Attachment B1

Applicants' Projected Rail Traffic

(CN's March 12 and January 3, 2008 Letters)

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March 12, 2008

BY HAND

Ms. Victoria J. Rutson, Chief
Section of Environmental Analysis
Surface Transportation Board
395 E Street, S.W.
Washington, D.C. 20423-0001

Re: ***Canadian National Railway Company and Grand Trunk Corporation – Control – EJ&E West Company* (STB Finance Docket No. 35087)**

Dear Ms. Rutson:

This letter is a further supplement to my letters to you of January 28, 2008, and February 12, 15, and 29, 2008, in which I responded on behalf of Applicants Canadian National Railway Company and Grand Trunk Corporation (together, "Applicants"; together with their rail carrier subsidiaries, "CN"), to requests you had made, in your letter of December 18, 2007, to Normand Pellerin of CN, in connection with the environmental review of the Transaction proposed in the above-referenced proceeding.

In this letter, I am providing information responsive to the following requests that remain outstanding:

8. Description of typical trains (CN, EJ&E and trackage-rights trains) anticipated to operate on the EJ&E, length, train speed, number of cars, number of engines, age distribution of locomotives, engine horsepower, gross tonnage.

In my letter of February 15, 2008, I provided information about typical CN, EJ&E, and other (*i.e.*, haulage and trackage rights trains of other railroads) trains, both currently operating on the EJ&E line and expected to operate on that line after the Transaction. In my letter of February 29, 2008, I provided information (including number of cars, gross tonnage, and train length), broken down by rail segment, for typical CN trains operating within the EJ&E arc on its own lines and on those of other railroads, both at present and after implementation of the proposed CN/EJ&EW Transaction.

As I noted in my letter of February 15, 2008, the speed of typical trains operating on the EJ&E line will vary from location to location on the track. Accordingly, using its Train Performance Calculator ("TPC") model, CN has calculated the speed of CN trains at grade crossings on the various segments used by CN within the EJ&E arc, just as it did for trains operating on the EJ&E line itself. The results of those calculations are presented on in tab "Crossing Speeds (outer)" on the Excel file, "Exhibit A-Train Speed at Crossings.xls," found on the enclosed CD and constituting Exhibit A to this letter. CN used TPC to calculate the speed of trains operating in both directions of the affected lines, both under a scenario in which the train would operate without any impedances, other than those that would be expected each time a train would operate, and under a scenario in which the train would be impeded at all conflict points (meets and crossing diamonds) throughout its journey. (As when the model was run for trains on the EJ&E line, it was assumed that in case of conflict, the train would move into sidings that would not leave the train blocking any rail-highway at-grade crossing.) The model was thus used to produce an unimpeded and an impeded speed in each direction. CN then averaged the four speeds (impeded and unimpeded in each direction) at each grade crossing to determine the average speed at the crossing. (It was CN's judgment that trains operating on lines within the EJ&E arc are likely to be impeded at conflict points more than half the time, and that averaging the speeds of the unimpeded and impeded trains would therefore be a conservative approach that would tend to overstate the train speeds and thus understate existing grade crossing delays.)

I would like to note that the information reported on Exhibit A regarding traffic on CN segment 20 (Forest Park to B12), both before and after implementation of the Transaction, includes one train per day in each directly that is delivered to or received from CSXT at BRC Clearing Yard. CN believes that, after acquisition of EJ&EW, moving the interchange point to Kirk Yard would make sense from the point of view of rail operations, but because CSXT has not agreed to make that change, CN's Operating Plan reports those two trains a day as continuing to move on segment 20 after implementation of the Transaction. If CN and CSXT were to agree to move their interchange point, however, these two trains would no longer operate on segment 20, but would move on the EJ&EW line around Chicago.

I would also like to note that as CN was preparing the final response to this question, it was discovered that the TPC runs for EJ&E trains, described in my letter to you of February 29, 2008, which were used to calculate the speeds of trains at grade crossings at the EJ&E arc, were in error. Running the TPC model requires the input of various data regarding the track and the train consist. When running the TPC for EJ&E trains, CN inadvertently omitted the tractive effort card for one of the two locomotives that were assumed to be the locomotive consist of a typical EJ&E train. As a result, the trains were modeled with the weight, length, and rolling resistance of two locomotives but with the pulling power of only one, as if the second locomotive had been shut down. As a result, the speeds of EJ&E trains, and thus the average train speeds for all trains at affected crossings, were understated. The corrected train speeds are set forth on the "Crossing Speeds (outer)" tab on Exhibit A-Train Speed at Crossings.xls. (Corrected calculations of vehicular delay at grade crossings on the EJ&E arc, based on the corrected speeds, are set forth on the "EJE Crossings" tab on the Excel file, "CN-EJE Grade Crossing Analysis.xls," found in Exhibit C on the enclosed CD.)

19. Specifics as to average fuel efficiency (in units of gross ton miles/gallon) for existing EJ&E operations, future CN operations on EJ&E, and current CN operations on CN lines in Chicago metro area.

Using the TPC calculations described in the response to item no. 8, above, CN has calculated that the fuel efficiency of a typical CN train operating within the EJ&E arc before implementation of the Transaction would be 1,066 gross ton-miles per imperial gallon (or 888 gross ton-miles per U.S. gallon[1]) and that the fuel efficiency of a typical CN train operating within the arc after implementation of the Transaction would be 987 gross ton-miles per imperial gallon (or 822 gross ton-miles per U.S. gallon). Those calculations are presented in the Excel file, "Segment_Fuel_Consumption_CN.xls," included in Exhibit B to this letter (which is found on the enclosed CD).

Representatives of HDR Engineering, Inc. ("HDR," the Board's third-party consultant for environmental review of the Transaction) have questioned the calculations of fuel efficiency of trains operating on the EJ&E arc that were reported in my letter to you of February 15, 2008, including Exhibit C thereto. In response to those inquiries, CN has reexamined those calculations and determined that they were in fact incorrect. The corrected calculations are reported on the Excel file "Segment_Fuel_Consumption_EJE.xls," included in Exhibit B on the enclosed CD. The actual fuel efficiency of (1) a typical EJ&E train operating today, as well as that of a typical EJ&E train after implementation of the Transaction, would be 895 gross ton-miles per imperial gallon, or 745 gross ton-miles per U.S. gallon, (2) a typical "Other" (*i.e.*, non-CN haulage or trackage rights) train operating on the EJ&E line, before or after implementation of the Transaction, would be 1,160 gross ton-miles per imperial gallon (966 gross ton-miles per U.S. gallon), (3) a typical CN train presently operating by trackage rights on EJ&E would be 930 gross ton-miles per imperial gallon (774 gross ton-miles per U.S. gallon), and (4) a typical (non-EJ&EW) CN train operating on the EJ&E line after implementation of the Transaction would be 1,259 gross ton-miles per imperial gallon (1,048 gross ton-miles per U.S. gallon). The composite fuel efficiency of trains operating on EJ&E (i.e., the weighted average of CN, EJ&E, and other trains) would be 985 gross ton-miles per imperial gallon (820 gross ton-miles per U.S. gallon) before the Transaction, and 1,199 gross ton-miles per imperial gallon (998 gross ton-miles per U.S. gallon) after implementation of the Transaction. These composite fuel efficiency numbers are reported on the "Segment_Fuel_Consumption_EJE.xls" Excel file in Exhibit B.

The fuel efficiency calculations are summarized on the Excel file, "Segment_Fuel_Consumption_Summary.xls," also found in Exhibit B. In addition, that file reports total fuel consumption per day (in imperial gallons), both before and after implementation of the Transaction, on EJ&E's lines and on those used by CN within the EJ&E arc.

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[1] Based on a conversion factor of 1.20094992550486 imperial gallons per U.S. gallon.

26. Any estimates or projections of train or vehicle traffic congestion reductions along with associated emissions reductions, reductions in train delay, reduction in traffic delay at at-grade crossings.

Parsons Transportation Group ("Parsons"), an environmental consulting firm retained by CN to assist it in evaluating environmental impacts of the Transaction, has calculated vehicular delay at grade crossings within the EJ&E arc before and after implementation of the Transaction. In making these calculations, Parsons used the train speeds reported in the response to item no. 8 above and the typical train information reported in my letter to you of February 29, 2008, and applied the methodologies used by SEA to make its grade-crossing delay analyses Bayport Loop EIS. The results of those calculations are set forth on the "Inside Arc Crossings" tab on the Excel file, "CN-EJE Grade Crossing Analysis.xls," found on Exhibit C on the enclosed CD. (This tab does not include information about non-CN trains. We could not easily obtain this information for the non-CN rail segments, and it would have been confusing and misleading to include it for some segments but not others.) As noted above, Parsons has also recalculated its computations for vehicular delay at grade crossings on the EJ&E arc, reflecting the corrected train speeds reported in the response to item 8 above. Those calculations are found on the "EJE crossings" tab on the "CN-EJE Grade Crossing Analysis.xls" Excel file in Exhibit C.

Please note that the railroads identified on the "Inside Arc Crossings" tab as "GTW," "CC," "IC," and "WC" are individual railroads in CN's corporate family, all of which are referred to simply as "CN" on the train speed table found in Exhibit A. Also, the "Inside Arc Crossings" tab identifies the line between B12 and Cragin as belonging to "NIRC" (for Northeastern Illinois Regional Commuter Rail, or Metra, the commuter operator of the line); on the train speed table in Exhibit A, this segment is identified as belonging to "CPRS" (for Canadian Pacific Railway System, the primary freight operator on the line).

The calculations reported in Exhibit C indicate that the net result of the Transaction would be to reduce total vehicle delay at grade crossings in the Chicago area by 174 hours. Parsons intends to use these to compute net reductions of fuel consumption and related emissions from vehicles delayed at affected grade crossings throughout the affected area. CN will provide that information promptly to SEA once it is available.

* * * * *

If you have any questions regarding any of the responses provided with this letter, please feel free to call me, and I will do whatever I can to provide you with the answers. In addition, we have received your second set of information requests, included with your letter to me of March 7, 2008, and will provide CN's responses to those requests as quickly as possible.

Please let me know what further assistance we may provide that would help SEA complete its environmental review expeditiously.

Very truly yours,

Paul A. Cunningham
Counsel for Canadian National Railway Company
and Grand Trunk Corporation

Enclosures (on CD)

cc: John H. Morton
Normand Pellerin

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CN-14

January 3, 2008

BY E-FILING

The Honorable Vernon A. Williams, Secretary
Surface Transportation Board
Office of the Secretary
395 E Street, S.W.
Washington, DC 20423-0001

Re: ***Canadian National Railway Company and Grand Trunk Corporation – Control – EJ&E West Company* (STB Finance Docket No. 35087)**

Dear Mr. Williams:

Please note the following corrections and clarifications to the Railroad Control Application (CN-2), filed October 30, 2007:

Page 67, footnote 26, lines 8-9: Replace the last sentence with "The eighth is the SPLC for Chicago. EJ&E does not serve any shippers at this station, but is listed at Chicago in the Official Railway Station Guide for purposes of billing and accounting for paper interchanges with certain short lines. Moreover, the Official Railway Station Guide shows that this station is served by 22 carriers (including all Class I carriers), so that even if EJ&E provided service to shippers there, the combination of CN and EJ&EW would not materially affect the vigor of competition for service to this station."

Page 217, line 18: Change "1,355" to "1,354".

Page 241, caption, line 2: Change the identification of the figure from "Ivanhoe, IL" to "Ivanhoe, IN".

Page 521, caption, line 2: Change the identification of the figure from "Ivanhoe, IL" to "Ivanhoe, IN".

In addition, replacement copies of pages 246 through 248 of the Application are attached. These relate to (1) inclusion of CN local trains on the Chicago Subdivision north of Matteson (CN segments 1 through 6 on revised Attachment A.1); (2) equalization of the projected numbers of trains moving to Kirk and Joliet yards after implementation of the Transaction with the numbers of trains moving from those yards; (3) equalization of the number of trains moving to and from other railroads for interchange; (4) projections of intermodal tonnage reasonably foreseeable to originate at the Port of Prince Rupert and to move to or through Chicago; and (5) correction of computational errors.

Very truly yours,

Paul A. Cunningham

Counsel for Canadian National Railway Company
and Grand Trunk Corporation

Enclosures

cc: All Parties of Record

Attachment A.1
Potential Changes in Traffic on Affected CN Rail Line Segments

Traffic Changes on CN Rail Line Segments in United States Affected by Canadian National/EJ&E West Company Transaction

Rail Line Segment Description				Freight - Trains/Day			Freight - Gross Tons/Day				Hazmat - Cars/Day		
Segment Number	From Station	To Station	Road	Base	Change	Total	Base	Merged	Difference	Percent Change	Base	Merged	Difference
1	Matteson	Markham	CN	12.8	(2.6)	10.0	91,059	53,501	(37,559)	-41%	191.2	19.6	(171.6)
2	Markham	Harvey	CN	21.1	(19.1)	2.0	134,789	1,045	(133,744)	-99%	249.1	0.0	(249.1)
3	Harvey	Riverdale	CN	8.4	(6.4)	2.0	51,910	1,045	(50,865)	-98%	84.4	0.0	(94.4)
4	Riverdale	Wildwood	CN	8.4	(6.4)	2.0	44,388	1,045	(43,343)	-98%	82.0	0.0	(82.0)
5	Wildwood	Kensington	CN	8.4	(6.4)	2.0	44,388	1,045	(43,343)	-98%	82.0	0.0	(82.0)
6	Kensington	94th St	CN	8.4	(6.4)	2.0	41,071	1,045	(40,026)	-97%	77.0	0.0	(77.0)
7	94thSt	67th St	CN	6.4	(6.4)	0.0	39,442	0	(39,442)	-100%	76.0	0.0	(76.0)
8	67th St	16th St	CN	6.4	(6.4)	0.0	39,442	0	(39,442)	-100%	76.0	0.0	(76.0)
9	16thSt	Bridgeport	CN	4.6	(4.6)	0.0	26,637	0	(26,637)	-100%	67.9	0.0	(67.9)
10	Bridgeport	Belt Crossing	CN	2.5	(2.5)	0.0	17,055	0	(17,065)	-100%	62.0	0.0	(62.0)
11	Belt Crossing	Hawthorne	CN	4.5	(4.5)	0.0	29,538	0	(29,538)	-100%	84.2	0.0	(84.2)
12	Hawthorne	Broadview	CN	4.4	(2.7)	1.7	37,449	6,402	(31,048)	-83%	71.5	18.6	(52.9)
13	Broadview	Munger	CN	3.0	(1.3)	1.7	27,215	6,402	(20,814)	-76%	61.1	18.6	(42.6)
14	Bridgeport	Lemoyne	CN	2.1	(2.1)	0.0	15,627	0	(15,627)	-100%	59.4	0.0	(59.4)
15	Lemoyne	Glenn Yard	CN	2.1	(0.1)	2.0	25,902	4,815	(21,086)	-81%	90.6	11.5	(79.1)
16	Glenn Yard	Argo	CN	5.8	(3.8)	2.0	39,700	12,753	(26,947)	-68%	139.6	56.1	(83.5)
17	Argo	Lemont	CN	1.8	0.2	2.0	14,813	12,753	(2,060)	-14%	71.9	56.1	(15.8)
18	Lemont	Joliet	CN	1.8	0.2	2.0	10,869	16,687	5,818	54%	39.0	89.0	50.0
19	Madison St	Forest Park	CN	5.4	(5.4)	0.0	53,125	0	(53,125)	-100%	76.8	0.0	(76.8)
20	Forest Park	B12	CN	5.4	(5.4)	0.0	53,125	0	(53,125)	-100%	76.8	0.0	(76.8)
21	B12	Schiller Park	CN	19.3	(17.3)	2.0	136,615	5,582	(131,034)	-96%	157.0	5.2	(151.7)
22	Schiller Park	Leithton	CN	19.1	(17.1)	2.0	137,944	8,039	(129,905)	-94%	156.8	6.2	(150.6)
23	Griffith	Thornton Jct	CN	22.1	(19.2)	2.9	139,122	16,570	(122,552)	-88%	280.6	9.0	(271.6)
24	Thornton Jct	CN Jct	CN	19.5	(18.5)	1.0	124,678	6,433	(118,245)	-95%	272.9	8.9	(264.0)
25	CN Jct	Blue Island	CN	14.9	(13.9)	1.0	113,431	6,433	(106,998)	-94%	160.2	8.9	(151.2)
26	Blue Island	Hayford	CN	3.4	(3.4)	0.0	18,072	0	(18,072)	-100%	38.8	0.0	(38.8)

NOTES:

(1) Based on CN's analysis of potential extended haul gains due to the Transaction (see V.S. Stuebner), the following additional tonnages (all of which could be absorbed into current planned trains without the need for additional trains) would be added to the CN lines listed below.

Between	Maximum Daily Added Tons	% Increase
Matteson and Memphis	2,246	2.9%
Memphis and New Orleans	223	0.3%
Griffith and Port Huron	161	0.1%
Leithton and Ranier	1,488	1.1%
Munger and Omaha	19	0.1%

(2) Base data reflects estimates of future intermodal traffic from and to Prince Rupert, BC.

(3) No changes in the traffic of other carriers due to the Transaction is projected for these segments. In any event, such traffic (including trackage rights and haulage) is not included in this table due to unreliable tonnage information.

(4) See note following Attachment A.2.

