several ways:

Purchase and Sale Commitments: CN failure to execute planned service places CSE at risk of failure in meeting pickup and delivery commitments in our purchase and sale agreements potentially subjecting CSE to penalties for non-performance. Our customers are also adversely effected. Elevators holding grain awaiting trains to transport it to market require storage that may be limited especially at harvest. All of the grain we transport originates with a truck movement from the farm. Elevators may lose business by turning away producers due to a lack of available storage caused by a lack of sufficient rail service. Receivers also can be financially impacted by using non-rail options to source their needs in order to maintain their operations. These alternatives can be limited and more expensive than rail depending upon location. To the extent grain service to our customers is effected due to traffic congestion and delays, it will likely impose a real cost on CSE. This can result in a lost business opportunity for our customers, lost shipments for CSE and lost revenue for CN.

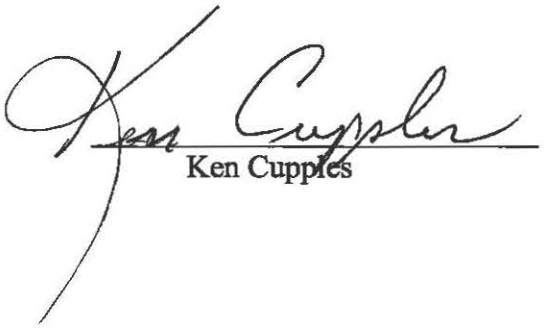
Utilization: Grain seasons have peak demand periods especially at harvest (supply push) and a limited window of export demand (typically ranging from four to six months). Grain car capacity has a cost. The faster a grain car cycles from elevator to destination and return to its next loading point, the more grain we can deliver. This permits investment in grain car capacity to be recouped more efficiently to help offset some of the cost associated when demand is soft.

Timing is especially crucial for export grain markets. For example, the typical window for soybean exports commences at harvest with approximately 90% of shipments executed during the first six months of the marketing year. As a practical matter, soybeans must generally move to the international market during this time period before being displaced by lower cost alternatives resulting from harvest in South America.

Grain shipment is a time-sensitive business. CSE and our rail carriers such as CN must closely monitor transit times and cycle times.

CN generally performs well for CSE. Their service performance is a critical part of the value CN provides CSE. At times, particularly for movements over CN's mainline between Chicago and New Orleans during the peak grain season, delays can become a serious problem. CSE understands that various factors contribute to delays and congestion, including other rail traffic, which may include Amtrak. In making decisions that could affect Amtrak's use of CN's lines, CSE urges the Board to take note of and consider the costs to the grain industry of delays that can be caused by Amtrak's priority passenger rail traffic.

I, Kenneth R Cupples, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this verified statement. Executed on August 21, 2015.



Ken Cupples

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EXHIBIT 6

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BEFORE THE

SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF Thomas Waskiewicz, Senior Manager, Rail Logistics for Ingredion, Incorporated

My name is Thomas Waskiewicz. I am the Senior Manager Rail Logistics for Ingredion, Incorporated. Ingredion, Incorporated is a Corn Wet Milling Manufacturing Company with its largest plant located at 6300 Archer Avenue, Bedford Park, Illinois. Ingredion purchased corn from multiple suppliers and elevators located in Illinois, Indiana and Wisconsin. From those locations, we purchase corn that is shipped by rail and truck to our plant in Bedford Park, Illinois. In 2014, we purchased by rail.

We currently use Canadian National Railway Co. ("CN") for inbound grain shipments and outbound product shipments to customers on the CN of our shipments. In particular, a large volume of our inbound corn travels on CN trains from Illinois and Wisconsin elevators to our Bedford Park, Illinois plant.

We rely on CN for timely, scheduled service, and its efficiency both in terms of transit time and reliability is important to our business. Delays to CN grain trains can hurt us in several ways:

Storage: Grain awaiting trains to transport it to market requires storage, which is expensive and limited. To the extent grain service to our facilities is delayed due to traffic congestion and delays, it imposes a real cost on us. In addition, all of the grain we transport starts with a truck move from a farm. If our elevator is full because we have not received sufficient rail service, producers may choose to truck their grain to a different elevator, to a barge, or to a processing plant. This can result in a lost business opportunity for our customers, and lost shipment for us and for CN.

Delivery: If a grain delivery is delayed it may miss its next shipping connection. This can mean added expense or lost profits for the shipper, and an unhappy customer for us, who may not choose to use us next time. .

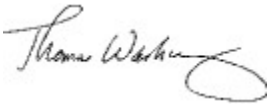
Cycle time: Grain seasons are limited and grain car capacity has a cost. The faster a grain car cycles from elevator to destination and back again, the more grain can be delivered, the more the investment in grain car capacity can be recouped, and the more grain can be delivered during the grain season. Timing for export grain markets in particular can be critical – for example, as a practical matter the soybean crop must move to the international market just prior to the corn harvest and before cheaper harvests from South America swamp the market**.**

For all of these reasons, grain shipment is a time-sensitive business, and we and our rail carriers such as CN closely monitor transit times and cycle times.

CN generally performs well for us, which is a critical part of the value CN provides us. At times, however, particularly for movements between Memphis and the Gulf or during the peak grain season, delays can be a serious problem. We understand that various factors contribute to delays and congestion, including other rail traffic, which may include Amtrak. In making decisions that could affect Amtrak's use of CN's lines, we urge the Board to take note of

and consider the costs to the grain industry of delays that can be caused by Amtrak's priority passenger rail traffic.

I, Thomas Waskiewicz, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this verified statement, executed on August 21, 2015.



Thomas Waskiewicz
Senior Manager Rail Logistics
Ingredion, Incorporated

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EXHIBIT 7

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF Ross L. Trentadue

My name is Ross L. Trentadue. I run the Grain and Oilseeds Merchant and Transportation Desk for Zen-Noh Grain Corporation ("ZGC"). ZGC, which has its U.S. headquarters in New Orleans, LA, is a leading global grain import/export company. ZGC exports U.S. grain to Asia from its grain elevator in Convent, LA, which is one of the largest and most efficient export grain elevators in the world.

Our business is about getting grain from farms to consumers efficiently. The farmers and consumers we serve depend on our supply chain to deliver reliably, and with minimal transit time, in a cost-effective way. Timing can be critical. When grain seasons are at their height, processing large volumes through the supply chain requires a highly efficient, coordinated operation, and at various points during the year – for example, when seasonal harvests of cheap South American grain are poised to flood the market – getting to market fast is essential. The global market for grain, and the North American market to export grain, are highly competitive, and we must be highly efficient to compete.

CN is an important and valued business partner for us because it runs an efficient, scheduled freight railroad service, transporting grain from the Midwest and the Delta to our export elevator in Louisiana. We rely in particular on CN's mainline movement between

Chicago and Louisiana.

We have, however, suffered significant delays and reliability problems in rail deliveries of grain from Iowa coming through Chicago. We have had particular problems with trains being delayed in and around Memphis. Delays slow our ability to export grain as we rely on CN's rail service for our needed supply. We understand that those delays are largely the product of congestion on CN's single-track lines in and between the areas we have mentioned.

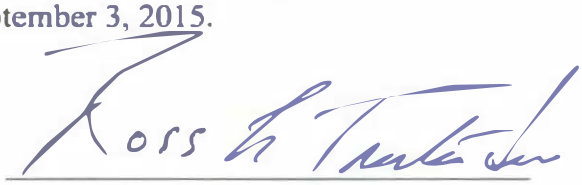
Delays and added costs due to congestion on CN's rail lines hurt our business and our customers' business, and undermine the value CN offers us. Rail delays can cause costs for us in several ways:

- If delays increase transit times between deliveries, they reduce the quantity of deliveries we can receive and process during the grain season and when market prices are at their most advantageous.
- We devote significant capital and labor at our elevator to each delivery. TO the extent that delivery times are unpredictable, we cannot schedule those resources efficiently, and capital and labor may be kept waiting at our expense.
- When our storage facilities are close to capacity, we need to schedule deliveries and pickups by different transport means so that we fully utilize, but do not exceed, our capacity. If we do not know when a delivery will occur, we cannot do so efficiently.
- When delays prevent us from fully loading an intercontinental vessel on time, we can incur lost revenues and/or demurrage costs.
- In addition, insofar as the delay and other costs CN incurs due to congestion

affect the rates CN charges us, our costs increase.

As these examples show, delay and congestion on CN's rail lines between Chicago and the Gulf can have serious adverse effects on our business, and on the farmers and consumers we serve. We respectfully urge the Board to consider and reflect all costs, including those related to passenger service, in its regulatory decisions.

I, Ross Trentadue, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this verified statement. Executed on September 3, 2015.



Ross L. Trentadue

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EXHIBIT 8

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1100, 700 – 9th Ave. SW
Calgary, AB T2P 3V4

Phone (403) 508-7525
Website: altex-energy.com

Surface Transportation Board
395 E Street, SW
Washington, DC 20423

August 31, 2015

RE: Finance Docket No. 35743, Application of the National Railroad Passenger Corporation Under 49 U.S.C. § 24308(a) – Canadian National Railway Company

My name is Randy Meyer. I am the Vice President Corporate Development and Logistics for Altex Energy Ltd. ("Altex"). Altex is a Canadian company that delivers crude oil products to market via rail. We deliver between Canada, the U.S. Midwest, the U.S. Gulf Coast, and other U.S. destinations, including export destinations. To provide efficient, cost-effective service to our customers in the oil industry, our system is multi-directional, allowing customers to transport crude oil products one way and diluent back in the same tank car.

Canadian National Railway Company ("CN") is a key strategic partner for us, and I understand that we are one of the largest volume customers of CN. We ship a significant percentage of our freight over CN's lines, including its Chicago to New Orleans "IC spine." In particular, we regularly ship our tank cars on CN trains M34041 and M33471.

Time is money for our business, and we rely on CN to provide efficient, reliable service. Particularly when crude by rail shipments are at or near their peak, transit time is critically important to us, because our tank cars are needed to turn quickly back to Canada to clear the market. If the cars do not return in time, producers must find alternative clearing mechanisms, such as trucking, pipeline or local markets, because storage is expensive and limited. Those alternative clearing mechanisms entail increased costs of transport and/or decreased revenues for producers, increased delivered oil prices for U.S. consumers, and lost business for Altex and CN. When delays are persistent, those harmful shifts to alternative clearing mechanisms can become permanent, magnifying the losses. Moreover, the more we can shorten transit times, the more trips we can make in a given time period to maximize the value of our investment in our tank cars.

In addition to pure transit time, reliability is an important issue for us. We and our customers need to plan for the arrival of tank cars so that they can be loaded and unloaded efficiently. Unpredictable delays pose a serious obstacle to such planning, and lead to inefficiencies.

CN generally performs efficiently and reliably, which is what makes it a valued partner for us. Train M34041, in particular, suffers relatively few delays. Train M33471, however, does suffer some significant delays which have adverse effects on our business.

While I do not have detailed knowledge of the causes of those delays, I understand that train M33471 and various Amtrak trains both operate along various sections of the IC spine, and that

CN is obliged to give Amtrak trains preference, which may cause some of the delays suffered by our shipments on train M33471.

Altex is pleased to work with CN to provide the best service, at the lowest cost, that it can to customers in the highly competitive crude oil products transportation market. In addressing the issues between Amtrak and CN, we ask that the Board bear in mind the harms that could be caused to Altex and its customers if Amtrak were permitted to cause extensive delays to freight traffic without any economic consequence, and if freight traffic were compelled to cross-subsidize Amtrak.

Sincerely,



Randy Meyer
Vice-President Corporate Development & Logistics

I, Randy Meyer, declare under penalty of perjury under the laws of the United States that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this verified letter. Executed on August 31, 2015.

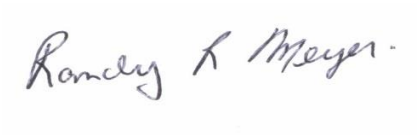


EXHIBIT 9

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WATERFRONT COALITION

December 20, 2011

Karen V. Gregory
Secretary
Federal Maritime Commission
800 North Capitol Street, N.W.
Washington, D.C. 20573-0001
By email: Secretary@fmc.gov

RE: U.S. Containerized Cargo Flows – Response to NOI

On behalf of the Waterfront Coalition we submit these comments regarding the Notice of Inquiry into U.S. inland containerized cargo moving through Mexican and Canadian ports. Those of our members choosing to route U.S. bound freight through Canadian and Mexican maritime gateways do so to take advantage of speed to market to a select few U.S. destinations. From the feedback we received from our membership, we understand that any change in U.S. tax policy will have no impact on shippers' routing decisions. Public and private investments in goods movement related infrastructure designed to reduce transit times may prove beneficial in enticing shippers to route cargo through U.S. maritime gateways.

By way of background, the Waterfront Coalition represents manufacturers, product suppliers, retailers and transportation providers moving import and export freight through North American blue water ports. Our members have a direct interest in making sure that the nation's ports and the network of railroads, highways, roads, bridges and tunnels moves commerce quickly, safely and in an environmentally responsible manner. It is the mission of the Waterfront Coalition to support industry initiatives to speed the movement of freight and to work with elected officials to make sure that the goods movement industry benefits from infrastructure investments.

1. Shippers' Routing Decisions

In response to the Notice of Inquiry, we requested that our members to provide us with their rationale for routing U.S. bound cargo through Mexican and Canadian maritime facilities. The responses we received only pertained to the movement of freight through ports in British Columbia. All respondents stated that speed to market, reliability and port diversification plans explained the decision to route some freight through Canadian ports. Respondents understand that Prince Rupert B.C experiences a geographical advantage over U.S. west coast ports. Cargo originating at ports in North Asia will arrive at the Port of Prince Rupert, B.C. two to three days faster owing to geography. This advantage is lost when cargo originates in ports south of North Asia (for example, Singapore, Vietnam, Bangladesh).

For our members, short transit times and reliability are the most important factors in choosing a North American gateway. The two to three day advantage enjoyed by the Port of Prince Rupert results in significant supply chain cost savings and efficiency for our members. This geographical advantage only pertains to originating ports in North Asia and certain U.S. Midwest destinations, notably Chicago, IL. The Port of Prince Rupert does not enjoy this advantage with other origin and destination points.

Our members using the Port of Prince Rupert also report reliable service from the port to the U.S. final destination. Reliable service is just as important as speed to market. A two to three day advantage does not mean much for a shipper if this advantage cannot be guaranteed consistently. Frequent unanticipated service disruptions lead to costly manufacturing delays, lost sales for retailers and our exporter members.

Since the events of September 11, 2001 and the West Coast lockout of longshore workers in 2002, many shippers developed port diversification plans. For many of our members, a small amount of cargo may be routed through the Port of Prince Rupert as part of these plans. In the event of an incident that closes U.S. maritime facilities, shippers currently using the Port of Prince Rupert have one option with which to feed into their U.S. supply chain network.

2. Experience Using Prince Rupert

Again, our members using the Port of Prince Rupert report a reliable two to three day advantage to certain U.S. destinations over other U.S. west coast ports. However, rail service disruptions are known to occur occasionally owing to inclement weather. Severe snow and rain events have been known to lead to lengthy delivery disruptions.

The Port of Prince Rupert is a small one berth facility with three cranes. While there are modest future expansion plans, service into the port is limited. Many of our members looking for service through the port have frequently been told that space is unavailable. We understand that U.S. bound cargo discharged at all Mexican and Canadian ports represents roughly 7% of all cargo. Cargo routed through Prince Rupert represents a small share of this 7%. Cargo routed through Vancouver, B.C. represents an even smaller share.

3. Targeted Government Investment in Freight Mobility

The success of the Port of Prince Rupert to offer shippers fast and reliable service is a case study in the effectiveness of coordinated investments by the private and public sectors. Private investors and public agencies at the provincial and federal levels worked collaboratively to invest in infrastructure to take full advantage of the Port of Prince Rupert's geographical advantage to serve certain U.S. Midwest destinations by rail. Private investors along with state, local and federal agencies in the U.S. should invest in aging roads, highways, bridges and tunnels designed to move much of the nation's commerce.

Several years ago the Waterfront Coalition adopted a policy to advocate for better goods movement infrastructure that moves maritime commerce. We quickly learned that inadequate infrastructure hundreds of miles from a U.S. blue water port results in cargo delays at a marine terminal. For example, rail bottlenecks in Chicago can result in on-dock rail service disruptions in the Port of L.A. Inadequate air draft of a bridge in New Jersey can result in lines of idling ships waiting to enter marine terminals in New Jersey during low tide. A holistic approach to identify all public and private pieces of the goods movement network must be adopted.

For this reason, the Waterfront Coalition supports the adoption of a national freight policy that identifies key pieces of infrastructure vital for the movement of commerce. This policy clearly defines needed investment in both public and private infrastructure to reduce transit times and promote the competitiveness of U.S. ports. Enhanced infrastructure could result in shortened land side transit times and better position U.S. ports to compete with Canadian ports for certain cargo. The Chicago CREATE project is a prime example of an appropriate goods movement project that can be funded through a mix of private and public funds to greatly reduce rail bottlenecks in Chicago rail yards. The project, when complete, could reduce freight transit times through Chicago by one to two days.

4. Impact of the Harbor Maintenance Tax

Imposing the U.S. Harbor Maintenance Tax (HMT) on freight discharged at a Canadian or Mexican port will not result in significant diversion of freight to U.S. ports. Our members moving import freight through a U.S. maritime gateway pay the Harbor Maintenance Tax of 0.125% of declared value. The HMT does not represent a significant tax burden to many of our members. Many of our members support the tax as a needed revenue mechanism to ensure that shipping channels are maintained to support commercial activity.

Applying the Harbor Maintenance Tax on U.S. bound cargo discharged at a Mexican and Canadian port represents an unfair imposition of a user fee and violates North American Free Trade Agreement and World Trade Organization treaty provisions. The HMT was established as a user fee to fund shipping channel maintenance and other maritime related projects. Applying the fee at the land border crossing violates the principle of a user fee.

The imposition of the tax on cross border freight may violate provisions of the North American Free Trade Agreement (NAFTA) and the General Agreement on Trade and Tariffs (GATT) enforced by the World trade Organization. Article VIII of the GATT prohibits the imposition of any fee on imports that is not specifically tied to the movement or processing of trade. In the past, the World Trade Organization has ruled that similar fees violate Article VIII and we understand that similar treaty requirements are included in the North American Free Trade Agreement.

Imposing the HMT on U.S. bound cargo discharged at a Mexican or Canadian port will not, in our view, result in much diversion of freight to U.S. ports. The primary motivating factor for shippers' routing cargo is speed to market not avoiding payment of the HMT. The imposition of such a tax will not result in an increase in cargo volumes for U.S. ports and could result in retaliatory trade tariffs imposed on U.S. exports to Mexican and Canada – one of our largest trading partners and a growing source of revenue for many U.S. ports.

Sincerely,

Robin Lanier
Executive Director



GLOBAL
CONTAINER
TERMINALS

Michael E. Moore
President and CEO

December 22, 2011

Karen V. Gregory
Secretary
Federal Maritime Commission
800 North Capitol Street, NW.
Washington, DC 20573–0001
By email: Secretary@fmc.gov

Dear Ms. Gregory:

RE: US. Containerized Cargo Flows – Response to NOI

Global Container Terminals (GCT) welcomes the opportunity to respond to the Notice of Inquiry (NOI) issued by the U.S. Federal Maritime Commission in November 2011. GCT is a leading container terminal operator with four established, strategic terminals in key global gateway ports on the west and east coasts of North America. With operations in both Canada and the United States, we support trade flows between our two countries and believe that this exercise commissioned by the FMC is counter-productive and counter-intuitive to the long-standing and mutually-beneficial relationship between Canada and the U.S.

GCT Global Container Terminals Inc. was established in 2007 as a wholly-owned subsidiary of the Ontario Teachers' Pension Plan, one of the largest financial institutions in Canada. The Company operates four container terminals through three principal businesses in North America:

- TSI Terminal Systems Inc. in Vancouver and Delta, British Columbia;
- New York Container Terminal on Staten Island, New York; and
- Global Terminal & Container Services in Bayonne, New Jersey.

GCT's terminals have long-term concessions with the Vancouver Fraser Port Authority and the Port Authority of New York and New Jersey. In Canada, GCT is the largest container terminal operator in the country, providing service for more than 75 percent of the containerized cargo that moves through Port Metro Vancouver. We are the largest employer in the Port of Vancouver with more than CAD$150 million in payroll annually.

In the United States, New York Container Terminal (NYCT) and Global Terminal combined are forecasted to handle 22 percent of the Port of New York and New Jersey's container volume this year. NYCT is the largest employer on Staten Island.

GCT's terminals enjoy stable, long-term relationships with the majority of the world's largest container shipping lines. These lines choose to do business at GCT's terminals because of our operational excellence, high level of customer service, and a commitment to continuous improvement through investment in new infrastructure and capacity enhancements to allow for future volume growth.

www.globalterminals.com
t 604.251.9200 f 604.915.9557
Suite 610 – 375 Water Street, Vancouver, BC V6B 5C6 Canada

Our customers also cite speed to market, reliability, and risk mitigation through supply chain diversification as important factors in choosing a North American gateway. Shippers often use multiple ports when getting their goods to market in order to reduce the risk caused by disruptions such as labour disputes, port congestion, and inclement weather. It is a shipper's fundamental business decision to choose the best supply chain for their enterprise.

We operate in a global, competitive marketplace and if certain interests in the U.S. are concerned about the competitive landscape, they should look to Canadian ports and policies as a model. As the head of the United States' largest container port, Port of Los Angeles Executive Director Geraldine Knatz stated in American Shipper on October 26, 2011 - "I think what the Canadians have done is a best practice that we can learn from. The way they came together and really unified the national and provincial governments to support port development is a best practice. So more power to them. They're doing a great job," she said.

Yours sincerely,



Michael E. Moore
President and Chief Executive Officer

/eh

PUBLIC VERSION - REDACTED

HANJIN SHIPPING CO., LTD.

80 ROUTE 4 EAST, SUITE 490, PARAMUS, NJ 07652 • TEL. (201) 291-4600 • FAX (201) 291-9393

2011 DEC 28 PM 22

OFFICE OF THE SECRETARY
FEDERAL MARITIME COMMISSION

December 19, 2011

Ms. Karen V. Gregory
Secretary
Federal Maritime Commission
800 North Capitol Street, NW
Washington, DC 20573-0001

Subject: Docket No. 11-19, *U.S. Containerized Cargo Flows – Response to NOI*

Dear Madam Secretary:

Hanjin Shipping Co. is submitting theses comments in response to the Federal Maritime Commission's Notice of Inquiry on factors that may cause or contribute to the shift of cargo destined for the U.S. inland from U.S. to Canadian and Mexican seaports.

The ability to choose from among a variety of North American ports is essential to the success of our company. As noted, while we import/export via U.S. seaport on all U.S. Coasts, we also use seaports in Canada and our ability to utilize these seaports for our U.S-destined/U.S.-originated cargo strengthens our ability to compete in the global marketplace.

With respect to Hanjin's utilization of Canadian seaports, we do so for a number of business reasons, including transit time, reliability, efficiency, risk management practices, etc. These same reasons apply when we decide to use U.S. seaports for our Canada-destined/Canada-originated cargo.

Thank you for the opportunity to comment on this important issue. Please include this letter in the public docket for this proceeding.

Sincerely,

Michael J. Radak
Senior Vice President
Hanjin Shipping Co., Ltd.

Before the Federal Maritime Commission

Comments in Response to the November 8, 2011 Notice of Inquiry Regarding U.S. Inland Containerized Cargo Moving Through Canadian and Mexican Seaports

Docket Number 11-19

Submitted by

FedEx Trade Networks Transport & Brokerage, Inc.

FedEx Trade Networks Transport & Brokerage, Inc (FedEx Trade Networks) hereby submits these comments in response to the Federal Maritime Commission's (FMC) notice of inquiry regarding the movement of U.S. originating or U.S. destined cargo through seaports in Canada or Mexico. FedEx Trade Networks is a freight forwarder and non-vessel operating common carrier (NVOCC) licensed by the FMC. The company provides transportation services worldwide. We submit these comments based on our long experience in the ocean transportation industry to assist the FMC in its inquiry.

The ocean transportation industry is highly competitive and service providers must meet their customers' needs for efficiency in terms of speed, reliability and cost both in terms of price and the expense posed by administrative burdens. In terms of those factors Canadian ports offer many advantages.

Many Canadian ports have a geographic advantage over their U.S. counterparts. For example, Prince Rupert is the closest port to China in North America. That proximity translates into shorter ocean transit times, which, in turn, allow ocean carriers to offer lower rates. Although cargo must then move by rail or truck to the U.S., our experience has been that the transit times are still shorter. We have found the transportation service through Canada to be reliable and price competitive. Some Canadian railroads have trains synchronized with ports reducing cargo dwell time. Cargo movement through Canada is often faster and cheaper so that the overall speed and cost compares favorably with similar moves from U.S. ports.

One factor that allows cargo to move through Canada with less expense is the additional costs and administrative burden placed on cargo transiting U.S. seaports. Ocean carriers who service Canadian ports have long pointed out to their customers the cost advantage of using a port where there is no Harbor Maintenance Fee (HMF). Local fees and administrative requirements imposed on the use of (?) U.S. ports such as Pier Pass and the Clean Truck Initiative further increase the cost of U.S. ocean cargo. NVOCC tariff filing is another administrative burden placed on NVOCCs who move cargo through U.S.

ports. Canada imposes no such requirement making it less costly in terms of the administrative burden for NVOCCs to route freight through Canada.

We believe that the natural, geographic advantages and efficient transportation system(s?) will always make the use of Canadian ports attractive. Shippers would benefit from the reduction of fees and administrative burdens associated with the use of U.S. ports while increasing competition and benefiting international trade.

BEFORE THE
FEDERAL MARITIME COMMISSION

Docket No. 11-19 – Notice of Inquiry

U.S. INLAND CONTAINERIZED CARGO MOVING THROUGH CANADIAN AND MEXICAN SEAPORTS

Joint Comments Submitted By World Shipping Council,
The National Industrial Transportation League, and National Retail Federation

The World Shipping Council,[1] The National Industrial Transportation League,[2] and the National Retail Federation[3] respectfully and jointly file these comments in response to the Notice of Inquiry published by the Commission on November 8, 2011. (76 Fed. Reg. 69271) This Notice of Inquiry appears to have begun as a result of an August 29, 2011 letter the Chairman received from the two U.S. Senators from Washington State requesting that the Commission "analyze the impact the federal Harbor Maintenance Tax (HMT) may have on the diversion of U.S.-bound cargo from U.S. ports to those in Canada or Mexico".[4] The letter characterized the HMT as resulting in an "unfair disparity" and "increased cargo diversion", stated that "it is imperative that we level the playing field", and requested the Commission to "conduct an analysis of the impacts and the extent to which the HMT and other factors impact container cargo diversion.…"

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[1] The World Shipping Council is a non-profit trade association of liner shipping companies with offices in Brussels and Washington, D.C. Its members operate approximately 90 percent of the global liner ship capacity, providing more than 400 regularly scheduled services linking the continents of the world. Collectively, these services transport about 60 percent of the value of global seaborne trade, or more than US$ 4 trillion worth of goods annually. For more information about the World Shipping Council, visit www.worldshipping.org .

[2] The League is one of the oldest national associations representing companies that ship goods and purchase transportation from carriers and other service providers in domestic and international commerce. The League has approximately 600 company members that range from some of the largest users of the nation's transportation system to smaller companies engaged in the shipment and receipt of goods. A substantial number of the League's members are U.S. importers and exporters that have a direct interest in the subject of this proceeding.

[3] As the world's largest retail trade association and the voice of retail worldwide, NRF represents retailers of all types and sizes, including chain restaurants and industry partners, from the United States and more than 45 countries abroad. Retailers operate more than 3.6 million U.S. establishments that support one in four U.S. jobs – 42 million working Americans. Contributing $2.5 trillion to annual GDP, retail is a daily barometer for the nation's economy. NRF's Retail Means Jobs campaign emphasizes the economic importance of retail and encourages policymakers to support a Jobs, Innovation and Consumer Value Agenda aimed at boosting economic growth and job creation.

[4] http://www.fmc.gov/assets/1/Page/TAX-110829-ChairmanRichardLidinskyFMC-HarborMaintenanceTax.pdf. A similar letter was subsequently sent to the Commission from other members of the Washington State Congressional delegation.

The Commission's Notice of Inquiry poses eight questions that invite comments on differences in laws, processes, procedures, infrastructure, costs or services that could be considered in comparing services involving Mexican, Canadian and U.S. ports, including inland transportation differences. The Commission's broad inquiry into these subjects is apparently intended to assist the agency in responding to the requests from Congressional representatives for recommended legislative and regulatory changes that may address their concerns with the HMT and other factors that may influence the selection of ports in Canada or Mexico over ports in the northwestern U.S.

We appreciate the Commission's inquiry and need to respond to those members of Congress who have raised these issues. However, we note at the outset that the HMT is a subject that falls within the statutory mandates and jurisdiction of other U.S. government agencies. Furthermore, given the political complexities associated with this issue, we respectfully believe that legislative or regulatory recommendations regarding the HMT are matters that would be best addressed by the Congress rather than the Commission.

The Commission's Notice also requested comments on other factors that may affect the selection of ports in the U.S. versus Canada or Mexico, as well as actions that the U.S. Government could take to improve the competitiveness of U.S. ports. Accordingly, these comments explain our views on the Harbor Maintenance Tax issue, which appears to be the instigating cause of this inquiry, and also address a number of other market-driven factors that play a major role in the routing of international shipments involving the U.S. trades.

I. The Harbor Maintenance Tax and Canada

The non-application of the U.S. harbor maintenance tax (HMT) to cargo that transits through Canadian ports is not a "loophole" in U.S. law, nor can one safely assume that U.S. destination cargo that arrives through a Canadian port has been "diverted" to that route by the potential application of the HMT to it if it arrived through a U.S. port.

We do not question the fact that the application or non-application of the HMT may be one of many factors in the total cost calculation of moving goods from origin to destination, but it is only one of many factors in the decision about how cargo may be routed. For example, the recent growth of Trans-Pacific services through Prince Rupert is also certainly due in substantial part to the transportation advantages of that service, especially the shorter ocean transit time from Asia, and the excellent rail connection and service from the railroad(s) providing service from that port into the U.S. Midwest.

Canada and the United States are very close politically, economically, and socially. But it would not be a realistic objective to expect or try to create tax equality between the specifics of these two sovereign governments' tax systems or to require identical approaches to how they finance port dredging. The systems are different.

Canadian ports do not have the advantage of tax exempt financing that is available to U.S. port authorities; tax exempt financing lowers the borrowing costs of U.S. ports, but this should not be a basis for Canada taking offense. A number of ports in Washington State can and do impose taxes on the citizens living in their community to support port operations; this is not an option available to Canadian ports, but this should not be a basis for Canada taking offense. U.S. ports have been given $2.5 billion in port security grants by the federal government to assist them in complying with the International Ship and Port Security Code and improve their security, whereas Canadian ports have not received the same financial support from the Canadian government. Such differences are a natural result of different governments' approaches to the issues and do not warrant recrimination or countervailing government responses.

Canadian ports are generally self-financing, meaning that they pay for their own harbor dredging from revenues derived from operations, including tenant leases, harbor dues, wharfage, etc. Canada thus finances its harbor dredging with a different system than the U.S., but that does not make it inappropriate or unfair. Commerce transiting through Canadian ports pays for the harbor dredging of those Canadian ports through revenues the ports derive from their tenants. It would be illogical to argue, as the above referenced August 29 letter to the Chairman appears to do, that commerce transiting through Canadian ports should also financially contribute to the cost of U.S. harbor dredging, or that its failure to do so somehow "adversely affects … the United States' capacity to handle international trade growth".

The principle of the current HMT is that U.S. import cargo arriving through any U.S. port should pay a *national* ad valorum tax to fund a *national* harbor maintenance trust fund from which U.S. Army Corps of Engineers receives revenue for maintenance dredging of *all* U.S. ports.[5] While this rationale has been the foundation of the law for many years, Puget Sound ports in Washington State have complained about the application of the HMT for decades.

The Port of Seattle's and Tacoma's real issue is not that Canada does not apply a comparable HMT, but that the U.S. does apply the HMT to U.S import cargo transiting all U.S. ports. Seattle and Tacoma are natural, deep water ports (similar to ports in British Columbia). They do not need significant maintenance dredging, yet cargo arriving through the ports must pay the HMT in order to fund the national Army Corps of Engineers harbor maintenance dredging program. The ports of Seattle and Tacoma presumably would prefer to have the Canadian system apply to them, whereby each port pays for its own dredging needs, rather than to have cargo arriving in Puget Sound help pay for dredging in other parts of the United States, such as New Orleans, Anchorage, Savannah and Oregon Inlet, for example. If this were the case, Seattle and Tacoma could pay for only their dredging costs just as Vancouver and Prince Rupert pay for only their dredging costs. Of course, if the U.S. were to adopt a system where each port must pay for its own maintenance dredging, a lot of U.S. ports would face substantial

[5] Because of the U.S. Supreme Court decision in *United States v. United States Shoe Corp.*, 523 U.S. 360 (1998), the HMT does not apply to U.S. export cargo.

economic challenges at best, and possible closure at worst. If certain deep water U.S. ports wish to argue that they do not operate on a "level playing field" because of the way the nations' ports' dredging is financed, it is because of the U.S. national harbor maintenance funding system, not the Canadian ports or Canadian policy.[6]

In considering this issue, however, one should clearly understand that ports do not pay a single cent into the Harbor Maintenance Trust Fund. This is not a situation where deep water West Coast ports pay more into a program than they get out of the program, because they don't pay at all. Importers who use vessel services that call in U.S. ports are the parties who pay into the Trust Fund. These importers pay one rate regardless of the port used. This does create a level playing field in the U.S. for U.S. ports. It also provides U.S. importers with the flexibility they need to shift cargo without penalty from one U.S. port to another.

While the "equities" of the HMT Trust Fund and disbursements may arguably vary by port, it is a national tax established by Congress, funding a national system, which has had sufficient national political support to remain unchanged for decades.

This complaint is reminiscent of the Port of Seattle's efforts in years past to seek Congressional change to U.S. cabotage laws as they apply to the carriage of passengers, because the Port felt that the cabotage laws put the Port of Seattle at a competitive disadvantage with respect to the Port of Vancouver, British Columbia in the competition for the cruise line business to Alaska. The issue in that case again was not Canadian law, but the competitive consequence of the application of U.S. law that the Port of Seattle felt was disadvantageous.

In the present case of the HMT, many U.S. ports and many elected representatives from those communities could be expected to strongly resist initiatives that undermine or threaten the current HMT or how U.S. harbor maintenance dredging is funded. For example, we could expect that ports like Anchorage, Baltimore, Philadelphia, Savannah, Stockton, Wilmington, and ports along the Mississippi or Columbia Rivers may have a different perspective on the issue from those deep water West Coast ports that do not need maintenance dredging. The views of the cargo interests who actually pay the HMT, and the ocean carriers who carry their cargo, should be of paramount interest and concern to the Commission, as well as to the ports which are attempting to retain and attract their business. Shippers, both importers and exporters represented by the organizations signatory to this letter, and ocean carriers, are concerned about any initiative which questions, as this investigation appears to do, the utility of continuing the currently available funding mechanism for maintaining our nation's many and diverse seaports.

[6] While a coalition called the U.S. West Coast Collaboration, comprised of the ports of Los Angeles, Long Beach, Oakland, Portland, Tacoma and Seattle, has at times indicated some level of support for reexamining the HMT, we also note that the Executive Director of the Port of Los Angeles has clearly stated that Canada has not engaged in any unfair or inappropriate practices (see American Shipper, October 26, 2011, "*Knatz: U.S. at fault for Canada diversion*"). We also note that there are many west coast ports that have not sought FMC inquiry into the HMT. Those ports would not remain commercially viable without regular maintenance dredging and substantial funding assistance, whether through the HMT or some other, as yet undefined mechanism.

One could reasonably conclude that Congress' exempting U.S. import cargo transiting through the deepwater U.S. West Coast ports from the HMT is politically unlikely. This does not make it appropriate to try to make Canada a culprit in this debate for not imposing an HMT of the same nature as the U.S. Congress has imposed on cargo arriving at U.S. ports.

Critiques of the HMT are long-standing and well known. Some complaints have merit. For example, the fact that Congress imposes the tax, places it in a "trust fund" for harbor maintenance dredging, and then either fails to spend monies for dredging or spends much of the "trust fund" revenues on other purposes is well known and arguably unfair.[7] Nevertheless, the HMT continues as a statutory structure that has had sufficient political support over the years that the Congress has not found sufficient support for alternative formulations. The many issues and political complexities of this funding regime and the trade-offs within it cannot be dismissed or minimized if one wants to consider an alternative HMT regime.

For example, some have suggested that, as a way to "equalize" the effect of the HMT application to U.S. import cargo that transits through a Canadian port, the Congress should impose a tax comparable to the HMT on U.S. import cargo that has transited a Canadian port when it enters the U.S. Such a measure could not be justified on the basis of paying for U.S. harbor dredging because such cargo has not transited a U.S. harbor. Such a tax would violate the GATT and at least the spirit of NAFTA and provoke an unjustifiable trade dispute with the United States' largest trading partner. Such a tax would invite retaliation from the Canadian government on goods moving from the United States to Canada, including Canadian import and export cargo that transits through U.S. ports. For all of these reasons, our organizations would be strongly opposed to such a proposal.

Moreover, notwithstanding the invitation in the Senators' August 29 letter for the FMC to "make legislative and regulatory recommendations to address" the HMT issue, we very respectfully submit that this issue and the nation's harbor dredging and funding policy are not subjects for the Federal Maritime Commission. Congress has given the agency no regulatory or subject matter jurisdiction over this set of issues and the agency has no real experience with the HMT's application or enforcement. It is a subject that cannot be analyzed by a simple comparison of how certain U.S. and Canadian ports pay for harbor maintenance dredging, but also how all U.S. ports' maintenance dredging needs are paid for. How the U.S. Army Corps of Engineers and the U.S. Congress address taxing and spending trade-offs between the Outer Banks of North Carolina and Puget Sound, or Los Angeles and New Orleans, or Savannah and Portland are matters for the Army Corps and the Congressional authorizing and appropriating committees, not the FMC. How transportation infrastructure is paid for or how highway projects connect seaports and intermodal facilities to the national highway system are issues for the Department of Transportation, the Congress, and the various states to address. How U.S.

[7] This repeated Congressional diversion of HMT revenues to non-harbor dredging uses also creates strong reasons to doubt whether any Congressional change to the current HMT regime would produce a more equitable or desirable outcome for ports or port users.

Customs and Border Protection and Canadian Customs coordinate and cooperate with respect to Customs and import cargo security matters is an issue for those agencies and the Executive Branch to address.[8]

II. Other Factors That Affect Port Selections For U.S. Destined Cargo

In addition to the HMT, the Commission has inquired as to other factors that may influence the routing of cargo destined to inland points in the United States and, in particular, the selection of U.S. west coast ports versus ports in Canada or Mexico. We note that the primary considerations affecting the ports used for cargo imported to the U.S. are market-driven; rather than specific government policies in the U.S., Canada or Mexico. The business requirements of U.S. importers for timely, efficient and cost-effective service that will satisfy their delivery requirements are paramount considerations, as is the carrier's desire to meet the needs of its customers. Thus, transit times, sailing frequencies, intermodal connections, and port congestion, among other commercial factors play an important role in the routing of U.S. in-bound cargo.

Further, as previously noted, the geographic advantage of Prince Rupert which allows for shorter transit times for cargo imported to the United States from Asia, as well as its excellent intermodal connections with rail carriers, are significant factors which may result in the selection of that Canadian port for shipments bound to U.S. interior points.

Experience also shows that port congestion and capacity constraints have caused cargo to shift from the U.S. west coast ports to alternatives in Canada or on the U.S. eastern seaboard. For example, the severe port congestion on the west coast that occurred in 2004-2005 caused importers to shift their cargo to Canada or move their goods through the Panama Canal to the east coast ports, in order to preserve transit times and meet their delivery requirements. The fundamental causes of the congestion problems were infrastructure constraints and poor planning during an economic boom when imports were soaring.[9] Thus, it was the market conditions and state of our nation's infrastructure that caused U.S. importers to find more efficient and lower cost alternatives to the west coast ports; rather than the HMT or other government policies. Although the west coast ports are not currently facing severe congestion, their operating costs, efficiencies in cargo handling, intermodal connections with railroads, and infrastructure remain important factors in routing decisions. Based on the substantial influence of market considerations on the routing of U.S. imports from Asia, it is unnecessary for the Commission to make legislative or regulatory recommendations to address these issues.

The Commission has also asked in this Notice of Inquiry how the U.S. government could improve the competitiveness of U.S. ports. There are many answers to this. The Congress could

[8] For example, we note the February 4, 2011 joint Declaration by President Obama and Prime Minister Harper of Canada, entitled, "Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness."

[9] *Facing up to Congestion factors on the US West Coast*, Transport International Online, http://www.itfglobal.org/transport-international/til9congestionfactors.cfm

stop diverting HMT Trust Fund dollars to non-harbor dredging purposes. The Congress could enact a long term surface transportation bill that better recognizes and better funds intermodal freight connectivity from seaports to the national highway system. The U.S. government could fund the channel deepening projects proposed by the ports of Charleston, Savannah, Jacksonville and others. The U.S. government could assist the Port of New York/New Jersey with raising the Bayonne Bridge. The government could speed up the seaport dredging and expansion permitting approval processes. The U.S. government could modernize and upgrade its aging inland waterway lock and dam system. We are confident that the port authorities around the country could provide many details on what they would like from the federal government to improve their capabilities and competiveness.

III. Conclusion

The subject of funding harbor dredging involves a complex mixture of demands and equities and financing options, but this is purely a political issue within the sole and exclusive legislative jurisdiction and competence of the Congress of the United States. Furthermore, there are a number of commercial and market considerations which influence the routing of U.S. imports. Accordingly, while we appreciate the Commission's good intentions in issuing this Notice of Inquiry, we respectfully submit that it should not offer specific legislative or regulatory recommendations since these are matters that are best addressed by the Congress or should be left to the workings of the marketplace.

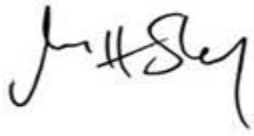
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Dated: December 21, 2011

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EXHIBIT 10

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VIA HAND DELIVERY

Karen V. Gregory, Secretary
Federal Maritime Commission
800 North Capitol Street, N.W.
Washington, D.C. 20573-0001

Docket No. 11-19
U.S. Inland Containerized Cargo
Moving Through Canadian and Mexican Seaports

Madam Secretary:

Submitted herewith for filing are the comments of Canadian National Railway Company to the Commission's Notice of Inquiry in the above-captioned docket.