Attachment A.2

Potential Changes in Traffic on Affected EJ&E Rail Line Segments

Traffic Changes on EJ&E Rail Line Segments in United States Affected by Canadian National/EJ&E West Company Transaction

Rail Line Segment Description				Freight - Trains/Day			Freight - Gross Tons/Day				Hazmat - Cars/Day		
Segment Number	From Station	To Station	Road	Base	Change	Total	Base	Merged	Difference	Percent Change	Base	Merged	Difference
15	Rondout	Leithton	EJE	3.2	0.0	3.2	3,222	2,038	(1,184)	-37%	9.4	9.4	-
14	Leithton	Spaulding	EJE	5.3	15.0	20.3	19,123	164,398	145,275	760%	18.1	183.3	165.2
13	Spaulding	Munger	EJE	5.5	17.0	22.5	21,950	179,150	157,200	716%	29.0	209.4	180.4
12	Munger	West Chicago	EJE	4.4	19.0	23.4	14,397	191,557	177,160	1230%	21.1	271.3	250.2
11	West Chicago	East Siding	EJE	10.7	20.9	31.6	62,233	253,673	191,440	308%	30.7	315.2	284.6
10	East Siding	Walker	EJE	15.7	23.8	39.5	87,162	307,411	220,249	253%	43.4	392.6	349.2
9	Walker	Bridge Junction	EJE	18.5	23.8	42.3	89,329	310,165	220,835	247%	48.9	398.1	349.2
8	Bridge Junction	Rock Island Jct	EJE	18.5	23.8	42.3	78,157	297,491	219,334	281%	48.9	398.1	349.2
7	Rock Island Jct	Matteson	EJE	6.4	21.9	28.3	35,375	233,576	198,201	560%	49.0	360.8	311.8
6	Matteson	Chicago Hts	EJE	8.6	22.9	31.6	48,455	260,774	212,319	438%	78.7	496.0	417.3
5	Chicago Hts	Griffith	EJE	10.2	23.9	34.2	51,696	268,910	217,214	420%	71.6	496.5	424.9
4	Griffith	Van Loon	EJE	7.6	21.0	28.6	29,536	215,949	186,413	631%	44.7	421.5	376.8
3	Van Loon	Ivanhoe	EJE	9.7	20.0	29.7	42,024	209,633	167,609	399%	45.5	399.3	353.8
2	Ivanhoe	Cavanaugh	EJE	9.8	20.0	29.8	41,879	209,488	167,609	400%	45.5	399.3	353.8
1	Cavanaugh	Gary	EJE	11.8	20.0	31.8	44,098	211,700	167,602	380%	52.5	406.3	353.8
0	Gary	Indiana Harbor	EJE	3.5	0.0	3.5	13,340	23,681	10,341	78%	0.0	11.0	11.0
-1	Indiana Harbor	Hammond	EJE	1.8	0.0	1.8	6,594	9,054	2,461	37%	0.0	1.4	1.4
-2	Hammond	South Chicago	EJE	0.9	0.0	0.9	929	3,390	2,461	265%	0.0	1.4	1.4

NOTE: The traffic change numbers in the Attachments A.1. and A.2. reflect changes that will result after complete implementation of the Transaction. The numbers reflect train counts and gross tons on each segment, with the same train potentially crossing multiple segments. Thus, the numbers for each segment are not additive to determine the total number of trains or tonnage to be added on the entire length of EJ&EW, or to be subtracted from the CN lines.

ATTACHMENT B
CN-EJ&E Labor Impact Exhibit

EJ & E Labor Impact Summary

	EJ&E Positions as of 12/2006 (Base Case)			
	Joliet	System	Kirk/Gary/ Whiting	Total
Police	4	0	1	5
MoW	19	45	57	121
Carmen	25	0	34	59
Signalmen	2	11	7	20
Electricians - Loco	0	0	17	17
Electricians - Engineering	0	1	0	1
Machinists	0	0	32	32
Sheetmetal Workers	0	0	5	5
Hostlers	0	0	10	10
Clerks	19	0	52	71
Telegrapher/Tower Opr	0	6	3	9
Train and Engine Service	32	64	131	227
Yardmasters	1	0	10	11
Dispatchers	0	14	0	14
Total	102	141	359	602

	Positions Transferred to CN							
	Joliet	System	Kirk Whiting	Woodcrest	Markham	Homewood	Total	Timing Year
Police	4	0	1	0	0	0	5	1
MoW	19	25	22	0	0	0	66	1
Carmen	23	0	21	0	4	0	48	1
Signalmen	0	8	5	0	0	0	13	1
Electricians - Loco	0	0	3	3	0	0	6	1
Electricians - Engineering	0	0	0	0	0	0	0	1
Machinists	0	0	15	12	0	0	27	1
Sheetmetal Workers	0	0	0	4	0	0	4	1
Hostlers	0	0	0	4	0	0	4	1
Clerks	9	0	12	0	0	4	25	1
Telegrapher/Tower Opr	0	6	3	0	0	0	9	1
Train and Engine Service	22	45	53	0	0	0	120	1
Yardmasters	1	0	5	0	0	0	6	1
Dispatchers	0	0	0	0	0	14	14	1
Total	78	84	140	23	4	18	347	

	Positions Transferred to Gary Railway			
	Joliet	System	Gary	Total
Police	0	0	0	0
MoW	0	0	19	19
Carmen	0	0	13	13
Signalmen	0	0	0	0
Electricians - Loco	0	0	5	5
Electricians - Engineering	0	0	1	1
Machinists	0	0	8	8
Sheetmetal Workers	0	0	0	0
Hostlers	0	0	2	2
Clerks	0	0	17	17
Telegrapher/Tower Opr	0	0	0	0
Train and Engine Service	0	0	69	69
Yardmasters	0	0	7	7
Dispatchers	0	0	0	0
Total	0	0	141	141

	Positions Abolished				
	Joliet	System	Kirk/Gary/ Whiting	Total	Timing Year
Police	0	0	0	0	1
MoW	0	20	16	36	1
Carmen	0	0	(2)	(2)	1
Signalmen	2	3	2	7	1
Electricians - Loco	0	0	6	6	1
Electricians - Engineering	0	0	0	0	1
Machinists	0	0	(3)	(3)	1
Sheetmetal Workers	0	0	1	1	1
Hostlers	0	0	4	4	1
Clerks	10	0	19	29	1
Telegrapher/Tower Opr	0	0	0	0	1
Train and Engine Service	10	19	9	38	1
Yardmasters	0	0	(2)	(2)	1
Dispatchers	0	0	0	0	1
Total	22	42	50	114	

Notes:
Data based on EJ&E December 2006 figures
Parentheses indicate potential new hires
While this table shows Positions Abolished, the Applicants believe that most reductions will be accomplished through attrition.

Attachment B2

Rail Line Segments Tables

							Trains (per day)			Haz Mat Cars (per day)		
Segment #	Subdivision	Length miles	Begin Station	Begin Milepost	End Station	End Milepost	Exist Trains	Prop Trains	Delta	Exist	Prop	Delta
EJE 23	Phoenix Lead	1.1	Spragues	0.0	Joliet	1.1						
EJE 22	City Track	6.6	Kirk Yard	0.0	Miller	6.6						
EJE 21	Whiting Branch	5.2	Cavanaugh	43.0	Whiting	48.2						
EJE 20	Hammond Branch	1.0	Shearson	44.0	Indianapolis Blvd	45.0						
EJE 19	Downtown Line (H Yard)	1.4	Collins Street	0.7	Joliet	2.1						
EJE 18	Romeoville/Paul Ales Branch	6.0	East Bridge Jct	0.0	Romeoville	6.0						
EJE 17	Illinois River	20.4	Plainfield	9.8	Goose Lake	30.2						
EJE 16	Western	9.1	Waukegan	74.6	Rondout	65.5						
EJE 15	Western	5.2	Rondout	65.5	Leithton (begin existing siding)	60.3	3.2	3.2	0.0	9.4	9.4	0.0
EJE 14A	Western	1.0	Leithton (connection and begin existing siding	60.3	Diamond Lake (end of existing siding)	59.3	5.3	20.3	15.0	18.1	183.3	165.2
EJE 14B	Western	2.3	Diamond Lake (begin proposed siding)	59.3	Gilmer (end of proposed siding)	57.0	5.3	20.3	15.0	18.1	183.3	165.2
EJE 14C	Western	7.7	Gilmer (end of proposed siding)	57.0	Lake/Cook County line	49.3	5.3	20.3	15.0	18.1	183.3	165.2
EJE 14D	Western	11.7	Lake/Cook County line	49.3	Spaulding	37.6	5.3	20.3	15.0	18.1	183.3	165.2
EJE 13A	Western	0.9	Spaulding	37.6	Cook/DuPage County line	36.7	5.5	22.5	17.0	29.0	209.4	180.4
EJE 13B	Western	1.2	Cook/DuPage County line	36.7	Munger	35.5	5.5	22.5	17.0	29.0	209.4	180.4
EJE 12	Western	6.6	Munger	35.5	West Chicago	28.9	4.4	23.4	19.0	21.1	271.3	250.2
EJE 11	Western	7.8	West Chicago	28.9	East Siding	21.1	10.7	31.6	20.9	30.7	315.2	284.5
EJE 10A	Western	3.9	East Siding (begin proposed double track)	21.1	DuPage/Will County line	17.2	15.7	39.5	23.8	43.4	392.6	349.2
EJE 10B	Western	1.0	DuPage/Will County line	17.2	95th St (end prop DT, begin existing siding)	16.2	15.7	39.5	23.8	43.4	392.6	349.2
EJE 10C	Western	1.5	95th St (end prop DT, begin existing siding)	16.2	111th St (existing siding becomes double track)	14.7	15.7	39.5	23.8	43.4	392.6	349.2
EJE 10D	Western	2.2	111th St (existing siding becomes double track)	14.7	Normantown (begin proposed double track)	12.5	15.7	39.5	23.8	43.4	392.6	349.2
EJE 10E	Western	1.6	Normantown (begin proposed double track)	12.5	Walker (end proposed double track)	10.9	15.7	39.5	23.8	43.4	392.6	349.2
EJE 9A	Western	1.1	Walker	10.9	IRL Jct	9.8	18.5	42.3	23.8	48.9	398.1	349.2
EJE 9B	Western	7.5	IRL Jct	9.8	E Bridge Jct	2.3	18.5	42.3	23.8	48.9	398.1	349.2
EJE 8A	Western	2.3	E Bridge Jct	2.3	East Joliet	0.0	18.5	42.3	23.8	48.9	398.1	349.2

Segment #	Subdivision	Length miles	Begin Station	Begin Milepost	End Station	End Milepost	Exist Trains	Prop Trains	Delta	Exist	Prop	Delta
EJE 8B	Eastern	0.8	East Joliet	0.0	Rock Island Jct	0.8	18.5	42.3	23.8	48.9	398.1	349.2
EJE 7A	Eastern	1.0	Rock Island Jct	0.8	Marble Falls (end of existing DT)	1.8	6.4	28.3	21.9	49.0	360.8	311.8
EJE 7B	Eastern	9.8	Marble Falls (end of existing DT, begin proposed DT)	1.8	West Frankfort (end prop DT, begin existing siding)	11.6	6.4	28.3	21.9	49.0	360.8	311.8
EJE 7C	Eastern	3.0	West Frankfort (end prop DT, begin existing siding)	11.6	East Frankfort (end of existing siding, begin single track)	14.6	6.4	28.3	21.9	49.0	360.8	311.8
EJE 7D	Eastern	2.5	East Frankfort (end of existing siding, begin single track)	14.6	Will/Cook County line	17.1	6.4	28.3	21.9	49.0	360.8	311.8
EJE 7E	Eastern	3.3	Will/Cook County line	17.1	West End Matteson (Begin existing DT)	20.4	6.4	28.3	21.9	49.0	360.8	311.8
EJE 7F	Eastern	1.3	West End Matteson (Begin existing DT)	20.4	Matteson (CN/METRA OH)	21.7	6.4	28.3	21.9	49.0	360.8	311.8
EJE 6	Eastern	3.5	Matteson (CN/METRA OH)	21.7	Chicago Heights	25.2	8.6	31.6	23.0	78.7	496.0	417.3
EJE 5A	Eastern	5.7	Chicago Heights	25.2	Dyer (State Line)	30.9	10.2	34.2	24.0	71.6	496.5	424.9
EJE 5B	Eastern	5.3	Dyer (State Line)	30.9	Griffith	36.2	10.2	34.2	24.0	71.6	496.5	424.9
EJE 4	Eastern	3.6	Griffith	36.2	Van Loon	39.8	7.6	28.6	21.0	44.7	421.5	376.8
EJE 3	Eastern	2.0	Van Loon	39.8	Ivanhoe	41.8	9.7	29.7	20.0	45.5	399.3	353.8
EJE 2	Eastern	1.4	Ivanhoe	41.8	Cavanaugh	43.2	9.8	29.8	20.0	45.5	399.3	353.8
EJE 1	Eastern	2.2	Cavanaugh	43.2	Gary (Kirk Yard Jct)	45.4	11.8	31.8	20.0	52.5	406.3	353.8
EJE 0	Lakefront Line	3.4	Gary (Kirk Yard)	12.2	Indiana Harbor	8.8	3.5	3.5	0.0	0.0	11.0	11.0
EJE -1	Lakefront Line	4.6	Indiana Harbor	8.8	Hammond	4.2	1.8	1.8	0.0	0.0	1.4	1.4
EJE -2A	Lakefront Line	1.1	Hammond	4.2	ILL-IN State Line	3.1	0.9	0.9	0.0	0.0	1.4	1.4
EJE -2B	Lakefront Line	3.1	ILL-IN State Line	3.1	South Chicago	0.0	0.9	0.9	0.0	0.0	1.4	1.4
CN 19	Waukesha	0.1	Madison St	10.9	Forest Park	11.0	5.4	0.0	-5.4	76.8	0.0	-76.8
CN 20	Waukesha	4.5	Forest Park	11.0	B12	15.5	5.4	0.0	-5.4	76.8	0.0	-76.8
CN 21	Waukesha	2.3	B12	15.5	Schiller Park	17.8	19.3	2.0	-17.3	157.0	5.2	-151.8
CN 22	Waukesha	20.1	Schiller Park	17.8	Leithton	37.9	19.1	2.0	-17.1	156.9	6.2	-150.7
CN 29	Waukesha	5.0	Leithton	37.9	Gray's Lake	42.9	19.1	19.1	0.0			
CN 9	Freeport	2.3	16th St	2.1	Bridgeport	4.4	4.6	0.0	-4.6	67.9	0.0	-67.9
CN 10	Freeport	3.9	Bridgeport	4.4	Belt Xing	8.3	2.5	0.0	-2.5	62.0	0.0	-62.0
CN 11	Freeport	0.6	Belt Xing	8.3	Hawthorne	8.9	4.5	0.0	-4.5	84.2	0.0	-84.2
CN 12	Freeport	5.8	Hawthorne	8.9	Broadview (IHB)	14.7	4.4	1.7	-2.7	71.5	18.6	-52.9
CN 13A	Freeport	3.6	Broadview (IHB)	14.7	DuPage-Cook Co Line	18.3	3.0	1.7	-1.3	61.1	18.5	-42.6
CN 13B	Freeport	17.4	DuPage-Cook Co Line	18.3	Munger (EJE)	35.7	3.0	1.7	-1.3	61.1	18.5	-42.6
CN 30A	Freeport	1.6	Munger (EJE)	35.7	DuPage-Kane Co Line	37.3	3.0	2.6	-0.4			
CN 30B	Freeport	3.4	DuPage-Kane Co Line	37.3	Coleman	40.7	3.0	2.6	-0.4			
CN 14	Joliet	4.4	Bridgeport	3.5	Lemonye	7.9	2.1	0.0	-2.1	59.4	0.0	-59.4
CN 15	Joliet	2.5	Lemonye	7.9	Glenn Yard	10.4	2.1	2.0	-0.1	90.6	11.5	-79.1
CN 16	Joliet	2.7	Glenn Yard	10.4	Argo	13.1	5.8	2.0	-3.8	139.6	56.1	-83.5
CN 17	Joliet	12.2	Argo	13.1	Lemont	25.3	1.8	2.0	0.2	71.9	56.1	-15.8

Segment #	Subdivision	Length miles	Begin Station	Begin Milepost	End Station	End Milepost	Exist Trains	Prop Trains	Delta	Exist	Prop	Delta
CN 18	Joliet	11.5	Lemont	25.3	Joliet	36.8	1.8	2.0	0.2	39.0	89.0	50.0
CN 31 (UP)	Joliet	2.3	Joliet	36.8	So. Joliet	39.1						
CN 8	Chicago	6.6	16th St	1.5	67th St	8.1	6.4	0.0	-6.4	76.0	0.0	-76.0
CN 7	Chicago	3.6	67th St	8.1	94th St	11.7	6.4	0.0	-6.4	76.0	0.0	-76.0
CN 6	Chicago	2.8	94th St	11.7	Kensington	14.5	8.4	2.0	-6.4	77.0	0.0	-77.0
CN 5	Chicago	1.0	Kensington	14.5	Wildwood	15.5	8.4	2.0	-6.4	82.0	0.0	-82.0
CN 4	Chicago	2.4	Wildwood	15.5	Riverdale	17.9	8.4	2.0	-6.4	82.0	0.0	-82.0
CN 3	Chicago	2.1	Riverdale	17.9	Harvey	20.0	8.4	2.0	-6.4	94.4	0.0	-94.4
CN 2	Chicago	1.8	Harvey	20.0	Markham	21.8	21.1	2.0	-19.1	249.1	0.0	-249.1
CN 1	Chicago	7.9	Markham	21.8	Matteson	29.7	12.6	10.0	-2.6	191.2	19.5	-171.7
CN 32	Chicago	5.0	Matteson	29.7	Mill Street	34.7	12.8	12.8	0.0			
CN 28	Elsdon	3.7	Union Ave	5.0	Elsdon	8.7						
CN 27	Elsdon	3.1	Elsdon	8.7	Hayford	11.8						
CN 26	Elsdon	7.5	Hayford	11.8	Blue Island	19.3	3.4	0.0	-3.4	38.8	0.0	-38.8
CN 25	Elsdon	3.9	Blue Island	19.3	CN Jct.	23.2	14.9	1.0	-13.9	160.2	8.9	-151.3
CN 24	Elsdon	2.0	CN Jct.	23.2	Thornton Jct. (UP)	25.2	19.5	1.0	-18.5	272.9	8.9	-264.0
CN 23B	Elsdon	5.4	Thornton Jct. (UP)	25.2	ILL-IN State Line	30.6	22.1	2.9	-19.2	280.6	9.0	-271.6
CN 23A	Elsdon	5.5	ILL-IN State Line	30.6	Griffith	36.1	22.1	2.9	-19.2	280.6	9.0	-271.6
CN 33	South Bend	5.0	Griffith	36.1	Broadway	41.1	23.3	23.3	0.0			

Note:

1. Line Segment CN 31 (UP). CN has trackage rights over UP owned track
2. For purposes of analysis, SEA used 3.5 trains per day for CN Rail Line Segments 19 and 20, as provided by CN in correspondence dated February 29, 2008. Subsequent correspondence from CN was received that changed the value to 5.4 trains per day; however, analyses were already complete. The lower value (3.5) will yield a more conservative estimate of potential benefits.

Segment #	Subdivision	Length miles	Begin Station	Begin Milepost	End Station	End Milepost	Exist Trains	Prop Trains	Delta
EJE 23	Phoenix Lead	1.1	Spragues	0.0	Joliet	1.1			0.0
EJE 22	City Track	6.6	Kirk Yard	0.0	Miller	6.6			0.0
EJE 21	Whiting Branch	5.2	Cavanaugh	43.0	Whiting	48.2			0.0
EJE 20	Hammond Branch	1.0	Shearson	44.0	Indianapolis Blvd	45.0			0.0
EJE 19	Downtown Line (H Yard)	1.4	Collins Street	0.7	Joliet	2.1			0.0
EJE 18	Romeoville/Paul Ales Branch	6.0	East Bridge Jct	0.0	Romeoville	6.0			0.0
EJE 17	Illinois River	20.4	Plainfield	9.8	Goose Lake	30.2			0.0
EJE 16	Western	9.1	Waukegan	74.6	Rondout	65.5			0.0
EJE 15	Western	5.2	Rondout	65.5	Leithton (begin existing siding)	60.3	3.2	3.2	0.0
EJE 14A	Western	1.0	Leithton (connection and begin existing siding	60.3	Diamond Lake (end of existing siding)	59.3	5.3	20.3	15.0
EJE 14B	Western	2.3	Diamond Lake (begin proposed siding)	59.3	Gilmer (end of proposed siding)	57.0	5.3	20.3	15.0
EJE 14C	Western	7.7	Gilmer (end of proposed siding)	57.0	Lake/Cook County line	49.3	5.3	20.3	15.0
EJE 14D	Western	11.7	Lake/Cook County line	49.3	Spaulding	37.6	5.3	20.3	15.0
EJE 13A	Western	0.9	Spaulding	37.6	Cook/DuPage County line	36.7	5.5	22.5	17.0
EJE 13B	Western	1.2	Cook/DuPage County line	36.7	Munger	35.5	5.5	22.5	17.0
EJE 12	Western	6.6	Munger	35.5	West Chicago	28.9	4.4	23.4	19.0
EJE 11	Western	7.8	West Chicago	28.9	East Siding	21.1	10.7	31.6	20.9
EJE 10A	Western	3.9	East Siding (begin proposed double track)	21.1	DuPage/Will County line	17.2	15.7	39.5	23.8
EJE 10B	Western	1.0	DuPage/Will County line	17.2	95th St (end prop DT, begin existing siding)	16.2	15.7	39.5	23.8
EJE 10C	Western	1.5	95th St (end prop DT, begin existing siding)	16.2	111th St (existing siding becomes double track)	14.7	15.7	39.5	23.8

Segment #	Subdivision	Length miles	Begin Station	Begin Milepost	End Station	End Milepost	Exist Trains	Prop Trains	Delta
EJE 10D	Western	2.2	111th St (existing siding becomes double track)	14.7	Normantown (begin proposed double track)	12.5	15.7	39.5	23.8
EJE 10E	Western	1.6	Normantown (begin proposed double track)	12.5	Walker (end proposed double track)	10.9	15.7	39.5	23.8
EJE 9A	Western	1.1	Walker	10.9	IRL Jct	9.8	18.5	42.3	23.8
EJE 9B	Western	7.5	IRL Jct	9.8	E Bridge Jct	2.3	18.5	42.3	23.8
EJE 8A	Western	2.3	E Bridge Jct	2.3	East Joliet	0.0	18.5	42.3	23.8
EJE 8B	Eastern	0.8	East Joliet	0.0	Rock Island Jct	0.8	18.5	42.3	23.8
EJE 7A	Eastern	1.0	Rock Island Jct	0.8	Marble Falls (end of existing DT)	1.8	6.4	28.3	21.9
EJE 7B	Eastern	9.8	Marble Falls (end of existing DT, begin proposed DT)	1.8	West Frankfort (end prop DT, begin existing siding)	11.6	6.4	28.3	21.9
EJE 7C	Eastern	3.0	West Frankfort (end prop DT, begin existing siding)	11.6	East Frankfort (end of existing siding, begin single track)	14.6	6.4	28.3	21.9
EJE 7D	Eastern	2.5	East Frankfort (end of existing siding, begin single track)	14.6	Will/Cook County line	17.1	6.4	28.3	21.9
EJE 7E	Eastern	3.3	Will/Cook County line	17.1	West End Matteson (Begin existing DT)	20.4	6.4	28.3	21.9
EJE 7F	Eastern	1.3	West End Matteson (Begin existing DT)	20.4	Matteson (CN/METRA OH)	21.7	6.4	28.3	21.9
EJE 6	Eastern	3.5	Matteson (CN/METRA OH)	21.7	Chicago Heights	25.2	8.6	31.6	23.0
EJE 5A	Eastern	5.6	Chicago Heights	25.2	Dyer (State Line)	30.8	10.2	34.2	24.0
EJE 5B	Eastern	5.4	Dyer (State Line)	30.8	Griffith	36.2	10.2	34.2	24.0
EJE 4	Eastern	3.6	Griffith	36.2	Van Loon	39.8	7.6	28.6	21.0
EJE 3	Eastern	2.0	Van Loon	39.8	Ivanhoe	41.8	9.7	29.7	20.0
EJE 2	Eastern	1.4	Ivanhoe	41.8	Cavanaugh	43.2	9.8	29.8	20.0
EJE 1	Eastern	2.2	Cavanaugh	43.2	Gary (Kirk Yard Jct)	45.4	11.8	31.8	20.0
EJE 0	Lakefront Line	3.4	Gary (Kirk Yard)	12.2	Indiana Harbor	8.8	3.5	3.5	0.0
EJE -1	Lakefront Line	4.6	Indiana Harbor	8.8	Hammond	4.2	1.8	1.8	0.0
EJE -2A	Lakefront Line	1.1	Hammond	4.2	ILL-IN State Line	3.1	0.9	0.9	0.0
EJE -2B	Lakefront Line	3.1	ILL-IN State Line	3.1	South Chicago	0.0	0.9	0.9	0.0

173.9 Length of Main Track Miles

Segment #	Subdivision	Length miles	Begin Station	Begin Milepost	End Station	End Milepost	Exist Trains	Prop Trains	Delta
		25	double track miles						
		198.9							

Data for Typical Trains on EJ&E Rail Line Segments in United States Affected by Canadian National/EJ&E West Company Transaction

Pre-Transaction

			EJE Trains				Other Trains				CN Trains				Typical Train			
Segment	From Station	To Station	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet
14	Leithton	Spaulding	3.5	17	1,629	1,062	0.7	117	10,243	6,358	1.1	113	8,576	6,242	5.3	51	3,867	2,760
13	Spaulding	Munger	3.6	26	2,343	1,578	0.7	117	10,243	6,358	1.1	113	8,576	6,242	5.5	56	4,254	3,042
12	Munger	West Chicago	3.6	26	2,340	1,575	0.7	117	10,243	6,358	0.0	0	0	0	4.4	42	3,278	2,246
11	West Chicago	East Siding	7.6	52	4,694	2,976	3.1	114	9,954	6,175	0.0	0	0	0	10.7	70	5,826	3,769
10	East Siding	Walker	8.9	62	5,596	3,534	6.8	85	6,408	4,655	0.0	0	0	0	15.7	72	5,544	3,881
9	Walker	Bridge Junction	11.6	50	4,559	2,881	6.8	85	6,408	4,655	0.0	0	0	0	18.5	63	4,841	3,398
8	Bridge Junction	Rock Island Jct	15.4	38	3,544	2,213	3.1	114	9,954	6,175	0.0	0	0	0	18.5	51	4,225	2,742
7	Rock Island Jct	Matteson	4.8	62	5,178	3,550	1.6	94	8,276	5,114	0.0	0	0	0	6.4	70	5,537	3,795
6	Matteson	Chicago Hts	5.8	53	4,505	3,072	1.6	94	8,276	5,114	1.2	93	7,106	5,119	8.6	66	5,158	3,615
5	Chicago Hts	Griffith	6.9	46	3,925	2,668	2.1	87	7,690	4,743	1.2	93	7,106	5,119	10.2	60	4,670	3,261
4	Griffith	Van Loon	7.1	45	3,839	2,605	0.5	114	9,948	6,171	0.0	0	0	0	7.6	50	3,870	2,717
3	Van Loon	Ivanhoe	9.1	54	4,436	3,113	0.5	114	9,948	6,171	0.0	0	0	0	9.7	57	4,344	3,144
2	Ivanhoe	Cavanaugh	9.2	53	4,385	3,076	0.5	114	9,948	6,171	0.0	0	0	0	9.8	57	4,294	3,108
1	Cavanaugh	Gary	11.2	46	3,870	2,671	0.5	114	9,948	6,171	0.0	0	0	0	11.8	49.1	3750.2	2692.7
	Overall Average			47	3,761	2,590		94	7,285	4,976		105	7,585	5,794		62	4,846	3,353

Post-Transaction

			EJE Trains				Other Trains				CN Trains				Typical Train			
Segment	From Station	To Station	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet
14	Leithton	Spaulding	3.5	17	1,629	1,062	0.7	117	10,243	6,358	16.1	132	9,850	8,268	20.3	112	8,059	6,829
13	Spaulding	Munger	3.6	26	2,343	1,578	0.7	117	10,243	6,358	18.1	127	9,511	7,937	22.5	110	7,970	6,714
12	Munger	West Chicago	3.6	26	2,340	1,575	0.7	117	10,243	6,358	19.0	129	9,649	8,046	23.4	112	8,124	6,843
11	West Chicago	East Siding	7.6	52	4,694	2,976	3.1	114	9,954	6,175	20.9	128	9,577	8,025	31.6	108	8,041	6,494
10	East Siding	Walker	8.9	62	5,596	3,534	6.8	85	6,408	4,655	23.8	126	9,500	7,875	39.5	104	7,684	6,203
9	Walker	Bridge Junction	11.6	50	4,559	2,881	6.8	85	6,408	4,655	23.8	126	9,500	7,875	42.3	98	7,239	5,842
8	Bridge Junction	Rock Island Jct	15.4	38	3,544	2,213	3.1	114	9,954	6,175	23.8	126	9,500	7,875	42.3	93	6,967	5,552
7	Rock Island Jct	Matteson	4.8	62	5,178	3,550	1.6	94	8,276	5,114	21.9	121	9,253	7,667	28.3	109	8,101	6,684
6	Matteson	Chicago Hts	5.8	53	4,505	3,072	1.6	94	8,276	5,114	24.2	110	8,849	7,284	31.6	98	7,612	6,256
5	Chicago Hts	Griffith	6.9	46	3,925	2,668	2.1	87	7,690	4,743	25.2	108	8,684	7,229	34.2	94	7,254	6,012
4	Griffith	Van Loon	7.1	45	3,839	2,605	0.5	114	9,948	6,171	21.0	112	9,000	7,219	28.6	95	7,336	5,915
3	Van Loon	Ivanhoe	9.1	54	4,436	3,113	0.5	114	9,948	6,171	20.0	110	8,774	7,191	29.7	93	7,057	5,777
2	Ivanhoe	Cavanaugh	9.2	53	4,385	3,076	0.5	114	9,948	6,171	20.0	110	8,774	7,191	29.8	93	7,033	5,758
1	Cavanaugh	Gary	11.2	46	3,870	2,671	0.5	114	9,948	6,171	20.0	110	8,774	7,191	31.8	88	6,659	5,437
	Overall Average			47	3,761	2,590		94	7,285	4,976		122	8,941	7,623		104	7,686	6,321

Typical Trains

		Totals	1 City Track-Cavanaugh	2 Cavanaugh - Ivanhoe	3 Ivanhoe- Van Loon	4 Van Loon-Griffith	5 Griffith-Chts	6 Chts-Matteson	7 Matteson-Joliet	8 Joliet-BRJct	9 BRJct-Walker	10 Walker-Eola	11 Eola-WChgo	12 WChgo-Munger	13 Munger-Spaulding	14 Spaulding-Leithton
Miles of Track		108	1.2	1.4	2	3.6	11	3.5	20.9	3.1	9.5	9.3	7.8	6.6	2	22.8
			118	116	114	111	100	94	75	73	65	54	46	40	37	12
Trains	**Total (As per Dave Novak)**		**11,592**	**10,860**	**10,831**	**10,451**	**12,471**	**11,523**	**10,336**	**15,450**	**15,433**	**14,436**	**11,541**	**8,543**	**8,208**	**7,406**
	CN Trackage		0	0	0	0	450	450	0	0	0	0	0	0	397	397
	Other Trackage and Haulage		194	194	194	194	757	571	571	1,136	2,495	2,495	1,136	271	271	271
	EJ&E Trains		4,098	3,366	3,337	2,592	2,532	2,135	1,761	5,617	4,240	3,243	2,763	1,332	1,330	1,263
	CN Post		7,300.0	7,300.0	7,300.0	7,665.0	8,732.0	8,367.0	8,003.6	8,697.6	8,697.6	8,697.6	7,641.6	6,939.6	6,209.6	5,475.0
	EJE Pre		4,292	3,560	3,531	2,786	3,739	3,156	2,332	6,753	6,735	5,738	3,899	1,603	1,998	1,931
	EJE Post CN		7,300	7,300	7,300	7,665	9,182	8,817	8,004	8,698	8,698	8,698	7,642	6,940	6,607	5,872
	EJE Post Total		11,592	10,860	10,831	10,451	12,471	11,523	10,336	15,450	15,433	14,436	11,541	8,543	8,208	7,406
Trainmiles	**Total**	**1,142,352**	**13,910**	**15,204**	**21,662**	**37,624**	**137,181**	**40,331**	**216,014**	**47,895**	**146,610**	**134,251**	**90,017**	**56,381**	**16,415**	**168,857**
	CN Trackage	16,371	0	0	0	0	4,950	1,575	0	0	0	0	0	0	794	9,052
	Other Trackage and Haulage	91,648	233	272	388	698	8,327	1,999	11,934	3,522	23,703	23,204	8,861	1,789	542	6,179
	EJ&E Trains	247,415	4,918	4,712	6,674	9,331	27,852	7,473	36,805	17,411	40,280	30,160	21,551	8,791	2,660	28,796
	CN Post	786,919	8,760.0	10,220.0	14,600.0	27,594.0	96,052.0	29,284.5	167,275.6	26,962.6	82,627.4	80,887.8	59,604.6	45,801.5	12,419.2	124,830.0
	EJE Pre	355,433	5,150	4,984	7,062	10,030	41,129	11,046	48,739	20,933	63,983	53,363	30,412	10,580	3,996	44,027
	EJE Post CN	803,290	8,760	10,220	14,600	27,594	101,002	30,860	167,276	26,963	82,627	80,888	59,605	45,801	13,213	133,882
	EJE Post Total	1,142,352	13,910	15,204	21,662	37,624	137,181	40,331	216,014	47,895	146,610	134,251	90,017	56,381	16,415	168,857
Cars	**Total**	**3,111,416**	**213,138**	**204,188**	**204,860**	**140,764**	**226,711**	**211,922**	**165,487**	**344,330**	**426,877**	**415,585**	**274,564**	**69,065**	**113,846**	**100,080**
	CN Trackage	173,866	0	0	0	0	41,879	41,879	0	0	0	0	0	0	45,054	45,054
	Other Trackage and Haulage	1,039,172	22,054	22,054	22,054	22,054	65,663	53,522	53,522	129,229	212,254	212,254	129,229	31,761	31,761	31,761
	EJ&E Trains	1,863,338	188,876	179,926	180,598	116,368	116,568	113,986	109,314	212,104	211,626	200,334	142,660	34,860	34,860	21,258
	CN Post	35,040	2,208.2	2,208.2	2,208.2	2,341.5	2,601.3	2,534.5	2,651.5	2,996.7	2,996.7	2,996.7	2,674.9	2,443.6	2,171.0	2,006.7
	EJE Pre	3,076,376	210,930	201,980	202,652	138,422	224,110	209,387	162,836	341,333	423,880	412,588	271,889	66,621	111,675	98,073
	EJE Post CN	208,906	2,208	2,208	2,208	2,342	44,480	44,414	2,651	2,997	2,997	2,997	2,675	2,444	47,225	47,061
	EJE Post Total	3,111,416	213,138	204,188	204,860	140,764	226,711	211,922	165,487	344,330	426,877	415,585	274,564	69,065	113,846	100,080
CarMiles	**Total**	**118,416,930**	**1,220,320**	**1,411,176**	**2,017,310**	**3,575,113**	**12,909,420**	**3,970,693**	**23,629,921**	**4,448,910**	**14,417,953**	**14,009,401**	**9,736,040**	**6,326,398**	**1,808,208**	**18,936,066**
	CN Trackage	1,724,585	0	0	0	0	460,669	146,577	0	0	0	0	0	0	90,108	1,027,231
	Other Trackage and Haulage	8,605,339	26,465	30,876	44,108	79,394	722,293	187,327	1,118,610	400,610	2,016,413	1,973,962	1,007,986	209,623	63,522	724,151
	EJ&E Trains	11,652,832	226,651	251,896	361,196	418,925	1,282,248	398,951	2,284,663	657,522	2,010,447	1,863,106	1,112,748	230,076	69,720	484,682
	CN Post	96,434,174	967,203.6	1,128,404.2	1,612,006.0	3,076,794.0	10,444,210.5	3,237,838.4	20,226,648.4	3,390,777.6	10,391,092.6	10,172,332.7	7,615,305.5	5,886,699.9	1,584,858.4	16,700,001.8
	EJE Pre	21,982,756	253,116	282,772	405,304	498,319	2,465,210	732,855	3,403,272	1,058,132	4,026,860	3,837,068	2,120,734	439,699	223,350	2,236,064
	EJE Post CN	98,158,758	967,204	1,128,404	1,612,006	3,076,794	10,904,879	3,384,415	20,226,648	3,390,778	10,391,093	10,172,333	7,615,306	5,886,700	1,674,966	17,727,233
	EJE Post Total	118,416,930	1,220,320	1,411,176	2,017,310	3,575,113	12,909,420	3,970,693	23,629,921	4,448,910	14,417,953	14,009,401	9,736,040	6,326,398	1,808,208	18,936,066
			967,204	1,128,404	1,612,006	3,076,794	9,720,168	3,007,461	18,884,921	3,219,851	9,867,286	9,659,553	7,440,327	5,880,700	1,583,040	16,700,002
Trailing Tons	**Total**	**243,626,051**	**16,263,096**	**15,453,207**	**15,506,025**	**10,961,065**	**17,662,378**	**16,474,969**	**13,105,835**	**28,744,111**	**32,821,840**	**32,030,784**	**22,906,990**	**5,430,824**	**8,654,891**	**7,610,037**
	CN Trackage	12,518,352	0	0	0	0	3,015,288	3,015,288	0	0	0	0	0	0	3,243,888	3,243,888
	Other Trackage and Haulage	81,398,013	1,848,401	1,848,401	1,848,401	1,848,401	5,503,380	4,485,813	4,485,813	10,831,006	14,940,743	14,940,743	10,831,006	2,661,969	2,661,969	2,661,969
	EJ&E Trains	147,120,336	14,247,307	13,437,418	13,490,236	8,932,163	8,943,695	8,778,161	8,426,005	17,696,372	17,664,364	16,873,308	11,883,970	2,593,107	2,593,107	1,561,123
	CN Post	2,589,351	167,388.1	167,388.1	167,388.1	180,500.9	200,014.1	195,707.9	194,017.5	216,732.8	216,732.8	216,732.8	192,014.9	175,748.2	155,926.9	143,057.9
	EJE Pre	241,036,700	16,095,708	15,285,819	15,338,637	10,780,564	17,462,364	16,279,261	12,911,818	28,527,378	32,605,107	31,814,051	22,714,975	5,255,076	8,498,964	7,466,980
	EJE Post CN	15,107,703	167,388	167,388	167,388	180,501	3,215,302	3,210,996	194,017	216,733	216,733	216,733	192,015	175,748	3,399,815	3,386,946
	EJE Post Total	243,626,051	16,263,096	15,453,207	15,506,025	10,961,065	17,662,378	16,474,969	13,105,835	28,744,111	32,821,840	32,030,784	22,906,990	5,430,824	8,654,891	7,610,037
TonMiles	**Total**	**8,780,492,508**	**92,630,829**	**106,935,455**	**152,870,571**	**275,988,231**	**995,142,646**	**306,994,282**	**1,749,919,423**	**333,668,048**	**1,061,269,546**	**1,031,570,204**	**723,843,087**	**458,061,022**	**130,824,554**	**1,360,774,611**
	CN Trackage	124,170,098	0	0	0	0	33,168,168	10,553,508	0	0	0	0	0	0	6,487,776	73,960,646
	Other Trackage and Haulage	667,677,648	2,218,081	2,587,761	3,696,802	6,654,243	60,537,182	15,700,344	93,753,484	33,576,117	141,937,059	138,948,910	84,481,843	17,568,994	5,323,938	60,692,889
	EJ&E Trains	930,434,389	17,096,769	18,812,385	26,980,472	32,155,786	98,380,649	30,723,562	176,103,505	54,858,754	167,811,461	156,921,763	92,694,964	17,114,506	5,186,214	35,593,599
	CN Post	7,058,210,373	73,315,978.8	85,535,308.6	122,193,298.0	237,178,202.4	803,056,647.0	250,016,867.6	1,480,062,433.5	245,233,176.8	751,521,025.6	735,699,530.3	546,666,279.0	423,377,521.9	113,826,626.8	1,190,527,476.3
	EJE Pre	1,722,282,136	19,314,850	21,400,147	30,677,273	38,810,029	192,085,999	56,977,414	269,856,989	88,434,871	309,748,521	295,870,674	177,176,808	34,683,500	16,997,927	170,247,134
	EJE Post CN	7,182,380,471	73,315,979	85,535,309	122,193,298	237,178,202	836,224,815	260,570,376	1,480,062,434	245,233,177	751,521,026	735,699,530	546,666,279	423,377,522	120,314,403	1,264,488,123
	EJE Post Total	8,780,492,508	92,630,829	106,935,455	152,870,571	275,988,231	995,142,646	306,994,282	1,749,919,423	333,668,048	1,061,269,546	1,031,570,204	723,843,087	458,061,022	130,824,554	1,360,774,611
Average Length	**Total**	**55**	**55**	**55**	**55**	**55**	**54**	**54**	**54**	**54**	**54**	**54**	**54**	**54**	**54**	**54**
	CN Trackage	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
	Other Trackage and Haulage	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
	EJ&E Trains	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
	CN Post															
	EJE Pre	54	53	53	53	53	54	54	53	53	53	53	53	53	54	54
	EJE Post CN	54	53	53	53	53	54	54	53	53	53	53	53	53	54	54
	EJE Post Total	54	53	53	53	53	54	54	53	53	53	53	53	53	54	54
FeetMiles	**Total**	**7,220,525,866**	**75,625,010**	**87,540,029**	**125,131,104**	**222,549,563**	**824,678,821**	**252,292,089**	**1,443,863,481**	**265,935,596**	**856,517,255**	**832,709,455**	**584,565,237**	**385,819,613**	**110,211,160**	**1,153,087,453**
	CN Trackage	94,852,159	0	0	0	0	25,336,795	8,061,708	0	0	0	0	0	0	4,955,940	56,497,716