Very truly yours,

Steven B. Chameides

SBC/bdli
Enclosure

FEDERAL MARITIME COMMISSION

DOCKET NO. 11 – 19

NOTICE OF INQUIRY

U.S. INLAND CONTAINERIZED CARGO MOVING THROUGH CANADIAN AND MEXICAN SEAPORTS

COMMENTS OF CANADIAN NATIONAL RAILWAY COMPANY

Canadian National Railway Company and its operating railway subsidiaries (CN) submits these comments in response to the Federal Maritime Commission's Notice of Inquiry (Docket No. 11 – 19), *U.S. Inland Containerized Cargo Moving Through Canadian and Mexican Seaports* (76 *Fed. Reg.*, 69271 - 72, Nov. 8, 2011). The Commission invited comments on several issues related to the choice of seaports for intermodal shipments of cargo bound for, or originating at, U.S. inland points. In particular, the Notice of Inquiry sought information regarding why Canadian ports might be favored by vessel-operating common carriers, ocean transportation intermediaries, and cargo owners as the transshipment point for cargoes destined for U.S. inland points.

As CN's comments demonstrate, there are a host of factors ocean carriers, distributors, and/or beneficial owners of cargo destined to inland U.S. points take into consideration when determining whether to transport traffic through a Canadian, rather than a U.S., gateway and, if a Canadian gateway is chosen, how then to route the inland move. By virtue of CN's close working relationships with its customers, including ocean carriers and those with cargo interests, and CN's continued efforts to promote cross-border traffic, CN has a unique perspective as to the interplay of those factors in the gateway selection process.

In particular, Canadian gateways have geographic advantages over U.S. ports that are manifested in shorter steaming times and faster turn-around for vessel common carriers. The coupling of favorable geography with highly efficient interchanges and rail links to U.S. inland points is, as detailed below, a key motivation for selection of a Canadian gateway.

In addition, CN considers relevant, and the comments below address, key aspects of the Canada/U.S. trading relationship and the importance of the smooth flow of legitimate cross-border commerce to the economies of both nations. The longstanding bilateral relationship both fosters, and is strengthened by, the interconnectivity that results from cross-border traffic. Moreover, inter-governmental cooperation and public/private initiatives have combined to create an effective and efficient security network for cargo arriving at U.S. inland points via Canadian seaports. Routing via a Canadian seaport thus in no way compromises vital security concerns important to all interests.

Background

CN is engaged in providing rail and related transportation services. CN's rail network comprises 20,500 route-miles and runs from the Atlantic to the Pacific Oceans across Canada and to the Gulf of Mexico in the United States. CN is the only railroad to offer rail connections to all three North American coasts. A map showing CN's North American rail network is attached as Exhibit 1.

As is evident from CN's route map, CN's rail network is particularly well aligned to serve cross-border traffic, particularly in the U.S. Midwest and other central U.S. regions. CN's revenue segments directly reflect the significance of cross-border trade: 28 percent of CN's 2010 revenues came from U.S./Canada trans-border traffic, 19 percent from U.S. domestic traffic, 22 percent from Canadian domestic traffic, and 31 percent from overseas traffic. Those

freight revenues were derived from seven commodity groups representing a diversified and balanced portfolio of goods transported between a wide range of origins and destinations.[1] CN's revenues in 2010 were about US$8.1 billion, with a rail industry leading operating ratio of 63.6 percent for the year.

Once a Crown Corporation, CN was privatized in 1995 in the *CN Commercialization Act*. In the years since privatization, CN has become one of the most efficient Class I railroad systems in North America, creating value for its customers by providing quality and cost-effective service. As a publicly-traded company, CN also is focused on creating shareholder value by striving for sustainable financial performance through profitable growth, adequate free cash flow, and a solid return on investment.

While a Crown Corporation, CN's operations focused primarily on Canada. CN has since become a North American railway, through its acquisition of several railroads in the U.S. and Canada. These include the Illinois Central Railroad in 1999, which extended CN's network to the Gulf of Mexico; the Wisconsin Central Ltd. in 2001, which secured a missing link for CN's North American connections from Chicago to Duluth and westward to the West Coast of Canada; the Great Lakes Transportation companies in 2004, which permitted new efficiencies in train operations north of Duluth, MN/Superior, WI and improved traffic flows in CN's NAFTA corridor between Winnipeg and Chicago, as well as brought to CN several vessels that operate on the Great Lakes, transporting iron ore and other bulk commodities[2]; BC Rail in 2004, which

[1] CN's traffic portfolio is divided among Intermodal (19 percent in 2010), Grain and Fertilizers (17 percent), Petroleum and Chemicals (16 percent), Forest Products (14 percent), Metals and Minerals (10 percent), Coal (7 percent), Automotive (6 percent), and Other Revenues (11 percent).

[2] In compliance with the Jones Act, CN does not operate these vessels, but has entered into long-term time charters of the vessels from subsidiaries of Keystone Shipping Company, a U.S. citizen responsible for the operation and control of these vessels.

expanded CN's capacity in British Columbia; and the Elgin, Joliet and Eastern Railway Company (EJ&E) in 2009, which connected for the first time CN's five existing rail lines entering Chicago from all directions into one seamless system and, once fully integrated, will allow CN to move trains from the congested downtown Chicago area onto the EJ&E line circling the city. The expansion of CN's North American footprint has enabled it to provide seamless service to customers across all business segments.

CN has a network of intermodal terminals, from which CN offers dedicated high-cube double-stack service with on-dock access to the ports of Vancouver and Prince Rupert, British Columbia; Montreal, Quebec; Halifax, Nova Scotia; Saint John, New Brunswick; and New Orleans, Louisiana. CN also provides near-dock service to the port of Mobile, Alabama. To complement these terminals, CN has a comprehensive network of logistics parks located in or adjacent to its intermodal rail yards and closely integrated with those rail yards. CN customers have access to key distribution services in Chicago, Memphis, Toronto, and Montreal.

CN's operations center around its *Precision Railroading* model, under which CN runs regularly scheduled trains that leave at predetermined times. Each car and container has a specific trip plan that fits into the design of the train schedule. This focus on the box or carload, rather than on the train, has had a strong influence on the development and improvement of CN production processes that affect delivery, including network fluidity and speed, train productivity, and the use of yards and terminals. The *Precision Railroading* model enables better asset utilization, reduced inventory and capital requirements for customers, and has enhanced competitiveness for both CN and its customers. CN's *Precision Railroading* model has also allowed CN to deliver on its commitment of operational and service excellence. This permits

CN to meet ultimate customer requirements through a strong focus on the first and last miles, on end-to-end service, and on supply chain collaboration.

CN is pursuing a range of productivity initiatives, including the deployment of Distributed Power technology across its locomotive fleet and the development of a Fuel Management Excellence program to reduce fuel consumption. CN is making significant capital investments across its network[3], including in the U.S. the reconstruction of Kirk Yard in Gary, Indiana and the consolidation of classification yards in Chicago.

Moreover, as part of CN's initiatives to improve service, a major effort to engage customers, ports, and other supply chain partners has led to a wide range of service and collaboration agreements. Such agreements are based on the development of key performance indicators that are shared and monitored on an ongoing basis across the supply chain and on the broadly recognized need for continuous improvement by all players.

CN is making specific efforts to improve service in the United States. For example, new rail connections are being built as part of CN's integration of the EJ&E to ensure reliable, seamless service across the central Chicago hub. Another example is CN's US$3.4 million investment in a new intermodal terminal in Chippewa Falls, WI. This CN investment will enable importers to have a greater ability to receive direct service of import containers from both the East and West Coasts as well as offer exporters in this region access to container capacity generated from these new imports. Importers and exporters in the greater Minneapolis/St. Paul area will also benefit from this new facility, which is located 85 miles to the east.

[3] CN invested US$1.67 billion in 2011 to maintain a safe and fluid railway network, to grow the business efficiently, and to continue to provide customers with a high level of service. From 2006 – 2010, CN spent almost US$7.9 billion on capital improvements.

In sum, CN has made and is making significant investments in Canada and the United States to strengthen its North American system, offering strongly competitive transportation alternatives in a highly competitive market. As a fully privatized company, CN's rates are neither subsidized nor set in any way other than in response to meet a competitive marketplace. CN seeks to price its services to reflect the many benefits associated with CN's global, end-to-end, high quality transportation network.[4] The value provided by CN cross-border services, plus the inherent geographic efficiencies in using Canadian gateways discussed below, are the key factors motivating the choice of a Canadian seaport when routing cargo bound for or originating at U.S. inland points.

The Canada/U.S. Trading Relationship and Bilateral Gateway Choice

Canada and the United States are each other's most important allies and enjoy a strong economic partnership. Bilateral trade and investment exceeded $1.1 trillion in 2010, and Canada is the largest export destination for 36 U.S. states.[5] Moreover, U.S. trade with Canada supports more than eight million jobs in the U.S.[6]

The longstanding economic relationship between the U.S. and Canada was strengthened as a result of two important trade agreements: (1) the 1989 Canada – U.S. Free Trade Agreement (FTA), which eliminated tariffs and reduced many non-tariff barriers; and (2) the 1994 North

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[4] A December 2011 analysis by Barclay's Capital, *Rail Cost Benchmarking: The CP Opportunity,* noted that, in the past decade, CN remained the most profitable North American rail carrier. It found that CN's revenue performance was generally in line with the other railroads, and that CN's profitability is due to greater network, labor, and asset efficiency. (at page 7)

[5] Fact Sheet: U.S.-Canada Beyond the Border and Regulatory Cooperation Council Initiatives, December 7, 2011. (www.whitehouse.gov)

[6] Laura M Baughman and Joseph Francois, U.S.-Canada Trade and U.S. State-Level Production and Employment: 2008, p. 1. (http://www.canada.international.gc.ca/washington/assets/pdfs/Jobs_Study_2008_FINAL-en.pdf.)

American Free Trade Agreement (NAFTA) between the United States, Canada, and Mexico, which created one of the world's largest free trade areas and has contributed to economic growth in the NAFTA countries.

Most recently, on December 7, 2011, President Obama and Prime Minister Harper announced the Beyond the Border Action Plan, which is aimed at further strengthening this bilateral relationship. The Action Plan provides the details of the new partnership between the United States and Canada built upon a perimeter approach to security and competitiveness. The Action Plan sets out joint priorities within four areas of cooperation: addressing threats early; trade facilitation, economic growth, and jobs; cross-border law enforcement; and critical infrastructure and cyber security.[7]

A core component of the U.S./Canada bilateral trading relationship is cross-border gateway traffic via *both* U.S. and Canadian ports. Although the Commission's inquiry focuses on U.S.-destined traffic entering North America via Canadian seaports the current reality is that the share of total *Canada-destined container imports* entering North America via *U.S. seaports* is much greater than the share of U.S.-destined cargo that enters North America via Canadian seaports.[8] This pattern of bilateral cross-border traffic reflects the reality of commercially driven shipping decisions and gateway choices made routinely by shippers, carriers, importers and exporters.

This same pattern applies with respect to (1) export flows, and (2) movement of bulk and other non-containerized imports. CN's internal estimates show that:

- over three million tons of Canadian potash are exported to Asia through Oregon;

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[7] *United States – Canada Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness, Action Plan,* December 2011, p. 1.
[8] *See* Official Comments of the Government of Canada, FMC Docket No. 11 – 19, December 22, 2011.

- over 750,000 tons of Canadian metal exports and imports (primarily steel products and aluminum) transit through the U.S.;
- over 500,000 tons of Canadian forest products (primarily wood pulp) are exported via U.S. East Coast ports; and
- over 500,000 tons of petroleum and chemical imports into Canada (primarily methanol) enter North America via U.S. ports.

Gateway choice for ocean carriers and their customers is instrumental to the success of the Canada/U.S. relationship, and to the success of the many businesses engaged in international trade and commerce.

Gateway and Transshipment Efficiencies at Canadian Seaports

CN transports import and export container traffic on behalf of ocean-carrier companies and by businesses that produce or distribute the cargo to be transported. Over the past two years, CN has established collaboration agreements with all major ports and intermodal terminal operators throughout Canada, driving new efficiencies in end-to-end supply chains. These agreements seek to minimize dwell times and increase velocity in and out of the ports. CN has developed mechanisms to measure and evaluate each stakeholder's performance against established transit times, dwell times, and other benchmarks, and the agreements establish clear and defined performance standards for CN and terminal operator partners.

Specifically, CN has reached the following agreements with West Coast ports in Canada.

- *Port Metro Vancouver (PMV)* – CN has supply-chain collaboration agreements with PMV and with TSI Terminal Systems Inc. (TSI), the largest container terminal operator in Canada. These agreements, signed in July 2010, are designed to release containers more quickly and enhance service to mutual customers. CN and DP World, operator of

the Centerm Terminal in Vancouver, also signed a comprehensive agreement in September 2010 to further boost supply-chain speed.

- *Port of Prince Rupert* – CN, the Prince Rupert Port Authority, and Maher Terminals signed an agreement in September 2010, setting specific targets and measures for continuous improvement in gateway performance.

These agreements with Canadian West Coast ports, combined with CN's 100-hour train service from the West Coast to Chicago, make CN's service offerings to the U.S. Midwest competitive with that from the U.S. West Coast ports.

Similarly, CN has reached the following agreements with East Coast ports in Canada.

- *Port of Montreal* – CN has collaborated with the Montreal Port Authority and the two companies that operate the port's three container terminals – Montreal Gateway Terminals Partnership and Termont Montreal – to create service agreements signed in February 2011 that establish key performance indicators to improve the fluidity of the gateway.
- *Port of Quebec* – CN, the Quebec Port Authority, and International-Matex Tank Terminals entered into a service arrangement in August 2010 that has reduced transit times for shipments destined to Toronto. The port and terminal operator have agreed to more consistent release times for shipments and CN has adjusted schedules to expedite the movement of traffic over its network between Quebec City and Toronto.
- *Port of Halifax* – CN and the Halifax Port Authority, Cerescorp Company Limited and Halterm Container Terminal Limited implemented an agreement in April 2010 to better measure and align each party's performance in the Halifax Gateway supply chain. This

agreement serves to augment the Halifax port's role as a gateway of choice on the East Coast to Ontario, Quebec, and potentially the U.S. Midwest markets.

These agreements with all major ports and terminal operators in Canada are creating faster and more reliable supply chains. They are generating positive responses from international shipping lines and their customers. They allow CN and its supply-chain partners to offer competitive alternatives from which to choose

CN has also worked with customers to maximize source loading of ocean carrier boxes. CN helps ocean carriers by reducing the inland empty movement for their assets. For ocean carriers, export opportunities alleviate the cost of shipping empty containers back to Asia and improve round-trip economics. For CN, maximizing source loading serves to release capacity for certain types of railcars and increase CN's business overall. Specifically, via CN's Domestic Repositioning Program (DRP), CN works with ocean carriers and shippers to encourage the use of overseas containers for backhaul moves of domestic or export traffic. The more effective use of these one-way boxes in the DRP program provides low-cost capacity to domestic and export shippers and reduces inland costs for ocean carriers. Through the DRP program, CN has increased its role in international import boxes, as it helps to improve ocean carriers' round-trip economics.

Other Geographic and Economic Advantages of Canadian Seaports

Canadian seaports have other advantages that make them attractive options for ocean carriers and CN's customers. To illustrate this point, greater detail on the Ports of Vancouver, Prince Rupert, Halifax, and Montreal is provided below.

Port of Vancouver. Port Metro Vancouver is Canada's largest and busiest port and is the fourth largest tonnage port in North America. The port has 28 major marine cargo terminals and

three Class I railroads (CN, CP, and BNSF Railway) provide service. Besides being the most diversified port in North America, its deep-sea terminals that offer virtually no draft restrictions make it particularly attractive to ocean carriers.

Service through Port Metro Vancouver via CN yields the following intermodal transit times to major North American cities:

- Toronto – 106 hours
- Montreal – 119 hours
- Detroit – 123 hours
- Chicago – 101 hours
- Memphis – 131 hours

Port of Prince Rupert. The Port of Prince Rupert is the closest port to Asia by up to 58 hours of sailing time compared to any other North American West Coast port. This translates into the ability for ocean carriers to add approximately one round-trip voyage per year per ship, boosting their utilization of costly fixed assets with no increase in crew costs. Prince Rupert also provides the deepest harbor in North America, is an ice-free harbor with no congestion, and is one of the safest West Coast port in terms of navigational risk factors. In addition to the high-capacity Port of Prince Rupert Container Terminal, which commenced operations in October 2007, there are two modern bulk handling terminals at the Port – Ridley Terminals and Rupert Grain – for handling grain, coal, sulphur, and iron ore.

Service through the Port of Prince Rupert on CN yields the following intermodal transit times to major North American cities:

- Chicago – 100 hours
- Memphis – 137 hours

- Detroit – 129 hours
- Montreal – 130 hours
- Toronto – 115 hours

These rail transit times, combined with shortened sailing time, yield a total transportation timetable for U.S. inland cargoes that compares favorably to routings through U.S. seaport gateways.

Port of Halifax. Similar to Prince Rupert, by virtue of geography the Port of Halifax is 1,500 nautical miles closer to India via the Suez Canal than any other North American West Coast port, and one full ocean sailing day closer to Southeast Asia than any other North American East Coast container port. Halifax also is the geographically closest major North American port to Europe, in close proximity to the Great Circle route, one full sailing day faster to Europe than other North American East Coast container ports. In addition, Halifax has sufficient capacity that ocean vessels do not experience berthing delays.

The Port of Halifax and CN rail give customers highly efficient ship-to-rail connection between ports in India, Southeast Asia, Europe, the Caribbean, and key North American consumer markets. CN's congestion-free main line enables CN to assure customers of the fastest, most efficient, competitively-priced on-time service possible, and cargo entering the Port of Halifax connects directly to CN's main line at the dock.

Service through the Port of Halifax onto CN yields the following intermodal transit times to major North American cities:

- Montreal – 33 hours
- Toronto – 46 hours
- Detroit – 89 hours

- Chicago – 74 hours
- Memphis – 94 hours

Port of Montreal. The Port of Montreal is located on the St. Lawrence River nearly 995 miles inland from the Atlantic Ocean and offers the shortest land route between major European and Mediterranean ports and major markets in Central Canada, the U.S. Midwest, and the U.S. Northeast. It is geographically the closest North American East Coast port to Chicago. Montreal thus is one of the busiest inland ports in the world and has become a key transfer point for trans-Atlantic cargo.

The Montreal Port Authority operates its own rail network at the port, with more than 60 miles of track serving nearly every berth. The port's railway network is linked directly to the yards of both CN and Canadian Pacific Railway, both of which have dockside rail access eliminating the need for intermediate transhipment. The port's facilities are also located close to a network of highways leading to major cities throughout North America.

Service through the Port of Montreal on CN yields the following intermodal transit times to major North American cities:

- Toronto – 19 hours
- Vancouver – 106 hours
- Detroit – 30 hours
- Chicago – 39 hours
- Memphis – 60 hours

It is also important to note that Canadian seaports are autonomous operating entities, operating at arm's length from the Canadian federal government. The major Canadian ports, known as Canada Port Authorities (CPAs), by law are required to be financially self-sufficient.

as they do not receive funding from the federal government to cover operating costs – including dredging expenses – or deficits.[9] CPAs also remit a gross revenue charge to the federal government each year and make annual payments to their local municipalities.

The Government of Canada has been focused on enhancing its competitiveness in the global trading arena. A major example is Canada's Asia-Pacific Gateway and Corridor Initiative, which is an integrated set of investment and policy measures with several aims, including reducing congestion and improving the flow of traffic and enhancing the efficiency and safety of the transportation system.

Contrary to assertions by some that the Canadian government's port investment policies are unfair, the funding provided by Canada's Asia-Pacific Gateway Corridor Initiative and other initiatives for strategic infrastructure projects (*i.e.*, principal road and rail connections to ports, key border crossings, and at major Canadian seaports) is actually quite similar to funding provided by the U.S. government to U.S. ports and to improve roads and rail lines that connect with the ports. For example, such funding has been made through the American Recovery and Reinvestment Act and Transportation Investment Generating Economic Recovery (TIGER) grants. Prior to that, the U.S. government provided major financial support to various freight rail corridor programs that dramatically enhanced the competitive position of U.S. Midwestern inland ports, a key example of which was the program to permit double-stack configured intermodal rail traffic from the U.S. Midwest to be routed through the Appalachians to Norfolk, Virginia.

[9] CPAs were established in the *Canada Marine Act*, S.C., 1998, c. 10. Since 2008, CPAs have been eligible to receive federal payments for the capital costs of infrastructure, environmental sustainability, and security.

Canadian Seaport and Canada/U.S. Border Security

The use of Canadian ports as gateways to North America has also been enhanced by close cooperation between the United States and Canada on border security issues. Safety and security are, of course, cornerstones of CN's operations. With a significant portion of CN's revenues generated by bilateral cross-border traffic, ensuring the smooth, yet secure, flow of commerce between Canada and the United States is critical to CN and its success in meeting customers' needs for timely and efficient delivery.

To those ends, CN has a longstanding working relationship with U.S. and Canadian Customs authorities on efforts to enhance cross-border security. Those efforts have increased substantially in the years since September 2001, with the governments of the United States and Canada actively engaged on a broad range of border security initiatives, embodied in the Smart Border Declaration and in subsequent programs. CN has been an active partner in U.S. and Canadian initiatives intended to enhance security, while ensuring the smooth flow of cross-border cargo.

Canada's seaports have likewise been active participants in U.S./Canada security initiatives.[10] U.S.-destined containers arriving at Canadian ocean ports are subject to the requirements of the Container Security Initiative (CSI) of U.S. Customs and Border Protection (CBP) of foreign port of lading, risk assessment of advance cargo manifest data prior to vessel

[10] The February 4, 2011 declaration by President Obama and Prime Minister Harper on *Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness*, recognized the strong economic relationship between the United States and Canada as well as the two countries' goal of pursuing a perimeter approach to security in ways that support economic competitiveness, job creation, and prosperity. The Beyond the Border Action Plan, announced by President Obama and Prime Minister Harper on December 7, 2011, includes developing an Integrated Cargo Security Strategy (ICSS), built on previous agreements and existing programs, which will reduce duplication and move security activities away from the Canada/U.S. border. The ICSS is aimed at identifying and resolving security and contraband concerns as early as possible in the supply chain or at the North American perimeter.

loading, and 100 percent radiation scanning and inspection at Canadian ports of arrival. Additionally, containers arriving at the Port of Prince Rupert benefit from inherent security that is afforded by the local geography and topography. The Port of Prince Rupert's remote location in rugged landscape provides a natural defense to intrusion, thereby mitigating associated risk. The U.S.-destined containers transit through some of Canada's most remote geographic areas, facilitating en-route shipment integrity.

Details of relevant key elements to security at Canadian seaports and rail movements are provided below. This summary will help provide the Commission with an appreciation of the considerable level of effort necessary to meet rigorous U.S. and Canadian security requirements, and how CN, Canadian ports, and U.S. and Canadian government agencies have worked collectively to meet those requirements while simultaneously ensuring the smooth, efficient transit of cargo.

Rail Overview. Container traffic originating overseas is subject to a comparable level of security and scrutiny at Canadian ocean ports as at U.S. ocean ports. The containers that then transit Canada by rail to U.S. destinations are subsequently subject to an additional layer of security before those containers enter the United States. Through agreements between CBP and Customs agencies in other countries, including the Canada Border Services Agency (CBSA) in Canada, a multi-tiered security process has evolved which pushes security risks further away from U.S. borders.

Both of the Canadian Class I railroads (CN and CP) participate in CBP's Customs - Trade Partnership Against Terrorism (C-TPAT) program, and CBSA's comparable Partners in Protection (PIP) program. CN was the first Class I railroad in North America to receive C-TPAT accreditation, and CN has made continued investments to ensure that the security of its

operations meets the C-TPAT criteria. In the early fall of 2011, CN's scheduled C-TPAT/PIP recertification, which included joint site visits by CBP and CBSA, was conducted at Prince Rupert, BC. CN partners with the terminal operator in Prince Rupert, Maher Terminals, which is also C-TPAT and PIP certified. CN likewise partners with its other port partners in Canada and the United States on security matters.

Intermodal container trains operate in double stack configuration for maximum efficiency and security. Containers are assigned to specific locations on intermodal rail cars through an automated process between rail carriers and ocean terminal operators. All rail cars and locomotives in North America are equipped with Radio Frequency Identification (RFID) tags that are read by scanners at rail station locations across the North American rail network. This process provides real time shipment tracking information that is also available to the Customs agencies. Similar to the air mode, rail carriers employ Rail Traffic Controllers who electronically monitor and control train movement throughout their respective rail systems and the RFID tracking technology is key to ensuring a safe and secure operation.

Train Crews. Train crew members are certified for the rail corridors in which they operate and are trained to operate safely and securely, which includes inspecting their trains at all crew change points and at interim station locations. As part of the rail C-TPAT commitment, CN crew members will report any risk or security issues that they identify to CN Police who will then take the required action to address any anomaly with the shipment or train, including interaction with other law enforcement and government agencies.

CN Police. CN, like other Class I railroads in North America, has its own fully certified police force. In addition to covering all aspects of rail safety and security, CN Police is an important participant in rail border security. CN Police is actively engaged in the Integrated

Border Enforcement Team (IBET) program which is a multi faceted law enforcement initiative that is composed of CBP, U.S. Immigration and Customs Enforcement, the U.S. Coast Guard, and CBSA. The IBET program also involves CN working closely with local, state, provincial and federal law enforcement agencies on both sides of the border. Through the IBET program and through direct interaction with local CBP and CBSA port directors, CN Police is able to significantly assist in mitigating any rail border security issues that may arise.

Multi-Tiered Security and Inspection. The multi-tiered security that is inherent to the in-transit movement of international containers through Canada has components overseas, in Canada and the United States. CBP, through its CSI program, pre-screens marine containers at 58 foreign ports of origin prior to the containers being loaded onto vessels for U.S. destinations. Through collaborative efforts with the Canadian government, the CSI and the Joint Targeting Initiative (JTI) programs, CBP can further request CBSA to inspect U.S.-destined containers at the Canadian ocean port of arrival.

When container vessels are en route from foreign ports to Canadian ocean ports, CBSA will target containers for inspection based upon advance electronic manifest data. This includes containers that are destined to the U.S., given that the same security concerns exist in Canada as in the United States. CBSA has an advance automated manifest program, parallel to that of the U.S., whereby manifest data must be transmitted by the ocean carrier to CBSA 24 hours prior to loading the container onto the vessel overseas. For U.S.-destined containers, CBSA shares all manifest data with CBP for pre-arrival review.

Marine containers arriving at Canadian ocean ports are subject to 100 percent radiation screening. Any anomalies detected in the radiation screening process are immediately addressed by CBSA, including for containers destined to the U.S. In addition, CBP will perform non-

intrusive inspections using mobile Vehicle and Cargo Inspection System (VACIS) type apparatus at levels consistent with CBP operations at U.S. ocean ports. Physical inspection of containerized cargo is also carried out at levels consistent with CBP ocean port operations.

Prior to trains arriving at the U.S. border, rail carriers must transmit electronic manifest data for each shipment aboard the train in time frames consistent with the U.S. Trade Act of 2002. The rail manifest data, which are derived from bill of lading data the rail carrier receives from its ocean carrier partner, are compared against the shared CBSA manifest data. Further, 100 percent of all rail shipments crossing the border into the U.S. on CN and Canadian Pacific Railway trains are VACIS scanned.[11] In fact, rail is the only mode subject to 100 percent VACIS screening. The advance manifest data received by CBP are compared to the VACIS images of each container that crosses the border into the U.S. and any resulting discrepancies or anomalies are addressed at the border.[12]

Border Infrastructure. CN has invested heavily in partnering with CBP on border security initiatives, including the development of significant border infrastructure to support the CBP container inspection process. The infrastructure, which includes inspection buildings, dedicated inspection tracks, and intermodal equipment, allows for fast, efficient, and safe access to containerized cargo by CBP officers. At the Ranier, MN port of arrival, for example, through which CN handles its highest volume of trans-border intermodal container movements, CN has

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[11] CN crosses the U.S./Canada border at seven crossing locations, with a total of roughly 45 trains per day operating northbound and southbound across the border. The largest operation is at its Port Huron, MI/Sarnia, ON crossing, at which CN operates nine trains per day in each direction, with CN's crossing at Ranier, MN its second largest operation, with eight trains crossing the border daily in each direction.

[12] CN also complies with the requirements of the Bioterrorism Preparedness and Response Act of 2002, which requires advance notification to the Food and Drug Administration of food that is imported or offered for import into the United States. CN also is subject to U.S. Department of Agriculture agricultural inspections of cargo imported into the United States.

recently invested over $6 million to develop and implement a new container lift operation. This new operation facilitates CBP inspections and greatly reduces container dwell time while improving overall border gateway throughput. Containers targeted by CBP for inspection are removed from intermodal trains without disrupting train operation. This is the only rail intermodal customs inspection process of its kind in North America. In addition, CN has personnel at its border crossing locations on a 24/7 basis to assist CBP in the inspection process.

Conclusions

As detailed in the foregoing comments, cross-border gateway traffic is of vital importance to businesses in both Canada and the U.S., and cargo movements in both directions are a longstanding and prevalent reality. Furthermore, the transportation market for international container traffic is highly competitive, and the variables underlying the choices to move that traffic through a U.S., Canadian, or Mexican gateway are numerous, complex, and constantly changing.[13]

CN's experience with ocean carriers and cargo interests consistently shows that high-quality, competitive, and the often single-line service CN provides to U.S. destinations, combined with the risk mitigation (with respect to factors such as weather, labor disputes, or other port service disruptions) that utilizing multiple gateways offers, far outweigh the impact, if any, of the U.S. Harbor Maintenance Tax in the gateway selection process. The choice of Canadian gateways for U.S. inland cargo, as with the choice of U.S. gateways for Canadian

[13] A recent example of the continuous exploration to improve international intermodal service is the current effort to create the Great Lakes Global Freight Gateway in Detroit, MI as a major inland port by establishing a rail link with the Port of Halifax. Halifax and the Port of Newport News, VA are the only two East Coast ports with water sufficiently deep to handle the "Ultra Post-Panamax" container vessels that will commence service in 2014. (*Bridge Magazine*, December 15, 2011.)

inland cargo, are the natural results of sound business decisions by the entities involved in the global marketplace.

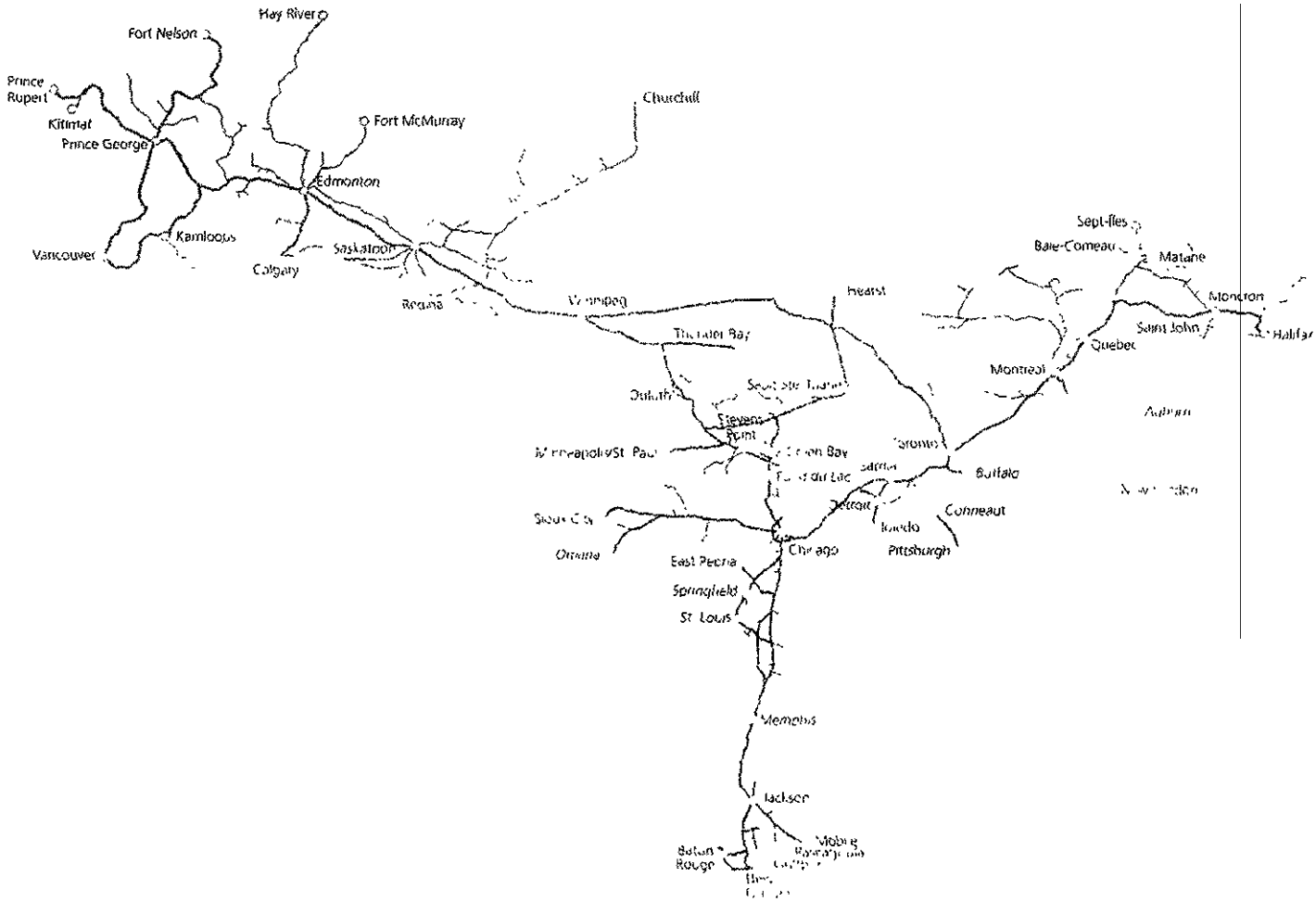
Respectfully submitted,

Canadian National Railway Company

935 de La Gauchetière Street West
Montréal, QC H3B 2M9 CANADA

EXHIBIT 1

CN system map



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EXHIBIT 11

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Traceability
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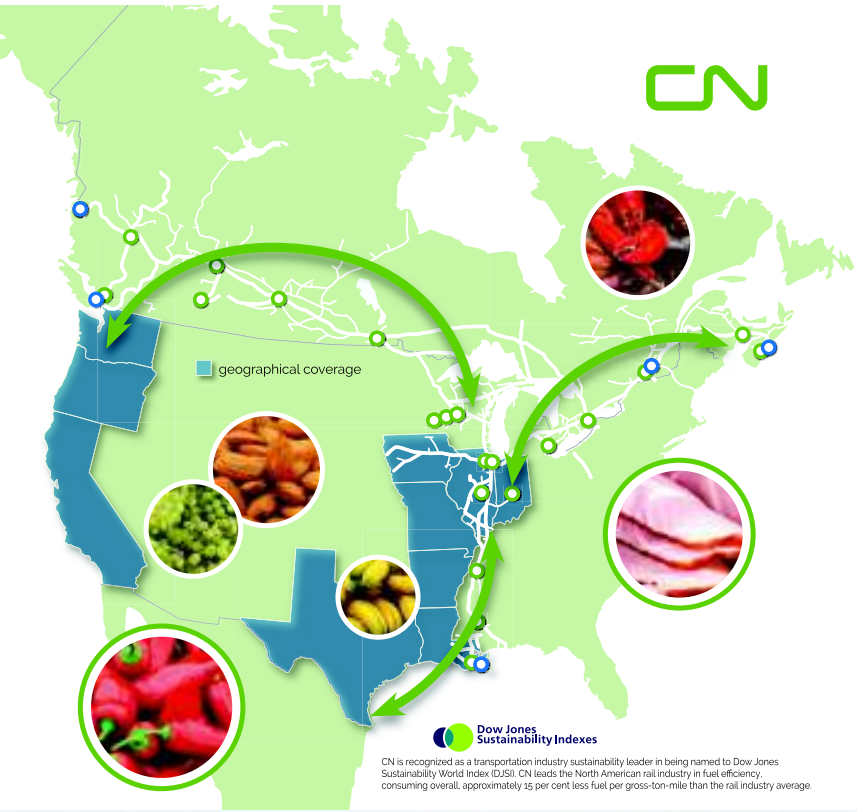
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- Consistent inventory replenishment



TRANSBORDER TRANSIT TIMES

from:	to Ontario	to Quebec
CALIFORNIA	168 HRS	192 HRS
OREGON	168 HRS	192 HRS
WASHINGTON	144 HRS	168 HRS
TEXAS (Laredo)	260 HRS	272 HRS
MEXICO	275 HRS	287 HRS

DOMESTIC U.S. TRANSIT TIMES

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- Stable predictable year-round pricing
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- Fuel efficient
- Customs brokerage services providing seamless border transitions

EXHIBIT 12

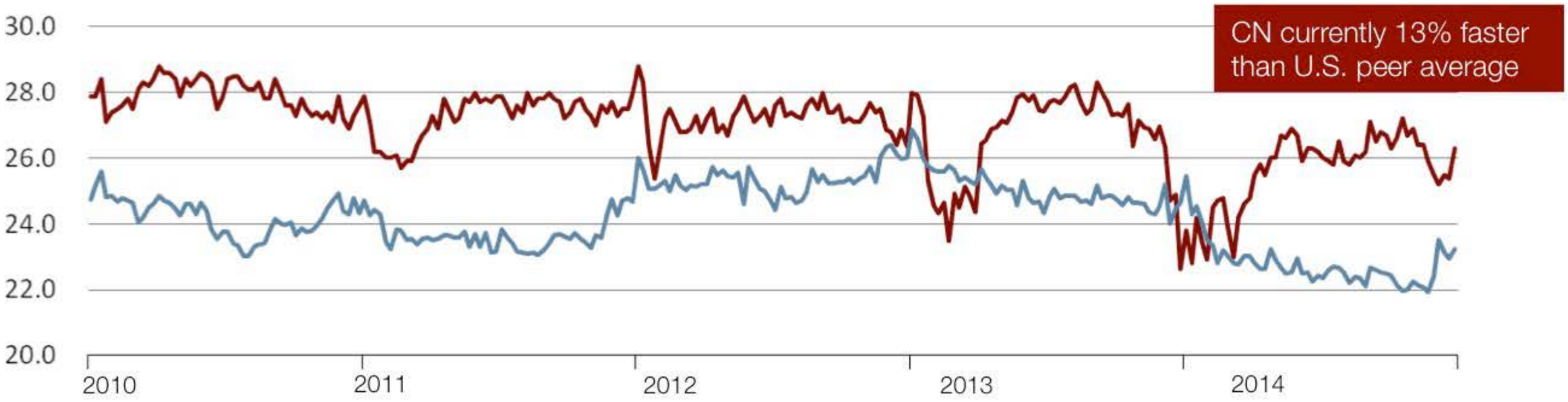
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Investments Delivering Planned Growth

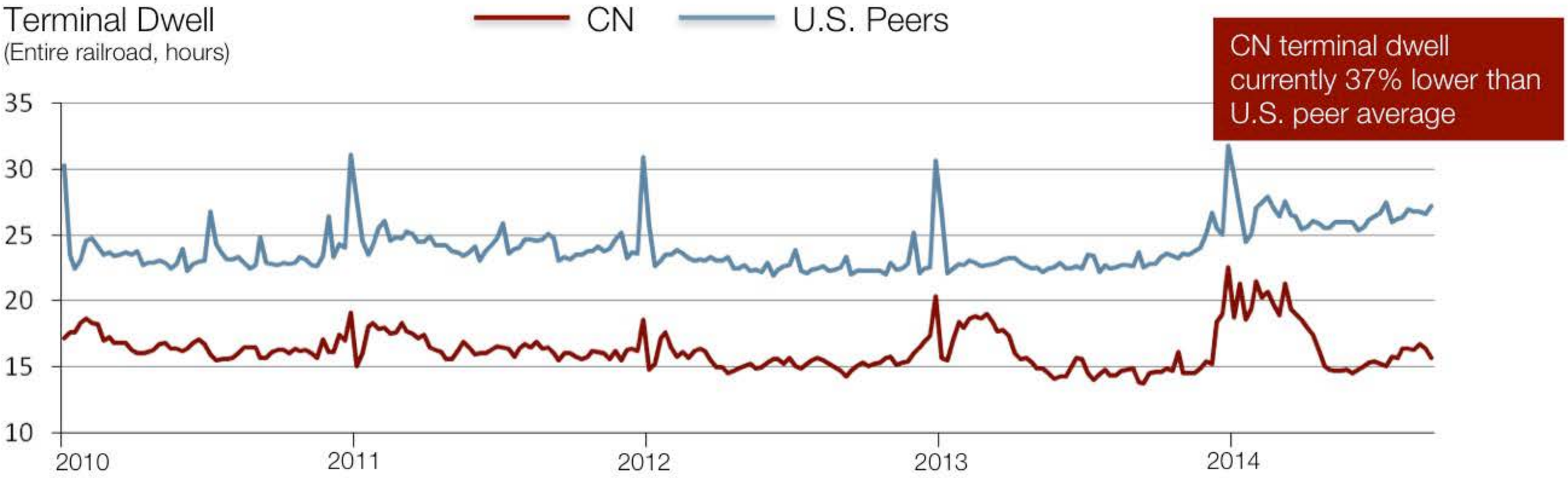


Industry Leading Network Productivity

Train Velocity
(mph)



Terminal Dwell
(Entire railroad, hours)



Source: AAR – 2014 data up to week ending December 26th
U.S Peers include BNSF, UP, CSX, NS, KCS

The Fastest Rail Route In & Around Chicago



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EXHIBIT 13

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

JOINT VERIFIED STATEMENT OF MICHAEL BARANOWSKI AND BENTON FISHER

I. Introduction

We are Michael R. Baranowski and Benton V. Fisher. We are Senior Managing Directors in FTI Consulting's Network Industries Strategies practice with offices at 1101 K Street NW, Washington, DC 20005. Statements of our qualifications are set forth in Exhibits FTI-1 and FTI-2, respectively.

We have been asked by CN to quantify the hours of delay to CN's freight trains that are attributable to Amtrak, based on records from CN's Service, Reliability & Strategy ("SRS") database, and to calculate the costs to CN associated with those delays – costs that would not be incurred but for the presence of Amtrak. As discussed below, our quantification does not include all delays to CN's freight trains caused by Amtrak because the SRS data do not capture all such delays. In addition, our calculation of CN losses due to Amtrak delays is limited to additional direct operating and equipment ownership costs. It does not include significant opportunity costs, added operating inefficiencies and resulting costs, or lost revenues that may arise from lost freight capacity and deterioration of the quality of freight service.

II. Identifying Amtrak-Related Delays and Allocating Amtrak-Responsible Delay Minutes based on CN's SRS Delay Records

A. Introduction

The starting point for our analysis was CN's SRS database. A detailed description of that database, including its contents, and how it is built and maintained, is provided in the verified statement of John Summerfield, Gregg Girard, and Anne Morehouse ("VS Summerfield, *et al*."). We will not repeat that discussion except as it directly relates to our analysis.