	Other Trackage and Haulage	456,082,983	1,402,634	1,636,407	2,337,724	4,207,903	38,281,529	9,928,331	59,286,319	21,232,325	106,869,889	104,619,997	53,423,269	11,109,998	3,366,666	38,379,992
	EJ&E Trains	640,905,760	12,465,816	13,854,302	19,865,780	23,040,864	70,523,640	21,942,305	125,656,443	36,163,732	110,574,585	102,470,841	61,201,140	12,654,180	3,834,600	26,657,532
	CN Post	6,028,684,965	61,756,560.0	72,049,320.0	102,927,600.0	195,300,795.6	690,536,857.0	212,359,745.2	1,258,920,719.0	208,539,539.2	639,072,781.5	625,618,617.6	469,940,828.0	362,055,435.1	98,053,954.2	1,031,552,212.7
	EJE Pre	1,191,840,901	13,868,450	15,490,709	22,203,504	27,248,767	134,141,964	39,932,344	184,942,762	57,396,057	217,444,474	207,090,838	114,624,409	23,764,178	12,157,206	121,535,240
	EJE Post CN	6,123,537,123	61,756,560	72,049,320	102,927,600	195,300,796	715,873,652	220,421,453	1,258,920,719	208,539,539	639,072,781	625,618,618	469,940,828	362,055,435	103,009,894	1,088,049,929
	EJE Post Total	7,220,525,866	75,625,010	87,540,029	125,131,104	222,549,563	824,678,821	252,292,089	1,443,863,481	265,935,596	856,517,255	832,709,455	584,565,237	385,819,613	110,211,160	1,153,087,453
Trains per Day	**Total**		**31.8**	**29.8**	**29.7**	**28.6**	**35.4**	**32.8**	**28.3**	**42.3**	**42.3**	**39.5**	**31.6**	**23.4**	**23.6**	**21.4**
	CN Trackage		0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1
	Other Trackage and Haulage		0.5	0.5	0.5	0.5	2.1	1.6	1.6	3.1	6.8	6.8	3.1	0.7	0.7	0.7
	EJ&E Trains		11.2	9.2	9.1	7.1	6.9	5.8	4.8	15.4	11.6	8.9	7.6	3.6	3.6	3.5
	CN Post		20.0	20.0	20.0	21.0	25.2	24.2	21.9	23.8	23.8	23.8	20.9	19.0	18.1	16.1
	EJE Pre		11.8	9.8	9.7	7.6	10.2	8.6	6.4	18.5	18.5	15.7	10.7	4.4	5.5	5.3
	EJE Post CN		20.0	20.0	20.0	21.0	25.2	24.2	21.9	23.8	23.8	23.8	20.9	19.0	18.1	16.1
	EJE Post Total		31.8	29.8	29.7	28.6	35.4	32.8	28.3	42.3	42.3	39.5	31.6	23.4	23.6	21.4
Cars per Train	**Total**	104	88	93	93	95	94	98	109	93	98	104	108	112	110	112
	CN Trackage	105	0	0	0	0	93	93	0	0	0	0	0	0	113	113
	Other Trackage and Haulage	94	114	114	114	114	87	94	94	114	85	85	114	117	117	117
	EJ&E Trains	47	46	53	54	45	46	53	62	38	50	62	52	26	26	17
	CN Post	123	110	110	110	112	109	111	121	126	126	126	128	129	128	134
	EJE Pre	62	49	57	57	50	60	66	70	51	63	72	70	42	56	51
	EJE Post CN	122	110	110	110	112	108	110	121	126	126	126	128	129	127	132
	EJE Post Total	104	88	93	93	95	94	98	109	93	98	104	108	112	110	112
Trailing Tons pe	**Total**	7,686	6,659	7,033	7,057	7,336	7,254	7,612	8,101	6,967	7,239	7,684	8,041	8,124	7,970	8,059
	CN Trackage	7,585	0	0	0	0	6,701	6,701	0	0	0	0	0	0	8,171	8,171
	Other Trackage and Haulage	7,285	9,528	9,528	9,528	9,528	7,270	7,856	7,856	9,534	5,988	5,988	9,534	9,823	9,823	9,823
	EJ&E Trains	3,761	3,477	3,992	4,043	3,446	3,532	4,112	4,785	3,151	4,166	5,203	4,301	1,947	1,950	1,236
	CN Post	8,969	8,369	8,369	8,369	8,595	8,361	8,538	8,848	9,095	9,095	9,095	9,172	9,244	9,165	9,537
	EJE Pre	4,846	3,750	4,294	4,344	3,870	4,670	5,158	5,537	4,225	4,841	5,544	5,826	3,278	4,254	3,867
	EJE Post CN	8,941	8,369	8,369	8,369	8,595	8,279	8,444	8,848	9,095	9,095	9,095	9,172	9,244	9,106	9,445
	EJE Post Total	7,686	6,659	7,033	7,057	7,336	7,254	7,612	8,101	6,967	7,239	7,684	8,041	8,124	7,970	8,059
Average Trailing	**Total**	6,321	5,437	5,758	5,777	5,915	6,012	6,256	6,684	5,552	5,842	6,203	6,494	6,843	6,714	6,829
	CN Trackage	5,794	0	0	0	0	5,119	5,119	0	0	0	0	0	0	6,242	6,242
	Other Trackage and Haulage	4,976	6,025	6,025	6,025	6,025	4,597	4,968	4,968	6,029	4,509	4,509	6,029	6,212	6,212	6,212
	EJ&E Trains	2,590	2,535	2,940	2,977	2,469	2,532	2,936	3,414	2,077	2,745	3,398	2,840	1,439	1,442	926
	CN Post	7,661	7,050	7,050	7,050	7,078	7,189	7,252	7,526	7,734	7,734	7,734	7,884	7,905	7,895	8,264
	EJE Pre	3,353	2,693	3,108	3,144	2,717	3,261	3,615	3,795	2,742	3,398	3,881	3,769	2,246	3,042	2,760
	EJE Post CN	7,623	7,050	7,050	7,050	7,078	7,088	7,143	7,526	7,734	7,734	7,734	7,884	7,905	7,796	8,127
	EJE Post Total	6,321	5,437	5,758	5,777	5,915	6,012	6,256	6,684	5,552	5,842	6,203	6,494	6,843	6,714	6,829

Segment	From Station	To Station	SumOfFreq	Cars	Tons	Feet	Miles	SumOfCars_Miles	SumOfTon_Miles	SumOfFeet_Miles
14	Leithton	Spaulding	15	2006.72937	143057.8558	123954.8441	22.8	16700001.82	1190527476	1031552213
13	Spaulding	Munger	17.01265037	2171.038959	155926.886	134320.4852	2	1584858.44	113826626.8	98053954.2
12	Munger	West Chicago	19.01265037	2443.628	175748.2449	150292.8332	6.6	5886699.852	423377521.9	362055435.1
11	West Chicago	East Siding	20.93593804	2674.852658	192014.8504	165065.2715	7.8	7615305.516	546666279	469940828
10	East Siding	Walker	23.82908873	2996.710192	216732.812	184303.614	9.3	10172332.75	735699530.3	625618617.6
9	Walker	Bridge Junction	23.82908873	2996.710192	216732.812	184303.614	9.5	10391092.59	751521025.6	639072781.5
8	Bridge Junction	Rock Island Jct	23.82908873	2996.710192	216732.812	184303.614	3.1	3390777.582	245233176.8	208539539.2
7	Rock Island Jct	Matteson	21.92771886	2651.458137	194017.4915	165028.6058	20.9	20226648.4	1480062434	1258920719
6	Matteson	Chicago Hts	22.92328767	2534.511452	195707.9198	166230.7203	3.5	3237838.38	250016867.6	212359745.2
5	Chicago Hts	Griffith	23.92328767	2601.297753	200014.1088	171989.2545	11	10444210.48	803056647	690536857
4	Griffith	Van Loon	21	2341.547945	180500.9151	148630.7425	3.6	3076794	237178202.4	195300795.6
3	Van Loon	Ivanhoe	20	2208.227397	167388.0795	140996.7123	2	1612006	122193298	102927600
2	Ivanhoe	Cavanaugh	20	2208.227397	167388.0795	140996.7123	1.4	1128404.2	85535308.6	72049320
1	Cavanaugh	Gary	20	2208.227397	167388.0795	140996.7123	1.2	967203.6	73315978.8	61756560

Segment	Train_Miles
14	124830
13	12419.23477
12	45801.47474
11	59604.61561
10	80887.84169
9	82627.36516
8	26962.6139
7	167275.6034
6	29284.5
5	96052
4	27594
3	14600
2	10220
1	8760

Road	Loco_Type	Count	Loco_Wt	Loco_Ton	Loco_Lgth	Tot_Tons	Tot_Lgth
EJE-Pre	SD38	2	393000	197	68	393	136
Other	C449	2	420000	210	73	420	146
CN	SD40	1	390000	195	68	195	68
	C449	1	420000	210	73	210	73
	CN Total					405	141
Typical-Pre	SD38	1	393000	197	68	197	68
	C449	1	420000	210	73	210	73
	Typical-Pre Total					407	141
Typical-Post	SD40	1	390000	195	68	195	68
	C449	1	420000	210	73	210	73
	Typical-Post Total					405	141

Data for Typical Trains on EJ&E Rail Line Segments in United States Affected by Canadian National/EJ&E West Company Transaction

Pre-Transaction

			EJE Trains				Other Trains				CN Trains				Typical Train			
Segment	**From Station**	**To Station**	**Trains/Day**	**Cars**	**Tons**	**Feet**	**Trains/Day**	**Cars**	**Tons**	**Feet**	**Trains/Day**	**Cars**	**Tons**	**Feet**	**Trains/Day**	**Cars**	**Tons**	**Feet**
14	Leithton	Spaulding	3.5	17	1,236	926	0.7	117	9,823	6,212	1.1	113	8,171	6,242	5.3	51	3,867	2,760
13	Spaulding	Munger	3.6	26	1,950	1,442	0.7	117	9,823	6,212	1.1	113	8,171	6,242	5.5	56	4,254	3,042
12	Munger	West Chicago	3.6	26	1,947	1,439	0.7	117	9,823	6,212	0.0	0	0	0	4.4	42	3,278	2,246
11	West Chicago	East Siding	7.6	52	4,301	2,840	3.1	114	9,534	6,029	0.0	0	0	0	10.7	70	5,826	3,769
10	East Siding	Walker	8.9	62	5,203	3,398	6.8	85	5,988	4,509	0.0	0	0	0	15.7	72	5,544	3,881
9	Walker	Bridge Junction	11.6	50	4,166	2,745	6.8	85	5,988	4,509	0.0	0	0	0	18.5	63	4,841	3,398
8	Bridge Junction	Rock Island Jct	15.4	38	3,151	2,077	3.1	114	9,534	6,029	0.0	0	0	0	18.5	51	4,225	2,742
7	Rock Island Jct	Matteson	4.8	62	4,785	3,414	1.6	94	7,856	4,968	0.0	0	0	0	6.4	70	5,537	3,795
6	Matteson	Chicago Hts	5.8	53	4,112	2,936	1.6	94	7,856	4,968	1.2	93	6,701	5,119	8.6	66	5,158	3,615
5	Chicago Hts	Griffith	6.9	46	3,532	2,532	2.1	87	7,270	4,597	1.2	93	6,701	5,119	10.2	60	4,670	3,261
4	Griffith	Van Loon	7.1	45	3,446	2,469	0.5	114	9,528	6,025	0.0	0	0	0	7.6	50	3,870	2,717
3	Van Loon	Ivanhoe	9.1	54	4,043	2,977	0.5	114	9,528	6,025	0.0	0	0	0	9.7	57	4,344	3,144
2	Ivanhoe	Cavanaugh	9.2	53	3,992	2,940	0.5	114	9,528	6,025	0.0	0	0	0	9.8	57	4,294	3,108
1	Cavanaugh	Gary	11.2	46	3,477	2,535	0.5	114	9,528	6,025	0.0	0	0	0	11.8	49	3,750	2,693
	Overall Average			47	3,761	2,590		94	7,285	4,976		105	7,585	5,794		62	4,846	3,353

Post-Transaction

			EJE Trains				Other Trains				CN Trains				Typical Train			
Segment	**From Station**	**To Station**	**Trains/Day**	**Cars**	**Tons**	**Feet**	**Trains/Day**	**Cars**	**Tons**	**Feet**	**Trains/Day**	**Cars**	**Tons**	**Feet**	**Trains/Day**	**Cars**	**Tons**	**Feet**
14	Leithton	Spaulding	3.5	17	1,236	926	0.7	117	9,823	6,212	16.1	132	9,445	8,127	20.3	112	8,059	6,829
13	Spaulding	Munger	3.6	26	1,950	1,442	0.7	117	9,823	6,212	18.1	127	9,106	7,796	22.5	110	7,970	6,714
12	Munger	West Chicago	3.6	26	1,947	1,439	0.7	117	9,823	6,212	19.0	129	9,244	7,905	23.4	112	8,124	6,843
11	West Chicago	East Siding	7.6	52	4,301	2,840	3.1	114	9,534	6,029	20.9	128	9,172	7,884	31.6	108	8,041	6,494
10	East Siding	Walker	8.9	62	5,203	3,398	6.8	85	5,988	4,509	23.8	126	9,095	7,734	39.5	104	7,684	6,203
9	Walker	Bridge Junction	11.6	50	4,166	2,745	6.8	85	5,988	4,509	23.8	126	9,095	7,734	42.3	98	7,239	5,842
8	Bridge Junction	Rock Island Jct	15.4	38	3,151	2,077	3.1	114	9,534	6,029	23.8	126	9,095	7,734	42.3	93	6,967	5,552
7	Rock Island Jct	Matteson	4.8	62	4,785	3,414	1.6	94	7,856	4,968	21.9	121	8,848	7,526	28.3	109	8,101	6,684
6	Matteson	Chicago Hts	5.8	53	4,112	2,936	1.6	94	7,856	4,968	24.2	110	8,444	7,143	31.6	98	7,612	6,256
5	Chicago Hts	Griffith	6.9	46	3,532	2,532	2.1	87	7,270	4,597	25.2	108	8,279	7,088	34.2	94	7,254	6,012
4	Griffith	Van Loon	7.1	45	3,446	2,469	0.5	114	9,528	6,025	21.0	112	8,595	7,078	28.6	95	7,336	5,915
3	Van Loon	Ivanhoe	9.1	54	4,043	2,977	0.5	114	9,528	6,025	20.0	110	8,369	7,050	29.7	93	7,057	5,777
2	Ivanhoe	Cavanaugh	9.2	53	3,992	2,940	0.5	114	9,528	6,025	20.0	110	8,369	7,050	29.8	93	7,033	5,758
1	Cavanaugh	Gary	11.2	46	3,477	2,535	0.5	114	9,528	6,025	20.0	110	8,369	7,050	31.8	88	6,659	5,437
	Overall Average			47	3,761	2,590		94	7,285	4,976		122	8,941	7,623		104	7,686	6,321

Segment Line Occupancy Index

									RESTRICTIONS			FREIGHT	PASSENGER										
Segment ID	From	To	Route Miles	Train Speed (mph)	Train Length (feet)	Segment Travel Time (min)	Train Length Time (min)	Total Travel Time per Train (min)	Track Restriction	Train Speed (mph)	Train Length (feet)	Trains Per Day (TPD)	Trains Per Day (TPD)	Signal Clear Time (min)	Track Restriction Time (min)	Multiple Trains in Block	No. of Tracks	Available Track Minutes per Day	CTC (80%) or TWC (60%)	Theoretical vs. Practical	Max Trains Per Day	CN Anticipated Train Occupancy (TPD)	Capacity (%)
A	Leithton	Gilmer	3.70	20	6829	11.10	3.88	14.98	Work On-Line						80.00	1.00	2	2800.00	0.8	0.667	74.7	20.3	27.2%
B	Gilmer	W. Sutton	13.00	44	6829	17.73	1.76	19.49	Barrington Diamond	40	5000	4	62	4	269.68	0.35	1	1345.61	0.8	0.667	29.3	20.3	69.3%
C	W. Sutton	E. Sutton	1.76	45	6829	2.35	1.72	4.07	Meets/Passes						120.00	1.00	2	2760.00	0.8	0.667	162.3	20.3	12.5%
D	E. Sutton	W. Spaulding	4.64	45	6829	6.19	1.72	7.91	Spaulding Diamond	40	6000	6	49	4	230.23	0.75	1	1267.33	0.8	0.667	52.4	22.5	43.0%
E	W. Spaulding	E. Spaulding	1.55	45	6714	2.07	1.70	3.76	Spaulding Interchange						80.00	1.00	2	2800.00	0.6	0.667	127.8	22.5	17.6%
F	E. Spaulding	W. Chicago (W)	4.12	45	6714	5.49	1.70	7.19	Munger Interchange	25	6463	2	0	4	13.88	1.00	1	1426.12	0.6	0.667	46.8	23.4	50.0%
G	W. Chicago (W)	W. Chicago (E)	2.62	30	6714	5.24	2.54	7.78	UPRR Interchange	10	7400	6	0	4	74.45	1.00	2	2805.55	0.6	0.667	87.8	31.6	36.0%
H	W. Chicago (E)	W. Eola	6.41	42	6494	9.16	1.76	10.91	Chicago Diamond/UP Interchan	40	7400	60	64	4	696.59	0.75	1	917.56	0.8	0.667	30.8	31.6	102.8%
I	W. Eola	W. East Siding	2.19	45	6494	2.92	1.64	4.56	None						0.00	1.00	1	1440.00	0.8	0.667	80.3	31.6	39.3%
J	W. East Siding	Walker	9.71	45	6203	12.95	1.57	14.51	BNSF Interchange/Work On-line	10	7500	5	0	4	242.61	0.75	2	2698.04	0.8	0.667	73.7	39.5	53.6%
K	Walker	Turner	5.38	45	6203	7.17	1.57	8.74	Illinois River Br.	5	6463	2	0	4	37.38	1.00	1	1402.62	0.6	0.667	40.8	42.3	103.6%
L	Turner	East Bridge Jct	3.71	25	5842	8.90	2.66	11.56	Romeoville Br	6	7500	2		4	36.41	1.00	2	2843.59	0.8	0.667	91.6	42.3	46.2%
M	East Bridge Jct	CP 198	0.30	10	5842	1.80	6.64	8.44	Drawbridge						225.00	1.00	1	1215.00	0.8	0.667	48.2	42.3	87.7%
N	CP 198	Rock Island Jct	2.34	10	5552	14.04	6.31	20.35	Rock Is Jct. Diamond	40	6000	6	41	4	198.23	0.75	2	2731.33	0.6	0.667	43.1	42.3	98.1%
O	Rock Island Jct	Frankfort	13.75	42	6684	19.64	1.81	21.45	Work On-Line						90.00	0.75	2	2812.50	0.6	0.667	42.5	28.3	66.5%

Data for Typical Trains on EJ&E Rail Line Segments in United States Affected by Canadian National/EJ&E West Company Transaction

Pre-Transaction

			EJE Trains				Other Trains				CN Trains				Typical Train			
Segment	From Station	To Station	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet
14	Leithton	Spaulding	3.5	17	1,629	1,062	0.7	117	10,243	6,358	1.1	113	8,576	6,242	5.3	51	3,867	2,760
13	Spaulding	Munger	3.6	26	2,343	1,578	0.7	117	10,243	6,358	1.1	113	8,576	6,242	5.5	56	4,254	3,042
12	Munger	West Chicago	3.6	26	2,340	1,575	0.7	117	10,243	6,358	0.0	0	0	0	4.4	42	3,278	2,246
11	West Chicago	East Siding	7.6	52	4,694	2,976	3.1	114	9,954	6,175	0.0	0	0	0	10.7	70	5,826	3,769
10	East Siding	Walker	8.9	62	5,596	3,534	6.8	85	6,408	4,655	0.0	0	0	0	15.7	72	5,544	3,881
9	Walker	Bridge Junction	11.6	50	4,559	2,881	6.8	85	6,408	4,655	0.0	0	0	0	18.5	63	4,841	3,398
8	Bridge Junction	Rock Island Jct	15.4	38	3,544	2,213	3.1	114	9,954	6,175	0.0	0	0	0	18.5	51	4,225	2,742
7	Rock Island Jct	Matteson	4.8	62	5,178	3,550	1.6	94	8,276	5,114	0.0	0	0	0	6.4	70	5,537	3,795
6	Matteson	Chicago Hts	5.8	53	4,505	3,072	1.6	94	8,276	5,114	1.2	93	7,106	5,119	8.6	66	5,158	3,615
5	Chicago Hts	Griffith	6.9	46	3,925	2,668	2.1	87	7,690	4,743	1.2	93	7,106	5,119	10.2	60	4,670	3,261
4	Griffith	Van Loon	7.1	45	3,839	2,605	0.5	114	9,948	6,171	0.0	0	0	0	7.6	50	3,870	2,717
3	Van Loon	Ivanhoe	9.1	54	4,436	3,113	0.5	114	9,948	6,171	0.0	0	0	0	9.7	57	4,344	3,144
2	Ivanhoe	Cavanaugh	9.2	53	4,385	3,076	0.5	114	9,948	6,171	0.0	0	0	0	9.8	57	4,294	3,108
1	Cavanaugh	Gary	11.2	46	3,870	2,671	0.5	114	9,948	6,171	0.0	0	0	0	11.8	49.1	3750.2	2692.7
	Overall Average			47	3,761	2,590		94	7,285	4,976		105	7,585	5,794		62	4,846	3,353

Post-Transaction

			EJE Trains				Other Trains				CN Trains				Typical Train			
Segment	From Station	To Station	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet	Trains/Day	Cars	Tons	Feet
14	Leithton	Spaulding	3.5	17	1,629	1,062	0.7	117	10,243	6,358	16.1	132	9,850	8,268	20.3	112	8,059	6,829
13	Spaulding	Munger	3.6	26	2,343	1,578	0.7	117	10,243	6,358	18.1	127	9,511	7,937	22.5	110	7,970	6,714
12	Munger	West Chicago	3.6	26	2,340	1,575	0.7	117	10,243	6,358	19.0	129	9,649	8,046	23.4	112	8,124	6,843
11	West Chicago	East Siding	7.6	52	4,694	2,976	3.1	114	9,954	6,175	20.9	128	9,577	8,025	31.6	108	8,041	6,494
10	East Siding	Walker	8.9	62	5,596	3,534	6.8	85	6,408	4,655	23.8	126	9,500	7,875	39.5	104	7,684	6,203
9	Walker	Bridge Junction	11.6	50	4,559	2,881	6.8	85	6,408	4,655	23.8	126	9,500	7,875	42.3	98	7,239	5,842
8	Bridge Junction	Rock Island Jct	15.4	38	3,544	2,213	3.1	114	9,954	6,175	23.8	126	9,500	7,875	42.3	93	6,967	5,552
7	Rock Island Jct	Matteson	4.8	62	5,178	3,550	1.6	94	8,276	5,114	21.9	121	9,253	7,667	28.3	109	8,101	6,684
6	Matteson	Chicago Hts	5.8	53	4,505	3,072	1.6	94	8,276	5,114	24.2	110	8,849	7,284	31.6	98	7,612	6,256
5	Chicago Hts	Griffith	6.9	46	3,925	2,668	2.1	87	7,690	4,743	25.2	108	8,684	7,229	34.2	94	7,254	6,012
4	Griffith	Van Loon	7.1	45	3,839	2,605	0.5	114	9,948	6,171	21.0	112	9,000	7,219	28.6	95	7,336	5,915
3	Van Loon	Ivanhoe	9.1	54	4,436	3,113	0.5	114	9,948	6,171	20.0	110	8,774	7,191	29.7	93	7,057	5,777
2	Ivanhoe	Cavanaugh	9.2	53	4,385	3,076	0.5	114	9,948	6,171	20.0	110	8,774	7,191	29.8	93	7,033	5,758
1	Cavanaugh	Gary	11.2	46	3,870	2,671	0.5	114	9,948	6,171	20.0	110	8,774	7,191	31.8	88	6,659	5,437
	Overall Average			47	3,761	2,590		94	7,285	4,976		122	8,941	7,623		104	7,686	6,321

Attachment B3
Economic Forecast for Rail Traffic on the EJ&E

Attachment B3
Economic Forecast of Demand for Rail Traffic on the EJ&E Rail Line

B3.1 Introduction

In order to verify Applicants' projections of train volume on the EJ&E rail line, SEA conducted this economic forecast of train volumes over each EJ&E rail line segment using a risk analytic framework. This independent forecast was generated in order to assess the likelihood that future rail traffic demand levels for each segment would be within the boundaries identified in Applicants' Operating Plan. The objective was to provide an independent assessment of the reasonableness of Applicants' train volume projections.

B3.2 Methodology

In order to establish the reasonableness of the train volume estimates in Applicants' Operating Plan, SEA first developed a forecast of future growth in rail transportation demand in the Chicago region. Figure B3-1 shows the density of existing rail traffic flows in the United States: thicker lines equals more rail traffic. As shown in the Figure, most of the densest rail traffic flows in the U.S. converge on Chicago. As such, and given that most economic projections for rail traffic demand are conducted only at a national level, this study used the U.S. national growth rate as a proxy for the expected growth in the Chicago region. As the Chicago region rail system includes the EJ&E rail line, and it provides connections with most major rail routes accessing Chicago, it was concluded that the U.S. national rail traffic demand growth rate would be reflected not only in traffic growth in Chicago but might reasonably be projected to seek movement on the EJ&E rail line as a means of passing to or through Chicago.

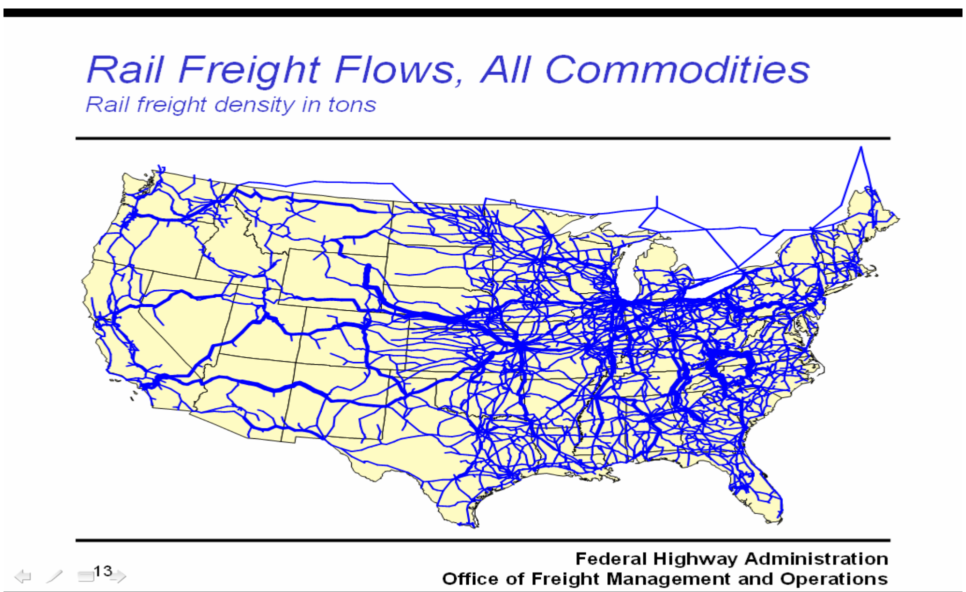


Figure B3-1. U.S. Rail Freight Density

In order to develop an independent forecast of rail traffic growth, the results of two approaches were combined:

1) The growth rate forecasted in the projections produced by four other expert sources.

2) The result, the derivation of which will be discussed below, was the following SEA forecast of the level of growth of train volume on the EJ&E rail line from 2008-2017, as shown in Table .

Table B3-1. Blended Forecast of Rail Freight Traffic Growth

SEA Forecasted Growth Rate				
	Low	Median	High	Realized
2008	-1.4%	1.5%	4.4%	1.5%
2009	-1.5%	1.8%	5.0%	1.8%
2010	1.4%	2.1%	5.5%	2.1%
2011	-1.5%	2.0%	5.6%	2.0%
2012	-1.6%	2.1%	5.8%	2.1

B3.2.1 GDP-Based Forecast

The first of the two elements in the SEA forecast, Gross Domestic Product (GDP) growth, has been found to be a strong predictor of growth in rail freight traffic volumes. For example, see Bennathan, E.J. Fraser, and L. Thompson, “What determines demand for freight transport?” (World Bank, No 998, Policy Research Working Paper Series). Figure B3-2 illustrates this relationship from 1991-2007 in the U.S. Based on this historical data, a regression analysis was undertaken to estimate the elasticity of freight growth with respect to GDP growth. Table B3-2 shows the results – the estimated elasticity is 1.02, with a range of 0.93 to 1.12 (the range being based on two standard deviations relative to the mean). This implies that a 10% increase in GDP would lead to an expected increase in rail traffic of 10.2%. This finding is consistent with Bennathan et al., who estimated the value of this elasticity to be 1.06 for developed countries.

Table B3-2. Elasticity of Freight Growth with Respect to GDP Growth

Elasticity of Rail Freight with Respect to GDP			
Low	Median	High	Realized
0.93	1.02	1.12	1.02

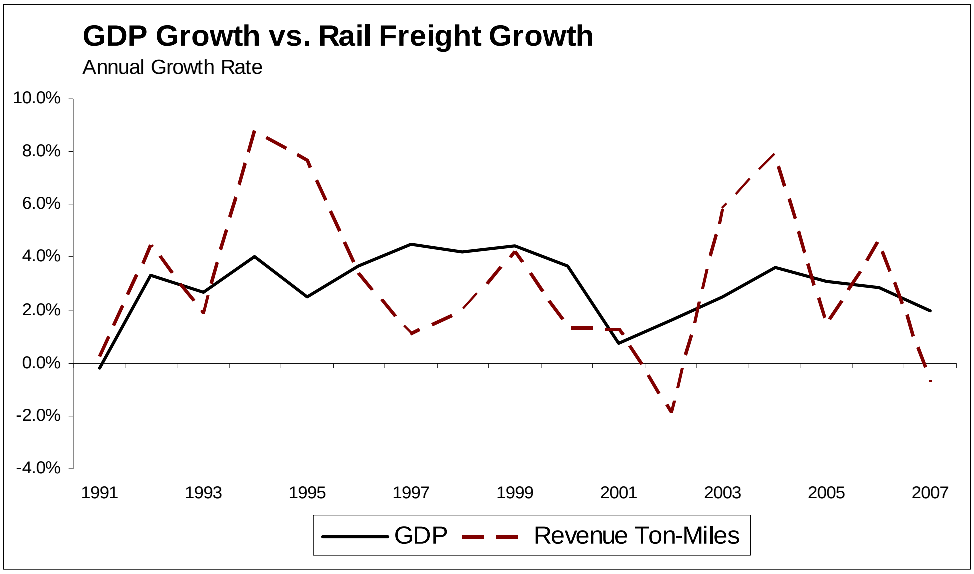


Figure B3-2. Historical Relationship between US GDP Growth and National Rail Freight Growth

In order to develop SEA's U.S. GDP forecast, several recent estimates of GDP forecasts were collected from widely accepted sources, as shown in Table B3-3 below.

Table B3-3. Summary of US GDP Forecasts

	Congressional Budget Office	Office of Management & Budget	Economic Report of the President	Energy Information Administration	Economist Intelligence Unit	World Economic Outlook	Congressional Budget Office
2008	1.9%	2.7%	2.7%	2.4%	1.1%	3.1%	2.5%
2009	2.3%	3.0%	3.0%	2.4%	1.7%	2.9%	2.8%
2010	3.9%	3.0%	3.0%	2.4%	2.7%	2.2%	3.0%
2011	3.6%	2.9%	2.9%	2.4%	2.5%	1.5%	3.0%
2012	2.7%	2.8%	2.8%	2.4%	2.5%	-	3.0%

These forecasts were then combined, with an adjustment for recent economic conditions, to form the basis for SEA's independent forecast of GDP growth, shown in Table B3-4. The most recent forecast is that of the Economist Intelligence Unit, which reflects the recent downturn of the U.S. economy in light of the sub-prime mortgage crisis and the resultant loss of liquidity and access to credit markets. As a result, this forecast is given a greater weight in 2008/2009 than are the other sources. The 2010-2012 mean forecast values are based on an average of the above forecasts.

The standard deviation of historical GDP growth (from 1969-2007) was employed in order to model the underlying variability and uncertainty of GDP growth via low and high values. These have a 90% and 10% probability of being exceeded, respectively. In light of the uncertain economic climate in the

U.S., downside risk in GDP growth was highlighted by including a wider range for the low estimate relative to the high estimate: 2008/2009 employed -1 and 0.5 standard deviations for the low and high values, while 2010-2012 employed -2 and 1.5 standard deviations for the low and high values, respectively. The larger forecast range for the later years is reflective of the increasing uncertainty associated with longer-term forecasts.

Table B3-4. SEA Forecast of GDP Growth

GDP Forecast				
Year	Low	Median	High	Realized
2008	-.05%	1.5%	2.5%	1.1%
2009	-1.0%	2.0%	4.0%	1.6%
2010	-1.4%	2.6%	5.5%	2.2%
2011	-1.4	2.5%	5.5%	2.1%
2012	-1.3%	2.7%	5.6%	2.2%

In producing such a forecast, uncertainty is modelled explicitly. The median value represents the expected value, or the best approximation. The low value represents a value that will be exceeded 90% of the time; in other words, it serves as a realistic lower bound. Conversely, the high value represents a value that will be exceeded 10% of the time, or a realistic upper bound. As a representative example of how such uncertainty is accounted for, the result of the model simulation for the growth in freight traffic in 2008 is shown in Figure B3-3: in this case, the mean expected growth is 1.8% in 2008, but the 90% confidence interval is from -0.9% to 2.8%.