CN provided FTI with records from four different tables in its SRS database: [redacted][1]

[redacted] Records we analyzed were for the period August 1, 2013 through January 31, 2015 (the "Analysis Period"). We received from CN [redacted] Records related to those CN subdivisions on which Amtrak operates and the subdivisions which connect to those subdivisions. This geographic reach was intended to be sufficient to cover trains on CN's subdivisions that might have been delayed directly by Amtrak. [redacted]

[1] [redacted]

[redacted]

In total, for the Analysis Period we identified 19,346 separate instances of delay, representing a total of 625,020 minutes of delay to CN's freight trains – or more than 10,000 hours – that would not have occurred "but for" Amtrak.[2] This section of the verified statement describes the process we used to identify the delays attributable to Amtrak, and our methodology for allocating minutes of delay when Amtrak was responsible for only a portion of a delay.

Before providing our explanation it is important to note, as explained in VS Summerfield, *et al*., that the SRS database does not document all delays experienced by CN's trains. [redacted] Our quantification of delays to CN's freight trains due to Amtrak and their related costs are in this respect understated.

[redacted][3] [redacted]

[2] *See* FTI Workpaper "Amtrak_Delays_Final.xlsx," tab "Summary."

[3] [redacted]

[redacted]

[redacted][4] [redacted]

[redacted]

[redacted]

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[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted][14] [redacted]

In order to allocate delay responsibility among Amtrak and the other reported sources for these records, we reviewed and considered the information reported [redacted]. In instances where the delay was attributable to multiple trains, we allocated minutes of delay based on the total number of listed trains. [redacted][15]

13 [redacted]

14 [redacted]

15 [redacted]

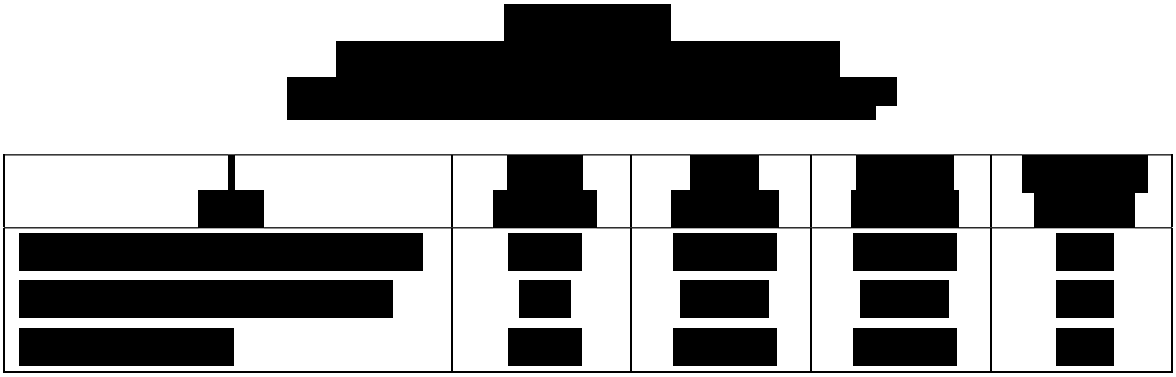
[redacted][16] [redacted][17] [redacted]

[redacted]

[redacted]

[16] [redacted]

[17] [redacted]



D. Summary

In total, our analysis identified 19,346 delays and 625,020 delay minutes (10,417 hours) to CN's freight trains that were caused by Amtrak from August 2013 through January 2015. Table FTI-4 below summarizes these results, and also presents the average delay time for each type of record.

Table FTI-4
CN SRS Records of Delays to Freight Trains Attributable to Amtrak, August 2013-January 2015[19]

Type	Delay Records	Total Delay Minutes	Amtrak Caused Delay Minutes	Total Minutes Per Delay Event	Amtrak Caused Delay Minutes Per Delay Event
Total Amtrak-Related Delays	**19,346**	**814,669**	**625,020**	**42**	**32**

In addition, we were asked by CN to analyze Amtrak-related delays to four particular CN freight trains. Our analysis indicates that train A4979 experienced a total of 672 Amtrak-related

[18] *See* FTI Workpaper "Non_FP_AO_Delays_Records.xlsx," tab "Non_FP_AO_Prorates."

[19] *See* FTI Workpaper "Amtrak_Delays_Final.xlsx," tab "Summary."

delays, amounting to 24,769 minutes (412.8 hours) of Amtrak-related delay during the Analysis Period (August 2013 through January 2015). The Amtrak-related delays accounted for approximately 14.5% of the total delay this train experienced during the Analysis Period.

Train M3347 experienced a total of 282 Amtrak-related delays, amounting to 9,039 minutes (150.7 hours) of Amtrak related delay during the Analysis Period. The Amtrak-related delays accounted for approximately 7.6% of the total delay this train experienced during the Analysis Period.[20]

Also, there were a total of 86 days during the Analysis Period on which train Q1949 experienced a total of 60 or more minutes of delay attributable to Amtrak, and a total of 212 days on which train Q1957 experienced a total of 60 or more minutes of delay attributable to Amtrak. Each of those Q trains also had numerous trips with delays less than 60 minutes attributable to Amtrak. In all, train Q1949 experienced 287 hours, and train Q1957 experienced 472 hours, of delay attributable to Amtrak.[21]

III. Estimating CN's Direct Costs Due to Delays Caused to CN's Trains by Amtrak

Train delays caused by Amtrak lead directly to increased costs for train crews, fuel, and equipment, including locomotives and freight cars. In the following sections, we explain how we developed the additional costs related to these items.

[20] *See* FTI Workpaper "A497_M334_Delays.xlsx."

[21] *See* FTI Workpaper "Amtrak_Delays_Final.xlsx," tab "Q914_Q915_Delays."

A. Additional Train Crew Costs

When CN's freight trains are delayed, additional train crew hours are required to operate those trains.[22] The substantial delays caused by Amtrak prevent CN train crew personnel from performing other required duties and therefore require CN to retain more train and engine crew personnel than would otherwise be required to meet its customers' demand. There are three major cost components that must be accounted for to fully capture the costs of additional train crew personnel: (1) direct wages, (2) the cost of constructive allowances (*e.g.*, vacation, training, etc.), and (3) fringe benefits.[23]

1. *Direct Wages*

In order to quantify the direct labor costs that CN incurs due to delays caused by Amtrak, we first developed CN's average hourly crew-wage expense for transportation personnel using CN's 2013-2015 Wage Form A&B reports submitted to the Board.[24] Table FTI-5 below summarizes CN's reported direct wage expenses for the period from Third Quarter 2013 through First Quarter 2015.

[22] Additional crew costs to CN can be especially great when delays result in CN train crews reaching their federal Hours of Service limit, requiring CN to call a second (relief crew) in order to continue operations. Given the complexity of determining these additional crew costs, however, we have not attempted to include them in our analysis. Our estimates of crew expenses associated with Amtrak delays to freight trains are therefore understated in this respect.

[23] Although delays caused by Amtrak result in CN having to incur costs for additional train and engine personnel, we have calculated unit costs at the hourly level, consistent with our assignment of CN train delay hours to Amtrak.

[24] Available at http://www.stb.dot.gov/econdata.nsf/QuarterlyWageABData?OpenView.

Table FTI-5
CN Direct Wage Expense for Transportation Personnel, 2013 Q3-2015 Q1[25]

Period	Straight Time ($000k)	Overtime ($000k)	Total ($000k)	Total Hours	Direct Wage per Hour
2013, Q3-Q4	$87,445	$14,816	$102,261	2,606,179	$39.24
2014, Full Year	$186,707	$37,953	$224,660	5,464,297	$41.11
2015, Q1	$52,284	$9,867	$62,151	1,439,228	$43.18

CN's average direct compensation expense per train crew member ranged from $39.24-43.18 per hour during the Analysis Period. We applied these expenses to the corresponding delay time attributable to Amtrak for each period (developed using the methodology discussed in the prior section), and multiplied by two crew members for CN's freight trains.[26] This results in a direct wage cost to CN of $850,685 for delays caused by Amtrak during the Analysis Period.

2. *Constructive Allowance: Vacation, Training, and other Non-Train-Related Compensation*

In addition to the time crews are actually operating trains, crew members must be paid for time spent on various activities apart from operating trains (*e.g.*, vacation, safety, training, and other leave).[27] CN's 2013-2015 Wage Form A&B reports submitted to the Board indicate that payments related to such other activities increased the total compensation paid to transportation personnel by 22.6-23.1% during the Analysis Period, as summarized in Table FTI-6 below.[28]

[25] *See* FTI Workpaper "CN Delay Cost Summary.xlsx," tab "CN Reported Costs."

[26] CN's road haul trains each have 2-person crews. *See* Verified Statement of Anne Morehouse at 18.

[27] [redacted]

[28] http://www.stb.dot.gov/econdata.nsf/QuarterlyWageABData?OpenView

Table FTI-6
CN Constructive Allowances for Transportation Personnel, 2013 Q3-2015 Q1[29]

Period	Straight Time and Overtime ($000k)	Constructive Allowance (Vacation, Training, etc.) ($000k)	Constructive Allowance % of Total Direct Wages
2013, Q3-Q4	$102,261	$23,268	22.8%
2014, Full Year	$224,660	$51,975	23.1%
2015, Q1	$62,151	$14,061	22.6%

Thus, in order to account for the full-wage expense associated with Amtrak delays, the direct-wage expense calculated above must be increased by 22.6-23.1%. Applying the corresponding factor to the direct-wage expenses for each period indicates that CN incurred additional costs of $195,785 during the Analysis Period.

3. *Fringe Benefits*

In addition to wages and constructive allowances for train crews, CN also incurs additional fringe-benefit costs when freight trains are delayed by Amtrak.[30] As summarized in Table FTI-7 below, based on CN's 2013 and 2014 R-1 annual reports submitted to the Board,[31]

[29] *See* FTI Workpaper "CN Delay Cost Summary.xlsx," tab "CN Reported Costs."

[30] [redacted]

[31] We use the R-1 reports because the Wage Form A&B reports do not identify fringe-benefit costs. The R-1 reports used in our analysis are available on the STB's website at http://www.stb.dot.gov/econdata.nsf/f039526076cc0f8e8525660b006870c9?OpenView.

CN incurs 36.0-39.5 cents of fringe-benefit costs for every dollar of compensation paid to train operating personnel.[32]

Table FTI-7
CN Fringe-Benefit Ratio for Train Operating Personnel, 2013-2014[33]

Period	Total Salary and Wage Expense ($000k)	Fringe Benefit Expense ($000k)	Fringe Benefit % of Total Salary and Wages
2013	$228,330	$90,196	39.5%
2014	$270,918	$97,435	36.0%
2013-2014	**$499,248**	**$187,631**	**37.6%**

Accordingly, in order to account for all of the additional train crew costs incurred by CN as a result of Amtrak delays, the base wage and constructive allowance costs calculated above must be increased by 36.0-39.5%. Applying the corresponding factor to the compensation cost that CN incurred during the Analysis Period as a result of delays to its freight trains attributable to Amtrak for each period produces an additional cost of $385,611.

4. *Summary*

In summary, we determined that CN's train-crew costs due to Amtrak delays to CN's freight trains captured by SRS during the Analysis Period were **$1,432,081**.

B. Additional Fuel Costs

Amtrak's delays to CN's trains also increase CN's locomotive fuel costs. Fuel is burned at different rates during different locomotive activities. In particular, fuel is burned at a

[32] As CN's 2015 R-1 annual report will not be available until April 2016, we applied the 2013-2014 average fringe-benefit ratio of 37.6% to estimate the First Quarter 2015 wage compensation cost.

[33] *See* FTI Workpaper "CN Delay Cost Summary.xlsx," tab "CN Reported Costs"

generally higher rate by a locomotive when a train must add an extra stop (and thus re-accelerate to speed) rather than run at a continuous speed or simply run in idle at a stop. Thus, in order to properly quantify the incremental amount of fuel consumed due to delays caused by Amtrak, we reviewed the individual delays attributable to Amtrak and determined which delays appeared to require an added train stop that would not have occurred but for Amtrak. Using that number of unscheduled stops, we then calculated the incremental number of gallons of fuel consumed for starting, stopping, and idling. We describe this methodology in more detail in the following sections.

1. *Fuel Consumption associated with Train Stops Caused by Amtrak*

When a CN freight train is delayed more than 15 minutes and was not already stopped or otherwise required to stop, we learned from Anne Morehouse[34] that the train would very likely have to add a stop, sit idle for some time, and then re-start when it was cleared to run.[35] In this scenario, there is an incremental fuel burn and cost due to the required additional stop, re-start, and added idle time that would not have occurred but for the presence of Amtrak.

In order to identify added stops caused by Amtrak delays, we began with the set of Delay Records reflecting delays attributable to Amtrak that were 15 minutes or longer in duration. We then examined the detailed records from the Train History Table that CN provided ("Train History Records") to identify and eliminate Delay Records in which the Amtrak delay occurred at a location where the freight train was previously scheduled to stop (*i.e.*, a stop that would have occurred regardless of further delay by Amtrak).[36] For example, the Delay Records show that

[34] As indicated above, Ms. Morehouse is a Superintendent of CN's ROC.

[35] *See* Verified Statement of Anne Morehouse at Section III.

[36] *See* FTI Workpapers "Additional_Fuel.sql," lines 162-297 and "Fuel_Costs_From_Delays.xlsx," tab "Addition_Fuel_Amtrak," columns X-AD.

CN's freight trains may be delayed by Amtrak at locations where a crew change occurs, where cars are picked up or set out, or where the freight train originates. We assumed that if the delay occurred at a location matching any of these events, then no extra stop is attributable to Amtrak. Next, for the set of unscheduled stops for which Delay Records indicate that Amtrak was one of two or more causes, we allocated to Amtrak a pro rata share of the stop. This step used the same allocation principle that is discussed in Section II.C., above.

Because locomotive fuel consumption is dependent on many variables, CN conducted a special study that estimated the incremental fuel burn of an additional stop and re-start event for various train types and sizes.[37] In order to determine the train types and sizes for the CN study, we first pulled the CN Train History records for the trains that incurred stops due to delays caused by Amtrak. We grouped those records by corridor (either Chicago to New Orleans or Michigan), train type (*e.g.*, manifest, intermodal, unit), and number of locomotives, and calculated the average train trailing weight and length and average locomotive horsepower ("HP"). Certain combinations of train type and locomotive-consist size – *e.g.*, manifest trains on the Chicago-New Orleans corridor with two locomotives – represented a sufficiently large number of stops that we further divided that grouping into smaller subgroups, based on the train's trailing tonnage.[38] The groupings and corresponding averages for all CN freight trains making unscheduled stops due to delays caused by Amtrak are shown in our workpapers.[39] The following Table FTI-8 provides an example of our subdivision of a particularly large grouping of one combination of train.

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[37] This fuel burn analysis is explained in greater detail in the verified statement of Joe Bekavac, CN's Director, System Network Operations.

[38] In the case of unit trains, we developed separate statistics for loaded and empty trains.

[39] *See* FTI Workpaper "CN Train Parameters for Stops.xlsx," tab "Fuel_Study_Groupings."

Table FTI-8
Example of Train Parameters Used to Estimate Fuel Consumption for Unscheduled Freight Train Stops due to Amtrak Delays: CN Manifest Trains with Two Locomotives on the Chicago-New Orleans Corridor[40]

Trailing Tonnage Range, by Quartile	Stops Attributed to Amtrak	Average Trailing Tonnage	Average Train Length (feet)	Average Locomotive HP
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

We provided Mr. Bekavac 28 different configurations of CN freight trains for his study, which were directly associated with 93% of CN's freight train stop events that were due to delays caused by Amtrak.[41] His analysis shows that incremental fuel consumption associated with stopping and re-starting ranged from 0.2 to 49 gallons, based on the type and size of the train and the number of locomotives. His analysis also shows that these unscheduled fuel stops required an extra 3 to 8.6 minutes for the deceleration and re-acceleration, varying by train type and size and the number of locomotives,[42] and his estimate for fuel consumption took this deceleration and re-acceleration into account. For each individual freight-train stop due to Amtrak that was identified from the Delay Records, we accounted for the additional gallons and

[40] *See* FTI Workpaper "CN Train Parameters for Stops.xlsx," tab "Fuel_Study_Groupings_Example."

[41] *See* FTI Workpaper "CN Train Parameters for Stops.xlsx," tab "Fuel_Study_Groupings." For the remaining 7% of stops that were not explicitly modeled, we used the average fuel consumption associated with stops for trains with the same number of locomotives. *See* FTI Workpaper "Additional_Fuel.sql," lines 341-373.

[42] *See* FTI Workpaper "CN Train Parameters for StopsV7(wResults) - 9h35 25 June2015.xlsx," tab "Final Results - Summary."

time corresponding to the specific train type, train size, locomotive configuration, and corridor, as calculated by CN's Fuel Study.[43] The results are summarized in Table FTI-9, below.

Table FTI-9
Unscheduled Freight Train Stops due to Amtrak Delays, Aug 2013-Jan 2015[44]

Duration of Delay	Amtrak Delay Records	Total Unscheduled Stops	Stops Attributed to Amtrak	Running Gallons Attributed to Amtrak
Delays <= 15 Minutes	1,593	0	0	0
Delays >15 Minutes	17,753	12,745	8,846	158,670
All Delays	**19,346**	**12,745**	**8,846**	**158,670**

2. *Fuel Consumption from Additional Idling for Trains with an Additional Stop Caused by Amtrak*

The above analysis of incremental fuel consumption accounts only for the fuel consumption required for the train to come to a full stop and then reaccelerate to track speed. It does not account for additional fuel consumption while the train was idling between the train's stop and restart. We therefore estimated the fuel consumed by this additional idle time.

Limiting our analysis to delays we determined involved an added stop and restart due to an Amtrak delay,[45] we assumed that delay time in excess of the time required for the stop and restart of the train (*i.e.*, time in excess of the 3 to 8.6 minutes accounted for in the analysis immediately above) represents additional idle time. On average, idling locomotives consume

[43] *See* FTI Workpapers "Additional_Fuel.sql," lines 328-339 and "Fuel_Costs_From_Delays.xlsx," tab "Addition_Fuel_Amtrak," columns AE-AG.

[44] *See* FTI Workpaper "Fuel_Costs_From_Delays.xlsx," tab "Summary."

[45] We assumed there was no incremental fuel consumption at all for trains delayed 15 minutes or less.

fuel at the rate of approximately 4.0 gallons per hour per locomotive.[46] For each Amtrak delay within the limited scope of this idling analysis, we multiplied this fuel consumption rate by the number of locomotives on the freight train delayed by Amtrak (determined from the Train History Records) and then by idling time.[47] As above, where Amtrak was responsible for only a portion of the delay, we allocated only a portion of the idle time to Amtrak. This analysis indicates that locomotive idling due to Amtrak delays consumed an additional 54,209 gallons of fuel.[48]

3. *Summary*

Based on the analysis described above, we estimate total incremental fuel consumption of 185,114 gallons during the Analysis Period. In order to determine CN's associated fuel cost, we determined CN's fuel cost per gallon based on the Fuel Surcharge reports submitted to the Board for the Analysis Period.[49]

Table FTI-10
CN Fuel Cost per Gallon, 2013 Q3-2015 Q1[50]

Period	Total Fuel Cost ($000k)	Total Gallons (000k)	Fuel Cost per Gallon
2013, Q3-Q4	$187,083	54,563	$3.43
2014, Full Year	$406,270	120,165	$3.38
2015, Q1	$68,931	32,636	$2.11

[46] *See* Verified Statement of Joe Bekavac, at 2.

[47] *See* FTI Workpapers "Additional_Fuel.sql," lines 413-422 and "Fuel_Costs_From_Delays.xlsx," tab "Addition_Fuel_Amtrak," columns AH, AJ, and AP.

[48] *See* FTI Workpaper "Fuel_Costs_From_Delays.xlsx," tab "Addition_Fuel_Amtrak," cell AP1.

[49] The fuel surcharge reports used in our analysis are available on the STB's website at http://www.stb.dot.gov/econdata.nsf/260029d11703bd498525740100662c49?OpenView&Start=1&Count=300&Collapse=1#1.

[50] *See* FTI Workpaper "CN Delay Cost Summary.xlsx," tab "CN Reported Costs."

Applying these fuel costs to the corresponding additional gallons for each period indicates that CN incurred **$703,935** in additional fuel costs due to Amtrak delays to CN's freight trains during the Analysis Period.[51]

C. Additional Equipment Costs

Delays caused by Amtrak impose additional equipment costs on CN. With respect to locomotives and freight cars that are traveling on CN's freight trains but are not owned by CN, delays due to Amtrak cause CN to incur additional debt or repayment obligations to those owners that are related directly to the additional time the equipment is on CN's lines. In addition, with respect to CN's own locomotives and freight cars, delays result in higher costs to CN due to lost productivity for those assets.

1. *Locomotives*

a. Locomotive Identification

We used the detailed data contained in the Locomotive History Table provided by CN to identify the specific locomotive units on CN's freight trains at the time of the delays caused by Amtrak. Those data identify every CN and foreign locomotive – including the locomotive initial and number, horsepower, service class, and model – used to power every CN train on every trip (including where and when locomotives are added or subtracted along the route, as applicable). Our analysis identified more than 4,000 different locomotives powering CN's freight trains that were delayed by Amtrak during the Analysis Period.[52]

[51] *Id.*

[52] *See* FTI Workpaper "Locos_From_Delays.xlsx," tab "Delay_By_Loco_Init_Nbr."

b. Locomotive Costs

As is the case for train crew personnel, Amtrak caused delays to CN trains restrict the ability of CN owned locomotives to perform necessary services. To compensate for the loss of locomotive productive capacity due to Amtrak related delays, CN has to either acquire additional locomotives or enlist the services of locomotives owned by other carriers to move its trains. In order to quantify the incremental cost to CN of the Amtrak caused delays to locomotives owned by foreign carriers in use on CN's lines, we used the locomotive horsepower hour cost formulas used by CN to compensate foreign line carriers for use of their locomotives on CN's lines when CN's own locomotives are not available to offset accumulated horsepower hours.

Class I railroads in the US typically enter into run-through agreements that govern the operations – and costs – associated with using another carrier's locomotives. These agreements provide that when a carrier uses foreign power on its own lines, the obligation that the borrowing carrier incurs can be re-paid to the locomotive owner by providing its own locomotives, with the balances tracked in terms of horsepower-hours ("HPH").[53] In addition to encouraging the exchange of locomotives back and forth to offset the obligations that accrue – known as horsepower equalization – the run-through agreements also provide a formula that develops a financial cost per HPH.[54] The agreements identify the specific R-1 expense items that are used to calculate the HPH cost, which include locomotive operating, lease rental, and depreciation expenses.

[53] *See* FTI Workpaper "BNSF Master runthrough.pdf" for an example of such an agreement.

[54] *Id*., at Exhibit 2

To develop the costs of foreign locomotives on freight trains delayed by Amtrak, we apply each railroad's HPH cost[55] to the additional locomotive hours that the railroad's units were delayed by Amtrak. For example, when a BNSF locomotive is powering a CN freight train, any delay caused by Amtrak results directly in an additional obligation that CN must repay to BNSF. To develop the cost that CN incurs for such foreign locomotives, we multiply the delay time attributable to Amtrak by the horsepower of the locomotive, which we identified from the data in the Locomotive History Table.

For the units owned by CN, we again calculate the costs of delays due to Amtrak by use of the HPH formula, with one modification. The HPH formula covers the expenses related to the operation and maintenance of a locomotive. These include operating expenses, lease rental costs, depreciation, and interest expense. However, as discussed previously, delays caused by Amtrak to CN-owned locomotives consume locomotive operating capacity that could otherwise be used to move other CN trains. To replace this lost capacity, CN incurs additional locomotive ownership costs, over and above locomotive operating and maintenance expenses. We therefore add an ownership cost component, in the form of lost return on investment ("ROI"), to account for the opportunity cost of the unproductive delay time. As indicated above, Amtrak's delays cause CN to incur lost productive time for its own assets, diminishing their utilization and increasing CN's ownership cost relative to the measure of output (per train run, per delivery, per distance traversed, etc.). CN's ROI costs were developed following the approach employed by the Board's Uniform Railroad Costing System ("URCS"), which uses R-1 data to determine the

[55] The master run-through agreements indicate that the HPH costs are to be developed from public information that is available in the R-1 reports, which we use to calculate carrier-specific figures for 2013 and for 2014. To estimate January 2015 costs, we use the average of the 2013 and 2014 HPH costs for each carrier. *See* FTI Workpaper "CN Delay Cost Summary.xlsx," tab "Applied to Amtrak Delays."

depreciated net book value of road locomotives, adjusted for deferred income taxes and working capital, and applies the industry-wide cost of capital.[56] For ease of application and consistency with the HPH formula cost, we convert CN's ROI cost for road locomotives to a cost per horsepower-hour.[57] Because the locomotive investments reported in CN's R-1 reflect only those units assigned to the US carriers, we limit our calculation of locomotive ownership costs caused by Amtrak delays to only the "CN-US" units.[58]

Table FTI-11 below summarizes the additional $2,279,289 in locomotive costs incurred by CN for units supplied by other railroads and for its own units, for the locomotive power on freight trains delayed by Amtrak during the Analysis Period.

Table FTI-11
Additional Locomotive Costs caused by Amtrak Delays, Aug 2013-Jan 2015[59]

	CN Units	Other RR Units	Total
Locomotive Delay Hours[60]	17,780	6,049	23,830
HPH Formula	$1,825,395	$373,751	$2,199,146
CN ROI Costs	$80,143	$0	$80,143
Total Costs	**$1,905,538**	**$373,751**	**$2,279,289**

[56] *See* FTI Workpaper "CN2013.pdf," pages 153-156 and 165 (the Board's 2013 URCS Phase II cost file for CN).

[57] *See* FTI Workpaper "CN Delay Cost Summary.xlsx," tab "Applied to Amtrak Delays." When adding the ROI costs, we adjust the HPH-formula cost to exclude the interest-on-debt component and avoid a double-count.

[58] *Id.* Although the Delay Records indicate that nearly 1,500 different CN locomotives were delayed by Amtrak during the Analysis Period, CN reports in its US R-1 only 482 owned units as of year-end 2014. For CN units powering freight trains delayed by Amtrak that are not included in CN's R-1 report, we limit the costs to those calculated under the HPH formula, as is done for other foreign RR units (*e.g.*, BNSF).

[59] *See* FTI Workpaper "CN Delay Cost Summary.xlsx," tab "Applied to Amtrak Delays."

[60] Hour figures in this table count individual locomotives, and thus exceed the 10,417 total of train delay hours.

2. *Freight Cars*

a. Freight Car Identification

We used the detailed data contained in the Car History Table to identify the specific freight cars on CN's trains at the time of the delays caused by Amtrak. Similar to the Locomotive History Table, the data in the Car History Table provide information about each car travelling on a train. They identify the equipment initial and number, the train on which it was travelling, and timestamps for events at specific locations. Using this information in conjunction with the Delay Records, we identified the specific freight cars affected by each Amtrak-caused delay during the Analysis Period. The results of this analysis showed that there were more than 330,000 different cars on CN's freight trains that were delayed by Amtrak, and that 59% of the cars delayed by Amtrak were shipper-owned and 41% were provided by railroads, either CN or other foreign carriers.[61]

b. Freight Car Costs

For purposes of developing the additional costs related to freight car equipment that CN incurred as a result of delays to its freight trains caused by Amtrak, we assumed that CN incurs no additional direct costs by reason of Amtrak's delays to shipper-owned equipment. CN has no ownership costs associated with that equipment and pays no car hire that is directly related to the time that the equipment is on CN's lines. Our analysis therefore focused on freight cars owned by CN or provided by other railroads.

We identified the railroad-provided and CN-owned equipment on CN's freight trains that were delayed by Amtrak, and CN provided the corresponding car-hire records from the Analysis Period for those freight cars. These records identify the payments that CN makes to other

[61] *See* FTI Workpaper "CarHire_From_Delays.xlsx," tab "Equipment."

railroads for the time that the foreign railroad's equipment is on CN's lines, and they also identify the payments that CN receives from other railroads for the time that CN's equipment is on the foreign railroad's lines. Using these records, we determined the average cost per hour by individual piece of equipment during the Analysis Period, which we applied to that equipment's delay hours.[62] For the purposes of calculating the costs directly resulting from Amtrak's delays, we included only the car-hire charges that vary with time – per-diem payments – and did not include any of the mileage-based charges that railroads also incur when using one another's equipment. Table FTI-12 below summarizes the additional $274,784 in car costs incurred by CN for its own equipment and for that provided by other railroads, for the cars on freight trains delayed by Amtrak during the Analysis Period.

Table FTI-12
Additional Freight Car Costs caused by Amtrak Delays, Aug 2013-Jan 2015[63]

	CN Equipment	Other RR Equipment	TTX Equipment	Total
Freight Car Delay Hours	148,709	116,621	104,742	370,071
Total Per Diem Costs	**$94,380**	**$76,762**	**$103,642**	**$274,784**

IV. Conclusion

In conclusion, we used information generated by CN's SRS database to quantify the delays to CN's freight trains that are attributable to Amtrak. We then determined the costs associated with those delays that CN would not have incurred but for the presence of Amtrak.

[62] We were unable to identify specific per diem records for a small proportion of the railroad-provided equipment on CN's freight trains (8%). For such unmatched cars, we use the average cost per hour for the same type of equipment, at the detailed AAR car-type level (*e.g.*, H250, J311). *See* FTI Workpapers "Incorporating_CarHireCosts.sql," lines 102-159 and "CarHire_From_Delays.xlsx," tabs "CN_AvgPerDiems" and "CN_AvgPerDiems_Initial."

[63] *See* FTI Workpaper "CarHire_From_Delays.xlsx," tab "Summary."

Our analysis demonstrates that, at a minimum, Amtrak delays to CN's freight trains impose an additional cost to CN of **$4,690,089** for the Analysis Period. Table FTI-13 below summarizes the results of our analysis.

Table FTI-13
Additional Costs Incurred by CN for Delays Caused by Amtrak, August 2013-January 2015[64]

Train Crew Costs	
Direct Train Wage	$850,685
Vacation, Training, etc.	$195,785
Fringe Benefits	$385,611
Total Train Crew Costs	**$1,432,081**
Fuel Costs	
Train Stops	$524,782
Additional Idling	$179,153
Total Fuel Costs	**$703,935**
Equipment Costs	
Locomotives	$2,279,289
Freight Cars	$274,784
Total Equipment Costs	**$2,554,073**
Total Costs Attributable to Amtrak Delays	**$4,690,089**

[64] *See* FTI Workpaper "CN Delay Cost Summary.xlsx," tab "Applied to Amtrak Delays."

VERIFICATION

I, Michael R. Baranowski, declare under penalty of perjury that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement.

Executed on September 3, 2015

Michael R. Baranowski

VERIFICATION

I, Benton V. Fisher, declare under penalty of perjury that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement.

Executed on September 3, 2015

Benton V. Fisher

Benton V. Fisher

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EXHIBIT 1

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STATEMENT OF QUALIFICATIONS

Mr. Baranowski is a Senior Managing Director at FTI Consulting, Inc., and heads the Network Industries Strategies (NIS) group of the economic division, with offices located at 1101 K Street, NW, Washington, D.C. 20005. Since 1980, Mr. Baranowski has been involved in various aspects of transportation analysis including operations, engineering, facility requirements, valuations, and costing.

Mr. Baranowski holds a Bachelor of Science degree in accounting from Fairfield University in Fairfield, Connecticut. In 1980, he joined the consulting firm of Wyer, Dick and Company in Livingston, New Jersey as a consultant. He participated in a variety of studies for railroad, shipper and other clients including line abandonments, operations analysis, terminal switching studies, labor protection and rail facility and equipment valuation.

In late 1981, Mr. Baranowski became a consultant with Snavely, King and Associates with offices in Morristown, New Jersey and Washington, D.C. While at Snavely, King, he was involved in rail merger, traffic, switching, liquidation and valuation studies for a variety of rail and rail related clients. He was also responsible for engineering, operating and costing components in a number of Section 229 proceedings.

Mr. Baranowski joined Klick, Kent & Allen ("KK&A") in 1988 as a Senior Consultant. He became a principal of KK&A in 1989 and remained in that position until its acquisition by FTI in 1998. Mr. Baranowski has presented testimony before the Interstate Commerce Commission, Surface Transportation Board, Federal Communications Commission, Federal Regulatory Commission and a variety of state regulatory agencies. Mr. Baranowski’s curriculum vitae is attached.

TESTIMONY OF MICHAEL R. BARANOWSKI
OVER PREVIOUS TEN-YEAR PERIOD

Surface Transportation Board

March 1, 2005	Docket No. 42071 Otter Tail Power Company v BNSF Railway Company, Supplemental Evidence of BNSF Railway Company
April 4, 2005	Docket No. 42071 Otter Tail Power Company v BNSF Railway Company, Reply of BNSF Railway Company to Supplemental Evidence
July 20, 2005	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Evidence of BNSF Railway Company
May 1, 2006	Docket No. Ex Parte 657 (Sub-No. 1) Major Issues in Rail Rate Cases, Verified Statement Supporting Comments of BNSF Railway Company
May 31, 2006	Ex Parte 657 (Sub-No. 1) Major Issues in Rail Rate Cases; Verified Statement Supporting Reply Comments of BNSF Railway Company
June 15, 2006	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Supplemental Evidence of BNSF Railway Company
June 15, 2006	Docket No. 41191 (Sub 1) AEP Texas North Company v. BNSF Railway Company, Reply Supplemental Evidence of BNSF Railway Company
June 30, 2006	Docket No. Ex Parte 657 (Sub-No. 1) Major Issues in Rail Rate Cases; Verified Statement Supporting Rebuttal Comments of BNSF Railway Company
February 4, 2008	Docket No. 42099 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSX Transportation, Inc.
February 4, 2008	Docket No. 42100 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSX Transportation, Inc.
February 4, 2008	Docket No. 42101 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSX Transportation, Inc.
May 1, 2008	Docket No. Ex Parte 679 Petition of the AAR to Institute a Rulemaking Proceeding to Adopt a Replacement Cost Methodology to Determine Railroad Revenue Adequacy, Verified Statement of Michael R. Baranowski

July 14, 2008	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Third Supplemental Reply Evidence of BNSF Railway Company
July 14, 2008	Docket No. AB-515 (Sub-No. 2) Central Oregon & Pacific Railroad, Inc. -- Abandonment and Discontinuance of Service -- in Coos, Douglas, and Lane Counties, Oregon (Coos Bay Rail Line)
August 8, 2008	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Fourth Supplemental Evidence of BNSF Railway Company
August 11, 2008	Docket No. 42104 Entergy Arkansas, Inc. and Entergy Services, Inc. v Union Pacific Railroad Company and Missouri & Northern Arkansas Railroad Company, Inc.; Finance Docket No. 32187 Missouri & Northern Arkansas Railroad Company, Inc. – Lease, Acquisition and Operations Exemption – Missouri Pacific Railroad Company and Burlington Northern Railroad Company, Reply Evidence and Argument of Union Pacific
September 5, 2008	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Fourth Supplemental Reply Evidence of BNSF Railway Company
September 12, 2008	Docket No. AB-515 (Sub-No. 2) Central Oregon & Pacific Railroad, Inc. -- Abandonment and Discontinuance of Service -- in Coos, Douglas, and Lane Counties, Oregon (Coos Bay Rail Line); Rebuttal to Protests
August 24, 2009	Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Opening Evidence of Union Pacific Railroad Company
October 22, 2009	Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Rebuttal Evidence of Union Pacific Railroad Company
January 19, 2010	Docket No. 42110 Seminole Electric Cooperative, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.
May 7, 2010	Docket No. 42113 Arizona Electric Power Cooperative, Inc. v. BNSF Railway Company and Union Pacific Railroad Company, Joint Reply Evidence of BNSF Railway Company and Union Pacific Railroad Company
November 22, 2010	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, BNSF Comments on Remand, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
January 6, 2011	Docket No. 42056 Texas Municipal Power Agency v. BNSF Railway Company, BNSF Reply to TMPA Petition for Enforcement of Decision, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
October 28, 2011	Docket No. FD 35506 Western Coal Traffic League - Petition for Declaratory Order, Opening Evidence of BNSF Railway Company, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher

November 10, 2011	Docket No. 42127 Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
November 28, 2011	Docket No. FD 35506 Western Coal Traffic League - Petition for Declaratory Order, Reply Evidence of BNSF Railway Company, Joint Reply Verified Statement of Michael R. Baranowski and Benton V. Fisher
May 10, 2012	Docket No. 42056 Texas Municipal Power Agency v. BNSF Railway Company, BNSF Reply to TMPA Petition to Reopen and Modify Rate Prescription, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
November 30, 2012	Docket No. 42125 E.I. DuPont De Nemours & Company v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
December 7, 2012	Docket No. Ex Parte 715, Rate Regulation Reforms, Reply Comments of the Association of American Railroads, Verified Statement of Michael R. Baranowski
January 7, 2013	Docket No. 42130 SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
March 1, 2013	Ex Parte No. 711 Petition for Rulemaking to Adopt Revised Competitive Switching Rules, Opening Comments of the Association of American Railroads, Verified Statement of Michael R. Baranowski and Richard W. Brown
April 12, 2013	Docket No. 42136 Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
April 30, 2013	Ex Parte No. 711 Petition for Rulemaking to Adopt Revised Competitive Switching Rules, Reply Comments of the Association of American Railroads, Verified Statement of Michael R. Baranowski and Richard W. Brown
June 20, 2013	Ex Parte No. 431 (Sub-No. 4) Review of the General Purpose Costing System, Comments of the Association of American Railroads, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
September 5, 2013	Ex Parte No. 431 (Sub-No. 4) Review of the General Purpose Costing System, Reply Comments of the Association of American Railroads, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
July 21, 2014	Docket No. 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.
September 5, 2014	Ex Parte No. 722 Railroad Revenue Adequacy, Opening Comments of Norfolk Southern Railway Company, Verified Statement of Michael R. Baranowski

US District Court for Northern District of Oklahoma

January 2, 2007	Case No. 06-CV-33 TCK-SAJ, Grand River Dam Authority v. BNSF Railway Company; Report of Michael R. Baranowski

February 2, 2007	Case No. 06-CV-33 TCK-SAJ, Grand River Dam Authority v. BNSF Railway Company; Reply Report of Michael R. Baranowski

Circuit Court of Pulaski County, Arkansas

August 17, 2007	Case No. CV 2006-2711, Union Pacific Railroad v. Entergy Arkansas, Inc. and Entergy Services, Inc., Expert Witness Report of Michael R. Baranowski
December 14, 2007	Case No. CV 2006-2711, Union Pacific Railroad v. Entergy Arkansas, Inc. and Entergy Services, Inc., Reply Expert Witness Report of Michael R. Baranowski

U.S. District Court for the Eastern District of Wisconsin

February 15, 2008	Case No. 06-C-0515, Wisconsin Electric Power Company v. Union Pacific Railroad Company, Expert Reply Report of Michael R. Baranowski

Arbitrations and Mediations

March 7, 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Expert Report on behalf of BNSF Railway Company
March 28, 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Rebuttal Expert Report on behalf of BNSF Railway Company
April 12, 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Supplemental Expert Report on behalf of BNSF Railway Company
April 19, 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Supplemental Rebuttal Expert Report on behalf of BNSF Railway Company
April/May 2005	Arbitration Case #181 Y 00490 04 BNSF Railway Company and J.B. Hunt Transport, Inc., Hearings before Arbitration Panel
February 20, 2007	In the Matter of the Arbitration between the Detroit Edison Company, et al, and BNSF Railway Company, Expert Report of Michael R. Baranowski on behalf of BNSF Railway Company
March 19, 2007	In the Matter of the Arbitration between the Detroit Edison Company, et al, and BNSF Railway Company, Supplemental Expert Report of Michael R. Baranowski on behalf of BNSF Railway Company
February 12, 2009	In the Matter of the Arbitration between Wisconsin Public Service Corporation and Union Pacific Railroad Company, Rebuttal Expert Report of Michael R. Baranowski on behalf of Union Pacific Railroad Company
October 16, 2009	In the Matter of Arbitration Between Norfolk Southern Railway Company and Drummond Coal Sales, Inc., Expert Report of Michael R. Baranowski on behalf of Norfolk Southern Railway Company

July 25, 2011	American Arbitration Association Case No. 58 147 Y 0031809, BNSF Railway Company and Kansas City Southern Railway Company, Expert Report of Michael R. Baranowski on behalf of BNSF Railway Company
April 25, 2013	JAMS REF #1340009009, Union Pacific Railroad vs. Canadian Pacific and Dakota, Minnesota & Eastern Railroad Arbitration, Expert Report of Michael R. Baranowski on behalf of Union Pacific Railroad Company
September 6, 2013	IN JAMS ARBITRATION, Case No. 1220044715, Union Pacific Railroad Company v. BNSF Railway Company, Expert Report of Michael R. Baranowski
October 25, 2013	IN JAMS ARBITRATION, Case No. 1220044715, Union Pacific Railroad Company v. BNSF Railway Company, Expert Reply Report of Michael R. Baranowski
January 1, 2014	IN JAMS ARBITRATION, Case No. 1220044715, Union Pacific Railroad Company v. BNSF Railway Company, BNSF Post-Argument Submission, Affidavit of Michael R. Baranowski

EXHIBIT 2

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STATEMENT OF QUALIFICATIONS

Mr. Fisher is a Senior Managing Director in the Network Industries Strategies (NIS) group of the economic division of FTI Consulting, Inc., with offices located at 1101 K Street, N.W., Suite B100, Washington, DC 20005.

Mr. Fisher is a graduate of Princeton University from which he obtained a Bachelor's of Science degree in Engineering, from the Civil Engineering and Operations Research department. He graduated with a concentration in Information and Decision Sciences, and also received a certificate for completing the requirements for the Engineering and Management Systems program. After graduating, Mr. Fisher served as the Deputy Controller for the U.S. Senate re-election campaign for Bill Bradley, and since April 1991 has been employed by FTI Consulting and Klick, Kent & Allen, an economic consulting firm that FTI Consulting acquired in 1998.

Much of the NIS group's work focuses on the economic and financial analysis of network industries, in particular different aspects of transportation. Mr. Fisher has spent more than 24 years involved in the analysis of rates, costs, and service, and the factors that affect them. In the rail industry, he has worked extensively to develop expert testimony before the Surface Transportation Board (STB) examining the reasonableness of railroad rates, railroads' applications for mergers and acquisitions, and rulemakings regarding the establishment, evaluation, revision, and implementation of rules and regulations. Mr. Fisher has managed the development of expert testimony covering a variety of topics in numerous contract disputes in Federal court or Arbitration, requiring the analysis of economic and operating issues and response to service performance or other claims. In addition to analyzing extensive financial and operational data, Mr. Fisher has worked closely with many departments at the railroads as well

as outside counsel. Additionally, he has reviewed the expert testimony of other parties in these proceedings, and developed and implemented the course of action to respond.