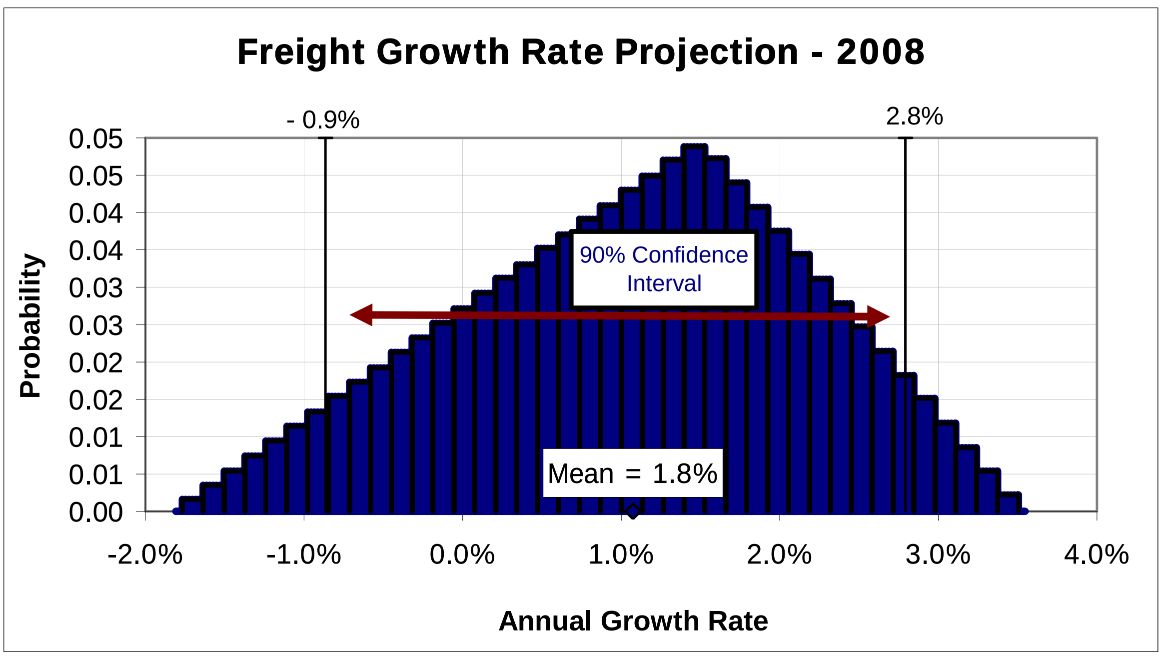


Figure B3-3. Risk Analysis Output of Freight Growth Projection

The forecasted GDP growth was then modelled along with the estimated elasticity of rail freight traffic growth with respect to GDP growth in order to produce SEA's GDP-based forecast of rail freight growth:

Table B3-5. Rail Freight Growth	
	SEA's GDP-based forecast of rail freight growth
2008	1.10%
2009	1.61%
2010	2.20%
2011	2.16%
2012	2.33%

The second of the two elements in SEA's rail traffic growth demand forecast is the mean value of four independent expert forecasts of national freight rail growth as listed in Table B3-6 below.

Table B3-6. Various Projections of Rail Freight Growth

Year Issued	Cambridge Systematics	American Association of State Highway and Transportation Officials	Energy Information Administration	UBS, Global Insight	Mean
2008	2.20%	1.59%	1.70%	2.10%	1.90%
2009	2.20%	1.59%	1.70%	2.10%	1.90%
2010	2.20%	1.59%	1.70%	2.10%	1.90%
2011	2.20%	1.59%	1.70%	2.10%	1.90%
2012	2.20%	1.59%	1.70%	2.10%	1.90%

SEA's GDP-based forecast was then blended with the above forecasts in order to produce an overall forecast of rail freight growth. The two elements were weighted equally to produce median estimates for demand for rail freight transportation in Chicago during the next 5 years. Historical U.S. rail freight volumes (from 1990 to 2007) were used to calculate the historical standard deviation of the freight growth rate[a]. In order to account for the uncertainty of this median forecast (again, increasing over time), this standard deviation was used to calculate the Low and High values (from +/- 0.95 standard deviations in 2008 to +/- 1.25 standard deviations in 2012). These forecasted values, already seen above in Table B3-1, are shown graphically in Figure B3-4 below to illustrate how the forecasted values relate to historical growth. As this graphic illustrates, the forecast range accords well with the growth experienced in the past decade.

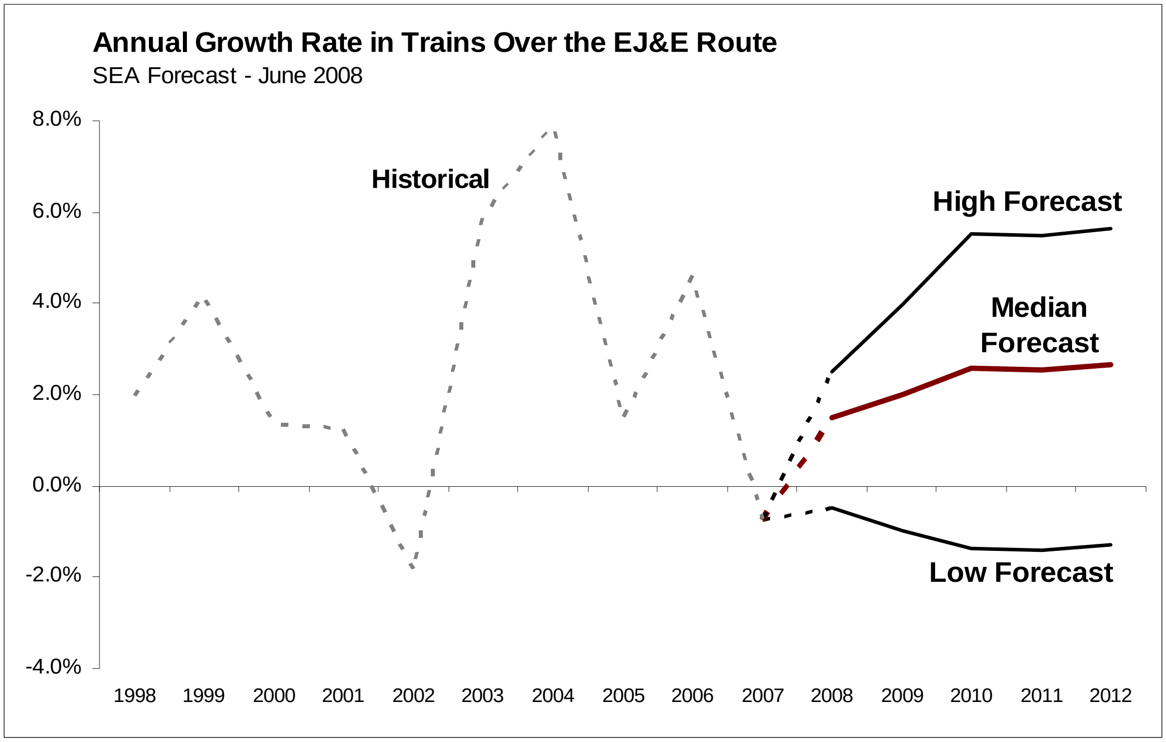


Figure B3-4. SEA Blended Forecast of the Annual Growth Rate

Source: Association of American Railroads
Notes:
[a] historical growth rate refers to the growth experienced in U.S. revenue ton-miles of freight transported by Class I rail carriers in the past 10 years

Once the future growth in train traffic over the EJ&E route was forecast, a model was created to forecast the actual traffic level over each segment for each year, over a five-year horizon. As was discussed earlier, each projection is characterized by an inherent degree of uncertainty, with this uncertainty increasing as the horizon increases. The above growth rate for each year was specified according to a probability distribution, as was shown in Figure B3-4 above. Monte Carlo simulations account for this uncertainty by running a large number of simulations that capture the various possibilities for each uncertain input and output (weighted by the probability of each value occurring), with the end result being a distribution for each output.

For example, Figure B3-5 on the next page shows the distribution of the forecasted traffic volume over the Leithton-Spaulding segment for Year 5. Essentially, there is a lower probability associated with progressively higher levels of output. In this case, the value of interest is the baseline number outlined in the Operating Plan (15 trains). The results indicate that, after Year 5, there is a 20.2% probability that actual traffic volumes in this year exceed 15; conversely, there is a 79.8% probability that the actual traffic volumes do not exceed this level.

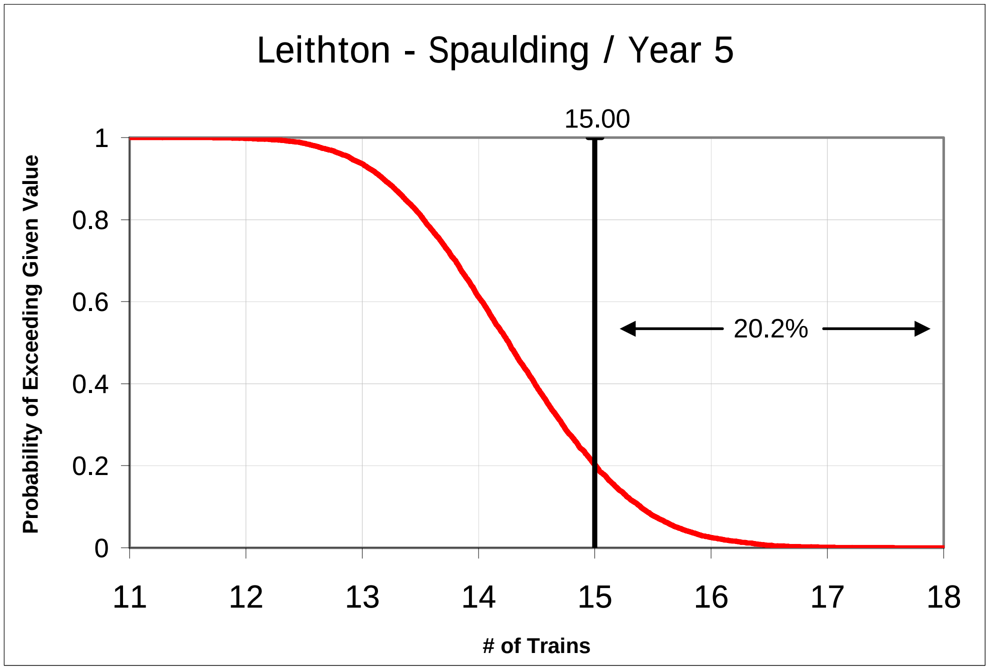


Figure B3-5. Decumulative Probability Distribution for Traffic Output Forecast

Similar distributions are produced for each segment for each of the 5 years studied. The result is the forecast contained in Table B3-7, which shows the mean expected number of trains for each segment each year.

Table B3-7. Mean Forecasted Rail Train Volumes for Years 1-5								
Forecasted Values (Mean annual values based on SEA forecasted growth rate in freight volumes)								
Segment #	Segment Endpoints	Trains likely to operate over EJ&EW post-Transaction	Year 1	Year 2	Year 3	Year 4	Year 5	Trains reflected in the Operating Plan
14	Leithton - Spaulding	13.0	13.2	13.4	13.7	14.0	14.3	15.0
13	Spaulding - Munger	15.0	15.2	15.5	15.8	16.1	16.5	17.0
12	Munger - West Chicago	17.0	17.3	17.6	17.9	18.3	18.7	19.0
11	West Chicago - East Siding	18.9	19.2	19.5	19.9	20.3	20.8	20.9
10	East Siding - Walker	21.8	22.1	22.5	23.0	23.4	23.9	23.8
9	Walker - Bridge Jct	21.8	22.1	22.5	23.0	23.4	23.9	23.8
8	Bridge Jct - Rock Island Jct	21.8	22.1	22.5	23.0	23.4	23.9	23.8
7	Rock Island Jct - Matteson	19.9	20.2	20.6	21.0	21.4	21.9	21.9
6	Matteson - Chicago Heights	20.9	21.2	21.6	22.0	22.5	22.9	22.9
5	Chicago Heights - Griffith	21.9	22.2	22.6	23.1	23.6	24.0	23.9
4	Griffith - Van Loon	19.0	19.3	19.6	20.0	20.4	20.9	21.0
3	Van Loon - Ivanhoe	18.0	18.3	18.6	19.0	19.4	19.8	20.0
2	Ivanhoe - Cavanaugh	18.0	18.3	18.6	19.0	19.4	19.8	20.0
1	Cavanaugh - Gary	18.0	18.3	18.6	19.0	19.4	19.8	20.0

Note: shaded cells represent where the mean forecasted volume exceeds the value reflected in the operating plan

Of special interest is how the forecasted train volumes after 3 and 5 years compares to the values contained in Applicants' Operating Plan. This analysis is produced in Table B3-8 and Table B3-9, respectively. To explain the results, Segment #14 (Leithton – Spaulding) for Year 3 is discussed:

- The initial average daily train volume is expected to be 13.0 trains, with the CN forecasted value being 15.0 trains.
- After year 3, the mean expected value of trains from SEA's forecast is 13.7 trains; to account for the uncertainty involved, a 90% confidence interval is computed, which is from 12.7 to 14.7 trains. In approximate terms, there is a 90% probability that the forecasted train volume will lie within this interval.

Of particular interest is how the forecasted volumes compare to those forecasted in Applicants' Operating Plan. According to SEA's analysis:

- After year 3 there is a 1.6% probability that the volume of traffic over Segment #14 exceeds the value contained in the Operating Plan.
- There is a 0.1% probability that the traffic volume exceeds the Operating Plan volume by more than 0.5 trains (i.e., is greater than 15.5).

These tables thus show the probability of the actual train volumes exceeding the Operating Plan value, and if there is a chance that these value are exceeded, the degree to which they are exceeded and the associated probability.

Note that SEA used an expected train traffic volume of 13.0 trains per day based on Applicants' April 21, 2008, letter responding to SEA's March 25, 2008, Information Request Number 3. The Applicants state that two trains that originally anticipated by CN in the proposed Operations Plan to move on the EJ&E should the Board approve the transaction, would not be moved on the EJ&E but would stay on the current CN rail lines. This change would have the effect of decreasing the number of trains diverted at Leithton, Illinois, from 15.0 per day listed in Applicants' Operating Plan to 13.0 trains per day. SEA believes that for the purposes generating an independent forecast, using the 13.0 trains per day is appropriate because it is the most current estimate that SEA has of Applicants' anticipated initial train traffic levels.

Table B3-1. Forecast Train Volumes in Relation to Applicants' Operating Plan, After Year 3											
			Forecast Values				Probability of Forecast Value Exceeding				
Segment #	Segment Endpoints	Trains likely to operate over EJ&EW post-Transaction (starting value)		Confidence Interval		Trains reflected in Operating Plan	Operating Plan	Operating Plan by 0.5 trains or more	Operating Plan by 1 train or more	Operating Plan by 1.5 trains or more	Operating Plan by 2 trains or more
			Mean	5%	95%						
14	Leithton - Spaulding	13.0	**13.7**	12.7	14.7	15.0	**1.6%**	0.1%	0.0%	0.0%	0.0%
13	Spaulding - Munger	15.0	**15.8**	14.7	17.0	17.0	**4.6%**	0.7%	0.0%	0.0%	0.0%
12	Munger - West Chicago	17.0	**17.9**	16.7	19.2	19.0	**9.0%**	2.3%	0.4%	0.0%	0.0%
11	West Chicago - East Siding	18.9	**19.9**	18.5	21.4	20.9	**13.5%**	4.8%	1.2%	0.2%	0.0%
10	East Siding - Walker	21.8	**23.0**	21.4	24.7	23.8	**20.5%**	10.0%	3.6%	1.0%	0.2%
9	Walker - Bridge Jct	21.8	**23.0**	21.4	24.7	23.8	**20.5%**	10.0%	3.6%	1.0%	0.2%
8	Bridge Jct - Rock Island Jct	21.8	**23.0**	21.4	24.7	23.8	**20.5%**	10.0%	3.6%	1.0%	0.2%
7	Rock Island Jct - Matteson	19.9	**21.0**	19.5	22.5	21.9	**16.1%**	6.6%	1.9%	0.4%	0.0%
6	Matteson - Chicago Heights	20.9	**22.0**	20.5	23.7	22.9	**18.2%**	8.4%	2.7%	0.7%	0.1%
5	Chicago Heights - Griffith	21.9	**23.1**	21.4	24.8	23.9	**20.8%**	10.3%	3.7%	1.1%	0.2%
4	Griffith - Van Loon	19.0	**20.0**	18.6	21.5	21.0	**13.8%**	5.0%	1.2%	0.2%	0.0%
3	Van Loon - Ivanhoe	18.0	**19.0**	17.6	20.4	20.0	**11.3%**	3.4%	0.7%	0.1%	0.0%
2	Ivanhoe - Cavanaugh	18.0	**19.0**	17.6	20.4	20.0	**11.3%**	3.4%	0.7%	0.1%	0.0%
1	Cavanaugh - Gary	18.0	**19.0**	17.6	20.4	20.0	**11.3%**	3.4%	0.7%	0.1%	0.0%

Table B3-9. Forecast Train Volumes in Relation to Applicants' Operating Plan, After Year 5												
			Forecast Values				Probability of Forecast Value Exceeding					
Segment #	Segment Endpoints	Trains likely to operate over EJ&EW post-Transaction (starting value)		Confidence Interval		Trains reflected in Operating Plan	Operating Plan	Operating Plan by 0.5 trains or more	Operating Plan by 1 train or more	Operating Plan by 1.5 trains or more	Operating Plan by 2 trains or more
			Mean	5%	95%						
14	Leithton - Spaulding	13.0	**14.3**	12.9	15.7	15.0	**20.0%**	7.9%	2.4%	0.5%	0.1%
13	Spaulding - Munger	15.0	**16.5**	14.9	18.1	17.0	**29.5%**	15.0%	6.3%	2.2%	0.6%
12	Munger - West Chicago	17.0	**18.7**	16.9	20.5	19.0	**37.9%**	23.1%	12.0%	5.3%	2.1%
11	West Chicago - East Siding	18.9	**20.8**	18.8	22.8	20.9	**44.5%**	30.0%	18.0%	9.5%	4.4%
10	East Siding - Walker	21.8	**23.9**	21.7	26.3	23.8	**52.9%**	39.4%	27.3%	17.2%	10.0%
9	Walker - Bridge Jct	21.8	**23.9**	21.7	26.3	23.8	**52.9%**	39.4%	27.3%	17.2%	10.0%
8	Bridge Jct - Rock Island Jct	21.8	**23.9**	21.7	26.3	23.8	**52.9%**	39.4%	27.3%	17.2%	10.0%
7	Rock Island Jct - Matteson	19.9	**21.9**	19.8	24.0	21.9	**47.9%**	33.3%	21.3%	12.2%	6.2%
6	Matteson - Chicago Heights	20.9	**23.0**	20.8	25.2	22.9	**50.6%**	36.7%	24.5%	14.7%	8.1%
5	Chicago Heights - Griffith	21.9	**24.0**	21.8	26.5	23.9	**53.2%**	39.7%	27.8%	17.5%	10.2%
4	Griffith - Van Loon	19.0	**20.9**	18.9	23.0	21.0	**44.9%**	30.4%	18.4%	9.8%	4.6%
3	Van Loon - Ivanhoe	18.0	**19.8**	17.9	21.7	20.0	**41.5%**	26.8%	15.0%	7.4%	3.2%
2	Ivanhoe - Cavanaugh	18.0	**19.8**	17.9	21.7	20.0	**41.5%**	26.8%	15.0%	7.4%	3.2%
1	Cavanaugh - Gary	18.0	**19.8**	17.9	21.7	20.0	**41.5%**	26.8%	15.0%	7.4%	3.2%

B3.3 Conclusion

The final piece of analysis can be found in Table B3-10 below, which summarizes for Years 3 and 5 the probability that the actual number of trains over the EJ&E rail line will be less than or equal to Applicants' Operating Plan forecast for each rail line segment. Table B3-10 illustrates there is a high probability that Applicants' Operating Plan maximum train volume projections will not be exceeded by Year 3, and if they are, such values would only be marginally greater than Applicants' forecast. For Year 5, there is still on average a better than 50% chance that the actual traffic volumes do not exceed those forecasted by Applicants. In light of this analysis, Applicants' forecasts appear to be very reasonable for such an unpredictable variable as railroad freight traffic growth.