Much of Mr. Fisher's work for the railroad industry has required a detailed understanding of the regulations under which railroads operate, the rules by which rates are evaluated, and the costing approaches and models that are used. Mr. Fisher has testified numerous times regarding stand-alone costs and URCS costs (Uniform Railroad Costing System, the STB's general purpose costing system) for individual movements, traffic groups, and entire networks. Mr. Fisher has extensive experience with these costing approaches, including the detailed inputs and their sources, and the costing methodologies and formulae.

In addition to the rail industry, Mr. Fisher has been engaged with similar issues and disputes regarding the economic and financial analysis of telecommunications, postal, and energy matters. In those matters, as with rail, he has worked closely with detailed price, cost, and operational data and reviewed cost models and analyzed the sensitivity of multiple economic components, in evaluating rates, costs, and service in a variety of different contexts.

Mr. Fisher's complete curriculum vitae is attached.

TESTIMONY OF BENTON V. FISHER

Surface Transportation Board

January 15, 1999	Docket No. 42022 FMC Corporation and FMC Wyoming Corporation v. Union Pacific Railroad Company, Opening Verified Statement of Christopher D. Kent and Benton V. Fisher
March 31, 1999	Docket No. 42022 FMC Corporation and FMC Wyoming Corporation v. Union Pacific Railroad Company, Reply Verified Statement of Christopher D. Kent and Benton V. Fisher
April 30, 1999	Docket No. 42022 FMC Corporation and FMC Wyoming Corporation v. Union Pacific Railroad Company, Rebuttal Verified Statement of Christopher D. Kent and Benton V. Fisher
July 15, 1999	Docket No. 42038 Minnesota Power, Inc. v. Duluth, Missabe and Iron Range Railway Company, Opening Verified Statement of Christopher D. Kent and Benton V. Fisher
August 30, 1999	Docket No. 42038 Minnesota Power, Inc. v. Duluth, Missabe and Iron Range Railway Company, Reply Verified Statement of Christopher D. Kent and Benton V. Fisher
September 28, 1999	Docket No. 42038 Minnesota Power, Inc. v. Duluth, Missabe and Iron Range Railway Company, Rebuttal Verified Statement of Christopher D. Kent and Benton V. Fisher
June 15, 2000	Docket No. 42051 Wisconsin Power and Light Company v. Union Pacific Railroad Company, Opening Verified Statement of Christopher D. Kent and Benton V. Fisher
August 14, 2000	Docket No. 42051 Wisconsin Power and Light Company v. Union Pacific Railroad Company, Reply Verified Statement of Christopher D. Kent and Benton V. Fisher
September 28, 2000	Docket No. 42051 Wisconsin Power and Light Company v. Union Pacific Railroad Company, Rebuttal Verified Statement of Christopher D. Kent and Benton V. Fisher
December 14, 2000	Docket No. 42054 PPL Montana, LLC v. The Burlington Northern Santa Fe Railway Company, Opening Verified Statement of Christopher D. Kent and Benton V. Fisher
March 13, 2001	Docket No. 42054 PPL Montana, LLC v. The Burlington Northern Santa Fe Railway Company, Reply Verified Statement of Christopher D. Kent and Benton V. Fisher

May 7, 2001	Docket No. 42054 PPL Montana, LLC v. The Burlington Northern Santa Fe Railway Company, Rebuttal Verified Statement of Christopher D. Kent and Benton V. Fisher
October 15, 2001	Docket No. 42056 Texas Municipal Power Agency v. The Burlington Northern Santa Fe Railway Company, Opening Verified Statement of Benton V. Fisher
January 15, 2002	Docket No. 42056 Texas Municipal Power Agency v. The Burlington Northern Santa Fe Railway Company, Reply Verified Statement of Benton V. Fisher
February 25, 2002	Docket No. 42056 Texas Municipal Power Agency v. The Burlington Northern Santa Fe Railway Company, Rebuttal Verified Statement of Benton V. Fisher
May 24, 2002	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Opening Evidence and Argument of Norfolk Southern Railway Company
June 10, 2002	Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Opening Evidence and Argument of Norfolk Southern Railway Company
July 19, 2002	Northern States Power Company Minnesota v. Union Pacific Railroad Company, Union Pacific's Opening Evidence
September 30, 2002	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Reply Evidence and Argument of Norfolk Southern Railway Company
October 4, 2002	Northern States Power Company Minnesota v. Union Pacific Railroad Company, Union Pacific's Reply Evidence
October 11, 2002	Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Reply Evidence and Argument of Norfolk Southern Railway Company
November 1, 2002	Northern States Power Company Minnesota v. Union Pacific Railroad Company, Union Pacific's Rebuttal Evidence
November 19, 2002	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Rebuttal Evidence and Argument of Norfolk Southern Railway Company
November 27, 2002	Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Rebuttal Evidence and Argument of Norfolk Southern Railway Company
January 10, 2003	Docket No. 42057 Public Service Company of Colorado D/B/A Xcel Energy v. The Burlington Northern and Santa Fe Railway Company, Opening Evidence and Argument of The Burlington Northern and Santa Fe Railway Company

February 7, 2003	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad, Opening Evidence of The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad
April 4, 2003	Docket No. 42057 Public Service Company of Colorado D/B/A Xcel Energy v. The Burlington Northern and Santa Fe Railway Company, Reply Evidence and Argument of The Burlington Northern and Santa Fe Railway Company
May 19, 2003	Docket No. 42057 Public Service Company of Colorado D/B/A Xcel Energy v. The Burlington Northern and Santa Fe Railway Company, Rebuttal Evidence and Argument of The Burlington Northern and Santa Fe Railway Company
May 27, 2003	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad, Joint Variable Cost Reply Evidence of The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad
May 27, 2003	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad, Reply Evidence of The Burlington Northern and Santa Fe Railway Company
June 13, 2003	Docket No. 42071 Otter Tail Power Company v. The Burlington Northern and Santa Fe Railway Company, Opening Evidence of The Burlington Northern and Santa Fe Railway Company
July 3, 2003	Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad, Joint Variable Cost Rebuttal Evidence of The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad
October 8, 2003	Docket No. 42071 Otter Tail Power Company v. The Burlington Northern and Santa Fe Railway Company, Reply Evidence of The Burlington Northern and Santa Fe Railway Company
October 24, 2003	Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company Supplemental Evidence of Norfolk Southern Railway Company
October 31, 2003	STB Docket No. 42069 Duke Energy Corporation v. Norfolk Southern Railway Company, Reply of Norfolk Southern Railway Company to Duke Energy Company's Supplemental Evidence
November 24, 2003	STB Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Supplemental Evidence of Norfolk Southern Railway Company
December 2, 2003	STB Docket No. 42072 Carolina Power & Light Company v. Norfolk Southern Railway Company, Reply of Norfolk Southern Railway Company to Carolina Power & Light Company's Supplemental Evidence

January 26, 2004	STB Docket No. 42058 Arizona Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad Company, Joint Supplemental Reply Evidence and Argument of The Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad Company
March 1, 2004	STB Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. The Burlington Northern and Santa Fe Railway Company, Opening Evidence and Argument of The Burlington Northern and Santa Fe Railway Company
March 22, 2004	STB Docket No. 42071 Otter Tail Power Company v. The Burlington Northern and Santa Fe Railway Company, Supplemental Reply Evidence of The Burlington Northern and Santa Fe Railway Company
April 29, 2004	STB Docket No. 42071 Otter Tail Power Company v. The Burlington Northern and Santa Fe Railway Company, Rebuttal Evidence of The Burlington Northern and Santa Fe Railway Company
May 24, 2004	STB Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. The Burlington Northern and Santa Fe Railway Company, Reply Evidence of The Burlington Northern and Santa Fe Railway Company
July 27, 2004	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. The Burlington Northern and Santa Fe Railway Company, Rebuttal Evidence of The Burlington Northern and Santa Fe Railway Company
March 1, 2005	Docket No. 42071 Otter Tail Power Company v. BNSF Railway Company, Supplemental Evidence of BNSF Railway Company
April 4, 2005	Docket No. 42071 Otter Tail Power Company v BNSF Railway Company, Reply of BNSF Railway Company to Supplemental Evidence
April 19, 2005	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Opening Evidence of BNSF Railway Company
July 20, 2005	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Evidence of BNSF Railway Company
September 30, 2005	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Rebuttal Evidence of BNSF Railway Company
October 20, 2005	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Surrebuttal Evidence of BNSF Railway Company

June 15, 2006	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Supplemental Evidence of BNSF Railway Company
June 15, 2006	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Reply Supplemental Evidence of BNSF Railway Company
March 19, 2007	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Reply Third Supplemental Evidence of BNSF Railway Company
March 26, 2007	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Reply Second Supplemental Evidence of BNSF Railway Company
July 30, 2007	Docket No. 42095 Kansas City Power & Light v. Union Pacific Railroad Company, Union Pacific's Opening Evidence
August 20, 2007	Docket No. 42095 Kansas City Power & Light v. Union Pacific Railroad Company, Union Pacific's Reply Evidence
February 4, 2008	Docket No. 42099 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSXT
February 4, 2008	Docket No. 42100 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSXT
February 4, 2008	Docket No. 42101 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Opening Evidence of CSXT
March 5, 2008	Docket No. 42099 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Reply Evidence of CSXT
March 5, 2008	Docket No. 42100 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Reply Evidence of CSXT
March 5, 2008	Docket No. 42101 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Reply Evidence of CSXT
April 4, 2008	Docket No. 42099 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Rebuttal Evidence of CSXT
April 4, 2008	Docket No. 42100 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Rebuttal Evidence of CSXT
April 4, 2008	Docket No. 42101 E.I. DuPont De Nemours and Company v. CSX Transportation, Inc., Rebuttal Evidence of CSXT

July 14, 2008	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Third Supplemental Reply Evidence of BNSF Railway Company
August 8, 2008	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Fourth Supplemental Evidence of BNSF Railway Company
September 5, 2008	Docket No. 41191 (Sub-No. 1) AEP Texas North Company v. BNSF Railway Company, Fourth Supplemental Reply Evidence of BNSF Railway Company
October 17, 2008	Docket No. 42110 Seminole Electric Cooperative, Inc. v. CSX Transportation, Inc., CSX Transportation, Inc.'s Reply to Petition for Injunctive Relief, Verified Statement of Benton V. Fisher
August 24, 2009	Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Opening Evidence of Union Pacific Railroad Company
September 22, 2009	Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
October 22, 2009	Docket No. 42114 US Magnesium, L.L.C. v. Union Pacific Railroad Company, Rebuttal Evidence of Union Pacific Railroad Company
January 19, 2010	Docket No. 42110 Seminole Electric Cooperative, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.
May 7, 2010	Docket No. 42113 Arizona Electric Power Cooperative, Inc. v. BNSF Railway Company and Union Pacific Railroad Company, Joint Reply Evidence of BNSF Railway Company and Union Pacific Railroad Company
October 1, 2010	Docket No. 42121 Total Petrochemicals USA, Inc. v. CSX Transportation, Inc., Motion for Expedited Determination of Jurisdiction Over Challenged Rates, Verified Statement of Benton V. Fisher
November 22, 2010	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, Comments of BNSF Railway Company on Remand, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
January 6, 2011	Docket No. 42056 Texas Municipal Power Agency v. BNSF Railway Company, BNSF Reply to TMPA Petition for Enforcement of Decision, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
July 5, 2011	Docket No. 42123 M&G Polymers USA, LLC v. CSX Transportation, Inc., Reply Market Dominance Evidence of CSX Transportation, Inc.
August 1, 2011	Docket No. 42125 E.I. DuPont De Nemours and Company v. Norfolk Southern Railway Company, Norfolk Southern Railway's Reply to Second Motion to Compel, Joint Verified Statement of Benton V. Fisher and Michael Matelis

August 5, 2011	Docket No. 42121 Total Petrochemicals USA, Inc. v. CSX Transportation, Inc. , Reply Market Dominance Evidence of CSX Transportation, Inc.
August 15, 2011	Docket No. 42124 State of Montana v. BNSF Railway Company, BNSF Railway Company's Reply Evidence and Argument, Verified Statement of Benton V. Fisher
October 24, 2011	Docket No. 42120 Cargill, Inc. v. BNSF Railway Company, BNSF Railway Company's Reply Evidence and Argument, Verified Statement of Benton V. Fisher
October 28, 2011	Docket No. FD 35506 Western Coal Traffic League - Petition for Declaratory Order, Opening Evidence of BNSF Railway Company, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
November 10, 2011	Docket No. 42127 Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company
November 28, 2011	Docket No. FD 35506 Western Coal Traffic League - Petition for Declaratory Order, Reply Evidence of BNSF Railway Company, Joint Reply Verified Statement of Michael R. Baranowski and Benton V. Fisher
December 14, 2011	Docket No. 42132 Canexus Chemicals Canada L.P. v. BNSF Railway Company, BNSF Motion to Permit Consideration of 2011 TIH Movements from BNSF Traffic Data in Selecting Comparison Group, Verified Statement of Benton V. Fisher
February 13, 2012	Docket No. 42132 Canexus Chemicals Canada L.P. v. BNSF Railway Company, Opening Evidence of BNSF Railway Company, Verified Statement of Benton V. Fisher
March 13, 2012	Docket No. 42132 Canexus Chemicals Canada L.P. v. BNSF Railway Company, Reply Evidence of BNSF Railway Company
April 12, 2012	Docket No. 42132 Canexus Chemicals Canada L.P. v. BNSF Railway Company, Rebuttal Evidence of BNSF Railway Company
May 10, 2012	Docket No. 42056 Texas Municipal Power Agency v. BNSF Railway Company, BNSF Reply to TMPA Petition to Reopen and Modify Rate Prescription, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
November 30, 2012	Docket No. 42125 E.I. DuPont De Nemours & Company v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
January 7, 2013	Docket No. 42130 SunBelt Chlor Alkali Partnership v. Norfolk Southern Railway Company, Reply Evidence of Norfolk Southern Railway Company
April 12, 2013	Docket No. 42136, Intermountain Power Agency v. Union Pacific Railroad Company, Reply Evidence of Union Pacific Railroad Company

June 20, 2013	Ex Parte No. 431 (Sub-No. 4) Review of the General Purpose Costing System, Comments of the Association of American Railroads, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
September 5, 2013	Ex Parte No. 431 (Sub-No. 4) Review of the General Purpose Costing System, Reply Comments of the Association of American Railroads, Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher
September 23, 2013	Docket No. 42113 Arizona Electric Power Cooperative, Inc. v. BNSF Railway Company and Union Pacific Railroad Company. BNSF's Position on Disputed Issues Relating to Reinstituting the Rate Prescription
June 26, 2014	Ex Parte 665 (Sub-No. 1) Rail Transportation of Grain, Rate Regulation Review, Joint Verified Statement of Benton V. Fisher and Kaustuv Chakrabarti Supporting BNSF Opening Filing
July 21, 2014	Docket No. NOR 42121 Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc., Reply Evidence of CSX Transportation, Inc.
August 25, 2014	Ex Parte 665 (Sub-No. 1) Rail Transportation of Grain, Rate Regulation Review, Joint Verified Statement of Benton V. Fisher and Kaustuv Chakrabarti Supporting BNSF Reply Filing
September 19, 2014	Docket No. 42088 Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company, BNSF Railway Company's Reply Comments on Remand, Joint Verified Statement of Benton V. Fisher and Robert Fisher

U.S. District Court for the Eastern District of North Carolina

March 17, 2006	Civil Action No. 4:05-CV-55-D, PCS Phosphate Company v. Norfolk Southern Corporation and Norfolk Southern Railway Company, Report by Benton V. Fisher

U.S. District Court for the Eastern District of California

January 18, 2010	E.D. Cal. Case No. 08-CV-1086-AWI, BNSF Railway Company v. San Joaquin Valley Railroad Co., et al.

Arbitrations and Mediations

July 10, 2009	JAMS Ref. # 1220039135; In the Matter of the Arbitration Between Pacer International, Inc., d/b/a/ Pacer Stacktrain (f/k/a APL Land Transport Services, Inc.), American President Lines, Ltd. And APL Co. Pte. Ltd. And Union Pacific Railroad Company; Rebuttal Expert Report of Benton V. Fisher

BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

JOINT VERIFIED STATEMENT OF JOHN SUMMERFIELD, GREGG GIRARD, AND ANNE MOREHOUSE

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Definitions and Acronyms

AEI	Automatic Equipment Identifier (an electronic railroad equipment recognition system, based on radio frequency technology, in use by the North American railroad industry; it consists of passive tags mounted on each side of rolling stock and active trackside readers that using RF technology to identify railroad equipment while en route).
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
DW	Data Warehouse (CN's centralized enterprise information repository).
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
Primary Subdivision	One of 19 CN subdivisions that are used by Amtrak or which could be affected due to Amtrak operations on other subdivisions.
Relevant Period	August 1, 2013 through January 31, 2015.
[redacted]	[redacted]
SRS	Service Reliability Strategy (CN's primary data tracking application).
Station	A location on CN's network (often a switch, siding, or yard).
[redacted]	[redacted]
[redacted]	[redacted]

[redacted]	[redacted]
[redacted]	[redacted]

My name is John Summerfield. I am Senior Manager Traffic Management Systems for CN. In that position, which I have held since January 2010, and in my previous positions as Manager Network Strategies and Officer Delivery Management, I have been responsible for development and maintenance of various CN transportation systems used by CN, including CN's Service Reliability Strategy ("SRS," used to display and report all rail car and train events and to calculate delays), SmartYard (used to display, plan, and report car movements in CN's yards), Train Operation Planning and Control ("TOPC," used to display overviews of train operations), and automatic equipment identification ("AEI," used to automatically report train arrivals and departures, and to validate and correct the sequence of cars on trains), as well as for maintenance and implementation of the SRS operational files and tables used for scheduling and reporting car and train movements. My duties have provided me with a thorough knowledge and familiarity with SRS and the other transportation systems listed above. I served as a train conductor and engineer for CN between 1985 and 1995. I have completed two years of course work toward a Bachelor of Science degree in Human Biology, and I am certified as a locomotive engineer.

My name is Gregg Girard. I have worked for over 30 years at CN in the area of information technology. For the past 17 years I have been part of the Business Intelligence/Data Warehouse group. I was project manager and lead analyst for the creation of most of CN's current operating measures and I currently lead the Solution Advisory Team, which guides CN's employees and customers to the appropriate data and technical solutions to address their business concerns. In connection with my responsibilities, I have gained detailed knowledge and expertise in the generation and use of data from CN's SRS system relating to CN's operations and transportation. This includes understanding SRS source data ([redacted]

[redacted]) as well as its capture, integration, and application for both technology and business purposes.

My name is Anne Morehouse. I am Superintendent of the Regional Operations Center for CN's Southern Region. I have held this position since May 1, 2014. Previously, I have held the positions of Rail Traffic Controller, Asst. Chief Train Dispatcher, Chief Train Dispatcher, Senior Chief Dispatcher and Senior Manager Bulk, Southern Region. In all of my positions at CN, I have had extensive experience with [redacted] CN's SRS system. In my current position, I am responsible for overseeing, coordinating and dispatching freight and passenger rail operations in the Southern Region, which includes all of CN's U.S. lines (with the exception of certain lines adjacent to the Canadian border that are unrelated to this proceeding). As such, I am familiar with, and use on a daily basis, the data contained in SRS.

We have been asked to discuss in this joint verified statement the data generated by SRS and supplied to FTI Consulting for its use in quantifying delays to CN freight traffic caused by Amtrak passenger trains and the calculating the costs attributable to those delays. We are joint sponsors of this statement, with the exception of Section III.B., which is sponsored by Ms. Morehouse alone.

I. SRS OVERVIEW AND USE BY THE COMPANY

SRS is a critical mainframe application implemented at CN in the mid-1990s. SRS is the core transportation data system for managing and recording almost all aspects of CN's rail operations. It provides integrated information on transportation assets and services, allowing CN to monitor and manage both shipment performance and operations efficiency.

SRS links all of CN's transportation departments, gathers and categorizes information from across CN, and contains information regarding individual loads, entire trains, and train

performance. SRS allows CN to track the performance of trains in main line service, including such metrics as train velocity, freight car velocity, and trip performance (which includes a train's adherence to its schedule). SRS data are updated continuously to accurately reflect the location, consist, and performance against schedule of trains throughout CN's network as they move between their origins and destinations.

CN uses SRS to support network planning and operations, including the development of trip plans, performance reporting, day-to-day management of traffic (including assembly and routing of car blocks and trains), communicating with local authorities, and working with mechanical teams, crews, chiefs, and track forces throughout the system. In short, SRS is the core information-management system used by CN to operate and efficiently manage its network and run a "scheduled railroad."

Data from SRS are stored in CN's Data Warehouse ("DW"), which is CN's centralized enterprise information repository. Data from CN's various operating systems, including SRS, are extracted, transformed, and loaded each night into DW for business users to access and utilize. DW also hosts historical information for data mining and pattern analysis. The data we provided to FTI Consulting, which is described below, was created by SRS, then stored in and extracted from DW.

II. SRS RECORDS AND REPORTS

SRS tracks the location of trains, locomotives, and cars in CN's network. It does so primarily through specialized wayside equipment – called Automatic Equipment Identification ("AEI") readers – that uses radio frequency technology to passively detect and identify special tags mounted on railroad equipment as that equipment passes a reader. Using the AEI readers,

SRS automatically creates different types of records with detailed information about trains and their equipment.

CN's network includes thousands of specific locations, designated as "Stations," through which a train may pass on its journey from origin to destination.[1] Station designations are used to indicate significant locations along CN's lines, such as origins, destinations, yards, sidings, signals, other railroad facilities, points of connection or interchange with other carriers, and customer facilities. [redacted][2] [redacted][3] [redacted]

[1] The various stations on CN's lines are listed in CN's timetables.

[2] [redacted]

[3] [redacted]

[redacted]

[redacted][4]

[redacted]

[4] [redacted]

Table 1

[redacted]

[redacted][5] [redacted][6] [redacted]

[redacted]

[redacted] [redacted]

[redacted]

[5] [redacted]

[6] [redacted]

[redacted][7]

[redacted]

[7] [redacted]

Table 2

[redacted]

[redacted]													
[redacted]													
[redacted]													
[redacted]													
[redacted]													
[redacted]													
[redacted]													
[redacted]													
[redacted]													
[redacted]													

This table is organized similarly to Table 1. [redacted]

[redacted]

[redacted][8]

Table 3

[redacted]

[redacted]										
[redacted]										
[redacted]										
[redacted]										
[redacted]										
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[redacted]										
[redacted]										
[redacted]										
[redacted]										

III. SRS TRACKING OF TRAIN DELAYS [redacted]

CN runs a scheduled railroad; each of its core trains is expected to operate every day they are scheduled, regardless of size. By running its trains to a schedule, CN helps maximize its utilization of crews, locomotives, and equipment, and produces faster and more consistent transit times for its shippers. In order to operate in this way, it is critically important for CN to

[8] [redacted]

understand the location, cause, and duration of delays to its trains. Doing so allows us to structure our operations to maximize the reliability of our service. For example, analysis of delays may tell us that additional infrastructure is needed in a particular location, or that a train's schedule needs to be tweaked to avoid creating needless congestion. SRS provides CN with the robust information required for this process.

A. Using SRS to Track Train Delays [redacted]

Tracking delays begins with a train's schedule. Train schedules are created by CN's Service Design department and loaded into SRS. Schedules include the time that a train is scheduled to arrive, depart, or perform work at some, but not all, of the Reporting Stations along its route. [redacted][9] [redacted], SRS can compare a train's scheduled arrival and departure times to the times that the train actually arrives at or departs [redacted].[10] [redacted]

[9] [redacted]

[10] [redacted]

[redacted][11] [redacted]

As the system tracks train performance against schedule, it automatically generates information about the time and location of delays. [redacted] The process by which SRS tracks delays to trains [redacted] is described next.

[redacted]

[11] [redacted]

Table 4

[redacted]

[redacted][12] [redacted]

[redacted][13] [redacted]

[redacted]

12 [redacted].

13 [redacted]

[redacted]

[redacted][14]

Table 5

[redacted]

[redacted]								

[redacted]

[redacted][15] [redacted]

[14] [redacted]

[15] [redacted]

[redacted]

[redacted][16] [redacted]

[redacted]

16 [redacted]

[redacted]

[17] [redacted]

[17] [redacted]

[redacted][18]

Occasionally, a train will be delayed for multiple reasons [redacted]. Dispatchers are instructed not to record separate delays together, and to break up delays, regardless of duration, if they are caused by separate incidents. [redacted]

[18] [redacted]

[redacted]

[redacted].

Table 6

[redacted]

[redacted]											
[redacted]											
[redacted]											
[redacted]											
[redacted]											
[redacted]											
[redacted]											
[redacted]											
[redacted]											

Table 7

[redacted]

[redacted]								
[redacted]								
[redacted]								
[redacted]								

[redacted]

[redacted]

[redacted]

[redacted]

The Operating Department uses the delay data in SRS on a continuous basis throughout the day. The data contained in SRS are how we keep track of the two most important metrics by which we measure the success of our operations: train and car velocity. The individual delay descriptions allow us to focus on specific poorly-performing trains in order to better understand where and why delays are occurring and how similar situations can be handled differently in the future to minimize those delays.

CN's operating team regularly looks at delays by train and by type in order to understand how and why trains are being delayed. For example, if train speed for a particular train or in a

particular area has declined, we review the pertinent delay events to determine whether there are systemic or recurring issues that should be addressed. This process for documenting delays – requiring dispatchers to confirm and assign reasons for system-generated delays based on the schedule – is intended to ensure that the root causes of delays are properly documented.

Chief Dispatchers, Senior Chief Dispatchers, and other managers in the transportation department (myself included) regularly review and audit a dispatcher's delay coding and reporting. All delay reporting for a day must be complete by 23:00 each night (*i.e.*, midnight eastern time).[19] After the delay reporting is complete for a day, the Chief or Senior Chief is responsible for reviewing the day's delays to determine if there are any improperly coded or improperly described delay events.[20] Chiefs and Senior Chiefs also provide regular guidance on proper delay reporting, and from time to time I issue directives to dispatchers to help assure that various types of delays are properly and consistently coded.

As an additional check on the coding of delays, specific departments review the root causes of delays related to their area of responsibility. For example, CN's signal department reviews delays caused by signal issues, CN's engineering department reviews delays caused by slow orders and track issues, and CN's mechanical department reviews delays caused by mechanical issues. Those departments have the ability to investigate and critique delay reports,

[19] Delays not entered by 23:00 will still be in SRS, but will not be included in the morning reports that are automatically generated each day for review by CN's operations team. Dispatchers with an overnight shift that spans the 23:00 cutoff time would still enter information about delays up until the time they leave (generally at 07:00); those delays will show up on the following day's report.

[20] The Senior Chiefs and Chiefs generally have lengthy experience as dispatchers and significant familiarity with CN's rail system and SRS delay coding and are able to readily spot and correct miscoded delays.

and if it is determined that actual root cause for the delay was different from the one reported,[21] then the report may be corrected.

IV. DATA PROVIDED TO FTI CONSULTING

The data and records generated by SRS that are described above are stored in the DW in four database tables: [redacted]. The SRS data supplied to FTI Consulting came from these tables.

In preparing information for FTI, we first identified all trains that could have experienced an Amtrak-related delay during the period August 1, 2013 through January 31, 2015 (the "Relevant Period") by extracting [redacted] for all delays that occurred during the Relevant Period on CN subdivisions that are used by Amtrak or which could be affected due to Amtrak operations on other subdivisions ("Primary Subdivisions").[22] Using that file, we then created a list of trains that had been delayed during the Relevant Period on a Relevant Subdivision. For the trains on that list, we extracted all information from [redacted] for those trains, and saved the results as four separate Comma-Separated Value (.csv) files.[23] Because some trains that operate on a Primary Subdivision also travel on other non-Primary Subdivisions, we included data in these

[21] [redacted]

[22] A list of those subdivisions is attached as Exhibit 1. Included on the list are two subdivisions denoted with an asterisk – the Bluford and Mt. Clemens – on which Amtrak does not operate, but which are adjacent to subdivisions on which Amtrak operates. These subdivisions were included because trains on them are occasionally delayed waiting to operate over a connection due to Amtrak.

[23] We understand these .csv files are included in the workpapers submitted with FTI Consulting's verified statement.

extract files related to train operations on subdivisions other than Primary Subdivisions. This provided FTI Consulting with complete information about each train that was delayed on a Primary Subdivision – including information about delays and other events that occurred while the train was operating on a subdivision other than a Primary Subdivision.

The files we extracted from each of the four database tables were transmitted to FTI Consulting via their FTP site, and, we understand, are included in their workpapers, along with tables listing the column headings (*i.e.*, data types) and a brief description of the data fields used in each table.

V. CONCLUSION

SRS automatically tracks and records information about trains, locomotives, and cars as they move through CN's system from their origin to their destination, including the time, location, and duration of delays. It thus provides a rich source of data that can be used to quantify some of the delays to CN freight traffic caused by Amtrak passenger trains and provide a basis for determining the costs attributable to those delays. As discussed in this statement, the appropriate data for these purposes was extracted from CN's Data Warehouse and provided to FTI Consulting to enable it assess such delays.

EXHIBIT 1

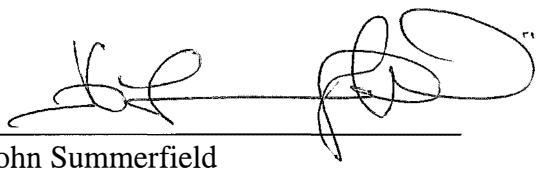
LIST OF PRIMARY SUBDIVISIONS

Bluford*
Cairo
Centralia
Champaign
Chicago
Elsdon
Flint
Freeport
Fulton
Holly
Joliet
McComb
Memphis
Mt. Clemens*
Shelby
Shore Line
South Bend
Strathroy
Yazoo

VERIFICATION

I, John Summerfield, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 4, 2015

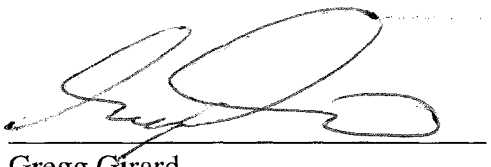


John Summerfield

VERIFICATION

I, Gregg Girard, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 3, 2015

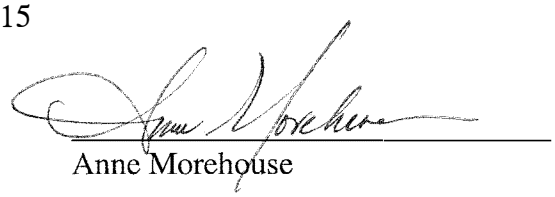


Gregg Girard

VERIFICATION

I, Anne Morehouse, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 3, 2015



Anne Morehouse

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF
JOE BEKAVAC

My name is Joe Bekavac. I am Director, System Network Operations, Asset Optimization for Canadian National Railway Company, located in Edmonton, Alberta, Canada. My background includes Rail Network Operations Strategy and Systems, Asset Planning and Deployment strategy, Transportation Planning, Service Design, and Senior Level Field Operations Leadership experience. I am a Mechanical Engineer with progressive experience across the rail industry serving in many departments and functions for over 31 years.

In this statement, I describe an analysis I conducted to estimate the incremental amount of fuel consumed by various freight trains with different locomotive and car consists when required to make an unscheduled stop. The results of this analysis were provided to Messrs. Baranowski and Fisher of FTI Consulting for their use in costing the incremental fuel burn associated with unscheduled stops by CN freight trains caused by Amtrak.

When a train is stopped and then re-accelerates back to road speed, its locomotives generally consume a different amount of fuel than if the train had maintained a steady road speed. This difference in locomotive fuel consumption cannot be calculated using a simple formula or by assuming that all trains consume fuel identically, because many factors (including the number and horsepower of the train's locomotives, the train's consist, and the train's speed)

affect the amount of fuel consumed. Moreover, the amount of time a train sits idle affects the calculation; an average locomotive consumes 4 U.S. gallons while idling.

Therefore, in order to estimate this difference, I conducted a series of simulations for a wide range of current CN train types operating at train speeds representative of CN operations on the lines on which Amtrak operates. For each train type, I ran a simulation, using a generic test bed without curvature or grade, and mimicking the basic siding arrangement in terms of entry and exit speed and length on Amtrak routes. Two simulations were conducted for each train, one in which the train ran across a piece of test track without stopping, and a second simulation in which the same train ran over the same track, but along the way it entered a siding, came a complete stop, and then reaccelerated out of the siding and back up to road speed for the remainder of the test track. By comparing the differences in total fuel consumption and total transit time, I was able to estimate the incremental fuel consumed and time elapsed due to an unscheduled stop of a train.

I performed these simulations using CN's Train Performance Calculator ("TPC").[1] CN uses its TPC in the course of everyday business, for setting and revising train schedules and for modeling operations and capacity of segments of its network. The TPC is a CN mainframe computer program that precisely models the movement of a single train over a piece of track and produces statistics about the train's performance and operation, including the speed, running time, and fuel consumption at any point during that movement.

[1] Documents describing the TPC are included in my workpapers "TPC Manual (1987 Eng Principles).pdf," TPC Manual (1987 Reference Material).pdf," and "TPC Manual (notes).pdf."

Two types of inputs are required for a TPC simulation: inputs related to the track and inputs related to the train.[2] The track input for these simulations was flat (0% grade), straight (no curves), and 100 miles long, with a single two-mile long siding between miles 25.0 and 27.0. I assumed the maximum speed for freight trains on the main line portion of the track was 60 mph, which is generally consistent with the territory in which these trains operate.[3] The siding was assigned 30 mph turnouts and a 30 mph speed limit, both of which are representative of the sidings in the territory in which Amtrak operates.

FTI provided me with a list of 28 train groupings derived from their identification of representative CN freight trains that experienced unscheduled stops due to Amtrak during the time period covered by their analysis.[4] In order to form the groupings, the stopped trains were grouped first by geographic location (either the Illinois Central lines between Chicago and New Orleans or the Grand Trunk Western lines in Michigan), then by train type (intermodal, manifest, loaded unit, empty unit, or local), then by number of locomotives, and finally by trailing tonnage. For some of the groupings that represented a large number of trains with different tonnages, FTI further divided the trains into higher and lower tonnage ranges.[5] Trains falling within the direct

[2] These inputs are included in the workpaper"TPCsummaryv4 - 8h35 25June2015.xlsm," tab "DATA."

[3] While 60 mph is the general maximum freight train speed limit throughout this territory, not every train is capable of achieving that speed.

[4] A list of the train types as provided to me by FTI is included in the workpaper "CN Train Parameters for Stops.xlsx."

[5] As an example, FTI grouped intermodal trains with two locomotives on the IC lines into two groups – 688 trains with trailing tonnage below the median for tonnage, and 689 trains with trailing tonnage above the median. As a result, I used two groupings for intermodal trains with two-locomotives operating on the IC corridor, one representing low tonnage trains and one representing high tonnage trains. These two groups are shown in the first two rows of the table of the workpaper "CN Train Parameters for Stops.xlsx."

parameters of these 28 groupings account for 92% of the unscheduled stops that occurred due to Amtrak during FTI's analysis period, providing a high degree of granularity for our analysis.[6]

For each representative grouping, in order to create the inputs required for the TPC, FTI averaged the locomotive horsepower (total and available), the number of loaded and empty cars, the total train length, and the trailing tons on the trains when they were stopped by Amtrak. I used that data to create a representative train for each grouping in the TPC. I then conducted a series of simulations running each of those 28 representative trains across the test track described above.[7]

Because the speed of the train affects the incremental amount of fuel consumed during an unscheduled stop, and not every train can or will achieve and maintain maximum track speed, I needed to model the actual speed at which each of these trains would operate through the simulation. As discussed above, the speed limit for freight trains for most of the territory in which Amtrak operates is 60 mph. On average, most of CN's trains operate a few miles per hour below their maximum achievable speed, due to factors such as wind, grade, curves, and the need to occasionally slow down for sections of track that have slow orders or other speed restrictions. Therefore, in order to more accurately estimate speeds, I assumed the maximum train operating speed would be 55 mph. Recognizing that not all trains are capable of achieving 55 mph, however, for trains that could not achieve 55 mph I assumed that they would operate at the

[6] For the small number of trains not falling directly within the parameters of a representative group, fuel consumption was established on the basis of the closest matching representative group.

[7] Information about these trains is included in the tabs "Runs & Consists," Consist Calculations," and "Car Sheet" in the workpaper "CN Train Parameters for StopsV7(wResults) - 9h35 25June2015.xlsx."

nearest 5 mph increment below the maximum speed they achieved in the TPC run.[8] Based on these assumptions I established appropriate operating speeds for our TPC runs by conducting an initial TPC run for each train over the test track (without stopping) to determine if it could reach a speed of 55 mph and, if not, to establish its maximum achievable speed.[9]

Using the maximum operating speeds developed through this process, I then performed the two simulations for each train discussed above: one in which the train started from a stop, accelerated to the assumed train speed, and ran across the entire 100 mile track on the main line without stopping, and one in which train started from a stop, accelerated to the assumed train speed, entered the siding, came to a complete stop, [10] and then re-accelerated out of the siding to the assumed train speed and continued on the main line to the end of the track.[11]

As a final step I compared the results of both simulations in order to calculate the incremental amount of fuel burned and time lost due to a stop and start event. The results of my analysis are summarized in the following table.[12]

---

[8] For example, if the TPC estimated that the maximum achievable speed of the train was 48 mph, I assumed, for purposes of my fuel consumption simulation that the train would operate up to a maximum of 45 mph. If the maximum speed of the train was 51 mph, I assumed it would operate at 50 mph.

[9] The outputs of these runs are included in the workpaper "MaximumSpeedCheck - 8h35 25June2015.xlsx," tab "DATA."

[10] The TPC models stopping on the basis of air brakes, not dynamic braking. Dynamic braking, which uses of the electric traction motors of the locomotive as generators when slowing, requires the operator to use a throttle notch setting higher than idle and thus consumes more fuel than using air brakes alone (in which case the throttle notch would be set to idle). As a result, the TPC in this respect somewhat understates the additional fuel consumed due to an added stop.

[11] The detailed results of these TPC runs are included in tab "DATA" in the workpaper "TPCsummaryv4 - 8h35 25June2015.xlsm." Summary results from each run, listing just the max speed, total time, and the total fuel consumption for the run are included in the "SUMMARY" tab of the same workpaper.

[12] The results are also included in the tab "Final Results – Summary" of the workpaper "CN Train Parameters for StopsV7(wResults) - 9h35 25June2015.xlsx."

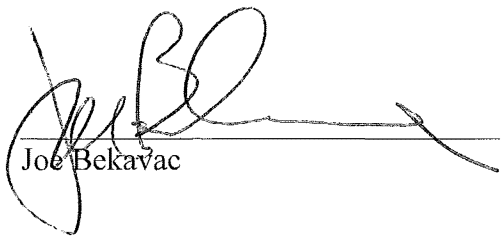
Summary - Analysis of Impact of One Stop for Select CN Trains - Minutes and US Gallons

RUN DESCRIPTION							SPEED (MPH)		FUEL	TIME
RUN	**Corridor**	**Type**	**Grouping**	**Locos**	**Length**	**HPT**	MAX	ANALYSIS	US GAL.	MINUTES
A	CNO	INTERMODAL	2 Loco - H1	2	7135	1.75	>55	55	11.05	5:24
B	CNO	INTERMODAL	2 Loco - H2	2	9343	1.12	48.6	45	15.37	5:18
C	CNO	INTERMODAL	3 Loco - Avg	3	10595	1.58	>55	55	15.01	6:42
D	CNO	MANIFEST	1 Loco - Avg	1	5085	0.82	39.5	35	8.89	3:24
E	CNO	MANIFEST	2 Loco - Q1	2	5138	1.56	>55	55	9.37	5:54
F	CNO	MANIFEST	2 Loco - Q2	2	7280	0.99	46.5	45	15.49	5:24
G	CNO	MANIFEST	2 Loco - Q3	2	8145	0.79	43.1	40	19.70	4:48
H	CNO	MANIFEST	2 Loco - Q4	2	8677	0.63	40.2	40	20.90	6:18
I	CNO	MANIFEST	3 Loco - H1	3	6961	1.50	>55	55	16.21	6:12
J	CNO	MANIFEST	3 Loco - H2	3	8354	0.88	48.5	45	30.98	5:48
K	CNO	MANIFEST	4 Loco - Avg	4	8195	1.30	>55	55	31.34	6:48
L	CNO	UNIT	1 Loco - Avg	1	6547	1.03	35.9	35	5.40	3:00
M	CNO	UNIT	2 Loco - Empty	2	6757	2.44	48.0	45	1.68	3:30
N	CNO	UNIT	2 Loco - Loaded	2	6211	0.57	43.2	40	33.15	6:24
O	CNO	UNIT	3 Loco - Empty	3	7441	2.40	46.0	45	0.24	3:54
P	CNO	UNIT	3 Loco - Loaded	3	7105	0.69	49.0	45	49.12	6:42
Q	CNO	UNIT	4 Loco - Avg	4	7497	1.86	>55	55	21.14	5:42
R	MI	INTERMODAL	2 Loco - Avg	2	7932	1.29	52.0	50	13.33	6:00
S	MI	LOCAL	2 Loco - Avg	2	6628	0.96	45.7	45	14.53	5:30
T	MI	MANIFEST	1 Loco - Avg	1	4182	1.00	43.1	40	8.05	4:00
U	MI	MANIFEST	2 Loco - Avg	2	6660	1.14	47.9	45	13.09	4:54
V	MI	MANIFEST	3 Loco - Avg	3	7873	1.21	51.5	50	20.66	6:06
W	MI	UNIT	2 Loco - Empty	2	6800	2.52	47.6	45	1.20	3:30
X	MI	UNIT	2 Loco - Loaded	2	6770	0.47	39.7	35	31.22	5:36
Y	MI	UNIT	3 Loco - Loaded	3	6170	0.88	>55	55	40.95	8:36
Z	MI	INTERMODAL	1 Loco - Avg	1	4776	1.33	51.2	50	7.45	5:06
AA	MI	INTERMODAL	3 Loco - Avg	3	9834	1.42	53.7	50	19.46	6:06
AB	MI	MANIFEST	4 Loco - Avg	4	7863	1.44	>55	55	26.30	6:24

VERIFICATION

I, Joe Bekavac, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to provide this verification on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 2, 2015



Joe Bekavac

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

JOINT VERIFIED STATEMENT OF HARALD KRUEGER, BRIAN DOYLE, AND NIKOLA RANK

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Definitions and Acronyms

AEI	Automatic Equipment Identifier (an electronic railroad equipment recognition system, based on radio frequency technology, in use by the North American railroad industry; it consists of passive tags mounted on each side of rolling stock and active trackside readers that using RF technology to identify railroad equipment while en route)
CTC	Centralized Traffic Control
GTW Corridor	CN's line which runs from South Bend, IN to Port Huron, MI, and over which Amtrak's Blue Water service operates.
HPT	Horsepower-per-ton
IC Corridor	CN's line which runs from Chicago, IL to New Orleans, LA, and over which Amtrak's Illini/Saluki and City of New Orleans services operate.
MRT	Minimum Run Time
NOUPT	New Orleans Union Passenger Terminal, on IC Corridor
OTP	On-time performance
RCM	Route Capacity Model (CN's primary line-simulation program, used to analyze the interaction of different infrastructure, traffic, and operational parameters; a controlled, reproducible event-based computer simulation tool used to measure the operational impact in terms of train delay of changes in a certain parameter while holding other parameters constant)
RTBI	Right Time Business Intelligence (A web-based tool that provides a visual representation of the current state of CN's infrastructure including the location of track, sidings, crossovers, *etc*.)
RTC	Rail Traffic Controller (line-simulation modeling software made by Berkeley Simulation Software)
TPC	Train Performance Calculator (A computer program that precisely models the physics of the movement of a single train over a piece of track and produces statistics about the train's performance and operation during that movement, used by CN to develop its train schedules and service plans)
TDMS	Track Data Management System (A corporate database of mileage, elevations, curves, stations and speeds for all CN trackage)

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I. Introduction & Qualifications

My name is Harald Krueger. My current position is Senior Manager, Network Planning, at Canadian National Railway Company ("CN"), a position I have held since 2010. In that role, I manage the Network Transportation Department, which is responsible for managing line and yard capacity across the CN system to improve operations and accommodate traffic growth. I am also responsible for managing the Canadian Passenger Train (VIA) scheduling and assessing any changes or new passenger service proposals on the CN system. I have over 34 years' experience with CN working in Operations, in the Transportation Planning function. My expertise is in line and terminal capacity and the application and development of simulation models for evaluation of freight and passenger operations. I hold a B.Sc. in Civil Engineering from the University of New Brunswick, and am a member of the Professional Engineers of Alberta.