Table B3-10. Probability of Forecasted Train Volume on the EJ&E Rail Line Not Exceeding Applicants' Forecast in Operating Plan

				Probability of Forecasted Train Volume Not Exceeding Value in Operating Plan	
Segment #	Segment Endpoints	Trains likely to operate over EJ&E post-Transaction	Trains reflected in the Operating Plan	Year 3	Year 5
14	Leithton - Spaulding	13.0	15.0	98%	80%
13	Spaulding - Munger	15.0	17.0	95%	69%
12	Munger - West Chicago	17.0	19.0	91%	62%
11	West Chicago - East Siding	18.9	20.9	87%	55%
10	East Siding - Walker	21.8	23.8	79%	47%
9	Walker - Bridge Jct	21.8	23.8	79%	47%
8	Bridge Jct - Rock Island Jct	21.8	23.8	79%	47%
7	Rock Island Jct - Matteson	19.9	21.9	85%	52%
6	Matteson - Chicago Heights	20.9	22.9	82%	49%
5	Chicago Heights - Griffith	21.9	23.9	79%	47%
4	Griffith - Van Loon	19.0	21.0	87%	55%
3	Van Loon - Ivanhoe	18.0	20.0	89%	58%
2	Ivanhoe - Cavanaugh	18.0	20.0	89%	58%
1	Cavanaugh - Gary	18.0	20.0	89%	58%

Attachment B4

Maximum Train Volume Analysis

Attachment B4
Maximum Train Volume Analysis

To analyze the effects of the Applicants' proposed maximum train volume on the existing freight trains that use the EJ&E rail line, and existing passenger trains that cross the EJ&E rail line, SEA conducted interviews with CN personnel, focusing on the criteria and methodology the Applicants used to prepare the Operating Plan.

The number of trains a rail line can operate on its tracks is dependent on many factors. Chief among these factors are the Method of Operation, and the physical plant, a railroad, e.g., horizontal and vertical alignment, location of turnouts, diamonds (interlockings) and highway/rail at-grade grade crossings. These factors are discussed below.

Method of Operation

The existing EJ&E rail line's main track employs three different Methods of (train) Operation. (The main track is the principal track on which trains run point to point.) These Methods of Operation are also shown in Figure 4.1-3. A Method of Operation is a means by which a railroad dispatches and controls trains on its main tracks in order to achieve safe and efficient operations. Generally only one Method of Operation is employed on each specific section of a railroad's main track, and all trains operating on that section comply with this Method of Operation and its prescribed operating rules. Railroads use different Methods of Operation on different main track segments to satisfy different needs for safety, speeds, train volume, ability to efficiently switch industries and side tracks, and economic constraints. Methods of Operation and the train operating rules that underlie them are regulated by the FRA and cannot be modified without application to and approval of the FRA. The three Methods of Operation employed at present on the EJ&E rail line are Yard Limits, Track Warrant Control (TWC) and Centralized Traffic Control (CTC). SEA notes that each of the Methods of Operation is approved by the FRA as safe and effective methods of train control.

Yard Limits. Under Yard Limits, trains may enter a main track and proceed at their own discretion. To achieve safety, trains are limited to "restricted speed," which is defined as "movement made at a speed that allows stopping within one half the range of vision short of trains, engines, men or equipment on or near the track, stop signals, or improperly lined switches or derails, and in no case exceeding 20 mph." The one-half the range of vision speed limit ensures that two trains approaching each other on the same track will not collide.

Yard Limits provides for highly flexible rail operations that are economical and efficient in a small area with frequent switching activities. Instituting Yard Limits requires no significant investment in infrastructure. However, *all* trains moving on a rail line governed by yard limits are restricted to not more than 20 mph, which greatly limits the volume of trains that can move in a day through a line segment so governed.

Track Warrant Control. Under Track Warrant Control (TWC), trains may enter the main track and proceed only when authorized by the train dispatcher through the device of a Track Warrant, a preprinted form. The dispatcher determines the starting and ending limits for each train, and then issues the warrant to each train verbally, typically via radio. When each train has reached the end of its authorized limits, it verbally releases the warrant so that the dispatcher can reissue authorization on that track to another train. Generally switches between tracks on a railroad governed by TWC are hand-operated by the train crew, typically requiring trains to stop to line a switch correctly before entering or leaving a side track. The requirement to stop to line switches is a major limit on a rail line's capacity for trains.

TWC is a highly economical and flexible Method of Operation for rail lines with low to medium train volumes that enables higher maximum train speeds than Yard Limits. The FRA allows train speeds of up to 49 mph (freight trains) and 59 mph (passenger trains) on a rail line operated with TWC that has no signaling system, track conditions and other safety considerations permitting. Instituting TWC requires a very low investment in infrastructure. TWC has an upper limit on train capacity that is in large part a function of a train dispatchers' workload, as the issuing, releasing, and management of the warrant system is time-consuming. Most railroads use electronic TWC dispatching systems that employ automatic conflict checks and will not allow a train dispatcher to issue warrants that create unsafe conditions.

Centralized Traffic Control. Under Centralized Traffic Control (CTC), trains may enter the main track and proceed when authorized by the train dispatcher through the use of "wayside signaling," fixed electronically controlled signals at the side of the track whose color, condition, and position indicate to a train crew information about their authorization to proceed, the maximum speed at which they move, and the condition of the track ahead. CTC uses remote-controlled switches, operated by the train dispatcher, to enable trains to move from one track to another without stopping to line switches by hand. Remote-control switches are installed at locations where the railroad expects to have trains changing tracks frequently, or where the railroad needs trains to enter and leave the main track quickly in order to not delay other trains.

CTC enables efficient and economical movement of a high number of trains, and the highest maximum train speeds of the three Methods of Operation employed by the EJ&E. However, it is the most costly to install and maintain and requires a substantial investment in infrastructure to implement. The FRA allows freight and passenger train speeds of up to 79 mph on railroads equipped with CTC, track conditions and other safety conditions permitting. CTC systems have built-in electronic conflict checking that prevents signals from displaying indications that would authorize a train to proceed on conflicting routes or at unsafe speeds.

The present EJ&E rail line uses Methods of Operation commensurate and typical in the rail industry for its train volume and service needs. The present EJ&E rail line has trackage arrangements, sidings, and double-track commensurate and typical in the rail industry for its train volumes and service needs. The schematic map in Figure shows the locations of existing sidings where trains can meet and pass, double-track segments, and connections with other railroads. Some of these connections are used for interchange of traffic or trains with other railroads.

Physical Plant

Train volumes on a given rail line are limited by factors such as the quantity of main tracks (e.g., 1, 2, or 3), configurations and distances between crossovers (tracks that allow trains to switch from one main track to another), the distance between sidings and the length of sidings, the speed at which trains can enter and leave sidings, average train speeds, train lengths, and the ability of rail lines or yards at either end of a rail line to accept and release trains to the rail line.

Double-track. In general terms, a double-track rail line can accommodate twice as much volume as a single-track rail line, and a triple-track rail line three times as much. Triple-track main lines are rare in the United States, and double-track rail lines are only employed on the most important and highest-volume routes. Crossovers between two or more main tracks provide flexibility for rail operations by enabling train dispatchers to move high-priority trains around low-priority trains, and enable trains to continue to move on one track when the other track is blocked by a train experiencing mechanical problems or by maintenance activities. Often double-track railroads are operated directionally during peak rail traffic periods. All trains moving in one direction use one of the tracks, and all trains moving in the other direction use the other track. In that scenario, maximum train volume of each track is effectively set by the slowest train moving on the track.

Distance between sidings. Train volume on a single-track rail line – if the rail line is to host trains moving in both directions – is limited by the distance between sidings where trains moving in opposite directions can meet and pass. Also a factor is the speed at which trains can enter and leave sidings. The maximum capacity of a rail line is usually determined by the two sidings that have the longest "running time" between them. The running time is the time required for an average train beginning from a standing stop in one of the sidings, to leave the siding, accelerate to its best speed, and pass a standing train in the other siding, enabling the second train to leave its siding and enter the single main track moving in the opposite direction.

Average train speeds. Train speeds on a rail line are limited by numerous factors including curvature that limits trains to a maximum safe speed, gradients that consume the train's available horsepower to overcome gravity, the Method of Operation employed by the railroad and the speed limits prescribed by the FRA for that Method of Operation, the weight of the train, and the horsepower of the locomotives assigned by the railroad to pull it. In most cases the average train speed is considerably less than the maximum authorized speed limit for a rail line because most trains must slow to enter sidings, leave the railroad at junctions or to enter yards, or wait in sidings for other trains to pass.

Average train lengths. Train lengths are limited by technological, geographic, and physical/economic factors. Technological factors that limit train lengths are principally the strength of the couplings between rail cars, the strength of the rail car body itself, and the characteristics of the air braking system employed by North American railroads. Couplings and car bodies must transmit substantial acceleration and deceleration forces throughout the train without failure or causing excess forces on curved track. The braking system is limited by its ability to transmit braking signals safely and reliably throughout the train, and by cold weather, which degrades the ability to recharge the air brakes after they are applied. Both limits are in relationship to train length. Geographic factors are principally reflected as gradients where railroads climb or descend hills, and curves: both restrict the maximum length of trains. Physical/economic factors are principally the lengths of sidings, double-track sections, yard tracks, and tracks in other locations where trains meet and pass or interact with other railroads, and the lengths of main track sections where trains stop to await a clear track ahead, and must fit between highway/rail grade crossings to avoid blocking the highway. These factors are physical as well as economic because railroads can and do operate trains at lengths too long to fit into any siding, yard track, or between highway/rail grade crossings. If train volumes are small on a rail line, the economic value to the railroad of long trains may be high; conversely, if train volumes are large, the economic value of long trains may be negative.

The Applicants' proposed Operating Plan, in addition to train frequency, specifies train length, tonnage, and function. The Operating Plan projects that the average CN train rerouted to the EJ&E rail line would be 7,623 feet, the average train length of an existing EJ&E train that would continue to operate after the Proposed Action is 2,509 feet, and the average trackage-rights train length is 7,623 feet. The combined average train length is 6,321 feet (this is a weighted average for all 14 line segments). However, the average train length is not necessarily indicative of maximum train length.

Train Volume Analysis

In response to a suggestion from EPA and others SEA performed independent analyses of the maximum capacity of the EJ&E rail line after proposed constructions are completed. SEA first conducted a qualitative analysis of the possible constraints on one reach of the EJ&E rail line. This "bottleneck analysis" indicated that the Applicants' proposed Operating Plan would be close to the capacity of the rail line. Because the results of the bottleneck analysis indicated that at least one reach of the EJ&E rail line would be at capacity, SEA performed a more rigorous quantitative analysis of the entire EJ&E rail line using a Line Occupancy Indexes (LOI). Based on the results of the LOI SEA confirmed the conclusions from the bottleneck analysis and also determined that it needed to evaluate the capacity of the EJ&E rail line using a more robust and sophisticated modeling tool called a Rail Traffic Controller (RTC). Each of these three approaches are described in detail below:

- *A "bottleneck analysis."* This is a qualitative analysis of the most constrained portion of a railroad system. Bottlenecks typically are a combination of trackage configuration, train volume, and local characteristics of rail operations that consume most or all of capacity of the trackage. The number of trains that can operate through a rail line's bottleneck in a given period of time caps the effective maximum number of trains that can operate on the remainder of the rail line. In this case, SEA determined from observation that the most constrained portion of the EJ&E rail line is the segment in Joliet, Illinois.
- *A Line Occupancy Index analysis.* Line Occupancy Indexes (LOIs) are an empirical analysis of a rail line's nominal trains-per-day capacity. It consists of dividing a rail line into segments of like capacity, applying to each segment a maximum practical capacity based on its number of main tracks and other characteristics, and comparing that capacity to the proposed capacity. The ratio between the practical capacity and the proposed capacity is the LOI, and is expressed as a percentage, e.g., an LOI of 50 implies that the rail line segment is hosting 50 percent of its maximum practical train capacity. Generally LOIs greater than 70 percent are considered impractical by the rail industry.
- *A Rail Traffic Controller analysis.* Rail Traffic Controller (RTC) is an industry-standard software model that simulates rail operations on a given rail line. The RTC model outputs "delay ratios," the cumulative percentage of time that all of the trains using a given rail line are stopped waiting for other trains, compared to the amount of time the trains would require if they never stopped to wait for other trains. For example, if one train running on a rail line needed 10 hours to travel the line from end to end without stops, and ten trains used the rail line, then in a "no delay" scenario the cumulative time would be 100 hours (10 x 10). If the RTC model calculated that in reality each train waited for one hour, thus requiring 11 hours end to end, then the cumulative time would be 110 hours and the delay ratio would be 10 percent. Generally delay ratios greater than 20 percent are considered impractical by the rail industry.

Bottleneck Analysis

SEA determined a reasonable way to determine the maximum capacity of the EJ&E rail line, and to fully consider the Applicants' Operating Plan was to perform a bottleneck analysis. Bottleneck analyses qualitatively determine the existence and location of bottlenecks: locations where the capacity to move trains cannot be readily or inexpensively increased. Bottlenecks determine the maximum train volume capacity on a rail line and can effectively strand unusable capacity on either side of the bottleneck. Not all rail lines have bottlenecks: if no bottlenecks exist then capacity is evenly distributed along the entire length of the line. Often, rail lines have multiple bottlenecks, and capital expenditure or modifications in train operations designed to reduce the constraints of one bottleneck only may shift the bottleneck to another location with slightly higher capacity.

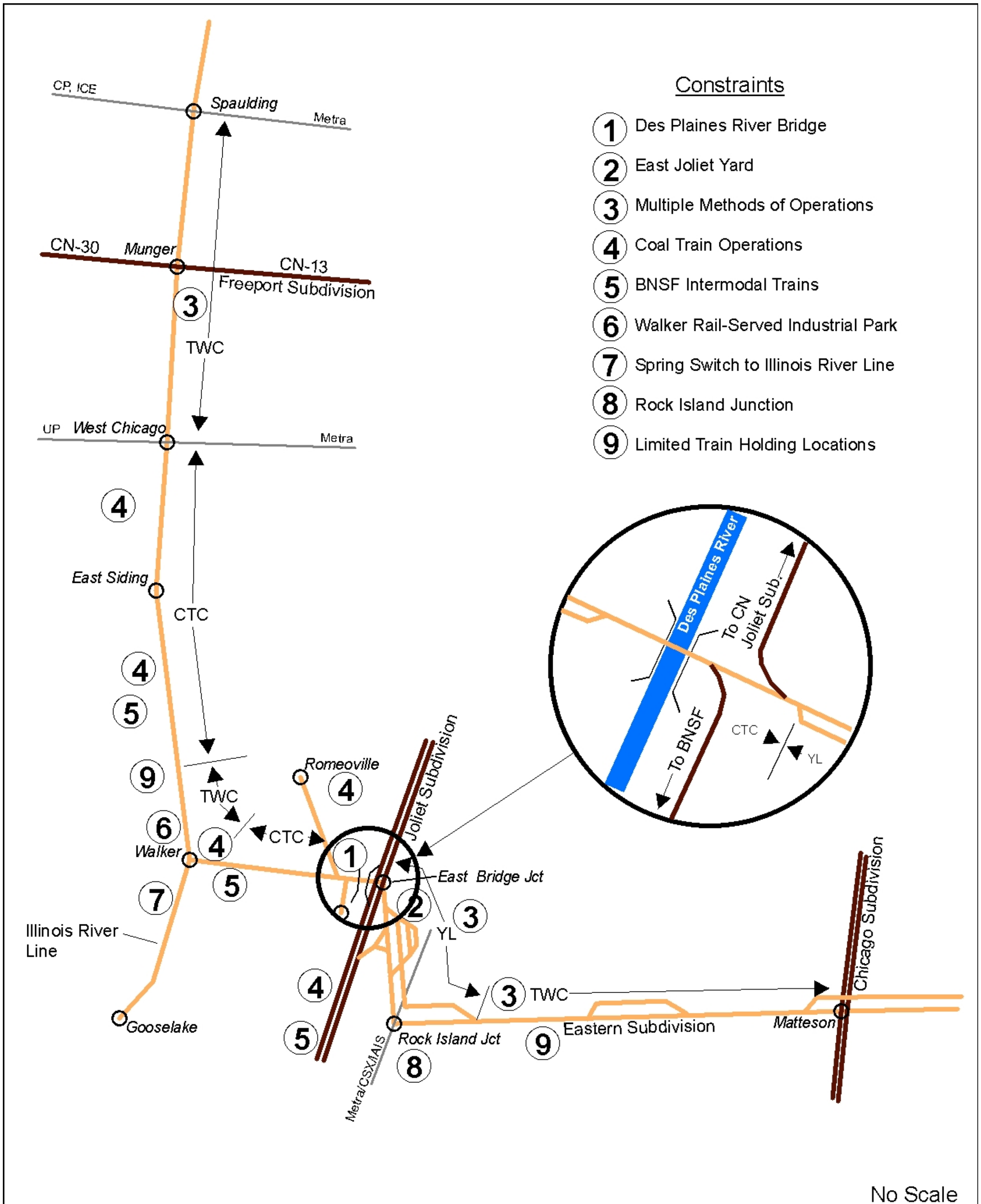
To perform the bottleneck analysis, SEA obtained an understanding of Applicants' operational methodology by inspecting the EJ&E main line, reviewing track charts and timetables, reviewing the Applicants' Operating Plan and the plans for constructions, and discussing current operations with EJ&E operating personnel and proposed future operations with CN operating personnel. SEA reviewed all scoping letters and information from shippers pertaining to industries in the Study Area.