My name is Brian Doyle. I am a Project Manager and Vice President of Iron Road Software & Simulation, a consulting engineering company specializing in the simulation, planning, and design of rail networks. In that role, I have overseen and managed a number of railroad capacity simulation studies for railroads in both the United States and Canada. In my 35 years in practice, I have developed diversified management experience in railroad operations, transportation planning, capacity planning, and analysis, engineering design and construction, transit development, and transportation technology including supervision of mainline, terminal, and industrial rail operations. I hold a B.Sc. in Civil Engineering from the University of New Brunswick, and am a member of the Professional Engineers of Ontario.

My name is Nikola Rank. I am the lead capacity analyst with Iron Road Software & Simulation. In that role, I have conducted a number of rail capacity studies for a variety of

railroads and passenger agencies, including CN, CP, CSXT, Toronto's GO Transit, and Montreal's AMT. I am familiar with a number of rail computer simulation tools and analysis techniques, including the Route Capacity Model and Train Performance Calculation. In addition to capacity analysis, I have significant experience with wayside signal system planning concepts, including block design, braking distance calculations, and route and aspect charts. This experience has given me a deeper understanding of the fundamentals of railway capacity analysis. I hold a B.Sc. in Computer Engineering and a M.A.Sc. in Electrical Engineering, both from the University Ottawa.

II. Overview of Study, Methodology, Work Performed, and Objectives

We were asked to answer two questions: (1) what level of delay to CN's freight trains is attributable to Amtrak operating on CN's rail lines at specified service levels, and (2) what capacity improvements would be required to eliminate that incremental level of delay? In order to answer those questions, we performed a capacity study of two corridors on CN's lines: (1) the "IC Corridor," which runs from Chicago, IL to New Orleans, LA, and over which Amtrak's Illini/Saluki and City of New Orleans services operate, and (2) the "GTW Corridor," which runs from South Bend, IN to Port Huron, MI, and over which Amtrak's Blue Water service operates.[1] The study's goal was to quantify the effect of Amtrak on CN's freight operations and identify the infrastructure (track and signal plant) improvements required for those three Amtrak services to

[1] In addition to the Blue Water traffic, the simulation for the GTW corridor included six daily trains of Amtrak's Wolverine service that operates over a 1.2 mile portion of this corridor between Baron (South Bend Sub MP 176.7) and Gord (MP 175.5). We were not asked to model Amtrak trains or services on other CN lines.

achieve specified on-time performance ("OTP") targets at their endpoints on CN's lines without Amtrak's trains causing net incremental delay to CN's freight traffic.[2]

The specifics of our study are outlined below.

A. Amtrak Service Goals

In most modeling of passenger service on freight corridors, the first step is to have the passenger operator specify the service goals for the passenger trains. In this case, because Amtrak has not specified its service goals, we were asked to model two service targets based on Amtrak's endpoint OTP, as calculated on a monthly basis. The first service goal was a monthly average 80% endpoint OTP. The second service goal was a monthly average 90% endpoint OTP for Amtrak corridor trains (those in the Illini/Saluki and Blue Water services) and 85% for Amtrak long distance trains (those in the City of New Orleans service).[3]

As our capacity modeling is based on train delays, not endpoint OTP, we required that endpoint OTP goals be converted to train delays. This conversion was performed for us by Professor Jeffrey Dubin, who describes this process in his own verified statement. He calculated for us the average number of minutes of delay caused by freight trains and other passenger trains that a given Amtrak train could incur over the course of a month and still expect to achieve its target endpoint OTP. *See* Dubin VS. We used the results of his analysis in our dispatching of the model (discussed in more detail below).

[2] As explained in the verified statement of Professor Dubin, "endpoint" here means the portion of the Amtrak service related to operations over CN's host lines. Endpoint OTP and modeling for each service was thus coextensive with Amtrak's full service, except for the western terminus of the Blue Water service, which was modeled to the endpoint of CN's host line, where it connects to another host carrier.

[3] In a capacity constrained environment, such as the CN corridors modeled, higher service levels – meaning dispatching that reduces delays to Amtrak trains – can be expected to result in increased delays to freight trains.

B. Methodological Approach to Modeling

In order to isolate the effect of Amtrak on CN's freight trains, we constructed a model to assess the following three scenarios:

- Scenario 1: CN freight, without Amtrak, operating on existing infrastructure
- Scenario 2: CN freight, with Amtrak performing at 80% endpoint OTP (Scenario 2A) or 85/90% endpoint OTP (Scenario 2B), operating on existing infrastructure
- Scenario 3: CN freight with Amtrak performing at 80% endpoint OTP (Scenario 3A) or 85/90% endpoint OTP (Scenario 3B) and additional infrastructure to reduce net incremental freight delay caused by Amtrak to near zero

Our modeling consisted of simulating all three scenarios on both the IC Corridor and the GTW Corridor for each assumed Amtrak endpoint OTP service target.[4] Scenario 1 was used to estimate the baseline amount of delay experienced by CN's freight traffic in the target corridors in the absence of Amtrak's passenger trains. By subtracting the Scenario 1 baseline freight delay from Scenario 2, we were able to quantify the total incremental delay to CN's freight trains caused by the presence of Amtrak's passenger trains at the specified service levels, as well as identify the specific locations on the corridor where those incremental delays occurred. Once we had identified how much and where the incremental freight delay occurred due to the presence of Amtrak, we conducted a capacity analysis on the current corridor plant (*i.e.*, the plant used in Scenario 1 & 2 simulation) to identify pinch points, areas of congestion, and other areas of freight/Amtrak conflict that could be improved or mitigated through additional infrastructure (*i.e.*, additional double track, sidings, or crossovers). The additional infrastructure was added to the model incrementally in the Scenario 3 simulation until we had mitigated the incremental freight delay caused by Amtrak's passenger trains – in other words, until the level of delay to

[4] We did not, however, model the GTW Corridor (Blue Water service) at the 80% endpoint OTP service target. Given the allowable delay minutes calculated by Professor Dubin, we believed it was unlikely CN would have to delay its freight service significantly to meet that delay minute goal.

CN's freight trains measured in Scenario 3 was approximately equal to the level of delay to CN's freight trains measured in Scenario 1.

Through this modeling approach, we can quantify the impact of Amtrak on CN freight, identify where it was occurring, and provide a means to identify the additional infrastructure needed to reduce freight delay to a level that CN could expect to experience in the absence of Amtrak. As the final step in our analysis, we estimated costs for the specified infrastructure improvements.

Our modeling focused on the three key factors that affect main line train movements through the corridor: the representative plant, traffic, and operations. Our objective was to have identical, comparable, reproducible dispatch times and dispatch decisions between scenarios, which would allow for reliable delay comparisons between scenarios.[5]

C. Overview of Work Performed to Construct the Model

Constructing the model required three basic steps: (1) gathering data related to the representative plant, traffic, and operations, (2) verifying the data was current, correct, and correctly coded in the model, and (3) running the model and analyzing the results.

[5] We did not model minor or unpredictable matters such as weather disruptions, track/equipment failures, unplanned activities, or work blocks. Nor did we model detailed yard operations or other work off the main line. Doing so would have added significant complication to the model and additional subjective elements. Further, had we attempted to model these irregular sources of delay it would have effectively decreased line capacity and thus had a compounding effect on delays caused by Amtrak, which would have resulted in greater overall Amtrak incremental delays and, consequently, increased infrastructure costs required to eliminate those delays. As an example, an incremental main line delay caused by Amtrak that would have a minor impact on freight service in Scenario 2 if an alternative siding is available, could have a significantly greater impact if one assumes (in Scenario 1 and 2) that the siding may not be available due to a work block.

Data related to CN's representative plant include the specific track topography (*e.g.*, elevations, curves, and speeds) and other trackage elements (*e.g.*, sidings, double track, signals, and junctions). Sources for these data include: (i) CN's Track Data Management System ("TDMS"), a corporate database of elevations, curves, stations and speeds for all CN trackage; (ii) the Right Time Business Intelligence ("RTBI"), a web-based tool that provides a visual representation of the current state of CN's infrastructure (including the location of track, sidings, crossovers, *etc.*); and (iii) track charts, operating bulletins, and dispatcher screens.[6]

Data related to traffic on the two corridors includes CN's train service plan and historical traffic volumes. Data related to train operations includes information about the historical operating characteristics of specific trains (*e.g.*, the number of locomotives, cars, and horsepower-per-ton), where those trains operate on the two corridors (*e.g.*, origins and destinations), and where those trains stop to perform work or change crews. Data for these two elements are contained in CN's Data Warehouse, a corporate database containing detailed historical train information (*i.e.*, times, schedules, and consists) for the CN system, including historical data from many other CN's information systems.

In addition to the specific data sources described above, information was obtained through discussions with the Network Operations department (which includes the Service Design, Motive Power, and Measures groups) and regional and local operating officers (such as CN's dispatchers, superintendents, and train masters), and through field trips to areas of the network in order to familiarize ourselves with local track facilities and operations.

[6] These documents can be found in the folder "Manuals, TT's, etc." on the DVD containing the workpapers that support this statement.

Once the data were collected, it was formatted into files (generally, text-based tables) that could be used by our simulation software. As the data were processed and formatted, they were verified against actual operations in order to confirm they were accurate and up-to-date. For example, the freight traffic volumes we proposed to use in the model, which were based on average 2013 volumes, were reviewed with CN's Service Design department and regional operating officers, and compared to the core service plan in effect at the time. The representative plant we proposed to use was compared to the infrastructure shown on dispatcher screens, current timetables, and various other CN sources (*e.g.*, engineering track charts, RTBI, and operating bulletins). Details regarding train operations, such as dwell, operating times, frequencies and extents, were validated through an iterative process of data collection and review with the operating department and the regional and local operating officers.

Once we verified the data we had collected, we ran our simulations and analyzed the results. Our model used two primary software simulation tools: a Train Performance Calculator ("TPC") and Route Capacity Model ("RCM").[7]

The TPC is a computer program that: precisely models the physics of the movement of a single train over a piece of track; calculates time, distance, and speed values for the train as it moves over that track; and produces a table of information containing the train's speed and time at regular intervals as it moves over the track. It is used by CN to develop CN's train schedules and service plans. The TPC calculates the Minimum Run Time ("MRT") across the territory for trains used in the model and provides them for use by the RCM.

[7] The user manuals for these programs, which contain detailed information about their capabilities and functioning, are included as workpapers "TPC Manual (1987 Reference Material).pdf," "TPC Manual (notes).pdf," and "Route Capacity Model - Users Manual.pdf," all of which can be found in the folder "Manuals, TT's, etc." on the DVD containing the workpapers that support this statement.

The RCM is CN's primary line-simulation program, and is used to analyze the interaction of different infrastructure, traffic, and operational parameters. It is a controlled, reproducible, event-based computer simulation tool used to measure the operational impact (in terms of train delay) of changes in a certain parameter while holding other parameters constant. The model is easy to setup (because it uses text data tables), quick to run (*e.g.*, it takes approximately 10 seconds for it to model 9 days of operations on the IC corridor), and provides input-specific replicable results (*i.e.*, the model will reproduce identical results given identical inputs). Because RCM will make the same dispatching decisions unless there is a change to the discrete events of a train at a location, it provides an effective means to compare scenarios and measure the effect of specific changes and/or alternatives (such as different service levels, dispatch decisions or infrastructure improvements). The RCM also allows the user to interact with the simulation through a variety of dispatching commands in order to override the default dispatching decisions of the model. This flexibility allows for modeling that is more realistic, more accurate, and more consistent between the various scenarios.

The output of the RCM includes both time-distance plots for each train in the simulation, as well as aggregate data related to the delays experienced by those trains. In our analysis, we used the time-distance plots to visually identify locations of conflict where additional infrastructure could be useful in reducing delay between freight and passenger operations. The more detailed model outputs were used to measure the delay to freight both globally (*i.e.*, total delay for the entire corridor and all days of simulation), as well as in detail (*i.e.*, for each individual segment of the corridor for each day of the simulation). This approach allowed us to compare the results of each scenario in terms of total train delay, and the change in delay for each segment (for each day) which helped us to identify where delay was occurring and develop

plant enhancements to reduce the conflicts causing the delay. In addition, other capacity analyses (such as return grid calculations, track occupancies, meet delays, *etc*.) were conducted to confirm both the capacity pinch-points on the corridor, and the potential means to increase/improve capacity in those areas (*i.e.*, cross-overs, service track, sidings, double track, *etc*.).

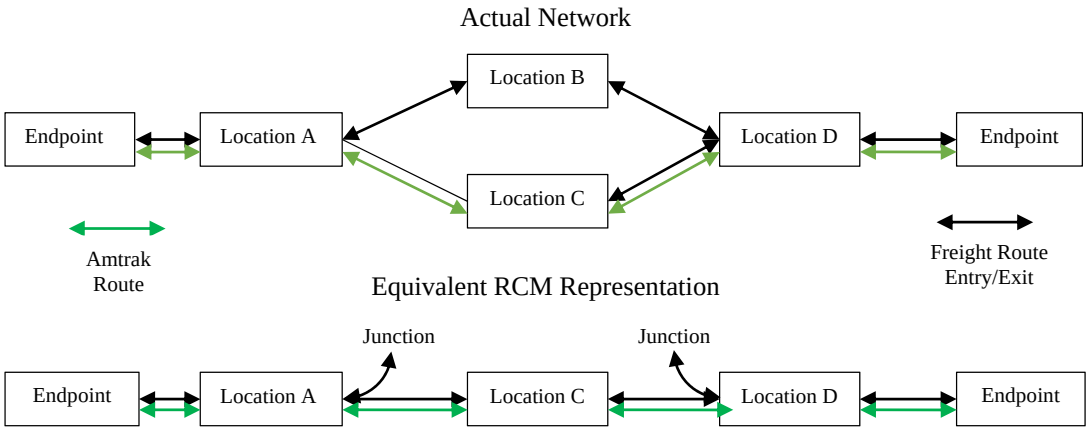
The following sections explain the process summarized above in more detail.

III. Identifying and Coding the Representative Plant for the Model

The first step in our modeling process was to build a representative description of the existing infrastructure on the two corridors which would be input into our simulation software. While delays caused by Amtrak undoubtedly have ripple effects that extend beyond the subdivisions that Amtrak operates on, in order to avoid the overwhelming complexity of attempting to model the entire CN network, we selected endpoints for the two corridors that would encompass a sufficient portion of CN's network to accurately capture the direct freight train interactions with Amtrak. For the IC Corridor, we selected the two Amtrak terminals – Chicago Union Station and New Orleans Union Passenger Terminal ("NOUPT") – as the two endpoints to define the corridor. For the GTW Corridor, we selected South Bend, IN and Port Huron, MI as the two endpoints to define that corridor.

With the corridors of interest defined, we collected data about the railroad infrastructure along the route between the endpoints. Both the RCM and TPC model a linear representation of a rail corridor and require a non-branching route description. To handle situations of branching freight traffic (*i.e.*, multiple subdivisions with common end points, such as CN's Bluford Subdivision, which runs parallel to CN's Cairo and Centralia Subdivisions but is not part of

Amtrak's route), junctions were used to allow freight trains to enter and exit the simulation at branch points, as shown on the following diagram.[8]



Once the simulation route and end points were selected, we collected the underlying physical track data for input into the models. This was a two-step process. First, we collected the topographical (*i.e.*, elevations and curves) and track speed data that would allow us to code the various files necessary to run the TPC. Next, we collected specific track data (*i.e.*, double track, sidings, cross overs, and junctions) that would allow us to build the various plant input tables used by RCM.

A. Summary of Corridors

The IC Corridor contains 934 miles of primarily north-south trackage between Chicago Union Station and the NOUPT. The corridor is predominantly CTC-controlled single track, with sidings and short sections of double track between major terminal areas.

The simulated route follows the following subdivisions from north to south:

[8] Modeling was, of course, limited to the trains that entered and exited the model. However, as described in more detail below, we used variables to control that entry and exit in order to model those patterns realistically.

Subdivision	Start Location	End Location
Foreign – Amtrak	Chicago Union	Clark Street
CN Chicago Sub	Clark Street	Champaign Yard
CN Champaign Sub	Champaign Yard	Sandoval JCT
CN Centralia Sub	Sandoval JCT	Illinois
CN Cairo Sub	Illinois	Fulton Yard
CN Fulton Sub	Fulton Yard	Hollywood Yard
CN Shelby Sub	Hollywood Yard	Lakeview
CN Yazoo Sub	Lakeview	Jackson Yard
CN McComb Sub	Jackson Yard	Southport JCT
Foreign – Amtrak	Southport JCT	NOUPT

Some freight traffic uses an alternate parallel route – CN's Bluford Sub – between Edgewood Junction (on the Champaign Sub) and Fulton Yard (on the Fulton Sub). Freight traffic using this route was coded to enter and exit the simulation at the aforementioned junction locations, therefore bypassing the Cairo, the Centralia, and a portion of the Champaign Subs.

The GTW Corridor contains 234 miles of primarily east-west track between South Bend, IN and Port Huron, MI. Almost half of the corridor (approximately 111 miles) is double track, while the balance is single track with sidings. The simulated route from real-world east to west is as follows:

Subdivision	Start Location	End Location
CN Flint Sub	Port Huron	Tappan
CN Flint Sub	Tappan	Battle Creek Yard
CN South Bend Sub	Battle Creek Yard	South Bend

Amtrak's route includes only the 158 mile portion between Port Huron and CP Gord; this portion contains 106 miles of single track and 52 miles of double track. The western portion of the simulation territory was extended beyond the endpoint of Amtrak service (CP Gord) to South Bend, the next major station west of Battle Creek, to ensure that the effect of Amtrak on freight traffic moving west of Battle Creek would be properly captured. The six daily trains on Amtrak's Wolverine service operate over a 1.2 mile portion of this corridor, with cross-plant train moves between CP Baron (South Bend Sub MP 176.7) and CP Gord (MP 175.5). These

movements, including their station stop at Battle Creek, were included in the simulation of the GTW Corridor.

B. Data Collection for and Construction of TPC Route Files

The TPC program's primary function in the modeling process is to calculate Minimum Run Times ("MRTs") for specific train consists between defined points and with no other traffic present. Once the simulation route and end points have been selected, underlying topographical track data (elevations, curves, speeds) is collected and coded into TPC files that are used by the TPC in computing these MRTs. TPC files were therefore created for both the IC Corridor and the GTW Corridor.[9]

TPC files are built from two types of track data files: permanent and temporary. The permanent track data files are stored on CN's mainframe. Prior to the simulation, CN's permanent track database contained all of the track segments for each corridor with the exception of the two Amtrak segments within the passenger terminals on the IC Corridor: Chicago Union Station to Clark Street and Southport Junction to NOUPT. Station locations, speeds, elevations, and curves for these segments were collected using a combination of data measured from Google Earth and timetables effective in 2007 sourced from the Chicago Operating Rules Association (CORA) and from Amtrak (for NOUPT trackage).[10] We then added these two segments to the CN TDMS data base for use by the TPC, using the TDMS, mainframe interface for updating or supplementing the permanent track data files. The purpose of temporary track data files is to

[9] Each route file was assembled with the track segments (subdivisions) listed in consecutive order by direction (two route files were created for each corridor, one for each direction). The TPC route files specify how the files are used and arranged to define the path of the train form origin to destination. The various TPC files can be found in our workpapers.

[10] TDMS also assembles track data in the format required as input for TPC runs.

provide a means to run a TPC using alternative (temporary) input data while maintaining/protecting the permanent TDMS database.[11]

The track data files used by the TPC contain information about the elevations, curves, speed (including any permanent speed restrictions), station locations, and other physical characteristics of the track. Some of this track information can change over time (*e.g.*, speeds and station locations). Therefore, track information must be reviewed prior to a TPC run in order to verify it is current, and temporary track data files must be created if updates are required. In this case, in order to verify that track information was current, we reviewed CN's current timetables and operating bulletins, and temporary track data files were created and/or updated as required to reflect the current operational realities. In addition, the speed files for both passenger and freight trains were reviewed in detail using the current timetable and current operating bulletins. This included a review of turnout speeds and main track specific speeds for double track sections.

C. Data Collection for and Construction of RCM Plant Configuration Table

RCM uses a text flat file, called a spec file,[12] to input the plant, traffic and operating information needed to run the model. The RCM input file (spec file) contains a number of tables with specific plant, traffic & operating data that make up the Scenario to be simulated. The spec file contains 5 tables which define the characteristics of the plant in the model: the Plant Configuration Table, the Terminal Description Table, the Siding Exceptions Table, the Double Track Exceptions Table, and the Junction Definition Table.

[11] This allows for effective "What-if" analysis that requires changes to the base TDMS data to reflect changes in operation.

[12] A copy of these text files can be found in the folder "RCM Spec Files" on the DVD containing the workpapers.

In RCM, as in most network simulation tools, it is necessary to develop a continuous milepost system for distance representation. Many real-world subdivisions have discontinuities within their own milepost systems, and linking together subdivisions with increasing and decreasing mileposts and possible discontinuities between subdivision milepost systems can cause challenges when modeling. Accordingly, prior to coding the plant in RCM, a continuous milepost system was established for the simulation territory. For each corridor, we used an Excel file to create a system of RCM mileposts and record their mappings to subdivision mileposts and location names, and created a secondary lookup table for mapping location names to RCM mileposts.[13]

1. Plant Configuration Table

The Plant Configuration Table, an excerpt of which is shown below as Figure 1, is the main table used to define the overall structure of the plant in RCM. Since RCM's plant representation is always non-branching (*see* introductory discussion to Section III, above), the plant of a given corridor can be thought of as a table, with each row forming the next piece of the plant. In the plant table each row is known as a Switch Milepost, whether an actual switch is present or not. A Switch Milepost will generally correspond to a timetable location or other discrete element (such as a junction, diamond, cross-over, etc.) and is assumed to be a controlled signal location. An excerpt from the RCM Plant Configuration Table is reproduced below.

[13] These files are included in the workpapers.

Figure 1
Excerpt from Plant Configuration Table

SWITCH MILEPOST	NAME	SWITCH TYPE	TRACK TO EAST	# ESTBND INT SIG	# WSTBND INT SIG	TURNOUT SPEED	TURNOUT TRACK
066.72	DURAND__	P	S	I0	I0	25.0	
066.56	PITT_N__	P	P	I0	I0	25.0	
065.28	PITT_S__	P	S	I0	I0	25.0	
063.48	GAINES_N	P	P	I0	I0	25.0	
062.21	GAINES_S	P	S	I6	I6	25.0	
046.00	HOLLY_N_	P	P	I0	I0	25.0	
044.56	HOLLY_S_	P	S	I2	I2	25.0	
038.72	ANDERS_N	P	P	I0	I0	25.0	
037.35	ANDERS_S	P	S	I1	I1	25.0	
033.30	WATERFRD	P	S	I1	I1	25.0	
030.02	WEST_PON	P	D	I0	I0	45.0	SOUT
029.06	AUBURN__	P	D	I0	I0	25.0	BOTH
028.32	WEST_BLV	P	T	I0	I0	25.0	PONTIAC

The table contains 8 columns: the first two contain the milepost and name of the switch, and the remaining six describe the track configuration that lies to the east of the switch.[14] Switch Type means whether it is a "power" or "spring" switch. The "Track to East" column defines whether the track following the Switch is single track, double track, a siding, or a terminal. The next two columns define the number of intermediate signals that exist before the next switch; these signals are used internally for headway calculations. The "Turnout Speed" is the track speed of all switches at this location, if any are present; trains not taking a turnout are not affected by this speed. Finally, the "Turnout Track," which is used only for areas of double track, defines the orientation of switches at either end of the double track.[15]

[14] The RCM has a built-in compass rose, with a hardcoded requirement that mileposts increase to the west. In other words, milepost 0.0 is always the easternmost point in RCM. This compass rose is only used for internal references and layout in the model to define turnout orientation and does not affect model output; all that matters is the relative orientation. For instance, on the IC Corridor, actual CN subdivision mileposts increase to the south, so real world south corresponds to model west. The Plant Configuration Table begins at the "westernmost" point in RCM's internal logic (the greatest milepost number) and each Switch is one point further "east," toward milepost 0.0.

[15] If the keyword "Both" appears in the Turnout Track column, it means for purposes of RCM that trains on either track will be affected by the turnout speed. It should also be noted that

To collect the information needed to build this table, we drew from CN's timetables information related to operating rules and requirements, such as station locations, track speeds, rail and highway grade crossing restrictions, yards, and junctions. We also drew from track charts information on sidings, switches, signals, single and double track locations, and mileages. We determined the number of intermediate signals between switches from track charts and signal drawings. And using track data on the screens of CN's dispatchers, we identified the primary corridor trackage for through train movements and the plant available to a dispatcher to resolve conflicts (*i.e.*, sections of track that are CTC-controlled, locations of powered switches, *etc*.).[16]

Locations for Amtrak station stops were added as needed so that the scheduled departure time would be enforced at the right location. Junctions were added for freight traffic (typically switchers) that work off-line (*i.e.*, do not block the main track). These locations were identified through interviews with CN transportation personnel familiar with the operations on the corridor. Data relating these locations to actual field mileposts came from track charts and from track layouts used by CN's dispatchers.

2. Terminal Description Table

Terminals are yard areas where a large number of trains originate and terminate (corridor origin and termination points must be included as terminals), or work off-line. Trains may also pass through terminal areas if they are not scheduled to stop there (for instance Amtrak may pass through a freight yard). In RCM, terminals are defined the same way as a normal segment

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when a Switch is placed on a piece of double track in RCM, it defines a full crossover location, and only trains using the crossover functionality (changing tracks) in the model will be impacted by the turnout speed.

[16] The source files we reviewed and from which we obtained data for the RCM plant table are in our workpapers.

between Switches (*i.e.*, they span a non-zero distance, and have an East and West end) and each terminal is included as a row in the Plant Description Table.

The Terminal Description Table, an excerpt of which is shown below as Figure 2, defines the maximum number of eastbound, westbound, and total trains allowed to occupy the terminal simultaneously before a warning is generated. However, because terminals in RCM are areas of infinite capacity (in the sense that an unlimited number of trains can be held inside any one at a given time), exceeding the maximums contained in the table will not affect the model, it will only generate a warning that can be used in post-modeling analysis.

Figure 2
Terminal Description Table for IC Corridor

TERMINAL NAME	MILEAGE	TRACKS WEST	TRACKS EAST	TOTAL TRACKS
NOUPT___	926.33	5	5	10
SWITCHNR	751.23	5	5	10
WEST_JCT	536.03	5	5	10
FULTONYD	407.75	5	5	10
CHAMPAIN	128.95	5	5	10
MRKHM_YD	022.65	5	5	10
CHI_UNIO	0.0	5	5	10

The following terminal locations were chosen for the IC Corridor:

- Chicago Union Station (MP 0.00)
- Markham Yard (MP 22.65)
- Champaign Yard (MP 128.95)
- Fulton Yard (MP 407.75)
- Harrison Yard (Memphis) (MP 536.03)
- Jackson Yard (MP 751.23)
- New Orleans Passenger Terminal (MP 926.33)

With the exception of the first and last terminals (which are origin and destination passenger stations), all these locations are major yards along the CN route where freight trains frequently stop, work, and may change crews.

The following terminal locations were chosen for the GTW Corridor:

- South Bend (MP 099.50)

- Battle Creek Yard (MP 180.81)
- Port Huron Yard (MP 333.68)

Battle Creek Yard is a major yard along the CN route where freight trains frequently stop, work, and change crews. South Bend and Port Huron Yard are the endpoints of the segments and therefore must be defined as terminals for purposes of RCM.

3. Siding Exceptions Table

The Siding Exceptions Table, an excerpt of which is shown below as Figure 3, is a simple table that serves to set a maximum length and/or tonnage for any given siding. The lengths for each siding were taken from CN's timetables and track charts.

Figure 3
Excerpt from Siding Exception Table

SIDING EXCEPTIONS

WESTERN SW MILEAGE	LENGTH (FEET)	WEIGHT (TONS)
911.43	11211	0
899.03	10180	0
880.63	12240	0
861.83	13046	0
847.33	9290	0
778.13	13842	0

This Table can also be used in situations where road crossings limit maximum length of a train in a siding, or when weight restrictions exist on the siding track. For example, on the IC Corridor, the Siding Exception Table was used to prevent loaded bulk trains from using a siding at Curve (RCM MP 469.16) because of a weight restriction on that siding.[17] On the GTW corridor, it was used to adjust the length of the multi-siding representing Flint Yard in order to more accurately reflect the length of tracks available.

[17] This restriction was put in place after discussions with CN's transportation employees, who noted that the grade on the siding prevented loaded bulk trains from starting from a stop in the siding.

4. Double Track Exceptions Table

As noted above, putting a switch location in the middle of double track in RCM gives full crossover functionality. The Double Track Exceptions Table, an excerpt of which is shown below as Figure 4, is used to specify crossover functionality at locations on double track where an exception is required to that default. This table is used, for example, at passenger stations on double track, where a Switch entry is made in the main Plant Configuration Table, but no crossovers (or only uni-directional crossovers) are available.

Figure 4
Excerpt from Double Track Exceptions Table

WESTERN SW MILEAGE	LENGTH NORTH	LENGTH SOUTH	CROSSOVER AT SWITCH
029.06	0	0	Z
025.55	0	0	Z
025.09	0	0	EN
017.65	0	0	Z
013.45	0	0	Z
013.09	0	0	Z
011.25	0	0	X
004.26	0	0	Z
003.01	0	0	Z
0.8	0	0	Z

The table also allows one to specify length restrictions on double track segments for the purpose of restricting the train length at a stop location. This would typically be used in the case of road crossings that reduce the available siding length to hold a train. Data for this table were taken from the timetables, dispatcher screens, and track charts.

5. Junction Definition Table

The Junction Definition Table, an excerpt of which is shown below as Figure 5, contains entries for every Switch where a train may enter or exit the simulation. The only places where trains can enter or exit the simulation are the Switches that define (a) the endpoints of the corridor, (b) junction locations, or (c) terminals. Junction configurations in RCM were based on dispatcher screens, timetables, and track charts.

Figure 5
Excerpt from the Junction Definition Table

SWITCH MILEAGE	TRACK FOR ENTERING WESTBOUND TRAINS	TRACK FOR ENTERING EASTBOUND TRAINS	CAN TRAINS ALSO TAKE OTHER TRACK (CROSSOVER ?)
029.06	NORT	NONE	NO
025.55	NONE	NORT	NO
011.25	SOUT	SOUT	YES
004.26	NORT	SOUT	YES
004.25	NORT	MAIN	YES
004.13	MAIN	NORT	YES

The columns for Track for Entering Trains[18] may have four different values that affect junction configuration:

- NORT/SOUT apply to double track areas only, and they select the default track on which trains enter the simulation;
- MAIN applies to single track areas, where there can only be 1 track for entry; and
- NONE means the connection is disabled for entering traffic (this is used to allow unidirectional connections).

The final column selects whether the entering train can enter on either track (in double track territory) regardless of whether a crossover is defined at this location.

D. Simplifying Assumptions

No model of complex rail operations can hope to account for every possible detail of the real world operations. In building our representative plant, our model included a number of simplifying assumptions. Some of these simplifications were necessary due to limitations in data sources or the modeling software, while others avoided unnecessary added complexity that would not have significantly changed or improved the simulation results.

1. Where turnout speed information could not be found in timetables, track charts, or signal drawings, an assumed value reflecting surrounding territory was used.

[18] Westbound and Eastbound refer to the internal RCM compass.

2. Unpowered sidings and small yards which are not generally used by CN's dispatchers in the dispatch of the through-corridor traffic were not included in the model, as these could not be used to resolve conflicts without significant delay.

3. Industrial spurs and unpowered yards where a freight train would clear to work off-line, and later return as another train movement, were modeled as junctions.

4. Diamonds controlled by foreign railroads were not included in the simulation. Modeling delays at these diamonds would have been difficult as the cross plant movements and traffic associated with these diamonds are unpredictable and occur outside CN's control. It was instead conservatively assumed that trains could move across these diamonds unimpeded, making the network more fluid, and tending to decrease delays and the infrastructure required to address them.

5. Markham Yard on the IC Corridor is a complex multi-track operating area that was modeled as a terminal, with the plant between Markham Yard and Stuenkel modeled as double track; this allowed us to reasonably approximate operations through this area as most freight activity occurs off the double main track through this zone.

6. Since the model does not permit branching, Amtrak's use of its station in Memphis, which is on a 17-mile section of track not used by CN freight trains, was approximated by having Amtrak stop within the terminal area of CN's Memphis Harrison Yard on the IC Corridor (where, within the model, it would have no impact on other traffic), and depart Harrison Yard at the scheduled time;, this allowed us to model the continuous flow of freight leaving and entering Harrison Yard while accurately accounting for Amtrak's use of the short 17-mile section of non-freight track.

7. The south side of Harrison Yard, where there is a double track with two mains that are not parallel and have different distances, was not capable of being accurately replicated in the model; instead, one of the routes was chosen, and all trains operated on it as if it were double track, thus maintaining equivalent functionality (two main tracks) while having a minimal impact on accuracy (slightly off run times for trains taking the other route).

8. Manual switches at work locations were coded as power switches, as RCM does not recognize hand operated switches. It was assumed the extra time to align a manual vs. power switch was included in dwell time of the train at the work location.

9. South Bend was used as a simulation end point on the GTW Corridor, as the corridor crosses the Norfolk Southern (NS) controlled territory at this location. This was a natural location to terminate the simulation, well outside of Amtrak's operating corridor.

These simplifying assumptions significantly reduced the time and effort required to set up and run the simulation, and were unlikely to have an impact on the modeling results. Moreover, if they had any significant overall effect, it would be to increase the efficiency and fluidity of the modelled operations, and thus likely decrease the freight delays attributed to Amtrak in Scenario 2 and the capital investment necessary in Scenario 3.[19]

IV. Selecting and Inputting the Traffic Package

Freight rail traffic patterns fluctuate throughout the year, but modeling an entire year's worth of operations would be prohibitively burdensome. Modelers therefore must choose an adequately representative period. We have found that use of a week's worth of traffic as a base, including operational variability of train times and consists, is sufficiently representative for our modeling purposes here, and we proceeded on that basis. A week of traffic is also consistent with CN's train service plans and the RCM model's traffic input requirements, both of which are based on a seven day period.

Rather than create an artificial idealized traffic package based solely on annual averages, which would require numerous assumptions regarding the time, frequency, and characteristics of each train and likely would be unrepresentative of an actual week (i.e. would have "on average" all trains, when some trains never run on the same day, at the same time, or with the same consists), we sought to increase accuracy and realism of our traffic package by basing it on the characteristics of the specific trains that ran during an actual week in 2013. This "Sample Week", was adjusted with minor additions or subtractions to trains as necessary to match the

[19] In other words, each assumption ignored a complexity or issue that could cause a delay in the model, which in turn would have required more plant to resolve.

average weekly volumes of the sample week train types with the average 2013 volumes on the corridor. The following section describes this process in more detail.[20]

Our first step was to obtain train history data for 2013, which at the time we began our modeling was the latest complete year. Because trains move on and off corridors at various locations and do not always traverse the entire corridor, we broke up each corridor into discrete segments for which traffic volumes could be compared across time periods.[21] We then chose a specific "observation point" on the main line of each segment at which we could compare train volumes between the 2013 averages and the proposed sample week.[22]

Table 1
Segments and Observation Points for Chicago to New Orleans Corridor

Segment	Observation Point
Chicago to Champaign	Kankakee
Champaign to Cairo Jct	Humboldt
Cairo Jct to Memphis (Harrison Yard)	Covington
Memphis (Harrison Yard) to Jackson	Rising Sun
Jackson to Orleans Jct.	Johnston
Orleans Jct. to New Orleans	Kenner

[20] Use of 2013 data also avoided relying on traffic volumes during the highly unusual operating circumstances of the first quarter of 2014 that were caused by extreme winter conditions. The workpapers containing the underlying data discussed in this section can be found in the folder "Traffic."

[21] To be most useful, these segments were defined by major origin/destination points, such as yards and junctions, where trains would enter or exit the corridor.

[22] CN has train reporting points (*i.e.*, geographic locations where data about the trains that move past the point are recorded) spread across its system. Some reporting points record more and higher quality data about the trains than others. In choosing a reporting point for a given segment, we balanced data availability and reliability issues with geographic and operational considerations. For example, locations where trains were likely to originate or terminate, such as yards and junctions, were avoided in order to capture more accurately the number of through trains operating on each segment.

Table 2
Segments and Observation Points for Michigan Corridor

Segment	Observation Point
Port Huron to Durand	Davison
Durand to Battle Creek	Potterville
Battle Creek to South Bend[23]	Baron, Marcellus

In reviewing the data, it became clear that no one week precisely matched 2013 average train volumes. For simplicity's sake, we therefore chose as our sample week the two weeks during which we were in the field discussing operations on each corridor with the local and regional operating departments. These were the week of April 29th for the IC Corridor and the week of October 21 for the GTW Corridor.

Train data for these sample weeks were pulled from the CN corporate data base and compared to the annual averages. At each observation point, the differences between the sample week and the 2013 averages were small (less than 1 train per day), as shown on the following tables:

Table 3
Total trains per week (excluding Locals) on the IC Corridor

Observation Point	2013 Average	Sample Week (Apr. 29 – May 5)	Difference
Kankakee	137.0	140.0	3.0
Humboldt	122.8	126.0	3.2
Covington	118.7	118.0	-0.7
Rising Sun	114.3	108.0	-6.3
Johnston	75.8	72.0	-3.8
Kenner	34.1	31.0	-3.1

[23] On this segment, Baron captures cross-plant Amtrak moves, while Marcellus captures main line traffic volumes over this section.

Table 4
Total trains per week (excluding Locals) on the GTW Corridor

Observation Point	2013 Average	Sample Week (Oct. 21 – Oct. 27)	Difference
Davison	89.0	91.0	2.0
Potterville	122.4	126.0	3.6
Baron	170.9	166.0	-4.9
Marcellus	118.7	119.0	0.3

Once we had extracted the raw data from the sample week, we performed two relatively minor adjustments in order to make them more representative of a typical week.

First, we reviewed and adjusted some train counts to make the train's operation compatible with the simulation input. In pulling data for the sample week, the issue of "partial" trains already on the corridor (*i.e.*, trains that had originated prior to, or reached their destination after the close of the sample week) had to be adjusted. For these trains we generally eliminated the count of the train that started before the sample and extended the count of the train that had not completed its journey by the end of the sample week. The end result was that a daily train was assumed to appear 7 times at each observation point it was scheduled to pass in the sample week, even if in reality it appeared 6 or 8 times at a particular observation point in the raw data for the sample week.

Second, we reviewed the data for anomalies or exceptions and made minor adjustments to "clean" the raw data. Unusual moves or moves not reflective of typical main line corridor operations were removed, added, or adjusted in the count. For example, if a train took a different routing on a particular day that deviated from its normal service plan, we assumed instead that it ran according to plan on that day. Likewise, if a daily train terminated early on one of its runs during the week, we assumed the train operated according to its full service plan. It was found that Amtrak volumes, in particular on the GTW Corridor, were lower during the sample week

than the regular scheduled service; this was likely due to cancellations caused by construction, missed reporting, or other unknown reasons. For simulation purposes, we assumed all Amtrak trains operated pursuant to their schedule.

These adjustments made to the train counts in the sample week, are summarized in the following tables:

Table 5
Adjustments to IC Corridor train volumes to correct data anomalies

Observation Point	Sample Week (raw)	Sample Week (cleaned)	Adjustment from raw
Kankakee	140.0	140.0	0.0
Humboldt	126.0	129.0	3.0
Covington	118.0	120.0	2.0
Rising Sun	108.0	109.0	1.0
Johnston	72.0	72.0	0.0
Kenner	31.0	29.0	-2.0

Table 6
Adjustments to GTW Corridor train volumes to correct data anomalies

Observation Point	Sample Week (raw)	Sample Week (cleaned)	Adjustment from raw
Davison	91.0	91.0	0.0
Potterville	126.0	125.0	-1.0
Baron	166.0	174.0	8.0
Marcellus	119.0	118.0	1.0

Once we had clean data for the sample week, we added or subtracted trains in order to more closely match the 2013 Average. Decisions regarding which trains should be added or removed were based on an analysis of the traffic volumes by train type. For example, if there was a segment where the volumes in the Sample Week were below the 2013 Average (and therefore required the addition of a train), determining that coal trains were underrepresented on that segment compared to the 2013 Average would suggest that a coal train should be added,

instead of a manifest or intermodal train. Likewise, determining which train types on which segments were overrepresented in the Sample Week on a given segment would suggest which trains were better candidates for removal.

The volume of core trains (*i.e.*, manifest and intermodal trains that are scheduled and run regularly) on both corridors in the adjusted Sample Week was very close to their 2013 Average volumes, as shown on the following tables.

Table 7
Difference in core trains on the IC Corridor between the 2013 Average and the cleaned sample week

Observation Point	2013 Average	Sample Week (cleaned)	Difference
Kankakee	86.3	86.0	-0.3
Humboldt	69.3	70.0	0.7
Covington	68.9	70.0	1.1
Rising Sun	56.4	56.0	-0.4
Johnston	42.0	42.0	0.0
Kenner	14.1	14.0	-0.1

Table 8
Difference in core trains on the GTW Corridor between the 2013 Average and the cleaned sample week

Observation Point	2013 Average	Sample Week (cleaned)	Difference
Davison	68.6	70.0	1.4
Potterville	87.3	90.0	2.7
Baron	95.6	97.0	1.4
Marcellus	95.6	97.0	1.4

Because grain and coal volumes tend to be low in the spring, bulk traffic levels were lower in the Sample Week than the 2013 Average on the IC Corridor. On the other hand, the

number of "other" train types was higher during the Sample Week than the 2013 Average.[24] In contrast, the bulk and other train volumes on the GTW Corridor during the sample week were very close to the average for the entire year. The differences between the adjusted sample week and the 2013 average for bulk and "other" train types are shown in the following two tables:

Table 9
Difference in bulk and other trains on the IC Corridor between the 2013 Average and the adjusted sample week

	Total Bulk Trains per week			Total Other Trains per week		
Observation Point	2013 Average	Sample Week (cleaned)	Difference	2013 Average	Sample Week (cleaned)	Difference
Kankakee	2.9	2.0	-0.9	5.9	10.0	4.1
Humboldt	6.0	5.0	-1.0	5.6	12.0	6.4
Covington	31.5	26.0	-5.5	4.4	10.0	5.6
Rising Sun	33.4	29.0	-4.4	10.5	10.0	-0.5
Johnston	17.8	15.0	-2.8	2.1	1.0	-1.1
Kenner	5.9	1.0	-4.9	0.3	0.0	-0.3

Table 10
Difference in bulk and other trains on the GTW Corridor between the 2013 Average and the adjusted sample week

	Total Bulk Trains per week			Total Other Trains per week		
Observation Point	2013 Average	Sample Week (cleaned)	Difference	2013 Average	Sample Week (cleaned)	Difference
Davison	1.3	3.0	1.7	5.2	4.0	-1.2
Potterville	7.4	8.0	0.6	13.8	13.0	-0.8
Baron	7.4	8.0	0.6	15.8	13.0	-2.8
Davison	7.4	8.0	0.6	15.7	13.0	-2.7

[24] For purposes of this analysis, "other" trains include all trains that are not scheduled core trains or bulk trains. Many of these trains are "extra" core trains – *i.e.*, trains that run in place of or in addition to a scheduled core train, but do not run according to a set schedule. Examples include trains that operate when the available traffic exceeds the capacity of the scheduled core trains or trains that operate in place of the core train over a segment, if the core train is late arriving to serve that segment.

Bulk and other non-core trains do not run to a schedule, and can operate on the line at any time of any day. They are therefore interchangeable for purposes of adding or subtracting trains.

Table 11
Combined bulk and other trains on the IC Corridor

Observation Point	2013 Average	Sample Week (cleaned)	Difference
Kankakee	8.8	12.0	3.2
Humboldt	11.6	17.0	5.4
Covington	35.9	36.0	0.1
Rising Sun	43.9	39.0	-4.9
Johnston	19.9	16.0	3.9

Table 12
Combined bulk and other trains on the GTW Corridor

Observation Point	2013 Average	Sample Week (cleaned)	Difference
Davison	6.5	7.0	0.5
Potterville	21.2	21.0	-0.2
Baron	23.2	21.0	-2.2
Marcellus	23.1	21.0	-2.1

Based on the foregoing analysis, we made the following adjustments to weekly train volumes for each segment of the IC Corridor:

Core trains per week

Observation Point	2013 Average	Sample Week (cleaned)	Adjustment to sample week (cleaned)	Simulation total	Difference between simulation and 2013 average
Kankakee	86.3	86.0	1.0	87.0	0.7
Humboldt	69.3	70.0	1.0	71.0	1.7
Covington	68.9	70.0	1.0	71.0	2.1
Rising Sun	56.4	56.0	0.0	56.0	-0.4
Johnston	42.0	42.0	0.0	42.0	0.0
Kenner	14.1	14.0	0.0	14.0	-0.1

Bulk trains per week

Observation Point	2013 Average	Sample Week (cleaned)	Adjustment to sample week (cleaned)	Simulation total	Difference between simulation and 2013 average
Kankakee	2.9	2.0	0.0	2.0	-0.9
Humboldt	6.0	5.0	0.0	5.0	-1.0
Covington	31.5	26.0	2.0	28.0	-3.5
Rising Sun	33.4	29.0	5.0	34.0	0.6
Johnston	17.8	15.0	4.0	19.0	1.2
Kenner	5.9	1.0	5.0	6.0	0.1

Other trains per week

Observation Point	2013 Average	Sample Week (cleaned)	Adjustment to sample week (cleaned)	Simulation total	Difference between simulation and 2013 average
Kankakee	5.9	10.0	-4.0	6.0	0.1
Humboldt	5.6	12.0	-7.0	5.0	-0.6
Covington	4.4	10.0	-5.0	5.0	0.6
Rising Sun	10.5	10.0	0.0	10.0	-0.5
Johnston	2.1	1.0	0.0	1.0	-1.1
Kenner	0.3	0.0	0.0	0.0	-0.3

Combining the adjustments to the bulk and other train volumes with the core train volumes resulted in the following final train counts for the IC Corridor simulation:

All trains per week

Observation Point	2013 Average	Sample Week (cleaned)	Adjustment to sample week (cleaned)	Simulation total	Difference between simulation and 2013 average
Kankakee	137.0	140.0	-3.0	137.0	0.0
Humboldt	122.8	129.0	-6.0	123.0	0.2
Covington	118.7	120.0	-2.0	118.0	-0.7
Rising Sun	114.3	109.0	5.0	114.0	-0.3
Johnston	75.8	72.0	4.0	76.0	0.2
Kenner	34.1	29.0	5.0	6.0	0.1

We made the following adjustments to weekly train volumes for each segment of the GTW Corridor:

Core trains per week

Observation Point	2013 Average	Sample Week (cleaned)	Adjustment to sample week (cleaned)	Simulation total	Difference between simulation and 2013 average
Davison	68.6	70.0	-1.0	69.0	0.4
Potterville	87.3	90.0	-1.0	89.0	1.7
Baron	95.6	97.0	0.0	97.0	1.4
Marcellus	95.6	97.0	0.0	97.0	1.4

Bulk trains per week

Observation Point	2013 Average	Sample Week (cleaned)	Adjustment to sample week (cleaned)	Simulation total	Difference between simulation and 2013 average
Davison	1.3	3.0	-1.0	2.0	0.7
Potterville	7.4	8.0	-1.0	7.0	-0.4
Baron	7.4	8.0	-1.0	7.0	-0.4
Marcellus	7.4	8.0	-1.0	7.0	-0.4

Other trains per week

Observation Point	2013 Average	Sample Week (cleaned)	Adjustment to sample week (cleaned)	Simulation total	Difference between simulation and 2013 average
Davison	5.2	4.0	0.0	4.0	-1.2
Potterville	13.8	13.0	0.0	13.0	-0.8
Baron	15.8	13.0	1.0	14.0	-1.8
Marcellus	15.7	13.0	1.0	14.0	-1.7

Combining the adjustments to the bulk and other train volumes with the core train volumes resulted in the following final train counts for the GTW Corridor simulation:

All trains per week

Observation Point	2013 Average	Sample Week (cleaned)	Adjustment to sample week (cleaned)	Simulation total	Difference between simulation and 2013 average
Davison	89.0	91.0	-2.0	89.0	0.0
Potterville	122.4	125.0	-2.0	123.0	0.6
Baron[25]	170.9	174.0	0.0	174.0	3.1
Marcellus	118.7	118.0	0.0	118.0	-0.7

Once these final volumes were established, we had to determine the characteristics of the trains to be added and the specific trains to be removed. On the IC Corridor, all adjustments were additions or subtractions of full trains over various segments. Specifically, we added eight G-type grain trains, two C-type coal trains, and one Q-type intermodal train and omitted seven X-type "other" trains. On the GTW Corridor, we made the following specific adjustments: we removed, at random, one of the three U-type bulk trains; we extended an X-type "other" train further back to another origin; and we truncated an M-type core train. Any new train added to the simulation traffic package was randomly assigned a start time from 00:00 to 24:00, consistent with the principle that bulk and other trains do not have consistent start times, and could operate over the corridor at any time.

Foreign trackage rights trains, which are not captured by CN's automatic train recording system, were operating on CN's lines in both the IC Corridor and the GTW Corridor during the Sample Week. Therefore, reflecting Sample Week operations, for the final simulation we included 14 NS trains per week through the Kankakee observation point on the IC corridor and 14 CSXT trains per week operating through the Davison point on the GTW Corridor.

[25] The 3.1 train per week difference at the Baron observation point includes 4 passenger trains per week missing from the raw data, likely due to the frequent cancellation of some passenger trains due to construction, missed reporting, or other unknown reasons. Without this issue, the difference is only -0.9 trains per week.

In addition, Local trains (L and R types) that switch the industries on the territory had to be taken into consideration. These trains operate at a mixed combination of regularly-scheduled service to variable day-to-day service as required. Automatic reporting can also be different for these trains, which in some cases leads to missing or unreported trains. Therefore, for these trains, we decided as a starting point to have in-depth meetings with operating personnel familiar with their typical operations. Historical volumes and train schedules, where available, were used to supplement these discussions, and those three pieces of information were integrated to achieve a reasonable week of switching service.

Amtrak trains were assumed to operate per their schedule, and were further assumed to arrive to their origination point on the CN line at their scheduled arrival time.

V. Determining Representative Train Operations

We reviewed a variety of sources in order to understand the representative operations of the two corridors. In particular, we reviewed historical data from 2013 in order to understand the routing, operational characteristics, and timing of the freight trains in the traffic package. We also obtained information from CN operational personnel regarding some nuances of train operations that would not necessarily be obvious from the data alone.[26] In general, we assumed operations proceeded according to the plan in place at the time,[27] subject to the parameters described below.

[26] For example, the limits of the Lansing Yard (on the GTW Corridor) include several stations on CN's main line. Through our discussions with local operating personnel, we learned that scheduled dwell time at this yard includes some travel time on the main line; to avoid double-counting this travel time, we removed it from the simulation's scheduled dwell time, as the simulation would have already accounted for the travel time in the TPC run.

[27] This is a conservative assumption, as the day-to-day realities of railroad, which include inclement weather, mechanical breakdowns, track repairs, and other unpredictable events that increase delays, would further strain the capacity of these corridors.

A. Train consists

Like train volumes, train consists (the number of loads, empties, train length, number and horsepower of locomotives, and horsepower-per-ton ("HPT")) fluctuate over time. In order to reduce the complexity and coding burden, we assumed that trains that operated on multiple days in the model operated with the same operational parameters each day. We used the following methodology in creating the train consists for each train in the model.[28]

For core, bulk and other trains we used the 66.7 percentile of trains (*i.e.*, the average plus one standard deviation) that operated in 2013 to establish train lengths. Core trains all have a target HPT, and we used these targets for the core trains. For bulk and other trains we used as a minimum (a) the target HPT in the schedule they ran on during the sample week, or (b) the actual HPT of the train in the sample week. In cases where data were missing or incomplete and for bulk trains added during the adjustment phase, we substituted historical data or data from similar trains.

To determine the appropriate consist for each Amtrak train, we used a summary of Automatic Equipment Identification ("AEI") reader records showing Amtrak train IDs and counts of locomotives and cars for the period January 1, 2013 to October 28, 2013 (inclusive). The most frequently used consist for each train was used for the RCM simulations.[29]

Other consist information concerning passenger trains was developed from information concerning Amtrak's specific locomotives and cars. Amtrak's standard locomotive in the two corridors is the P42 (4200 hp). Length, weight, resistance, and tractive effort information for this

[28] Statistics and operational parameters of each train in the model are included in our workpapers.

[29] This method has the benefit of effectively ignoring both outliers (such as special trains) and data gaps (such as train records indicating 0 locomotives).

locomotive type was extracted from CN's TPC locomotive library, as was separate tractive effort information for different levels of head-end power (HEP) draw.[30] Passenger car weight, length, and resistance information for both Amtrak's "Amfleet" coaches and its "Superliner" equipment was taken from publicly available information.[31]

Amtrak car resistance information was converted to the required TPC format using CN's standard "Davis equation based" formulas from the TPC Manual ("Engineering Principles" section). Braking force was calculated using CN's standard formula in the same manual using the deceleration rate for conventional passenger equipment. Consist text files for the passenger trains were then created using the same format as described above for the freight train consists.

Once we had created the list of freight and passenger trains and their operating parameters, we grouped them into "families" with like operating characteristics for purposes of TPC and dispatching priority (*e.g.*, train type, tonnage, length, and HPT) and conducted a TPC run for each family of train.[32] We also added each family of trains to the table "Train Data – Speed Classes," an excerpt of which is included below.

[30] Amtrak locomotives that operate on CN's lines draw electrical power for the heating and lighting of the cars from the locomotive's electrical generator. The kilowatt HEP draw reduces the power available to the traction motors and therefore impacts the tractive effort available for pulling the train.

[31] This information is contained in our workpapers.

[32] The specific families can be found in the RCM files in our workpapers.

Figure 6
Excerpt from Train Data - Speed Class Table

TRAIN DATA - SPEED CLASSES

SPEED CLASS	DIR E/W	HDWY ST	HDWY DT	PRTY 0-99	TRN TYP	W/P	CLASS LNGTH	GRS TONS	TRLNG TONS	AVG CAR WT
NB-E295A	E	0.00	0.00	55.00	E	1.833	8000	10080	9660	68.03
NB--E295	E	0.00	0.00	55.00	E	1.008	8000	10080	9660	68.03
NB-E295D	E	0.00	0.00	55.00	E	1.260	8000	10080	9660	68.03
NB--Q195	E	0.00	0.00	60.00	E	0.664	10000	14280	13860	69.65
NB--L551	E	0.00	0.00	10.00	F	1.213	5000	5460	5040	69.04
NB-L508A	E	0.00	0.00	10.00	F	1.213	4000	5460	5040	69.04
NB--L598	E	0.00	0.00	10.00	F	1.260	7000	8190	7770	69.38
NB--M301	E	0.00	0.00	50.00	F	1.500	9000	10080	9660	68.03
NB--X396	E	0.00	0.00	50.00	F	1.260	6000	8190	7770	69.38

Among other things, this table defines the primary characteristics of each train in the simulation, its dispatching priority (0 being the lowest possible priority, and 99 the highest), its weight-to-power (the inverse of its HPT) ratio, its length in feet, and its tonnage.

Of particular interest from the TPC results was the MRT the TPC calculated for certain Amtrak trains, as it appears the PRT in Amtrak's schedule is insufficient for some trains. A comparison between the PRT in the schedule for those trains and the MRT calculated by CN's TPC is shown on the following table.

Table 13
Comparison of schedule and TPC-based run times

				Difference	
Train(s)[33]	Segment endpoints	Minutes of PRT in Amtrak schedule	Minimum run time from TPC	Minutes	Percentage
58	Southport Jct – Clark St.	914.0	933.0	(19.0)	-2.1%
59	Clark St. – Southport Jct.	892.0	928.0	(36.0)	-4.0%
390 / 392	Carbondale – Clark St.	265.0	280.5	(15.5)	-5.8%
391 / 393	Clark St. – Carbondale	265.0	279.1	(14.1)	-5.3%

[33] For trains 58-59, the consist used in the TPC run was 1 P42 locomotive and 9 Superliner cars. For trains 390-393, the consist used was 1 P42 locomotive and 7 Horizon / Amfleet cars.

It should also be noted that the MRT calculated by the TPC is just that – a theoretical minimum based on optimal track and operating conditions (*e.g.*, no other traffic, optimal locomotive performance, dry weather, no wind, no wheel slip, *etc*.) and train handling characteristics (*e.g.*, optimal timing of brake applications and accelerations). CN regularly adds a 4% allowance to TPC-calculated MRTs in its passenger schedules to account for things like locomotive inefficiencies, head winds, wheel slippage, and human deficiencies in train operations (*e.g.*, braking sooner than optimal, accelerating more slowly than optimal, *etc*.). CN also adds a 5% allowance for TSO (temporary slow order) that arise from the frequent / constant track inspections which are inherent to safety & maintenance aspect of a freight railroad.

Separate from this capacity modeling exercise, TPC runs were conducted to estimate the amount of time lost when an Amtrak train operates through a crossover. These TPC runs were conducted with a variety of different Amtrak consists and representative track and crossover speeds. Based on the results of these TPC runs, with the consists Amtrak has historically operated on the CN lines and at the track and crossover speeds that currently predominate in that territory, Amtrak should lose no more than two minutes when operating through a crossover.

B. Train schedules

Train schedules include two primary components: departure times and dwell times. The departure time is the time the train is scheduled to come on-line at its origin; in essence, this is the specific time the train is created in the simulation. The dwell times are the times the train is stopped – either on-line or off-line – in order to accomplish its scheduled work (such as passenger station stops, crew changes, switching cars at a particular customer location or switching cars in a yard, *etc*.). Every schedule for core trains in CN's network has a departure time at a yard or junction, as well as dwell time for scheduled activities.

In order to simulate real-world operations involving scheduled trains (which may be operating early or late as compared to their schedule) and unscheduled trains, train departure and dwell times in the model must include a certain level of variability from the schedule. It is important that the simulation consider the variation in freight departure times from yards, and freight work times both on and off-line, as these daily variations in schedule are part of regular railroad operations. Moreover, in this type of modeling, train schedules are the primary independent variables, and have the largest effect on the output of the simulation, since these variables dictate the locations of meets and overtakes, and therefore have a significant effect on the resulting delays.[34]

1. Train departure times

For purposes of RCM, train departure information is contained in the table "Scheduled Trains," an excerpt of which is included below.

[34] Secondary variables (such as train performance, consist, and length), and tertiary variables (such as weather-related delays, track outages, and equipment failure), generally play a much less important role in determining delays, and were not included in the modeling (other than using averages where applicable). Had such variables been included they would have introduced additional operational inefficiencies that would have tended to increase the capital investment in capacity necessary in Scenario 3.

Figure 7
Excerpt from Scheduled Trains Table

SCHEDULED TRAINS

SPEED CLASS	DEP. TIME	TRAIN NAME	DAYS OF WEEK (LIST OR 0)	FIRST SWITCH	LAST SWITCH	PERCENT EARLY	S.D. EARLY	S.D. LATE
NB-L508A	6.50	L574C	0	58.55	22.65	0.0	0.0	0.0
NB-L508A	10.40	L508A	0	435.00	407.75	0.0	0.0	0.0
NB-L508A	8.00	L532	25	517.35	486.85	30.0	15.0	30.0
NB-L508A	9.00	L536	357	653.33	603.83	30.0	15.0	30.0
NB-L508A	16.00	L536B	357	678.50	653.33	0.0	0.0	0.0
NB-L508A	9.00	L536C	246	653.33	579.43	30.0	15.0	30.0
NB--L551	15.50	L551	0	173.95	128.95	30.0	15.0	30.0
NB-L508A	17.00	L553A	0	125.25	82.25	30.0	15.0	30.0
NB-L508A	22.00	L555	0	82.25	61.45	30.0	15.0	30.0
NB-L508A	8.00	L557	0	406.15	373.65	30.0	15.0	30.0
NB-L508A	23.99	L562A	0	804.93	751.03	0.0	0.0	0.0
NB-L508A	9.75	L564A	234567	761.93	751.03	0.0	0.0	0.0
NB-L508A	9.50	L567	23456	804.93	780.44	30.0	15.0	30.0
NB-L508A	9.25	L567C	7	828.63	804.93	0.0	0.0	0.0
NB-L508A	19.00	L574A	23457	896.90	828.63	0.0	0.0	0.0
NB-L508A	20.50	L575	12345	828.63	804.93	30.0	15.0	30.0
NB-L508A	8.00	L589A	0	309.95	254.35	0.0	0.0	0.0
NB-L508A	7.50	L589C	0	925.33	922.63	30.0	15.0	30.0
NB-L508A	0.75	L595A	0	925.33	922.63	0.0	0.0	0.0

The Train Schedule table contains all trains in the simulation. For each train, the table specifies the speed class for the train (which is linked to the TPC run for the train),[35] its scheduled departure time, the days of the week the train operates (0 in this field means the train operates every day), its origin and destination in the model (defined in terms of switch mileposts in the Plant Configuration table), and three variable parameters (Percent Early, Standard Deviation (S.D.) Early (measured in minutes), and S.D. Late (measured in minutes)), which serve to define the shape of the distribution used to generate train departure times in the model.

2. Train dwell times

For purposes of RCM, train dwell information is contained in the table "Train Stops – Scheduled Trains," an excerpt of which is included below.

[35] As the table demonstrates, there are multiple trains within each speed class.

Figure 8
Excerpt from Train Stops table

TRAIN STOPS - SCHEDULED TRAINS

TRAIN NAME	WEST SWITCH	AVG STOP TIME	ST. DEV.	EARLIEST DEPART.
L551A	155.25	30.00	0.00	0.00
L551A	159.05	30.00	0.00	0.00
L553A	82.25	71.48	20.00	0.00
L564A	761.93	90.00	20.00	0.00
L589A	288.65	45.00	0.00	0.00
L536C	624.93	75.00	15.00	0.00
L536C	653.33	33.50	0.70	0.00
L508	426.68	32.90	20.00	0.00
L508	437.65	45.00	0.00	0.00

This table lists each switch location in the Plant Configuration table at which a given train will stop. Thus, in the excerpt above, train L551A will stop twice – first at the location defined in the Plant Configuration Table at milepost 155.25 and then at the location defined at milepost 159.05. Dwell time variability of trains in RCM is controlled by 2 parameters – the average stop time and the standard deviation. Dwell time variability parameters for freight trains were based on a combination of the dwell times allowed in the schedules, discussions with Service Design and local operating officers, and historical analysis of actual dwell times; for the core, bulk, and other trains, the standard deviation was generally assumed to be 10% of the total dwell, capped at a maximum of 20 minutes. Zero variability was assumed for passenger trains. The Earliest Departure field was used only for passenger trains, which operate to a schedule that does not permit them to depart before a time certain (in other words, the train must stay in the station even after it has completed its allotted dwell if it is earlier than its scheduled departure time).

C. Amtrak Service Quality

The final aspect of train operations included in the modeling was the Amtrak service quality. CN ran two modeling simulations: the first assumed a monthly average endpoint OTP of 80%, while the second assumed a monthly average endpoint OTP of 90% for corridor trains and

85% for long-distance service trains.[36] The RCM allows a user to manually override the default dispatching decisions made by the model through the use of a command file. Using this feature we were able to generate results that closely matched those Amtrak service quality targets.

Professor Dubin determined the number of minutes of delay caused by freight trains and other passenger trains that a given Amtrak train could incur over the course of a month and still expect to arrive on time at its endpoint either 80%, 85%, or 90% of the time. *See* Dubin VS. We used the results of his analyses to set the "target" minutes of delay that a given Amtrak train could experience over the course of the model run. As we ran the model, we kept a running tab of the number of minutes of delay each train experienced, and we adjusted some meets and overtakes in order to have an end result that closely matched the target.

The "target" minutes and the average minutes of daily delay to each train in the two modeling scenarios that included Amtrak trains (Scenarios 2 and 3) are shown in the following tables:

Table 14
Target and Model delay minutes for 80% Endpoint OTP simulations

Train	Target	Scenario 2			Scenario 3		
		Model Results	Difference		Model Results	Difference	
			(mins)	(%)		(mins)	(%)
58	46.3	45.9	-0.4	-0.9%	45.0	-1.2	-2.7%
59	74.7	74.7	0.0	0.0%	74.1	-0.6	-0.8%
390	18.4	19.1	0.8	4.1%	18.1	-0.3	-1.4%
391	19.2	19.7	0.4	2.2%	20.3	1.1	5.8%
392	17.1	16.9	-0.2	-1.0%	17.0	-0.1	-0.7%
393	19.7	20.3	0.6	3.0%	19.4	-0.3	-1.6%

[36] As discussed above in note 4, we did not model the 80% endpoint OTP service target on the GTW Corridor.

Table 15
Target and Model delay minutes for 90%/85% Endpoint OTP simulations

Train	Target	Scenario 2			Scenario 3		
		Model Results	Difference		Model Results	Difference	
			(mins)	(%)		(mins)	(%)
58	37.95	37.7	-0.3	-0.7%	37.4	-0.5	1.3%
59	54.88	56.4	1.5	2.7%	53.7	-1.1	-2.1%
390	12.76	12.7	0.0	-0.1%	13.2	0.4	3.4%
391	13.57	13.4	-0.1	-1.1%	13.8	0.3	1.9%
392	12.36	13.0	0.6	5.2%	11.3	-1.1	-8.8%
393	9.75	9.7	-0.1	-0.7%	10.0	0.3	2.7%
364	9.8	9.9	0.2	1.9%	9.1	-0.7	-7.3%
365	11.1	11.6	0.5	4.3%	10.4	-0.7	-6.6%

VI. Using the Simulation Software to Quantify the Impact of Amtrak on CN

Once we had collected and input the data for the model, we ran a number of simulation scenarios in RCM in order to determine the incremental delay to CN freight trains caused by Amtrak. First, as Scenario 1, we simulated operations with only the representative freight traffic – and no Amtrak traffic – on the representative infrastructure on both the IC Corridor and the GTW Corridor. These two simulations established the baseline amount of delay (essentially lost transit time due to rail line capacity constraints) that would be expected to be experienced by CN trains in the absence of Amtrak. In Scenario 2, we added Amtrak trains to the mix, and held all other parameters constant. We dispatched the Amtrak trains so that they experienced a level of delay at which they would be expected to achieve a specified endpoint OTP as measured over the course of a month. As expected, the total amount of delay experienced by CN freight trains increased due to the presence of additional, high-priority trains on the corridor.

The following table shows the results for the different levels of Amtrak Endpoint OTP service.[37]

Table 16
Simulation results from Scenarios 1 and 2

Simulation	Scenario 1 (average hours of daily freight delay)	Scenario 2 (average hours of daily freight delay)	Difference (hours per day)	Difference (%)
Chicago to New Orleans: 80% OTP	39.8	64.8	25.1	63.1%
Chicago to New Orleans: 85%/90% OTP	39.8	67.2	27.5	69.1%
Battle Creek to Port Huron: 90% OTP	9.4	10.0	0.6	6.5%

After we determined the incremental freight delay in Scenario 2, we used an iterative process to add infrastructure to the existing plant in order to return freight delay levels as closely as possible to Scenario 1 levels while still meeting the specified Amtrak OTP target. We reviewed the time-distance plots generated by the RCM and performed a simple return-grid analysis,[38] and analyzed the simulation results on a day-by-day and segment-by-segment basis to determine the locations with the most significant Amtrak-caused congestion. Using our knowledge and understanding of the likely most cost-effective infrastructure improvements to alleviate freight delays, we added pieces of infrastructure in strategic locations. We then re-ran the simulation, and calculated the amount of Amtrak and freight delay. Finally, we fine-tuned the model by selectively adding and removing marginal pieces of new infrastructure until we reached our desired result: a reasonably cost-effective infrastructure additions that would allow

[37] More detailed results can be found in the workpapers "Simulation Results - Michigan Service - Scenario 3 (v3_01) Final.xlsx" and "Simulation Results - Chicago Service - Scenario 3 (v3_x8) Final.xlsx."

[38] The results of the return grid analyses are included in the workpapers in the folder "Capacity Cals."

Amtrak to operate at specified service levels without freight delays in excess of Scenario 1 levels.

Using this process iteratively we were able to offset almost all the marginal net freight delay attributable to Amtrak in Scenario 2 and, with additional fine tuning of infrastructure changes, we were able to achieve Amtrak performance closely aligned with our OTP goals.[39] Our results are shown in the following table:

Table 17
Comparison hours of daily freight delay between Scenarios 1 and 3

Simulation	Scenario 1 (average hours of daily delay)	Scenario 3 (average hours of daily delay)	Difference (hours per day)	Difference (%)
Chicago to New Orleans: 80% OTP	39.8	41.6	1.8	4.6%
Chicago to New Orleans: 85%/90% OTP	39.8	41.2	1.5	3.7%
Battle Creek to Port Huron: 90% OTP	9.4	9.4	0.0	0.2%

The infrastructure necessary to achieve these results is summarized on the following table; a schematic showing the precise locations of the required additional infrastructure is included as Exhibit 1.[40]

[39] The comparison of the minutes of delay in Scenario 3 to the "target" minutes of delay that correspond to a specified endpoint OTP % are shown above in Tables 14 and 15.

[40] The same schematics are included in the workpapers "Plant Requirements - Michigan Service - Scenario 3 (v3_01) Final.xlsx" and "Plant Requirements - Chicago Service - Scenario 3 (v3_x8) Final.xlsx."

Table 18
Summary of infrastructure necessary to mitigate Amtrak-related delays

Simulation	Miles double track	# of new sidings	# of extended sidings	# of full (bidirectional) x-overs	# of single (unidirectional) x-overs
Chicago to New Orleans: 80% OTP	64.2	12	3	9	16
Chicago to New Orleans: 85%/90% OTP	83.0	12	6	11	17
Battle Creek to Port Huron: 90% OTP	12.9	0	0	0	2

In addition to the infrastructure listed above for the Battle Creek to Port Huron corridor, a third track (with a different cost profile than the double track shown in Table 17) would be required to be installed between the control points of Baron and Gord (in Battle Creek, MI).

VII. Cost Estimates

Based on recent actual expenditures for like infrastructure improvements, we applied estimated unit costs for various pieces of infrastructure in various locations and terrains. We applied these unit costs to the specific infrastructure requirements summarized in the previous section to create an overall cost estimate for the required infrastructure for each simulation. These unit cost estimates are described on the following table.

Table 19
Unit costs of infrastructure improvements

Infrastructure type	Order of magnitude estimated unit cost
Double track (per mile)	$4,000,000
Siding	$6,000,000
Extended Siding	$4,000,000
Full x-over	$2,300,000
Additional x-over	$1,000,000

Applying those unit costs to the required infrastructure elements produces the following estimated costs:[41]

Table 20
Estimated costs of improvements on IC Corridor
at 80% Amtrak Endpoint OTP

Infrastructure type	Units Necessary	Order of magnitude estimated unit cost	Total Cost
Double track (per mile)	64.2	$4,000,000	$256,800,000
Siding	12	$6,000,000	$72,000,000
Extended Siding	3	$4,000,000	$12,000,000
Full x-over	9	$2,300,000	$20,700,000
Additional x-over	16	$1,000,000	$16,000,000
Total			**$377,500,000**

Table 21
Estimated costs of improvements on IC Corridor
at 85%/90% Amtrak Endpoint OTP

Infrastructure type	Units Necessary	Order of magnitude estimated unit cost	Total Cost
Double track (per mile)	83	$4,000,000	$332,000,000
Siding	12	$6,000,000	$72,000,000
Extended Siding	6	$4,000,000	$24,000,000
Full x-over	11	$2,300,000	$25,300,000
Additional x-over	17	$1,000,000	$17,000,000
Total			**$470,300,000**

[41] More detailed results can be found in the workpapers "Plant Requirements - Michigan Service - Scenario 3 (v3_01) Final.xlsx" and "Plant Requirements - Chicago Service - Scenario 3 (v3_x8) Final.xlsx."

Table 22
Estimated costs of improvements on GTW Corridor
at 90% Amtrak Endpoint OTP

Infrastructure type	Units Necessary	Order of magnitude estimated unit cost	Total Cost
Double track (per mile)	12.9	$4,000,000	$51,600,000
Siding	0	$6,000,000	$0
Extended Siding	0	$4,000,000	$0
Full x-over	0	$2,300,000	$0
Additional x-over	2	$1,000,000	$2,000,000
Baron-Gord track	1	$10,000,000	$10,000,000
Total			**$63,600,000**

VIII. Conclusion

Using CN's standard simulation software, we were able to calculate the incremental delay to CN's freight trains caused by Amtrak's presence on CN's lines under two different Amtrak service levels. We were also able to estimate the cost of the infrastructure improvements that would be needed to eliminate or greatly reduce this incremental delay.

VERIFICATION

I, Harald Krueger, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement on behalf of Canadian National Railway Company and its subsidiaries.

Executed on September 3, 2015

Harald Krueger

VERIFICATION

I, Brian Doyle, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement.

Executed on August 28th, 2015



Brian Doyle

VERIFICATION

I, Nikola Rank, declare under penalty of perjury under the laws of the United States that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement.

Executed on September 3, 2015

Nikola Rank

EXHIBIT 1

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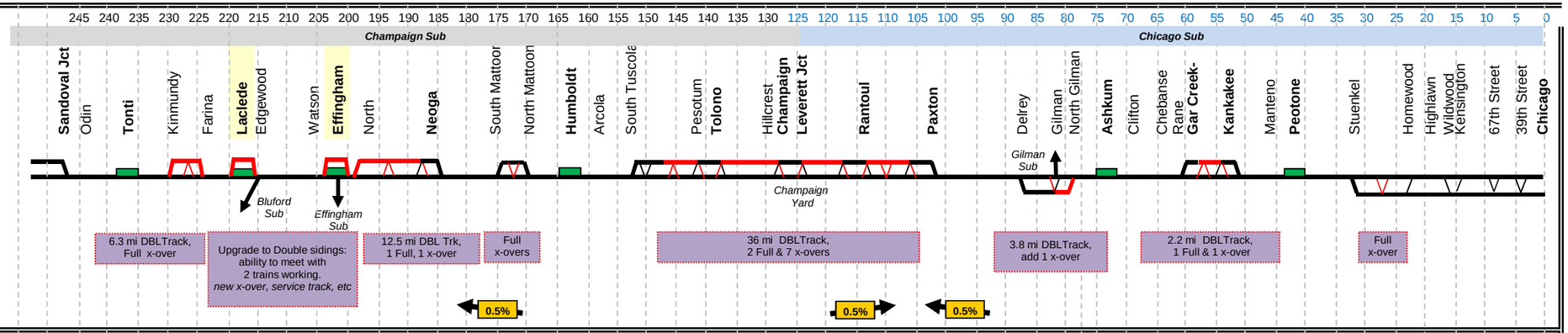
Chicago to New Orleans Corridor

Required Plant: Scenario 3, 95% 90% OTP

PUBLIC VERSION - REDACTED

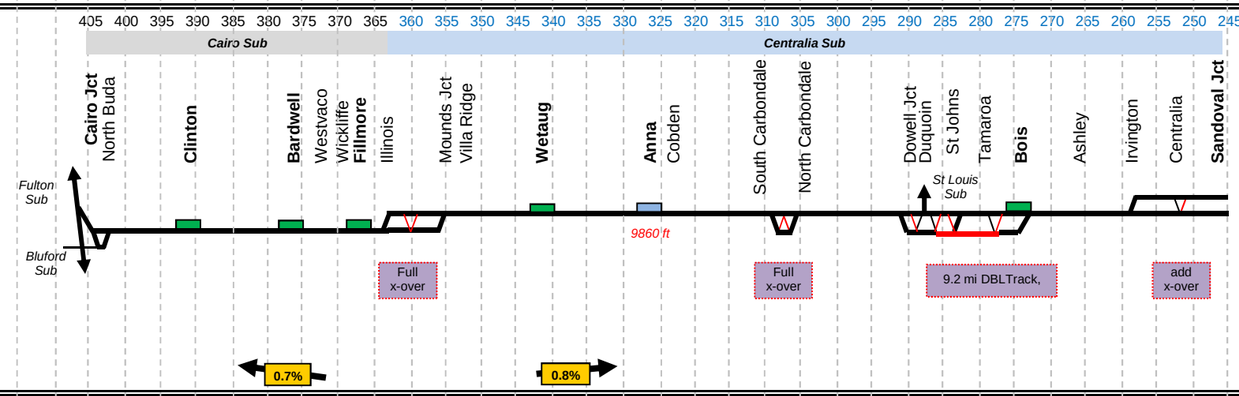
Chicago and Champaign Subs

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	60.8	$ 243 M
New Siding, R&D:	$ 6 M	2	$ 12 M
Extend Siding:	$ 4 M	0	$ 0 M
Full X-overs:	$ 2.3 M	7	$ 16 M
Addt'l X-over:	$ 1 M	10	$ 10 M
SUM:			$ 281 M



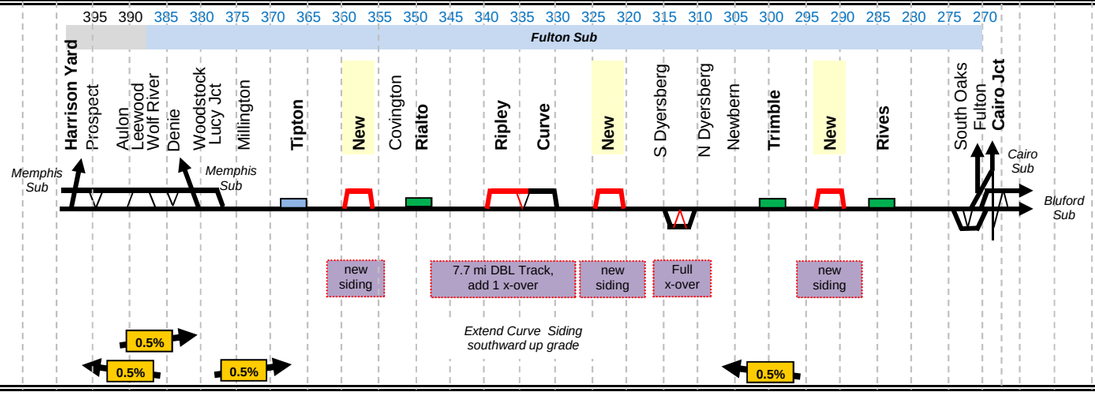
Centralia and Cairo Subs

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	9.2	$ 37 M
New Siding, R&D:	$ 6 M	0	$ 0 M
Extend Siding:	$ 4 M	0	$ 0 M
Full X-overs:	$ 2.3 M	2	$ 5 M
Addt'l X-over:	$ 1 M	5	$ 5 M
SUM:			$ 46 M



Fulton Sub.

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	7.7	$ 31 M
New Siding, R&D:	$ 6 M	3	$ 18 M
Extend Siding:	$ 4 M	0	$ 0 M
New Interlocking:	$ 2.3 M	1	$ 2 M
Addt'l X-over:	$ 1 M	1	$ 1 M
SUM:			$ 52 M



LEGEND

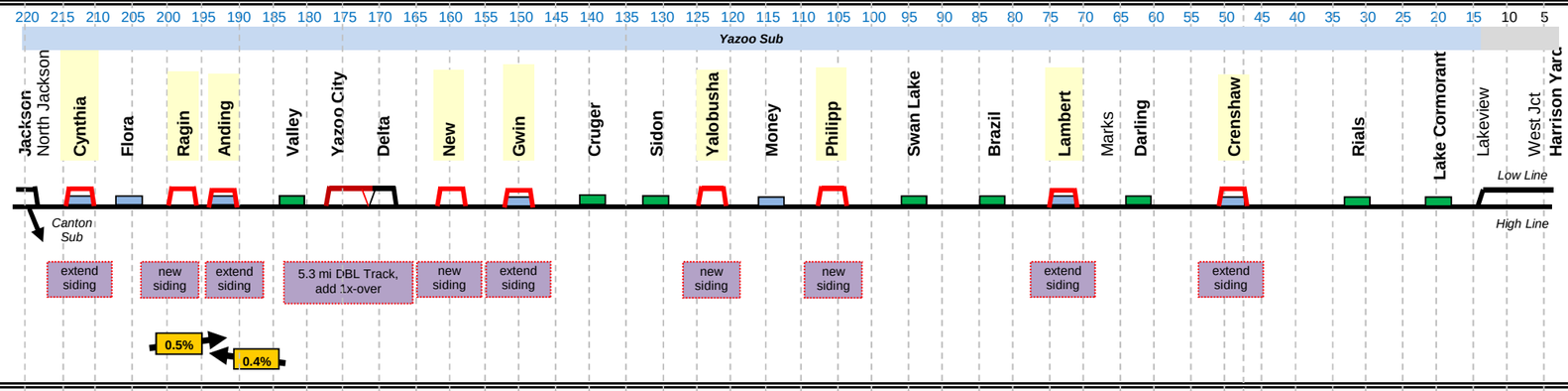
Phasing:

Required Plant: Scenario 3

>10000 ft Sdg		Proposed DT	
>8200 ft Sdg		Ruling Grade and Location	0.5%
<8200 ft Sdg		New interlocking	⋁ or ⋀
Retired Sdg	X	Additional x-over	╲ or ╱
New or Upg 10000 ft sdg			

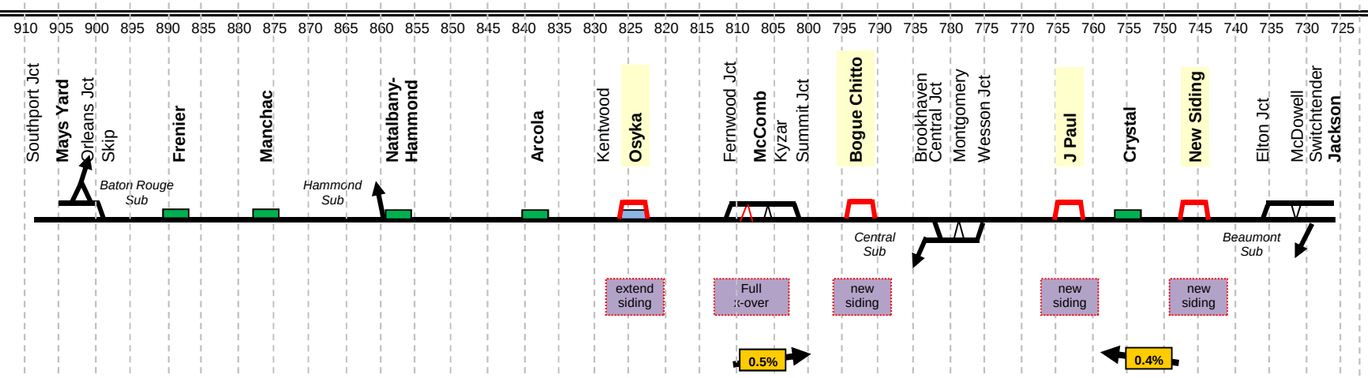
Yazoo Sub.

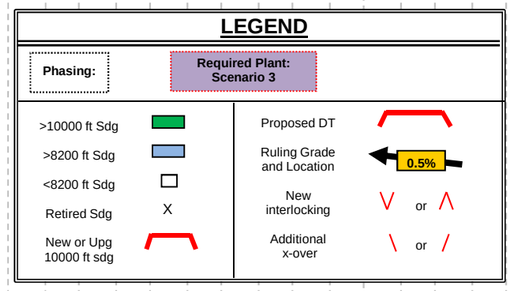
NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	5.3	$ 21 M
New Siding, R&D:	$ 6 M	4	$ 24 M
Extend Siding:	$ 4 M	5	$ 20 M
New Interlocking:	$ 2.3 M	0	$ 0 M
Addt'l X-over:	$ 1 M	1	$ 1 M
SUM:			$ 66 M



McComb Sub

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	0	$ 0 M
New Siding, R&D:	$ 6 M	3	$ 18 M
Extend Siding:	$ 4 M	1	$ 4 M
New Interlocking:	$ 2.3 M	1	$ 2 M
Addt'l X-over:	$ 1 M	0	$ 0 M
SUM:			$ 24 M





CHICAGO to NEW ORLEANS CORRIDOR

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	83.0	$ 332 M
New Siding, R&D:	$ 6 M	12	$ 72 M
Extend Siding:	$ 4 M	6	$ 24 M
New Interlocking:	$ 2.3 M	11	$ 25 M
Addt'l X-over:	$ 1 M	17	$ 17 M
SUM:			$ 470 M

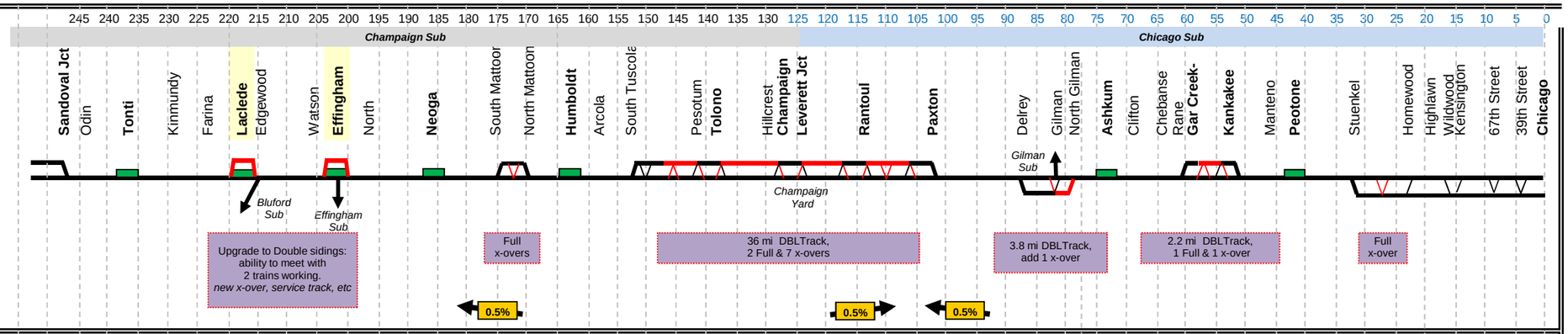
Chicago to New Orleans Corridor

Required Plant: Scenario 3 80% OTP

PUBLIC VERSION - REDACTED

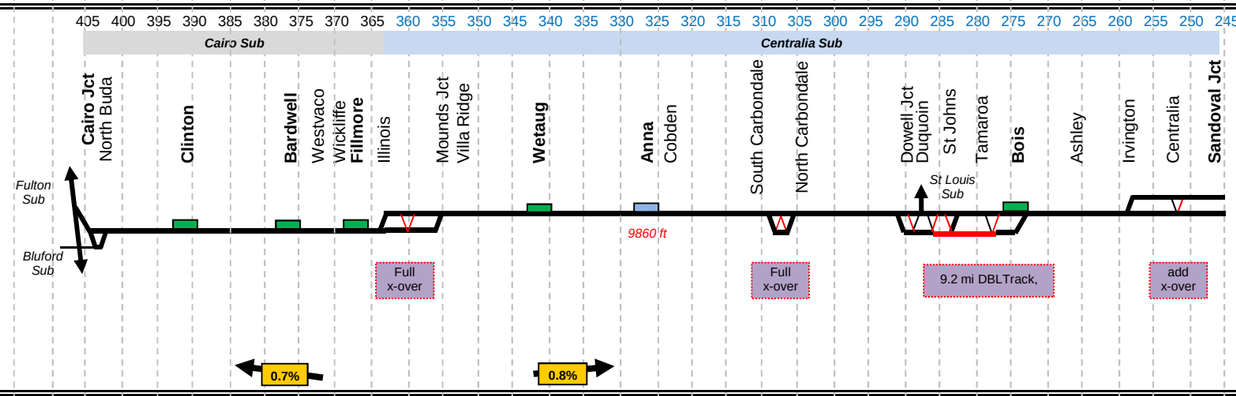
Chicago and Champaign Subs

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	42.0	$ 168 M
New Siding, R&D:	$ 6 M	2	$ 12 M
Extend Siding:	$ 4 M	0	$ 0 M
Full X-overs:	$ 2.3 M	5	$ 12 M
Addt'l X-over:	$ 1 M	9	$ 9 M
SUM:			$ 201 M



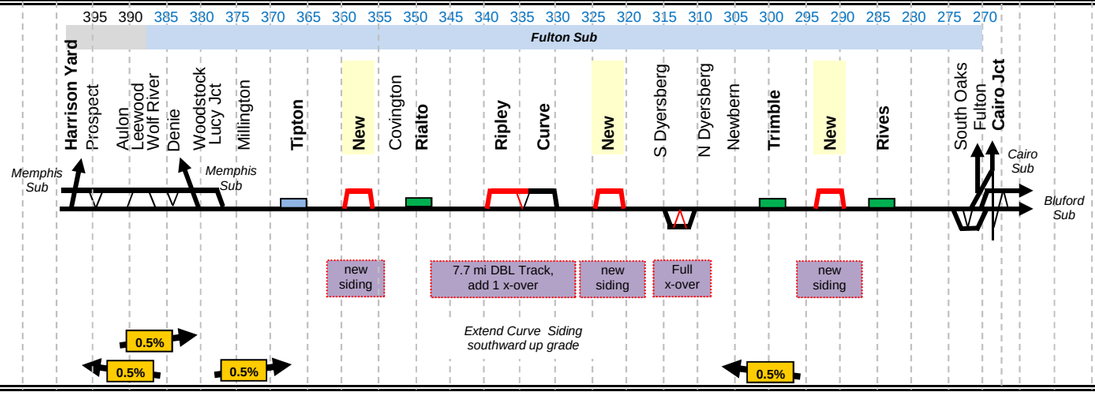
Centralia and Cairo Subs

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	9.2	$ 37 M
New Siding, R&D:	$ 6 M	0	$ 0 M
Extend Siding:	$ 4 M	0	$ 0 M
Full X-overs:	$ 2.3 M	2	$ 5 M
Addt'l X-over:	$ 1 M	5	$ 5 M
SUM:			$ 46 M



Fulton Sub.

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	7.7	$ 31 M
New Siding, R&D:	$ 6 M	3	$ 18 M
Extend Siding:	$ 4 M	0	$ 0 M
New Interlocking:	$ 2.3 M	1	$ 2 M
Addt'l X-over:	$ 1 M	1	$ 1 M
SUM:			$ 52 M



LEGEND

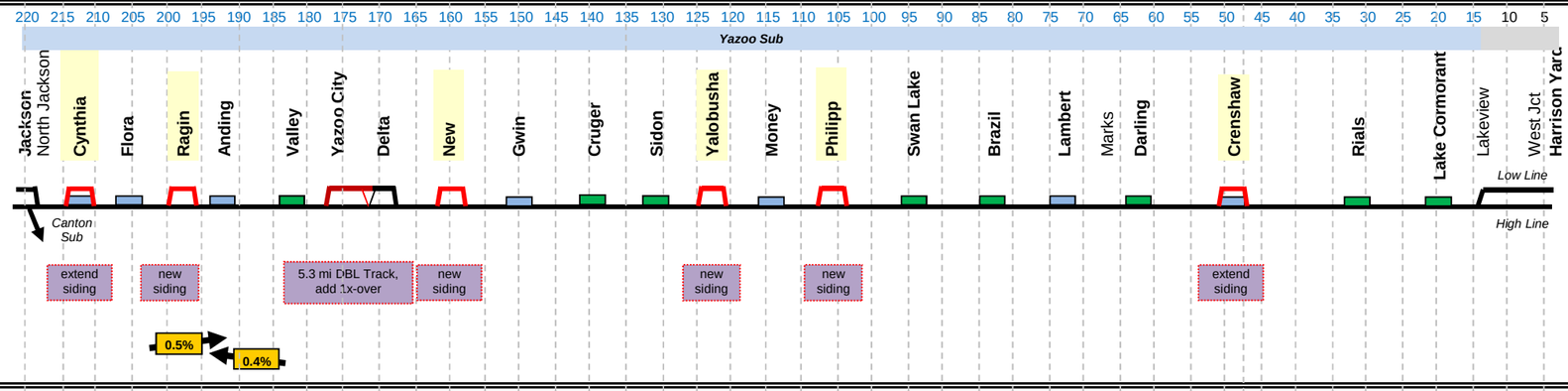
Phasing:

Required Plant: Scenario 3

>10000 ft Sdg		Proposed DT	
>8200 ft Sdg		Ruling Grade and Location	0.5%
<8200 ft Sdg		New interlocking	⋁ or ⋀
Retired Sdg	X	Additional x-over	⧵ or ⧸
New or Upg 10000 ft sdg			

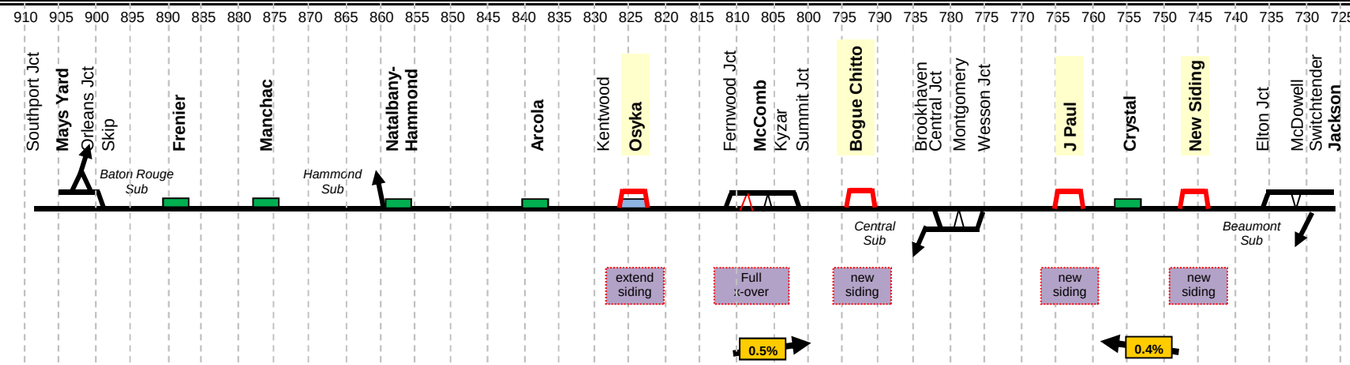
Yazoo Sub.

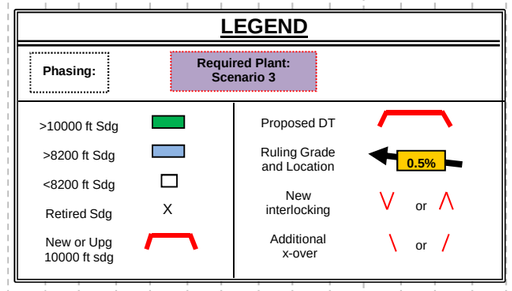
NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	5.3	$ 21 M
New Siding, R&D:	$ 6 M	4	$ 24 M
Extend Siding:	$ 4 M	2	$ 8 M
New Interlocking:	$ 2.3 M	0	$ 0 M
Addt'l X-over:	$ 1 M	1	$ 1 M
SUM:			$ 54 M



McComb Sub

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	0	$ 0 M
New Siding, R&D:	$ 6 M	3	$ 18 M
Extend Siding:	$ 4 M	1	$ 4 M
New Interlocking:	$ 2.3 M	1	$ 2 M
Addt'l X-over:	$ 1 M	0	$ 0 M
SUM:			$ 24 M





CHICAGO to NEW ORLEANS CORRIDOR

NEW PLANT	Unit $'s	NEW	$
Double Track:	$ 4 M / mi	64.2	$ 257 M
New Siding, R&D:	$ 6 M	12	$ 72 M
Extend Siding:	$ 4 M	3	$ 12 M
New Interlocking:	$ 2.3 M	9	$ 21 M
Addt'l X-over:	$ 1 M	16	$ 16 M
SUM:			$ 378 M

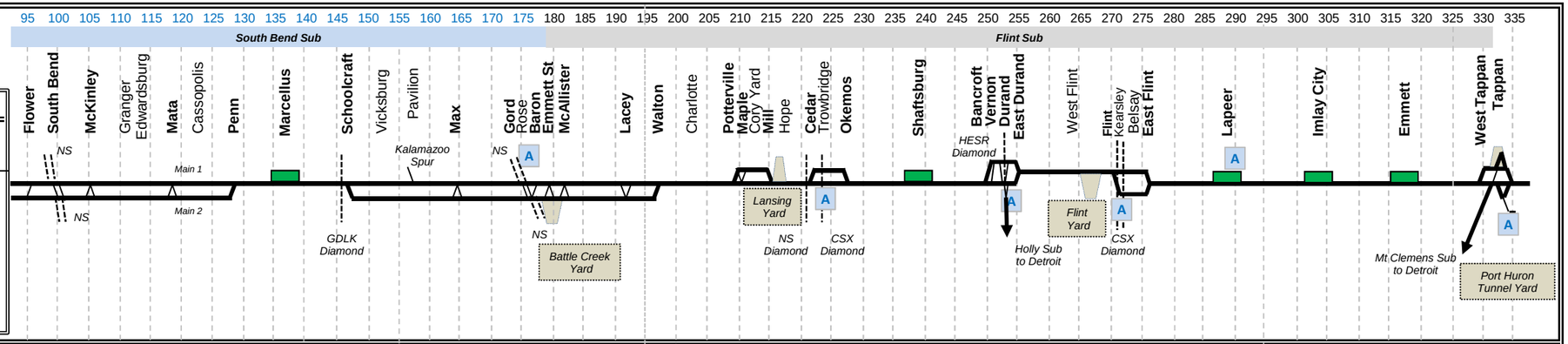
Current Plant

Scenarios 1, 2

LEGEND

Phasing: **Required Plant: Scenario 3**

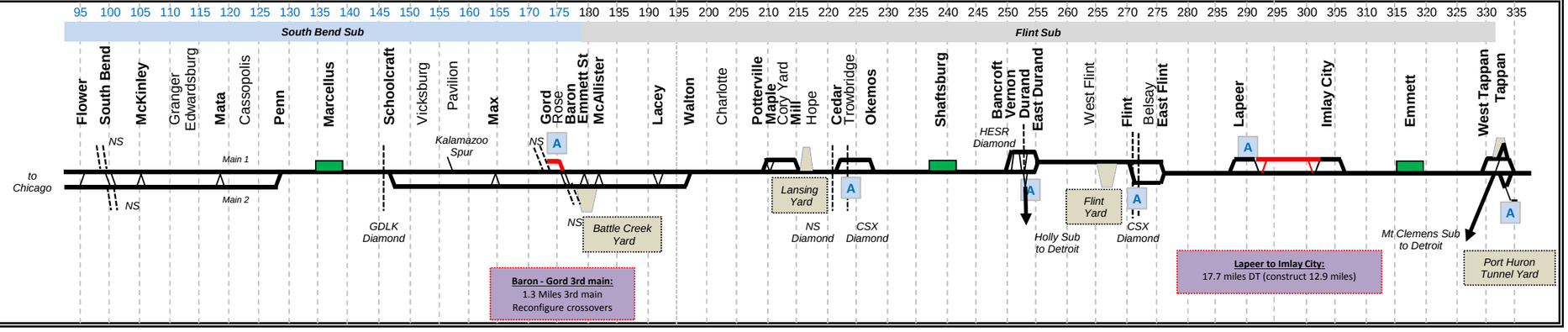
>10000 ft Sdg		Proposed DT	
>8200 ft Sdg		Ruling Grade and Location	0.5%
<8200 ft Sdg		AMTRAK Station	A
Retired Sdg	X		
New or Upg 10000 ft sdg			



Proposed Plant

Scenario 3

NEW PLANT	Unit $'s	NEW	$
Baron-Gord Track:	fixed cost		$ 10 M
Double Track:	$ 4 M / mi	12.9	$ 52 M
New Siding, R&D:	$ 6 M	0	$ 0 M
Extend Siding:	$ 4 M	0	$ 0 M
Full X-overs:	$ 2.3 M	0	$ 0 M
Addt'l X-over:	$ 1 M	2	$ 2 M
SUM:			$ 64 M



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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF JEFFREY A. DUBIN

My name is Jeffrey A. Dubin. I am a co-founding member of Pacific Economics Group ("PEG"), a Limited Liability Company, headquartered in Pasadena, California and founded in 1996. I was a tenured full Professor of Economics at the California Institute of Technology ("Caltech") in Pasadena, California from 1988 until my retirement from Caltech in 2007. Since 2013 I have been an Adjunct Professor of Economics, Statistics, and the Practice Area at the University of Southern California.

I was awarded a Bachelor of Arts degree in Economics from the University of California, Berkeley, in 1978, with highest honors and great distinction, and was awarded a Ph.D. in Economics by the Massachusetts Institute of Technology in 1982. I was awarded the Frisch Medal in Econometrics in 1986. Prior to co-founding PEG in 1996, I was the Director of Statistics and Econometric Analysis with Arthur Andersen Economic Consulting, a division of Arthur Andersen and Co., LLP. Prior to joining AAEC in 1992, I was a senior economist at Putnam, Hayes and Bartlett from 1989 to 1992. I was a Senior Advisor to Navigant Consulting from 2008-2012 and am presently a Senior Advisor at Cornerstone Research.

I have published five books related to my research including most recently, *The Causes and Consequences of Income Tax Noncompliance* (2012). The other titles include *The*

California Electricity Crisis: What, Why and *What's Next* (2004), *Empirical Studies in Applied Economics* (2001), *Studies in Consumer Demand: Econometric Methods Applied to Market Data* (1998), and *Consumer Durable Choice and the Demand for Electricity* (1985). I have published many peer-reviewed articles and papers and am the author of an award-winning statistical software designed to perform statistical and econometric analyses.

I regularly use econometric and statistical methods in my empirical work and frequently rely on multivariate regression techniques. Some of my research topics include contingent valuation methods, discrete-choice econometrics, the effects of welfare and entitlement programs on unemployment, energy economics, tax compliance, sampling and survey methods, valuing intangible assets, and the study of ballot proposition voting. In addition to my work as a professor, I have provided testimony before various courts and regulators, including in prior proceedings before the STB. A true and correct copy of my Curriculum Vitae is attached hereto as Exhibit 1, which includes a representative list of my publications, research assignments, and past testimony.

I was asked by CN to generate inputs for use in CN's line capacity modelling for the six Amtrak trains that operate on CN's rail lines between Chicago, IL and New Orleans, LA, and the two Amtrak trains that operate over CN's lines between Battle Creek, MI and Port Huron, MI. Specifically, I was asked to estimate for each train the statistical relationship between total minutes of delay to the Amtrak train due to passenger train interference ("PTI") and freight train interference ("FTI") on the one hand,[1] and its endpoint on-time performance ("OTP") on the other hand.[2] In essence, my work provided the bridge between train delay due to the interference

[1] As used here, these terms refer to delays coded as "PTI" and "FTI" by Amtrak on its Conductor Delay Reports ("CDR").

[2] Endpoint OTP refers to the number of trains that arrive at their final destination within their allotted scheduled run time, plus whatever added time may be allowed (known as "tolerance"), as a percentage of all trains

of other trains, for which statistics are generated by the line capacity model, and endpoint OTP, for which it does not generate statistics. By providing the modelers with an estimate of the total number of delay minutes due to train interference an Amtrak train could experience before it would be expected to exceed a specified OTP, my results allowed the modelers to determine whether the output of their simulations produces results consistent with that specified OTP.

The specific Amtrak trains I analyzed were those in the City of New Orleans service (trains 58 and 59, which operate between Chicago, IL and New Orleans, LA), the Illini/Saluki service (trains 390, 391, 392, and 393, which operate between Chicago, IL and Carbondale, IL) and the Blue Water service (trains 364 and 365, which operate between Battle Creek, MI and Port Huron, MI). For each of these Amtrak trains I estimated the total number of minutes of FTI and PTI that the train could incur in a given month and still perform on average to two different defined target levels of OTP for the month. One target applicable to all trains was 80% OTP. The other target varied by service depending on whether the service is categorized by Amtrak as a "long distance" service or a "corridor" service. For the long-distance trains (#s 58-59), the target was 85% OTP. For the corridor trains (#s 390-393 and #s 364-365) the target was 90% OTP. I understand these targets correspond with nationwide endpoint OTP standards established by Amtrak and the Federal Railroad Administration ("FRA") pursuant to Section 207 of the PRIIA. (Using the same methodology described below, my work could be adapted to different endpoint OTP targets.)

run. My analysis relies on endpoint OTP data published by Amtrak pursuant to Section 207 of the Passenger Rail Investment and Improvement Act of 2008 ("PRIIA"), and thus relies on the specific definition of endpoint OTP (including tolerances) used by Amtrak in generating those data. *See* Section I.A., below.

In Part I of my statement I briefly describe the data used in my analysis; in Part II, I describe the development of my statistical models for on-time performance; and in Part III, I present the results of those models.

I. DATA

My analysis was based primarily on (a) Amtrak's published schedules (which are also embedded in the Amtrak-CN Operating Agreement that is the subject of this proceeding), and (b) delay data recorded by Amtrak's conductors, for each of the eight subject trains for the period from January 1, 2010 through March 31, 2014.[3]

A. Schedule Data

An Amtrak train's schedule consists of four components: pure run time (a number intended to represent the fastest possible trip time for an Amtrak train over a route with no interference or delays), recovery minutes, miscellaneous minutes, and a tolerance. If the total trip time exceeds the sum of those four components, the train is considered late. Because Amtrak measures delay against pure run time, the total "allowable" minutes of delay before a train is considered by Amtrak to be late is the sum of its recovery, miscellaneous, and tolerance minutes. The allowable minutes of delay for each train in the Chicago to New Orleans corridor are shown in the following table.

[3] I decided to use data for Amtrak movements between January 1, 2010, and March 31, 2014, in order provide a sufficient sample size (*i.e.*, 51 months representing 51 data points for each train) while also focusing on the most recent data. As discussed Section III, below, use of this data produced regression results with small standard errors and an explained variation (R^2) that is relatively high.

Train	Recovery mins in schedule	Misc mins in schedule	Tolerance mins	Total mins of delay train can experience before it is late
58	111	11	30	**152**
59	151	9	30	**190**
390	26	10	15	**51**
391	26	14	15	**55**
392	26	10	15	**51**
393	26	14	15	**55**

The allowable minutes of delay on the CN portion of the route[4] for the two trains on the Blue Water service are shown in the following table:

Train	Date Range[5]	Recovery mins in schedule	Misc mins in schedule	Tolerance mins	Total mins of delay train can experience before it is late
364	1/1/2010 – 9/1/2012	15	32	7	54
364	9/2/2012 – 3/17/2013	15	32	7	54
364	3/18/2013 – 3/31/2014	15	23	7	45
365	1/1/2010 – 9/1/2012	46	10	7	63
365	9/2/2012 – 3/17/2013	46	10	7	63
365	3/18/2013 – 3/31/2014	37	10	7	54

B. **Delay Data**

The delay data I used included (a) the identifying number of the Amtrak train that incurred the delay, (b) the date the delay occurred, (c) the segment the delay occurred on, (d) the

[4] Unlike the Illini/Saluki and City of New Orleans services, which run almost exclusively over CN's lines, a significant portion of the full route of the Blue Water service is hosted by carriers other than CN. The recovery and miscellaneous minutes shown in the above table are for the CN portion of the route only. It would have been inappropriate for me to assume that all the tolerance minutes for the full Blue Water route (15) were available for the CN segment. Instead, I allocated to CN only its percentage of total tolerance minutes based on CN's share of total Blue Water route miles. The result was allocation of 7 minutes of tolerance to the CN portion of the route.

[5] Unlike the schedules for the trains on the Chicago to New Orleans corridor, the schedules for the trains on Blue Water service changed during the period of my analysis.

host railroad at the time the delay occurred, (e) the delay code category assigned by the Amtrak conductor,[6] (f) the minutes of delay recorded by the Amtrak conductor, and (g) the Amtrak conductor's short narrative description of the delay. Several steps were required to process these data.

First, in order to isolate the FTI and PTI delays and consider possible relationships among types of delay and OTP, the delay information was grouped into the following four categories based on Amtrak's coding:

- Third Party Responsible Delay[7]
- Amtrak Responsible Delay[8]
- FTI or PTI
- Other Host Responsible Delay[9]

Second, each individual train trip was categorized by whether the train arrived at its endpoint on time.[10] This was determined by summing the minutes of delay for all categories of delay for each individual train trip and comparing that sum to the "allowable" minutes of delay that train could incur before it would be considered late. If the sum of minutes of delay for a train trip was less than or equal to the "allowable" minutes of delay for that train, the train was considered to be on time.[11]

Finally, for purposes of my analysis I decided to aggregate the daily data on a monthly basis, as opposed to no aggregation or aggregation on a different basis (*e.g.*, quarterly). This

[6] A table showing the Amtrak delay code categories is attached as Exhibit 2.

[7] Includes all delays coded as NOD, CUI, POL, TRS, MBO, DBS, and WTR.

[8] Includes all delays coded as ADA, HLD, SYS, ENG, CCR, CAR, SVS, CON, ITI, INJ, and OTH.

[9] Includes all delays coded as CTI, DSR, DCS, RTE, DMW, and DTR.

[10] For the trains on the Blue Water service, the endpoint was defined as the endpoint of the CN portion of the route.

[11] Train trips that showed no recorded delays were excluded from the data on the assumption that the train either did not run or that there was an error in Amtrak's recording of the delay data.

decision was driven by the fact that CN's Operating Agreement with Amtrak measures performance based on monthly results and the fact that monthly data (unlike the data if aggregated quarterly) provide a sufficient number of data points for the analysis to produce robust results. For purposes of aggregating the daily data into monthly results, delay minutes were aggregated by separately summing the delay minutes for each of the four delay categories of delay for each month and each train. Monthly aggregate OTP was calculated for each train by dividing the total trips of each train per month by the total number of those train trips that were "on time," in accordance with the schedules, including tolerance, discussed in Section I.A.

The data used in my analysis are included in my workpapers.

II. STATISTICAL MODEL FOR ON-TIME PERFORMANCE

A. Multivariate Regression Theory

A regression model is a mathematical tool for determining the presence of a correlation and the strength of that correlation between a dependent variable and one or more explanatory variables.[12] In a linear regression model, the dependent variable is assumed to be a linear function of one or more explanatory variables plus the error introduced to account for all other factors. In the case of one dependent variable and one explanatory variable (the "two-variable regression model"), the linear regression model attempts to put the best fitting line through the data graphed, with the dependent variable on the vertical axis and the explanatory variable on the horizontal axis.

The use of more than two variables in a regression model is called multivariate regression and is used to uncover the factors that explain how the dependent variable responds to multiple explanatory variables. For example, a multivariate regression analysis could be used to

[12] *See, e.g.*, William Greene, *Econometric Analysis*, 4th Edition, Prentice Hall, New York: New York, 2000.

determine how house prices vary based on various characteristics of the house or the characteristics of the neighborhood in which the house is located. We might obtain for several house listings the size of the house (in square feet), the number of bedrooms, the age and condition of the house, the average income in the neighborhood, and other factors that might relate to house price. Once this information has been compiled for various houses, it could be useful to see whether and how these measures relate to the price for which a house is sold. For example, one might learn that the number of bedrooms is a better predictor of the selling price for a house in a particular neighborhood than how "pretty" the house is (a subjective rating). One might also learn that additional bedrooms are not always equally valued because an increase in bedrooms without an increase in house size implies smaller rooms.

A regression analysis can determine the marginal or incremental contribution of each characteristic to the total house price. It can be used to test the hypothesis that some factor such as access to better police or school services has an effect on price that is statistically significantly different from zero (*i.e.*, that the factor helps account for the variation in the dependent variable beyond what could be expected by random chance alone).[13]

Here, where the data include several different factors (*i.e.*, types of delay minutes) that may interact and thus in different combinations have different impacts on on-time performance

[13] Two important statistics generated in any regression model are the R-squared and t-statistics. The R-squared determines the percent of the variation in the dependent variable that the multivariate regression model explains relative to the total variation in the dependent variable. The second statistic, the t-statistic, measures the statistical significance of a particular coefficient or weight attached to a specific explanatory factor. The t-statistic is used to test whether the coefficient or weight attached to a factor is statistically different from zero. The t-statistic is the ratio of the estimated coefficient to the standard error, which is a measure of dispersion used to form the confidence interval. The t-statistic serves as a quick measure of the statistical significance of a particular effect. A t-statistic larger than roughly 2 in absolute value (ignoring sign) indicates that the associated regression coefficient is statistically different from zero at the 95% confidence level.

of Amtrak trains, a multivariate regression is required in order to account for those possible interactions and differences.

B. Development of the Multivariate Regression OTP Models

I describe in this section the model I developed to estimate the statistical relationship between total PTI and FTI (which I will call "PTI_FTI") and OTP for the Amtrak trains I was asked to analyze:

Denote P_t = On-time Performance (a proportion measured by train and month).

Denote X_t = logarithm of delay minutes.

Assume the log-odds ratio for on-time performance is a linear function of X_t, that is:

$$\log \frac{P_t}{1-P_t} = \beta' X_t$$

Then P_t is logistic with $P_t = \frac{1}{1+e^{-\beta' X_t}}$ and obeys the properties of a probability model.

Note that as delay minutes are positive and must be positive in the estimation of minutes in the reverse regression, the minutes M_t are initially log-transformed $X_{tj} = \log M_{tj}$. It follows that:

$$P_t = \frac{1}{1+e^{-\beta' X_t}}$$

$$= \frac{1}{1 + e^{-(\beta_0 + \beta_1 \, logM_{t1} + \beta_2 \, logM_{t2} + \cdots \beta_k \, logM_{tk})}}$$

$$= \frac{1}{1 + e^{-(\beta_0 + logM_{t1}{}^{\beta_1} + logM_{t2}{}^{\beta_2} + \cdots logM_{tk}{}^{\beta_k})}}$$

This is the final theoretical model for on-time performance as a function of delay minutes.

Next:

$$P_t = \frac{1}{1 + e^{-[\log(e^{\beta_0} M_{t1}{}^{\beta_1} M_{t2}{}^{\beta_2} \cdots M_{tk}{}^{\beta_k})]}}$$

$$= \frac{1}{1 + e^{-\beta_0} M_{t1}{}^{-\beta_1} M_{t2}{}^{-\beta_2} \cdots M_{tk}{}^{-\beta_k}}$$

with odds ratio:

$$\frac{P_t}{1-P_t} = \left(e^{\beta_0} {M_{t1}}^{\beta_1} {M_{t2}}^{\beta_2} \cdots {M_{tk}}^{\beta_k}\right)$$

Hence the odds ratio for on-time performance is a Cobb-Douglas function of delay minutes.[14] Provided that β_i are negative, an increase in delay minutes for a PTI_FTI decreases the expected on-time performance. The log-odds model:

$$\log \frac{P_t}{1-P_t} = \beta' X_t = \beta' log M_t$$

can be estimated directly by ordinary least squares regression. For this model, the derivative $dP_t/dM_{tj} = [(P_t\ (1-P_t))/M_{tj}] \times \beta_j$.

For purposes of an empirical application one can control for the delay minutes attributable to Amtrak, PTI_FTI, other host responsible delay categories, and third parties. That is:

$$log \frac{P_t}{1-P_t} = \beta_0 + \beta_1 \log(Amtrak\ delay\ minutes) + \beta_2 \log(Other\ host\ delay\ minutes)$$

$$+ \beta_3 \log(Third\ party\ delay\ minutes) + \beta_4 \log(PTI\_FTI\ delay\ minutes)$$[15]

I determined that on balance it was best not to use a factor for third-party delay minutes in my regressions. Use of that factor would reduce the number of observations available for the regression, because during certain periods the historic number for third-party delay minutes was zero for some trains, which makes the data for such train observations unusable because the log

[14] The Cobb-Douglas function is a widely used functional form in the trans-log function class representing the relationship between two or more inputs and an output. Charles Cobb and Paul Douglas first examined the form in 1927 in the context of production theory. In our case, we may think of producing on-time events (*i.e.*, trains that are on time) from inputs that are the number of delay minutes in various categories.

[15] Use of a specification that relies on total delay minutes or a specification that uses only one category of minutes at a time or some combination of the above would violate the separation principle of linear regression. An elementary discussion of this principle is given in Samaniego and Watnik (1997), "The Separation Principle in Linear Regression," Journal of Statistics Education, Vol. 5, No. 3.

transform of zero minutes is undefined. Additionally, third-party delay minutes were not statistically significant in certain train regressions, reducing the precision of the estimates of allowable PTI_FTI minutes. Finally, removing a factor for third-party delays results in very little change to the regression model itself or the resulting estimates of PTI_FTI (about a 2% increase overall). Accordingly, as reflected in the equations below, I did not retain the factor for third-party delay minutes.

I used the estimated relationship between on-time performance and delay minutes to impute the delay minutes for PTI_FTI necessary to achieve a specified level of OTP. In my analysis the pre-specified level of OTP in one case is 80% for all trains, and in the other is 85% for trains 58 and 59 and 90% for trains 364, 365, 390, 391, 392, and 393. For example, setting the OTP at a level of 90% results in a log-odds of $\log(0.9/0.1)$ or 2.197. The dependent variable in the inverse regression is set at this level by assumption, a method known as the controlled calibration procedure. Controlled calibration imputes the value of an independent variable such as PTI_FTI for a given level of the dependent variable. In controlled calibration, the regression of Y on X is utilized.[16] Thus I used the controlled calibration[17] (inverse regression) method to find:

$$\log(0.9/0.1) = \hat{\beta}_0 + \hat{\beta}_1 \log(Amtrak\ delay\ minutes) + \hat{\beta}_2 \log(Other\ host\ delay\ minutes) + \hat{\beta}_4 \log(PTI\_FTI\ delay\ minutes)$$

[16] This has been the preferred methodology at least since 1939. *See* Eisenhart, "The Interpretation of Certain Regression Methods and their use in Biological and Industrial Research," Annals of Mathematical Statistics, Vol. 10, pp. 162-182 (1939).

[17] Some statisticians have advocated the "reverse regression" procedure in which the item of interest x is instead regressed on y. Generally, one should minimize the errors in the direction they occur, namely the y-direction. Since delay minutes cause trains to be late (or on-time) rather than the reverse, in this instance it is preferable to do inverse rather than reverse regression. Indeed, some scholars have gone so far as to refer to the reverse regression as "meaningless." G.S. Maddala, *Econometrics*, McGraw-Hill, New York: New York, pp. 99 (1977).

I then solved the equation for PTI_FTI minutes by assuming fixed levels for Amtrak and other host-responsible delay categories and using the estimated coefficients $\hat{\beta}_0, \hat{\beta}_1, \hat{\beta}_2, \hat{\beta}_4$. Here, I set Amtrak and other host responsible delay minutes at their historical levels and calculated the minutes required to achieve the log odds ratio log $(0.9/0.1)$ for OTP.[18]

The precision of the estimate of PTI_FTI minutes depends on the precision of the regression. I solved: $\log(\widehat{PTI\_FTI}) = \left[\log(0.9/0.1) - \hat{\beta}_0 - \hat{\beta}_1 \log(Amtrak\ delay\ minutes - \hat{\beta}_2 \log(Other\ host\ delay\ minutes)\right]/\hat{\beta}_4$.

The resulting estimate of PTI_FTI is $\widehat{PTI\_FTI} = \exp\left[\log(\widehat{PTI\_FTI})\right]$. Thus the precision of the estimate of PTI_FTI minutes depends on the precision of the coefficients $\hat{\beta}_0, \hat{\beta}_1, \hat{\beta}_2, and\ \hat{\beta}_4$ and is further complicated by the ratio of random variables ($\hat{\beta}_j$ appears in both the numerator and denominator).

Confidence intervals for inverse regression in the two-variable regression model are given in Parker *et. al.* (2010).[19] Generally one may use the so-called Delta method (linear approximation of ratios by Taylor series expansion) or the Fieller (1944) approach (ratio approximation) to estimate the confidence interval for the reverse regression prediction.[20] Fieller's method was extended by Zerbe (1978)[21] to the multivariate case without an intercept,

[18] The inverse regression and controlled calibration method has also been discussed in Phillip Brown (1993), *Measurement, Regression, and Calibration*, Clarendon Press, Oxford.

[19] "The Prediction Properties of Inverse and Reverse Regression for the Single Linear Calibration Problem, Working Paper, NASA Langley Research Center. Further discussion is given in Brown (1993), *supra* note 1.

[20] *See e.g.* Fieller, E.C. (1944) "A Fundamental Formula in the Statistics of Biological Assay and Some Applications," Quarterly Journal of Pharmacy and Pharmacology, Volume 17, pp. 117-123.

[21] "On Fieller's Theorem and the General Linear Model," The American Statistician, August, 1978 Vol. 32, No. 3, pp. 103 – 105.

and modified for my model that has an intercept. Using either approach generates similar results. I present the Fieller confidence interval here because it requires fewer assumptions.[22]

III. REGRESSION RESULTS

Regression results for the OTP models are presented in Table 1. There are eight models (one for each train).[23] In each regression, the coefficients for the effects of Amtrak delay minutes, other host responsible delay minutes and PTI_FTI delay minutes were statistically well determined (statistically significant at the 95% confidence interval and negative). Standard errors were small and the explained variation (R^2) relatively high.

As the differences in coefficients in Table 1 suggest, the effect of delay minutes apparently varies by source. This would not be surprising if, for example, delay minutes have a somewhat different effect on OTP depending on factors such as the location of the underlying delay, at what point in a movement it occurs, or the impact a delay coded to one category may have on delays coded to other categories. Empirically it is not necessary that all delay minutes

[22] With respect to exponentiation – such as was required in this case to obtain estimated PTI_FTI minutes – it is well known that log-linear models estimate the median of the dependent variable rather than the mean. *See, e.g.*, Dadkhah, "Confidence Intervals for Prediction from a Logarithmic Model," Review of Economics and Statistics, Vol. 66, pp. 527 – 528 (1984). See also Goldberger, A. S., "The Interpretation and Estimation of Cobb-Douglas Functions," Econometrica, Vol. 36, pp. 464-472 (1968). In the log-linear model, the expected value of the dependent variable (*i.e.*, the mean) is generally larger than the median. Dadkhah discussed a simple adjustment to the median estimate of the dependent variable based on the standard error for the estimated level of the dependent variable in the reverse regression. In my analysis, I chose to forego the adjustment because it is unclear that the use of the mean is superior to use of the median for present purposes and the adjustment here would, in any event, be quite small (on the order of 0.5%). Results that apply the adjustment and derive Dadkhah confidence intervals are shown in my workpapers.

[23] For purposes of establishing the coefficients for Train 59, 364, and 365, a few observations could not be used because OTP was 100%, and as a matter of mathematics the required log-odds transformation for such observations cannot be defined (that is, the logarithm of (100%/(100%-100%) is equal to the logarithm of (1/0), which is infinite). As shown in my workpapers, I confirmed by testing my results using two other methodologies (one developed by Haldane and the other a so-called Tobit model) that accounting for those few observations would have made no significant difference to the calculated values of PTI_FTI (*i.e.*, in each case a difference of under 1%).

have equal effects on OTP, and constraining them do so would miss patterns in the data. Accordingly, the model does not constrain these effects to be identical.[24]

I show in Table 2 the estimate over the historic period for the PTI_FTI minutes per month for each train required to achieve the pre-specified OTP. For each train the estimate was produced by setting the delay minutes for Amtrak and other hosts at their observed historical levels for each month, then calculating the required PTI_FTI delay minutes to achieve the specified OTP percentage for each month, and then taking the average of the required PTI_FTI delay minutes for each month across the historical period.[25]

Train 390 may be used to illustrate the structure of Table 2. For train 390, the estimated monthly delay minutes for PTI_FTI to achieve 90% OTP were 388 minutes, as compared to the historical average level of 650 minutes. The 388 minutes represent the average of the regression results for each of the 51 months in the historical period that was analyzed. A 95% confidence interval for this estimate ranged from 331 minutes to 436 minutes.[26] Three hundred eighty eight

[24] Note that the varying effects of delay minutes from different sources cannot be determined directly by reference to the coefficients in Table 1, as the derivative of OTP with respect to minutes dP_t/dM_{tj} depends on the level of minutes (as well as the level of OTP and the estimated coefficient). As an example, for Amtrak delays, which tend to have relatively few minutes compared with PTI_FTI and other host-responsible delays, the presence of the minutes factor in the denominator increases the marginal impact (the derivative) of those delays beyond what one might infer based solely on the coefficients in Table 1.

[25] This approach is similar to a "Monte Carlo" method. *See, e.g.*, Pindyck and Rubinfeld, *Econometric Models and Economic Forecasts*, § 10.1.3, at 270-271 (1998) (discussing Monte Carlo forecasting in non-linear models). Given the non-linearity in the model, this procedure yields a somewhat different result than if the model were evaluated by holding non-PTI_FTI delay minutes to a single historical average across the full historic period. Using that approach, which would not account as well for variability, the estimated allowable PTI_FTI delay minutes would be roughly 13% smaller than I have estimated.

[26] The confidence interval means that there is a 95% chance that the true (but unobserved) number of PTI_FTI minutes required to achieve an expected 90% OTP for Train 390 lies in the interval 331 to 437 minutes. The confidence region is affected by the fit of the model (estimated coefficients) and historical variability in the factors that comprise the reverse calibration (variability in historical delay minutes for Amtrak and other host responsible delay sources). This explains why Train 59 has a wider confidence interval than other trains; it had greater variability in Amtrak's delays.

(388) delay minutes represents a 36% decline in delay minutes relative to historical average. These results are shown in the third row of Table 2.

CONCLUSION

Based on Amtrak's schedules and Amtrak delay data for the period January 1, 2010, to March 31, 2014, I developed and applied regression models to estimate the PTI_FTI required to achieve specified OTP targets of 80% and 85% for Amtrak trains in its City of New Orleans service, and 80% and 90% for its Illini/Saluki and Blue Water services. I understand that my results, which are presented in Table 2, were used as inputs to CN's line capacity model.

Table 1

Dubin Regression Models

Dependent Variable: Log-odds ratio of OTP

Independent Variables	Regression Model Coefficients (with t-statistics in parentheses)							
	Train 58	Train 59	Train 390	Train 391	Train 392	Train 393	Train 364	Train 365
Intercept	23.49 (7.65)	26.19 (12.04)	24.66 (13.53)	27.69 (14.44)	22.34 (9.71)	20.17 (9.29)	7.64 (4.45)	15.18 (8.75)
logarithm of Amtrak delay minutes	-0.82 (-3.91)	-0.88 (-6.15)	-0.40 (-4.81)	-0.54 (-4.31)	-0.41 (-3.09)	-0.51 (-4.04)	516.72 (0.18)	-1.22 (-4.34)
logarithm of other HRD minutes	-0.62 (-2.21)	-1.44 (-6.24)	-1.18 (-6.50)	-1.39 (-7.16)	-0.52 (-2.58)	-1.48 (-7.38)	-28989.10 (-2717.94)	-0.21 (-1.52)
logarithm of PTI_FTI delay minutes	-1.76 (-7.01)	-1.13 (-5.60)	-2.22 (-9.57)	-2.33 (-7.75)	-2.50 (-9.10)	-1.15 (-3.96)	-1.01 (-4.63)	-0.81 (-4.50)
Number of Observations:	51	50	51	51	51	51	47	50
Date Range	1/1/2010 - 3/31/2014	1/1/2010 - 3/31/2014	1/1/2010 - 3/31/2014	1/1/2010 - 3/31/2014	1/1/2010 - 3/31/2014	1/1/2010 - 3/31/2014	1/1/2010 - 3/31/2014	1/1/2010 - 3/31/2014
R-squared	63.51%	74.45%	78.43%	82.56%	70.90%	68.17%	34.11%	60.69%

Table 2					
Dubin Regression Models					
Train	Observed PTI_FTI (average minutes per month)	Target Endpoint OTP	Predicted PTI_FTI to reach target endpoint OTP* (average minutes per month)	Lower bound of 95% confidence interval	Upper bound of 95% confidence interval
58	1903.92	80%	1407.10	1170.13	1630.31
		85%	1154.20	912.84	1359.61
59	2003.45	80%	2272.51	1791.62	3229.50
		85%	1669.23	1283.48	2215.04
390	649.88	80%	559.28	504.17	615.74
		90%	388.08	331.49	436.78
391	684.55	80%	584.83	516.06	657.61
		90%	412.84	340.61	473.51
392	898.18	80%	519.99	436.90	589.56
		90%	375.77	292.40	445.77
393	528.31	80%	599.13	418.72	1202.54
		90%	296.65	171.65	444.02
364	283.37	80%	664.39	462.93	1419.04
		90%	296.54	223.87	413.30
365	619.47	80%	918.76	635.14	2083.47
		90%	338.72	195.86	535.64

VERIFICATION

I, Jeffrey A. Dubin, declare under penalty of perjury that I have read the foregoing Verified Statement, that I know the facts asserted therein, and that the same are true as stated. Further, I certify that I am qualified to and authorized to submit this Verified Statement.

Executed on September 3, 2015

Jeffrey A. Dubin

EXHIBIT 1

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JEFFREY A. DUBIN, Ph.D.

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Jeffrey A. Dubin is Co-Founder of Pacific Economics Group. He is also an Adjunct Professor of Economics, Statistics, and the Practice Area at the University of Southern California and formerly a tenured full Professor of Economics at the California Institute of Technology. His research focuses on microeconomic modeling with particular emphasis on discrete-choice econometrics. Current research topics include: discrete-choice econometrics, energy economics, tax compliance, sampling and survey methods, valuation of intangible assets, and studies of ballot proposition voting. Some examples of his work include:

INTELLECTUAL PROPERTY

- For a defendant law firm, Dr. Dubin developed a damage estimate for patent infringement litigation involving a computer upgrade chip patent.

- For a photographic equipment manufacturing company involved in patent infringement litigation, Dr. Dubin developed an econometric model to measure the relevant market, the product demand in that market and the damages resulting from the infringement.

- For a major computer company involved in patent litigation, Dr. Dubin reanalyzed a survey of computer purchase decisions offered by plaintiffs as evidence of historical damages. Dr. Dubin also designed and implemented a survey of computer users to measure potential damages.

- For a large U.S. food and beverage company, Dr. Dubin has developed econometric theory and models to assign values to several intangible assets. His approach is based on the comparison of the demand for branded and private label products.

- For a Japanese manufacturer of fractional horsepower micro-motors used in automobile power door locks and power mirrors allegedly infringed by a Hong Kong manufacturer, Dr. Dubin developed an econometric model of the world demand for micro-motors. This model was used in conjunction with an international pricing model to calculate lost profits from foregone sales and price erosion.

- For a large manufacturer of a top-50 chemical, Dr. Dubin developed a model of the world supply and demand for this chemical in order to calculate the damage resulting from a process patent infringement.

- In federal court litigation brought in New Orleans, Dr. Dubin assisted in developing a celebrity goodwill value assessment for appropriating a nationally known chef's likeness.

- For a developer of software, which provides credit card scoring, Dr. Dubin assisted

counsel in developing alternative damage theories.

- For a manufacturer of a branded car wax, Dr. Dubin assisted counsel in damage calculations under alleged tradedress and trademark issues.

- For a manufacturer of artificial joint implants, Dr. Dubin developed an econometric model of product selection by orthopedic surgeons in order to quantify potential lost profits.

ANTITRUST

- For generic manufacturers of several leading pharmaceuticals, Dr. Dubin analyzed higher prices paid by consumers that resulted from delaying the time when manufacturers branded patented drugs go off patent.

- For the generic manufacturers of a leading anti-cancer chemotherapy drug, Dr. Dubin considered the anti-competitive effects of patent extensions by these patent holders. He also analyzed the demand for chemotherapy agents and the extent of the market.

- For the Oakland Raiders, Dr. Dubin analyzed the demand for NFL football. He designed an econometric model to test audience effects on individual demand, as well as how aspects of team performance affect demand. This model established that opening season box office performance could have lingering effects for a football team in terms of demand for tickets.

- For the Department of Justice, Dr. Dubin was the lead economist and expert in a multinational merger analysis of major cardio ultrasound equipment manufacturers. Dr. Dubin utilized nested logit techniques to determine the patterns of substitution for purchasing ultrasound equipment. He then used these models to determine the price consequences for cardio ultrasound equipment that would likely occur as a result of the merger.

- For a manufacturer of agricultural silage bags, Dr. Dubin assessed geographic market definition and considered the joint market power of distribution of agricultural silage bags as evidenced by their boycott of specific manufacturers.

- For a group of corn-syrup manufacturers accused of price-fixing, Dr. Dubin provided econometric rebuttal testimony to demonstrate that the opposing expert did not demonstrate price-fixing.

- For a group of merging railroads, Dr. Dubin developed rebuttal testimony to demonstrate that the opposing expert had overstated the likely diversion from rail to truck.

- For architectural hinge manufacturers accused of price collusion, Dr. Dubin developed a model of hinge pricing based on hundreds of thousands of individual transactions.

- For the U.S. Department of Justice, using scanner data, Dr. Dubin developed econometric models of the demand for white bread. These models were used to demonstrate a proposed merger's likely price consequence.

- For a telecommunications company, Dr. Dubin developed an econometric model of the choice by individuals of market versus self-insurance and showed that the damages resulting from alleged unfair marketing were substantially mitigated.

- In an antitrust action filed in New York, Dr. Dubin assisted in preparing a report assessing the divisional capital asset pricing model (CAPM) betas for an international copier and printer company.

STRATEGIC AND MANAGEMENT CONSULTING

- For a large refining company, Dr. Dubin developed an econometric model of gasoline demand.

- For Canada Post, Dr. Dubin developed an econometric model of the demand for various mail products and evaluated the simulation of a previously estimated econometric model.

- For a company doing credit card scoring analysis, Dr, Dubin evaluated the financial consequences that losing a sole-supply contract would have on market capitalization.

- For a major bank, Dr. Dubin analyzed the effects of automatic teller machines on the market for travelers checks.

- For the State of California, Dr. Dubin examined the effects of state income tax enforcement.

- For a gas pipeline restructuring under FERC Order 636a, Dr. Dubin developed a model analyzing the competitiveness of various market segments.

- For a gas pipeline, Dr. Dubin analyzed the competitive nature of the market for gas storage.

- For a top-five mail order company, Dr. Dubin analyzed historical purchase and promotion data at the individual level to model retail mail order demand, promotion effectiveness, and purchase behavior over time.

- For a large-scale manufacturer of architectural windows, Dr. Dubin has analyzed a new manufacturing process using structural econometric techniques and has designed an optimal production process.

- For the American Gaming Association, Dr. Dubin assisted in the development of

economywide multiplier benefits from the gaming industry.

- For the Canadian Postal Service and Canadian Direct Marketing Association, Dr. Dubin prepared an econometric model of the demand for addressed admail and related complimentary products. This model was used to access the consequences of a proposed price increase in addressed admail.

- For a major oil-producer in Alaska, Dr. Dubin assisted in developing a model of crude oil pricing and determined the effects of natural gas liquids on crude prices.

- For a major energy company operating in Bolivia, Dr. Dubin analyzed the appropriate capital asset pricing model beta and quantified country risk and project risk.

- For a gas pipeline seeking market-based rates, Dr. Dubin conducted a discounting and elasticity of demand study to demonstrate the workable competitive nature of the market.

NATURAL RESOURCE DAMAGE ASSESSMENT

- For a major mining corporation operating in the State of Montana, Dr. Dubin developed a discrete-choice model of river choice for recreational fishing and calculated the level of damages sustained from the diminished quality of a specific river.

- For the owner of a mining operation in Colorado, Dr. Dubin analyzed a residential pricing model offered as evidence by the plaintiffs in a class-action suit alleging loss of property values due to pollution of a river.

- For several potentially responsible parties in California, Dr. Dubin developed an econometric model of commercial fishing and determined the magnitude of potential damages from the effects of alleged ocean pollution.

- For a major oil company operating in the State of Texas, Dr. Dubin analyzed the level of damages sustained to property holders due to proximity to a toxic waste site.

- For several chemical companies operating in the state of Massachusetts, Dr. Dubin reanalyzed a property value-pricing model offered as evidence by the U.S. government in a superfund suit alleging damages from the pollution of a harbor near Boston.

- In litigation involving a superfund site in Los Angeles, Dr. Dubin assisted defense counsel in deposing plaintiff's expert economic witnesses regarding the design and findings of a CVM survey utilized to compute non-use damages. Dr. Dubin assisted in critiquing the CVM survey design methodology and in proposing and redesigning the survey.

- For a major electronic manufacturer operating in Phoenix, Arizona, Dr. Dubin assisted in the development of hedonic pricing regression models to measure the affect of ground water contamination on residential housing prices.

SURVEY SAMPLING RESEARCH

- For the City of Los Angeles, Dr. Dubin analyzed the LAPD's use of force reports. He accomplished this using stratified sampling methods across the various reporting districts in Los Angeles.

- Dr. Dubin assisted lawyers for merging railroads in determining whether a proposed merger would affect hazardous materials shipments. Dr. Dubin used sampling methods to determine the traffic volume that would have to be sampled in order to produce reliable hazardous material shipment estimates.

- For a major psychiatric hospital in the U.S., Dr. Dubin designed a survey of hospitals in the U.S. to measure patient overcharges.

- For a major food products manufacturer, Dr. Dubin designed a sample for the valuation of inventory and fixed assets.

- Dr. Dubin has analyzed survey results from several national surveys of individuals (NIECS, SIPP, BPA).

- For a major computer hardware company involved in litigation, Dr. Dubin designed a survey of computer software users regarding their purchase decisions.

- For counsel representing two merging railroads, Dr. Dubin critiqued a well known engineering model of railroad traffic.

- For counsel representing an intervening railroad, Dr. Dubin assisted in preparing discovery and deposition questions of an opposing statistical expert.

- For counsel representing two merging railroads, Dr. Dubin has performed a statistical sampling of traffic movements in order to measure potential divertible traffic.

- For the Los Angeles Police Department, Dr. Dubin developed statistical random samples of specific police activity in connection with the consent degree between LAPD and the Department of Justice.

UTILITY MERGERS

- In several proposed mergers of electric and gas utilities, Dr. Dubin explored and analyzed the projected synergies associated with the merger of two utilities. Dr. Dubin projected energy requirements for both stand-alone utilities and the combined utility over a period of ten years. Future capital requirements and savings resulting from the merger were calculated and projected over a ten-year period for both the merged and stand-alone scenarios.

- Dr. Dubin developed the BEARS and BULLS Merger model to analyze potential synergy savings and pro-forma balance sheets for proposed utility mergers. Dr. Dubin has applied this model in several utility merger cases.

CIVIL LITIGATION

- For the Internal Revenue Service, Dr. Dubin implemented measures of shareholder common control from voluminous monthly shareholder data covering a five-year period.

- Dr. Dubin assisted in determining the appropriate refund level due to the California Independent System Operator (CAISO) from their electricity purchases in the California wholesale energy market. Dr. Dubin developed models to calculate the natural gas spot price from published ranges and average prices.

- For several tobacco companies, Dr. Dubin addressed the issue of whether cigarette smoking and asbestos exposure were synergistic in causing lung cancer. Dr. Dubin has analyzed several aspects of the tobacco-asbestos synergy issue to determine whether a combined exposure to smoking and asbestos raise the likelihood, above the individual risks, that an individual will contract lung cancer. Dr. Dubin reanalyzed the American Cancer Society database, and also conducted meta-analyses of early studies.

- For the City of San Francisco, Dr. Dubin developed a model that measured damages resulting from a major bank's failure to escheat municipal bond interest.

- For a major energy supplier in the Northwest, Dr. Dubin developed a model that measured damages resulting from a major bank's failure to escheat bond interest.

- For the City of San Francisco and the State of California, Dr. Dubin developed a model of fee overcharge and hidden interest collected by a large California title company.

- For the state of Alaska, Dr. Dubin developed a model that measured damages resulting from a major bank's failure to escheat bond interest.

- For a defendant bus company, Dr. Dubin calculated the present discounted value of future medical costs under various life scenarios.

- For the IRS, Dr. Dubin helped develop a shareholder value model that demonstrated that a packaging company's reorganization was a tax sham.

- For a grocery store chain, Dr. Dubin developed models of the demand for hamburgers to demonstrate the stigmatic effect on sales from bad publicity.

- For a gas company operating in the west, Dr. Dubin helped develop an econometric pricing model for carbon dioxide gas.

TESTIMONY

Before the Washington Utilities and Transportation Commission, Trial Testimony on behalf of Puget Sound Energy Inc., Docket No. UE-121697 and UG-121705, Docket No. UG-130137 and UG-130138, December 19, 2014.

Before the United States District Court for the District of Arizona, Deposition Testimony on behalf of Town of Prescott Valley, Kutak Rock, LLP, Fain Signature Group and Prescott Valley Entertainment, LLC, Edward Jones, Global Entertainment Corporation, Robert Baird and Southwest Securities, Inc, Gallagher and Kennedy, P.A, Lead Case No. CV-09-8162-PCT-GMS, January 7, 2013.

Before the Superior Court of the State of California for the County of San Francisco, Deposition Testimony on behalf of City and County of San Francisco, March 2011.

Before the Superior Court of the State of California for the County of Orange, Complex Litigation Center, Deposition Testimony on behalf of Vladi Vadura, and Alina Samboan, individually, and on behalf of Class of similarly situated individuals, July, 2010.

Before the Washington Utilities and Transportation Commission, Rebuttal Testimony on Behalf of Puget Sound Energy, Inc. Docket No. UE-072300, UG-072301, July 3, 2008. pdf (66kb)

Before the United States Court of Appeals, Ninth Circuit, Writ of Certiorari. Docket Nos. 06-1457, 06-1462, November, 2007. pdf (2.02mb)

Before the Public Utility Commission of Oregon, Affidavit on behalf of Pacificorp. Docket No. UM 1002, November 19, 2007. pdf (449kb)

Before the United States District Court, District of Maryland Southern Division, Deposition Testimony on behalf of Marriott International, Inc., a Delaware corporation, et al., Case No. 8:05-CV-00787-PJM, October 23, 2007. pdf (1140kb)

Before the Public Utility Commission of Oregon, Trial Testimony on behalf of Pacificorp. Docket No. UM 1002, August 8, 2007.

Before the Public Utility Commission of Oregon, Supplemental Reply Testimony on behalf of Pacificorp. Docket No. UM 1002, July 30, 2007. pdf (620kb)

Before the Eighth Judicial District Court, Clark County, Nevada, Trial Testimony on behalf of Advanced Medical Products, Inc. Case No. A449091, January 17, 2006.

Before the Eighth Judicial District Court, Clark County, Nevada, Deposition Testimony on behalf of Advanced Medical Products, Inc. Case No. A449091, January 15, 2006. pdf (254kb)

Before the United States District Court, Central District of California, Deposition Testimony on behalf of Castaic Lake Water Agency; Newhall County Water District, et al., Case No.CV00-12613 AHM RZx, December 12, 2006. pdf (4 mb)

Before the Eighth Judicial District Court, Clark County, Nevada, Deposition testimony on behalf of Advanced Medical Products, Inc. NRCP Rule 16.1(a)(2)(B) in Case No. A449091 Consolidated with Case Nos. A452332, A482194 & A49259, November 15, 2006. pdf (362 kb)

Before the Washington Utilities and Transportation Commission, Trial Testimony on behalf of Puget Sound Energy Inc., Docket No. UE-060266, Docket No. UG-060267, September 20, 2006. pdf (51.8kb)

Before the Washington Utilities and Transportation Commission, Prefiled Rebuttal Testimony on behalf of Puget Sound Energy Inc., Docket No. UE-060266, Docket No. UG-060267, August 26, 2006. pdf (95.1kb)

Before the United States District Court, District of Maryland Southern Division, Deposition Testimony on behalf of Marriott International, Inc., a Delaware corporation, et al., Case No. 8:05-CV-00787-PJM, February 24, 2006. pdf (1.11 mb)

Before the Superior Court of the State of California, County of Orange County - Central Justice Center, Deposition Testimony on behalf of Marilyn Miglin, an Individual, and Duke Miglin, an Individual, January 9, 2006. pdf (816kb)

Before the Washington Utilities and Transportation Commission, Trial Testimony on behalf of Puget Sound Energy, Inc., Docket No. UG-040640, Docket No. UE-040641, December 15, 2004. pdf (373kb)

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Before the United States District Court, District of Arizona, Declaration on behalf of Defendants in Allstate Life Insurance Company Litigation, June 2013.

Before the United States District Court, District of Arizona, Declaration on behalf of Defendants in Allstate Life Insurance Company Litigation, February 2013.

Before the United States District Court, District of Arizona, Expert Report on behalf of Defendants in Allstate Life Insurance Company Litigation, October 2012.

Before the United States District Court, Eastern District of California, Rebuttal Expert report on behalf M-F Athletic Company, Inc., August 2012.

Before the United States District Court, Eastern District of California, Expert report on behalf M-F Athletic Company, Inc., July 2012.

Before the Superior Court of the State of California for the County of Sacramento, Expert report on behalf of Freeport Regional Water Authority, September 2012.

Before the Superior Court of the State of California for the County of San Francisco, Declaration on behalf of City and County of San Francisco, April 2011.

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Before the Superior Court of the State of California for the County of Orange, Complex Litigation Center, Declaration on behalf of Vladi Vadura, and Alina Samboan, individually, and on behalf of Class of similarly situated individuals, June 2010.

Before the Superior Court of the State of California for the County of Los Angeles, Supplemental Declaration on behalf of Quinec Hills, Brandi Carter, and Victoria Omlor, individually, and on behalf of class of similarly situated individuals, June 2010.

Before the Superior Court of the State of California for the County of Los Angeles, Declaration on behalf of Quinec Hills, Brandi Carter, and Victoria Omlor, individually, and on behalf of class of similarly situated individuals, May 2010.

Before the United States District Court, Central District of California Southern Division, on behalf of KTGY Group, Inc., a California Corporation; Robert Williams, An Individual; and DOES 1-10, Defendants, June 2009.
Before the United States District Court Southern District of Mississippi Jackson Division, Declaration on behalf of Entergy Mississippi. Case No. 3:08cv780-HTW-LRA, May 2009.

Before the Superior Court of the State of California for the County of Los Angeles, Declaration on behalf of Young Chang Co., LTD and AND Music Corp., May 2009.

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“Assessment of Uncertainty and Statistical Estimation Methods in BP Phase II Litigation,” May 23, 2012.

"Servicio de Asesoría en el Análisis de la Demanda Residencial de Electricidad e Hidrocarburos," with Dr. Carlos Walter Rebledo, prepared for the Expertos en Regulación de Servicious Públicos, February 8, 2006. pdf (831kb)

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“Stratified Random Sample for Non-Categorical Use of Force Reports,” with C. Cicchetti and E. Cotton, prepared for the Los Angeles Police Department, September 10, 2001. pdf (633kb)

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“The Economic Consequence of Independent Film Making,” with Cicchetti, Peale, Boedeker, Truitt, prepared for the American Film Marketing Association, January 1995. pdf (622kb)

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“Competition and Regulation in the Natural Gas Transportation Industry,” with C. Cicchetti and C. Long, circa 1995. pdf (885kb)

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“An Introduction to Discrete Choice Modeling and its Applications to Load Forecasting,” prepared for Canadian Electrical Association Conference, Nova Scotia, Canada, May 18, 1993. pdf (4.7mb)

“Preliminary Analysis of the Potential Natural Resource Damage to Commercial Fishing,” prepared for the Los Angeles Harbor Counsel, July 12, 1991. pdf (1.15mb)

“Analysis of Market Expansion and Business Diversion in Instant Photography Attributable

to the Entry of Eastman Kodak from 1976-1985," with T. Bresnahan, April 20, 1989. pdf (885kb)

"Detecting Cartel Behavior from Price Data," Architectural Hinges, with R. Preston McAfee, circa 1988. pdf (642kb)

"A Report on Freshmen Admissions at Caltech: Who's Admitted, Who Comes, and Why," with R. Noll, circa 1983. pdf (450kb)

PROFESSIONAL ACTIVITIES

2008-2012	Senior Advisor, Navigant Consulting, Inc.
1996–present	Co-Founding Partner, Pacific Economics Group
1993–1996	Director of Statistics and Econometric Analysis, Arthur Andersen Economic Consulting
1992–1993	Senior Economist, Arthur Andersen Economic Consulting
1989–1992	Senior Advisor, Putnam, Hayes & Bartlett, Inc.

ACADEMIC APPOINTMENTS

2013-present	Adjunct Professor of Economics, Statistics, and the Practice Area, University of Southern California
2008–2013	Adjunct Professor of Economics and Statistics, Global Economy and Management, University of California, Los Angeles, Anderson School of Management
2005–2009	Visiting Professor of Economics, University of California, Santa Barbara
2005–2007	Professor of Economics, California Institute of Technology
2005	Visiting Professor of Economics, Occidental College
1988–2005	Associate Professor of Economics, California Institute of Technology
1982–1988	Assistant Professor of Economics, California Institute of Technology

COURSES TAUGHT AT USC (PRICE SCHOOL OF PUBLIC POLICY & DORNSIFE COLLEGE)

ECON 474,499	Economic Consulting and Applied Managerial Economics, Spring 2014, Fall 2014, Spring 2015
PPD 558	Multivariate Statistical Analysis, Fall 2014

COURSES TAUGHT AT UCLA (ANDERSON & COLLEGE OF LETTERS AND SCIENCE)

Mgt. 202B	Analytics of Competitive Strategy (FEMBA), Spring 2009,

	Spring 2010
Mgt. 202B	Economic Consulting and Applied Managerial Economics, Spring 2011 (FEMBA), Winter 2012 (MBA), Spring 2012 (MBA, FEMBA)
Mgt. 205B	Comparative Market Structure and Competition, Spring 2009, Fall 2009
Mgt. 205B	Market Power, Mergers, and Antitrust, Fall 2010
Mgt. 596	Fall 2010, Winter 2011
Econ 203C	System Methods (Time-Series Econometrics), Spring 2011
Econ 187	Economic Consulting and Applied Managerial Economics, Winter 2012

EDITORIAL BOARDS

1986–1991	*The Energy Journal*

SPECIAL APPOINTMENTS

2010-2011	Anderson Forecast, Anderson Micro-Forecast Project, University of California, Los Angeles, Anderson School of Management

COMMITTEE SERVICE

2010-2011	Board of Visitors Task Force, University of California, Los Angeles, Anderson School of Management

ADVISORY POSITIONS

2010	Advisor to Los Angeles Mayor's Office and Los Angeles Department of Water and Power on Electric Vehicle Penetration
2004	Technical Advisor under Rule 706 of the Federal Rule of Civil Procedure to advise a Los Angeles Federal District Court in matters of statistics.
2001	Member, California State Auditors, Bureau of State Audits
1991	Advisory Panel on Biotechnology Opportunities, National Science Foundation, Member
1990	Lawrence Berkeley Laboratory Manufacturer Input Model for Department of Energy
1988–1995	University of California, University-Wide Energy

	Research Group
1987	California Energy Commission
1985	National Research Council, Committee on Behavior and Social Aspects of Energy Consumption and Production
1985	Lawrence Berkeley Laboratory, Energy Analysis Program
1984	Oakridge National Laboratory, Energy Policy Division
1984	Southern California Air Quality Management Board

PUBLICATIONS

Books

The Causes and Consequences of Income Tax Non-compliance, New York: Springer Science, 2012.

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Chapter 7: Design Flaws and a Worsening Crisis
Chapter 8: Testable Hypothesis
Chapter 9: Survey of Electricity Models for California
Chapter 10:An Economic Analysis of Natural Gas Price Movements During the Crisis
Chapter 11:An Economic Analysis of Electricity Prices in California
Chapter 12:Market Manipulation
Chapter 13:Gaming and Cheating
Chapter 14:Market Monitoring and Initial Regulatory Response
Chapter 15:Refunds and Mitigation
Chapter 16:California Responds
Chapter 17:Handicapping Winners
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Chapter 4: Valuation of a Technology Patent–Scope, Duration, and Royalty

Chapter 5: Statistical Analysis of the Additive and Multiplicative Hypotheses of Multiple Exposure Synergy for Cohort and Case-Control Studies
Chapter 6: Tests of the Additive and Multiplicative Hypotheses of Multiple Exposure
Chapter 7: Concentration and Competition in the Chemotherapy Drug Market
Chapter 8: The Allocation of Police Services in Rural Alaska
Chapter 9: Financial Market Reaction to the Fast Food Hamburger Health Scare of 1993

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Chapter 2: The World Demand for Fractional Horsepower Direct-Current Motors
Chapter 3: Estimation and Identification of the Worldwide Demand for Acetic Acid
Chapter 4: The Demand for Branded and Unbranded Products—An Econometric Method for Valuing Intangible Assets
Chapter 5: The Demand for Recreational Fishing in Montana
Chapter 6: The Demand for Commercial Fishing in California
Chapter 7: The Demand for Cameras by Consumers—A Model of Purchase Type Choice, and Brand Choice
Chapter 8: The Demand for Transportation Services in Natural Gas Markets—The Market Power of a Natural Gas Pipeline

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Chapter 5: Two-Stage Estimation Methods for the Switching Regime Model with Known Regimes
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Appendix A
Appendix B

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"Safety at Nuclear Power Plants: Economic Incentives under the Price-Anderson Act and State Regulatory Commissions," with Geoffrey S. Rothwell, *The Social Science Journal* 26 (1989): 303–11. pdf (340 kb)

Review of *Qualitative Choice Analysis: Theory, Econometrics, and an Application to Automobile Demand*, by K. Train, *Transportation Research-A* 22A (1988): 233–35. pdf (168 kb)

"Penny-Wise and Pound-Foolish: New Estimates of the Impact of Audits on Revenue," with Michael J. Graetz and Louis L. Wilde, *Tax Notes* 35 (1987): 787–91. pdf (316 kb)

Review of *Markets for Power: Analysis of Electric Utility Deregulation*, by P. Joskow and R. Schmalensee, *Journal of Economic Literature* 22 (1984): 1667–68. pdf (88 kb)

"The Effect of Rate Suppression on Utilities' Cost of Capital," with Peter Navarro, *Public Utilities Fortnightly* 111 (1983): 18–22. pdf (247 kb)

GRANTS

Racial Profiling Within Los Angeles County - Phase II, Haynes Foundation Faculty Fellowship, 2006.

IRS Criminal Investigation Research—Empirical Analysis of the Impact of CI Activities on Taxpayer Compliance, IRS Grant TIRNO-00-D-0039, 2003.

An Economic Analysis of Racial Profiling in Southern California, Haynes Foundation Faculty Fellowship, 2002.

An Economic Analysis of the San Fernando Valley Secession, Haynes Foundation Faculty Fellowship, 2000.

Comparing and Contrasting Absentee and Precinct Voters, Haynes Foundation Faculty Fellowship, 1995.

An Economic Analysis of Welfare Administration, with Louis L. Wilde, National Science Foundation #SES-9113209, 1991–92.

An Economic Analysis of the Rise (and Fall?) of State Lotteries, Haynes Foundation Faculty Fellowship, 1991.

An Empirical Analysis of Income Tax Auditing and Compliance, with Louis L. Wilde, National Science Foundation Grant #SES-8701027, 1987–89.

The Seasonal Demand for Electricity in the Pacific Northwest, with Steven E. Henson,

Bonneville Power Administration, DE-AI79-83BP13579, 1985.

The Role of Capital in Public Utility Industries: An Integration of Economic and Financial Effects, with Daniel L. McFadden (P.I.) and Tom C. Cowing, National Science Foundation Grant #SES-8205713, 1983.

EDUCATION

1982	Ph.D., Economics, Massachusetts Institute of Technology
1978	A.B., Economics, University of California, Berkeley, with Highest Honors and Great Distinction in General Scholarship

HONORS AND AWARDS

Econometric Society Frisch Medal, 1986.

Departmental Citation, U.C. Berkeley, Department of Economics, awarded to the author of the best undergraduate honors thesis in Economics, 1978.

Statistical Software Award from the Political Methodology Society, Second Annual Award, 2010.

CURRENT RESEARCH

Discrete-choice econometrics, energy economics, ballot proposition voting, tax compliance.

EXHIBIT 2

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Amtrak OFF-NEC Delay Code Definitions

PUBLIC VERSION - REDACTED

Host Railroad Responsible Delays*

Code	Code Description	Explanation
FTI	Freight Train Interference	Delays from freight trains
PTI	Passenger Train Interference	Delays for meeting or following All Other passenger trains
CTI	Commuter Train Interference	Delays for meeting or following commuter trains
DSR	Slow Order Delays	Temporary slow orders, except heat or cold orders
DCS	Signal Delays	Signal failure or All Other signal delays, wayside defect-detector false-alarms, defective road crossing protection, efficiency tests, drawbridge stuck open
RTE	Routing	Routing-dispatching delays including diversions, late track bulletins, etc.
DMW	Maintenance of Way	Maintenance of Way delays including holds for track repairs or MW foreman to clear
DTR	Detour	Delays from detours

Amtrak Responsible Delays*

Code	Code Description	Explanation
ADA	Passenger Related	All delays related to disabled passengers, wheel chair lifts, guide dogs, etc.
HLD	Passenger Related	All delays related to passengers, checked-baggage, large groups, etc.
SYS	Crew & System	Delays related to crews including lateness, lone-engineer delays
ENG	Locomotive Failure	Mechanical failure on engines.
CCR	Cab Car Failure	Mechanical failure on Cab Cars
CAR	Car Failure	Mechanical failure on all types of cars
SVS	Servicing	All switching and servicing delays
CON	Hold for Connection	Holding for connections from All Other trains or buses.
ITI	Initial Terminal Delay	Delay at initial terminal due to late arriving inbound trains causing late release of equipment.
INJ	Injury Delay	Delay due to injured passengers or employees.
OTH	Miscelaneous Delays	Lost-on-run, heavy trains, unable to make normal speed, etc.

Third-Party Delays*

Code	Code Description	Explanation
NOD	Unused Recovery Time	Wait for departure time
CUI	Customs	U.S. and Canadian customs delays; Immigration-related delays
POL	Police-Related	Police/fire department holds on right-of-way or on-board trains
TRS	Trespassers	Trespasser incidents including road crossing accidents, trespasser / animal strikes, vehicle stuck on track ahead, bridge strikes
MBO	Drawbridge Openings	Movable bridge openings for marine traffic where no bridge failure is involved
DBS	Debris	Debris strikes
WTR	Weather-Related	All severe-weather delays, landslides or washouts, earthquake-related delays, heat or cold orders

* These delay codes are applicable to Off-NEC routes only.

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PUBLIC VERSION – REDACTED

BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(a) – CANADIAN NATIONAL RAILWAY COMPANY

OPENING EVIDENCE OF OF ILLINOIS CENTRAL RAILROAD COMPANY AND GRAND TRUNK WESTERN RAILROAD

Volume 3

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September 4, 2015

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. FD 35743

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION
UNDER 49 U.S.C. § 24308(a) — CANADIAN NATIONAL RAILWAY COMPANY

VERIFIED STATEMENT OF DAVID A. HIRSH

I. Introduction

My name is David A. Hirsh. I am a partner with the law firm Harkins Cunningham LLP and serve as outside counsel for Illinois Central Railroad Company and Grand Trunk Western Railroad Company (together "CN") in this proceeding. I submit this Verified Statement in support of CN's Opening Submission.

The documents attached as exhibits to this Verified Statement and certain documents attached as exhibits to the Joint Verified Statement of Paul E. Ladue and Scott Kuxmann ("Ladue V.S.") were gathered and produced by the National Railroad Passenger Corporation ("Amtrak") and by CN pursuant to a "Joint Discovery Protocol" dated January 30, 2014, and executed by counsel for each party. CN gathered and produced to Amtrak the documents identified by "CN" Bates numbers in compliance with the Joint Discovery Protocol; Amtrak produced to CN the documents identified by "ATK" Bates numbers.

The documents listed in and attached to these Verified Statements were stored in, and printed directly from, a secure database, and they have not been altered in any way from the form in which they were produced by CN pursuant to the Joint Discovery Protocol or, in the case of

Amtrak-produced documents, received by CN from Amtrak pursuant to the Joint Discovery Protocol.

Accordingly, I attest that the documents identified in and attached to these Verified Statements are true and correct copies of documents produced by the parties in discovery. I further attest that the documents referenced in Parts II through IV below and attached to this Verified Statement were designated "Highly Confidential." Accordingly, the documents are being filed under seal in accordance with the Protective Order in this proceeding.

The documents attached to this Verified Statement are being produced for purposes of evidence and argument in this proceeding. Below, I provide brief descriptions of the documents and some of their salient points to assist the Board in its review of the materials. CN reserves the right to supplement this evidentiary submission upon receipt of Amtrak's evidence.

II. Amtrak Operating Agreements with Other Class I Host Railroads

The Board has held in this proceeding that the operating agreements Amtrak has entered into with other host railroads "may provide information that would be useful to the Board's prescription of new terms and conditions in the present case," and "are probative sources of evidence, which are relevant to the underlying proceeding." Decision served April 15, 2014, at 6. Accordingly, attached for the Board's consideration are the operating agreements that, according to Amtrak's discovery responses, are currently in effect between Amtrak and the other Class I host railroads.[1] The current Amtrak-CN Operating Agreement is attached to the Ladue V.S.

[1] These other Class 1 host railroads are: BNSF Railway Company ("BN"), CSX Transportation Inc. ("CSX"), Norfolk Southern Railway Company ("NS"), Union Pacific Railroad Company ("UP"), and Canadian Pacific Railway Company ("CP").

Exhibit 1 (ATK0000022823-22962) is a file produced by Amtrak titled [redacted].

Exhibit 2 (ATK0000021492-21501) is a file produced by Amtrak titled [redacted].

Exhibit 3 (ATK0000022658-222822) is a file produced by Amtrak titled [redacted]

Exhibit 4 (ATK0000022351-22528) is a file produced by Amtrak titled [redacted]

Exhibit 5 (ATK0000021238-21243) is a file produced by Amtrak titled [redacted]

Exhibit 6 (ATK0000022248-22290) is a file produced by Amtrak titled [redacted]

Exhibit 7 (ATK0000022193-22247) is a file produced by Amtrak titled [redacted]

Exhibit 8 (ATK0000021468-21472) is a file produced by Amtrak titled [redacted]

Exhibit 9 (ATK0000022052-22155) is a file produced by Amtrak titled [redacted]

[redacted]

(1) Incremental Cost Provisions

[redacted]

(2) Performance Payment & Penalty Provisions

[redacted]

Incentive Structure. [redacted]

[redacted][2] [redacted]

[redacted][3]

[redacted]

[redacted]

[redacted]

[redacted]

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[2] [redacted]

[3] [redacted]

[redacted]

III. Ridership and Revenue Database Produced by Amtrak

Amtrak produced files from its Revenue and Ridership Database for the relevant lines to CN's counsel electronically by providing access to its secure FTP site on June 28, 2015. At my direction, the Database files produced by Amtrak, which Amtrak designated Highly Confidential, were loaded into a secure database within hours of their receipt from Amtrak and have been maintained there continuously since that time.

The Revenue and Ridership Database provides information on the following movements for the period from May 1, 2011 through October 31, 2013:

1. Train Number 21 -20150609.csv (Revenue and Ridership Figures on Movements of the Southbound Texas Eagle Service from Chicago to San Antonio).

2. Train Number 22 -20150609.csv (Revenue and Ridership Figures on Movements of the Northbound Texas Eagle Service from San Antonio to Chicago).

3. Train Number 58.csv (Revenue and Ridership Figures on Movements of the Northbound City of New Orleans Service from New Orleans to Chicago).

4. Train Number59.csv (Revenue and Ridership Figures on Movements of the Southbound City of New Orleans Service from Chicago to New Orleans).

5. Train Numbers 300, 302, 304, 306 -20150609.csv (Revenue and Ridership Figures on Movements of the Northbound Lincoln Service from St. Louis to Chicago).

6. Train Numbers 301, 303, 305, 307 -20150609.csv (Revenue and Ridership Figures on Movements of the Southbound Lincoln Service from Chicago to St. Louis).

7. Train Numbers 350, 352, 354 -20150609.csv (Revenue and Ridership Figures on Movements of the Eastbound Wolverine Service from Chicago, IL to Detroit, MI).

8. Train Numbers 351, 353, 355 -20150609.csv (Revenue and Ridership Figures on Movements of the Westbound Wolverine Service from Detroit, MI to Chicago, IL).

9. Train Number 364 -20150609.csv (Revenue and Ridership Figures on Movements of the Eastbound Blue Water Service from Chicago to Port Huron, MI).

10. Train Number 365 -20150609.csv (Revenue and Ridership Figures on Movements of the Westbound Blue Water Service from Port Huron, MI to Chicago).

11. Train Number 390 -20150609.csv (Revenue and Ridership Figures on Movements of the Northbound Illini-Saluki Service from Carbondale, IL to Chicago, IL).

12. Train Number 391 -20150609.csv (Revenue and Ridership Figures on Movements of the Northbound Illini-Saluki Service from Carbondale, IL to Chicago, IL).

Exhibit 10 is a DVD, marked Highly Confidential, containing copies of all of the Revenue and Ridership Database files, in comma separated value format, as produced by Amtrak to CN's counsel on June 28, 2015. [redacted]

IV. Other Highly Confidential Documents Produced by Amtrak

Attached to this statement are true and correct copies of the following documents, which contain evidence pertinent to subjects addressed in CN's Opening Submission.[4]

[4] With the exception of ATK0000193182-3205 (Ex. 42 herein), Amtrak designated all of these documents "Highly Confidential." Amtrak designated ATK0000193182-3205 Confidential.

Exhibit 11 (ATK0000194007-08) is an internal Amtrak email [redacted]

Exhibit 12 (ATK0000194009) is a spreadsheet file named [redacted]

[redacted]

[redacted]

Exhibit 13 (ATK0000217298) is an email dated Feb. 8, 2012, [redacted]

[redacted]

Exhibit 14 (ATK0000208195-96) is an August 2012 email exchange [redacted]

[redacted]

Exhibit 15 (ATK0000084851-53) is a September 2013 email thread, [redacted]

[redacted]

Exhibit 16 (ATK0000078471-78) is a file named [redacted]

Exhibit 17 (ATK0000099421) is a file named [redacted]

Exhibit 18 (ATK0000339849) is a Sept. 6, 2011, internal Amtrak email [redacted]

Exhibit 19 (ATK0000339850-51) is the file named [redacted]

[redacted][5]

[redacted][6]

Exhibit 20 (ATK0000341558-64) is a September 2012 email thread [redacted]

[redacted]

5 [redacted]

6 [redacted]

[redacted]

- [redacted]
- [redacted]

[redacted]

Exhibit 21 (ATK0000032679) is a file titled [redacted]

Exhibit 22 (ATK0000345737-39) is an internal email thread, [redacted]

[redacted]

Exhibit 23 (ATK0000031213-15) is a January 2012 internal email thread [redacted]

Exhibit 24 (ATK0000124833) is an April 29, 2010, internal email, [redacted]

Exhibit 25 (ATK0000338505-08) is an email thread from mid-2011, [redacted]

[redacted]

Exhibit 26 (ATK0000349793-96) is an email thread from mid-2011, [redacted]

Exhibit 27 (ATK0000209648-651) is a February 2009 email thread, [redacted]

Exhibit 28 (ATK0000036114 & ATK000036115) is an internal Notice of Meeting [redacted]

Exhibit 29 (ATK0000051139-140) is a document titled [redacted]

Exhibit 30 (ATK0000042122-26) is a September 2008 internal email thread, [redacted]

[redacted]

Exhibit 31 (ATK0000058394-95) is a July 7, 2008, internal email thread, [redacted][7]

Exhibit 32 (ATK0000341065) is a September 5, 2013, internal email [redacted]

Exhibit 33 (ATK0000032103-04) is a May 2, 2011, internal email [redacted]

Exhibit 34 (ATK0000119072-73) is a March 2009 internal email thread, [redacted]

[7] [redacted]

[redacted]

Exhibit 35 (ATK000078471-78) is file named [redacted]

[redacted]

[redacted]

Exhibit 36 (ATK0000122410-12) is a series of email exchanges [redacted]

Exhibit 37 (ATK0000081519 and ATK0000081331-33) consists of two files, [redacted]

[redacted]

Exhibit 38 (ATK0000041307-310) is a June 2012 email thread, [redacted]

[redacted]

Exhibit 39 (ATK0000202982-83) is a March 25, 2009, [redacted]

Exhibit 40 (ATK0000174114-16) is a draft press release dated October 10, 2012, [redacted]

Exhibit 41 (ATK0000145676 and ATK0000145677-680) is a December 23, 2008, [redacted]

[redacted]

Exhibit 42 (ATK0000193182-3205) is a document titled [redacted]

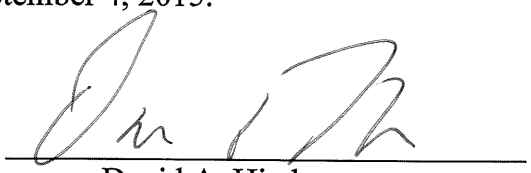
Exhibit 43 (ATK0000136583) is an October 1, 2009, email exchange [redacted]

Exhibit 44 (ATK0000054464-65 & ATK0000054466) is an April 17, 2012, internal email, [redacted]

Exhibit 45 (ATK00000342631-32) is an August 2011 internal email thread, [redacted]

[redacted]

I, David A. Hirsh, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this verified statement. Executed on September 4, 2015.



David A. Hirsh

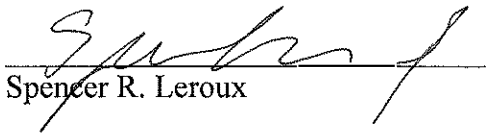
All exhibits redacted

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CERTIFICATE OF SERVICE

I certify that I have this 4th day of September, 2015, caused a true copy of the Highly Confidential and Public versions of the foregoing Opening Evidence of Illinois Central Railroad Company and Grand Trunk Western Railroad Company to be served by hand upon the following counsel for National Railroad Passenger Corporation:

Linda J. Morgan
Nossaman LLP
1666 K Street, NW, Suite 500
Washington, DC 20006



Spencer R. Leroux