Based on traffic flow, operational issues, and physical constraints, SEA determined that one of the EJ&E rail line's bottleneck, after Applicants' proposed constructions, that was most appropriate to study would be an 11-mile segment of the EJ&E main line between Walker (near Plainfield, Illinois) and Rock Island Junction (near Joliet, Illinois). The segment is near the Des Plaines River Bridge (Bridge 198 located near milepost 1.7 on EJ&E's Western Subdivision). Although this segment is not the only bottleneck on the EJ&E main line, SEA chose it to evaluate in detail because of its density of rail operations, limited track capacity, and because it incorporates a movable bridge across the Des Plaines River, which opens an average of 17 times daily. SEA preformed the bottleneck analysis to determine the possible constraints at one specific location, the analysis was not an evaluation of how the Applicants could, if they desired to, increase capacity. In addition, SEA notes that it chose the segment near the Des Plaines River Bridge from several other readily apparent potential bottlenecks, including Kirk Yard and the rail/rail at-grade crossing of the UP rail line at West Chicago, Illinois (West Chicago interlocking).

The 11-mile segment chosen for the bottleneck analysis contains several elements which in combination render it a bottleneck: the movable bridge across the Des Plaines River, intensive switching activities and slow main track speeds through the EJ&E's East Joliet Yard, multiple Methods of Operation which reduce train speeds and increase train dispatcher workload, coal trains moving to and from electric power plants in the vicinity, BNSF trackage rights trains, intensive switching of local industries, and other physical constraints. Each is discussed below. Figure 4.1-6 on the next page, shows the principal features of this 11-mile segment.

Des Plaines River Bridge

To cross the Des Plaines River, the EJ&E rail line uses its Bridge 198, a single-track movable bridge that opens to clear river traffic. River traffic has the right-of-way, and if present, rail traffic must wait until the river traffic has passed under the bridge. Bridge 198 is a lift bridge; i.e., it lifts vertically to clear river traffic that cannot pass under the bridge. Bridge 198 remains open until a train arrives. If no river traffic is present or approaching, the bridge is lowered and the train continues. At present, Bridge 198 is remote-controlled from the EJ&E dispatcher's office in Joliet, using radar to detect vessels moving upstream or downstream. According to the USACE and EJ&E, Bridge 198 is opened an average of 17 times daily. The bridge mechanism requires two minutes to lower the bridge to the closed position, enabling rail traffic to pass, and two minutes to raise it to the open position, enabling river traffic to pass. Bridge movement frequency varies seasonally and is dependent on the volume and schedule of waterway traffic. During winter months the Des Plaines River is typically frozen for several months, during which the bridge is lowered enabling rail traffic to pass unhindered except by speed limits across the bridge and its single-track capacity.



EJ&E Rail Line
CN Rail Line
Other Rail Line
Station

CTC = Centralized Traffic Control
TWC = Track Warrant Control
YL = Yard Limits

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Figure 4.1-6
Bottleneck Analysis

When Bridge 198 is open, trains approaching the bridge must be held for a period of time. Adjacent locations where trains can be held without blocking highway/rail at-grade crossings or rail/rail at-grade crossings consist of East Joliet Yard, south and east of the bridge, which has yard tracks with maximum lengths of 8,120 feet, and Turner Siding, north and west of the bridge (between mileposts 5.5 and 3.8), which is in excess of 10,000 feet long (Applicants 2008a). Both locations can only hold stopped trains seeking to use the bridge if these tracks do not already contain trains or railroad cars. For example, if Turner Siding already holds a train or railroad cars, and all tracks at East Joliet Yard are also occupied, another eastbound/southbound train can only advance to Turner Siding so long as there is no westbound/northbound train also advancing on the main line at East Joliet.

East Joliet Yard

East Joliet Yard is a classification yard where EJ&E currently sorts or switches an average of 500 railroad cars per day. EJ&E conducts train movements within East Joliet Yard and on the main track parallel to East Joliet Yard using Yard Limits as its Method of Operation. EJ&E's operating instructions limits the maximum speed through and past the yard to 10 mph. This 10-mph speed restriction begins just west of the Des Plaines River Bridge at milepost 2.0 (EJ&E Western Subdivision) and extends to Washington Street at milepost 1.0 (EJ&E Eastern Subdivision), a total distance of 3 miles. The maximum authorized speed for trains is 45 mph west of East Joliet Yard and 40 mph east of East Joliet Yard.

Through trains not stopping at East Joliet Yard to switch rail cars typically use a through track located on the west side of East Joliet Yard. This track, which EJ&E calls the East End Lead, has several switches to other tracks. EJ&E operating instructions require trains departing the East End Lead must reline to the main track position any switches that the train crew has lined for other tracks, so that following trains that will use the East End Lead for through movement do not have to stop to line switches for through movement. On the east side of East Joliet Yard, EJ&E has upgraded a yard track to serve as a "runner," a railroad term for a track that is kept clear of stationary trains as much as possible so that through trains or movements can be accommodated at low speeds. Other yard tracks can also be used for through trains, but it is typically necessary for the train crew to stop the train and hand-throw switches to enter and exit the yard. Remote-controlled switches and signals controlled by the EJ&E train dispatcher are located at East Bridge Junction and at Rock Island Junction. These signals and switches assist in the movement of trains in and out of East Joliet Yard.

Switching at East Joliet Yard must be coordinated with through trains that might use the East End Lead or the runner, so that switching activities do not interfere with through train movement. Under the Proposed Action, more than 15 through trains would pass through East Joliet Yard daily. This increase in through trains would be a substantial change in present yard operations. Currently, only one through train daily regularly operates through East Joliet Yard, a UP train moving between West Chicago to Chicago Heights or Griffith. All other trains currently operating at East Joliet Yard either originate from or terminate in East Joliet Yard, or diverge onto other railroads within Joliet. These diverging trains include between eight and nine BNSF trackage-rights trains and UP coal trains en route to South Joliet.

The Applicants' propose to increase the current average of 500 cars switched per day at East Joliet Yard to an average of 1,209 cars per day. This increase in switching volume could substantially affect the ability of through trains to pass through the yard unimpeded by switching activity.

Multiple Methods of Operation

EJ&E currently relies on multiple Methods of Operation to move trains over the EJ&E rail line. EJ&E employs Centralized Traffic Control (CTC) in disconnected segments: Leithton to Spaulding, West Chicago to Normantown, Turner to East Bridge Junction, and Cavanaugh to Kirk Yard. Yard

Limits governs train movements through East Joliet Yard to Griffith, and between the Des Plaines River Bridge and Cavanaugh. In all other segments, EJ&E employs Track Warrant Control (TWC). Trains entering Yard Limits (the third Method of Operation) can do so without seeking authority from the train dispatcher (although often railroads require trains entering Yard Limits to discuss which track they will use with the train dispatcher or another person in charge in order to efficiently coordinate train movements and switching activities. Trains entering CTC can do so according to signal indication, which often requires very little time from the train dispatcher to initiate. However, trains entering TWC require a relatively lengthy interaction with the train dispatcher to obtain a track warrant, as it is verbally read to the crew and repeated back, and trains leaving TWC must similarly verbally release the warrant to the train dispatcher. Each transition from one Method of Operation to another increases train dispatcher workload and limits train volume capacity.

Coal Train Operations

Eight to ten times each week, loaded coal trains destined for Midwest Energy's Will County facility move from UP's West Chicago yard, over the Des Plaines River Bridge, and into EJ&E's East Joliet Yard. At the yard, the locomotives are uncoupled from the south/east end of the train, and move to the other end of the train so that the train can reverse direction with the locomotives leading. When ready, the train crew moves the loaded coal train at 10 mph over the Des Plaines River Bridge, then off the EJ&E main line and onto the EJ&E Romeoville Branch, via a remote-controlled switch. At milepost 0.5 on the Romeoville Branch, train speed is reduced to 6 mph due to restrictions imposed in an agreement between EJ&E and USFWS. The time consumed by a loaded coal train from the moment it first crosses the Des Plaines River bridge and enters East Joliet Yard, until the rear of the departing train clears the main line on the Romeoville Branch, at present requires between 45 and 55 minutes. During this period, the EJ&E main line cannot be used at this location by any other train. Once unloaded, the empty train reverses this procedure, again occupying the EJ&E main line for 45 to 55 minutes. In total, 16 to 20 hours, or 10 to 12 percent, of main line capacity is consumed each week by this single train.

A second Midwest Energy coal train destined for South Joliet also operates 8 to 10 times each week between West Chicago and East Joliet Yard, but it has less impact on main line capacity as this train enters East Joliet Yard on the East End Lead, which leads to a track that EJ&E calls the "City Track." After leaving the East End Lead on the City Track, the train crew must restore the switch behind them to the main line position before proceeding. If the East End Lead is occupied by another train when the South Joliet coal train arrives, it must wait until the East End Lead is clear, blocking the main track.

Joliet-Area Coal Train Traffic–South Joliet and Paul Ales Branch

Currently, the EJ&E rail line handles two 135-car, loaded coal trains and two empty coal trains daily between West Chicago, Illinois, and Joliet, Illinois. One train moves directly from West Chicago to the City Track, located within East Joliet Yard, and then to an unloading facility at South Joliet. Once emptied, the train returns to West Chicago. The second train, which serves Midwest Energy's Will County facility, is first delivered to East Joliet Yard. The train crew then re-positions its locomotives from one end to the opposite end of the train and then pulls the loaded train from East Joliet Yard onto the Paul Ales Branch, which is located just west of the Des Plaines River Bridge. This repositioning move would not usually be an issue; however, from May 15 through September each year, the move must be made at 6 mph for a distance beginning approximately 0.5 mile from the main line switch to the end of track in order to reduce impacts on the Hine's emerald dragonfly. This movement requires approximately 30 minutes to clear the main line from the time when the train first obtains a signal indication allowing it to proceed from East Joliet Yard. The train proceeds across Bridge 198 at 10 mph until reaching 0.5 mile on the Paul Ales Branch. The last 3,000 feet of the coal train is still on the main line and moves onto the branch line at 6 mph. The mainline occupancy is then repeated as the empty train is brought off the branch line and into the yard. The crew runs the locomotives around the train and then can move the train at maximum authorized track speed to West Chicago. Total mainline time requires approximately 1 hour per day.

Discussions with the lock operator at Lockport indicate that roughly 4,500 boats move through the locks each year. As the locks are iced up for 3 months per year, about 15 to 16 tug/barge combinations per day move under the Des Plaines River Bridge each year. If the bridge opening requires 10 minutes for each raising and lowering, the bridge will be unavailable for train traffic for 2 to 3 hours daily.

Applicants anticipate that 42 trains per day would operate through this segment. Given that one hour per day would be used to handle the train that travels to the Paul Ales Branch and two hours each day will be used to handle navigation issues, 21 hours of each day would be available for train movement. However, since the main track speed is 10 miles per hour, and train movements are a combination of yard limits and Centralized Traffic Control (CTC), and there is only one main track available for meets and passes in East Joliet Yard, it might be difficult for Applicants to the handle the projected 42 trains each day through Joliet.

BNSF Intermodal Trains

BNSF operates six to seven high-priority intermodal trains daily on the EJ&E rail line between Eola, Illinois, and the east end of the Des Plaines River Bridge. These trains carry high-priority freight between the Pacific Northwest and BNSF's Joliet Logistics Park located south of Joliet. BNSF uses this 19-mile segment of the EJ&E rail line to reduce transit time by two hours or more compared to using its own routes through Chicago. In order for these trains to continue to obtain this advantage after the Proposed Action, Applicants' rail operations on the EJ&E rail line must afford them some level of priority.

Local Rail-Served Industries at Walker

Several rail-served industries are located adjacent to the EJ&E rail line at Walker, approximately 10 miles west of Joliet. At present EJ&E devotes approximately 3 to 4 hours each day servicing these local industries. Switching these industries takes place from the EJ&E main line. During switching operations, through trains are blocked from movement. The switching crew utilizes an "industrial lead track" in the vicinity of these industries to clear any through trains that arrive during switching activities; i.e., the switching engine and any cars it has with it move onto this lead track to clear the main track. After the through train passes, the switching crew resumes use of the main track to complete its switching. The Applicants have indicated that they would connect the industrial lead track into a longer segment of double track that would extend from East Siding to Walker. The double track would increase main line capacity. However, for 3 to 4 hours each day, the additional main line capacity would be unusable as the switching crew would be consuming it.

Manual Switch on the Illinois River Line

EJ&E is currently operating two trains per day between East Joliet Yard and EJ&E's Illinois River Line, which is accessed by a "spring switch" off the main line just west of Plainfield. Spring switches are a type of switch that enables a train departing a side track and entering the main track to do so without stopping to line the switch for the side track, or returning it to main track position after passing. However, spring switches only afford this advantage in one direction; when a train wishes to move in the opposite direction, departing the main track and entering the side track, the spring switch must be hand-operated. Accordingly, at this location main line capacity is only significantly reduced when the outbound train for the Illinois River Line, moving from East Joliet Yard to Plainfield each morning, must stop and line the spring switch for movement onto the Illinois River Line. Once the train has cleared the main line switch, a member of the train crew must restore the switch to the normal position. This procedure only requires 15 to 20 minutes but occurs on the single-track segment between Walker and Turner, and thus could have a significant impact on main line train volume capacity.

Rock Island Junction with Metra

Approximately 46 Metra and 6 CSX freight trains daily operate over the rail/rail at-grade crossing of Metra and the EJ&E rail line at Rock Island Junction. This interlocking, controlled by Metra, is located at milepost 0.7 (EJ&E Eastern Subdivision) but is only 1,000 feet from the switches that define the southern (or eastern) end of East Joliet Yard. This very short distance enables only minimal switching activity to occur at the south end of the yard without occupying the crossing.

Lack of Suitable Train Parking Locations East of East Joliet Yard

Westbound through trains moving from Kirk Yard, Griffith, Chicago Heights, and Matteson would be able to operate on the new double track proposed by the Applicants to be installed between Rock Island Junction (near Interstate 80) and the existing siding at Frankfort. However, once a westbound train exceeding 5,000 feet in length moves beyond Schoolhouse Road, there are no further locations where this train can stop to wait for other trains to clear railroad/railroad crossings, or for switching activities to be completed, until it reaches East Joliet Yard and not block one or more highway/rail at-grade crossings Given the congestion of the yard/main line interface at East Joliet Yard, westbound main line capacity is effectively limited by the availability of a through track at East Joliet Yard, i.e., trains cannot pass Schoolhouse Road until it is known they can complete movement without stopping all the way to East Joliet Yard without incurring risk of blocking highway/rail at-grade crossings. A complicating factor is that Metra effective controls the entrance to the south/east end of East Joliet Yard via the interlocking at Rock Island Junction. This condition creates a “clear-ahead time” of 20 to 30 minutes that limits main line capacity.

Summary of Bottleneck Analysis

SEA evaluated each of the issues discussed above, reviewed the Applicants’ Operating Plan, and discussed the constraints on the 11-mile segment with Applicants’ operating personnel. SEA concluded that should the Board approve the Proposed Action, the Applicants’ Operating Plan would consume all or nearly all of the main line capacity at this bottleneck. The bottleneck analysis indicates that the volume of through trains on the EJ&E rail line is unlikely to exceed the train volume proposed by the Applicants.

Line Occupancy Index Analysis

Line Occupancy Indexes (LOIs) are a empirical analysis tool that compares a rail line’s nominal (or “standard”) train capacity for its number of main tracks, method of operation, and maximum track speeds, with the actual number of trains that will occupy the rail line. LOIs typically break the rail line into segments having similar features and Methods of Operation, such as double-track sections and single-track sections. A rail line or line segment with an LOI of 50 implies the line is hosting 50 percent of its maximum practical train capacity. LOI values can be categorized as follows:

- Values between 0 and 39 indicate that the rail line segment has adequate capacity for additional train traffic and to perform track, structure, and signal maintenance.
- Values between 40 and 69 indicate that the rail line segment is reaching an upper threshold for adding more train traffic, and maintenance activities will need to be carefully scheduled to avoid excessive interruption to train traffic.

- Values between 70 and 100 indicate that the rail line segment has exceeded its practical capacity and maintenance activities will likely result in interruption to train traffic, or rerouting of train traffic to other lines, or temporary reductions in rail service levels offered to shippers, or all three.

While rail lines with LOIs greater than 70 are operated successfully, generally they are considered impractical by the rail industry as they allow insufficient time for track maintenance, and have insufficient spare capacity to make up for unforeseen rail service interruptions and fluctuations in rail traffic. Rail line capacity that is not used one day is lost forever, and if the trains that were to operate that day appear the next day, along with the next day's trains, a rail line with a high LOI may not have the ability to make good the lost capacity for a considerable period of time. In addition, trains that cannot be accepted on a rail line with a high LOI must wait somewhere, in turn using up additional capacity and effectively increasing the LOI for adjoining rail lines for a considerable distance

SEA determined a reasonable way to further consider if the Applicants' Operating Plan underestimated or overestimated the capacity of the EJ&E rail line as a whole would be to perform an LOI analysis. Using the Applicants' Operating Plan (which includes existing trackage rights trains), SEA performed an independent Line Occupancy Index (LOI) for the EJ&E main line. (According to the Applicants' Safety Integration Plan, the Applicants performed what appears to be a similar analysis to an LOI, which Applicants term a "Return Grid Capacity Analysis.") SEA's LOI Line Segment Map is shown in Figure 4.1-7 on the next page.

Based on its review of the Applicants' Operating Plan, SEA made the following assumptions for its LOI analysis:

- EJ&E rail traffic and trains would continue to operate as at present, including local switching, local trains to serve shippers, and yard movements and yard switching.
- Existing trackage-rights trains would continue to operate. These consist eight to nine BNSF trains per day between Eola and Joliet, and two BNSF trains per day between Eola and Leithton; six to eight UP trains per day from West Chicago to Joliet, two UP between West Chicago and either Chicago Heights or Griffith, and two UP trains per day between West Chicago and Cavanaugh; and two CPR trains per day between West Munger and Spaulding. UP trackage-rights trains include a coal train operating to Romeoville that on average cycles to Romeoville once every 17 hours, and a coal train operating to South Joliet that also on average cycles to South Joliet once every 17 hours.
- Six CSX trains would cross the EJ&E rail line daily at Rock Island Junction, along with the currently scheduled Metra trains crossing at Rock Island Junction.
- Seventeen close-open cycles of the Des Plaines River Bridge would occur daily, each causing 15 minutes of lost main line capacity.
- CN traffic would operate a through-train once every 2 hours south from Leithton and west from Kirk Yard to comprise a total of 24 trains per day. The LOI analysis assumed the average train length of 6,321 feet as described in the Applicants' proposed Operating Plan, and assumed six of these trains would be 10,000 feet long with the remaining trains commensurately shorter.
- The Applicants' proposed constructions were completed.

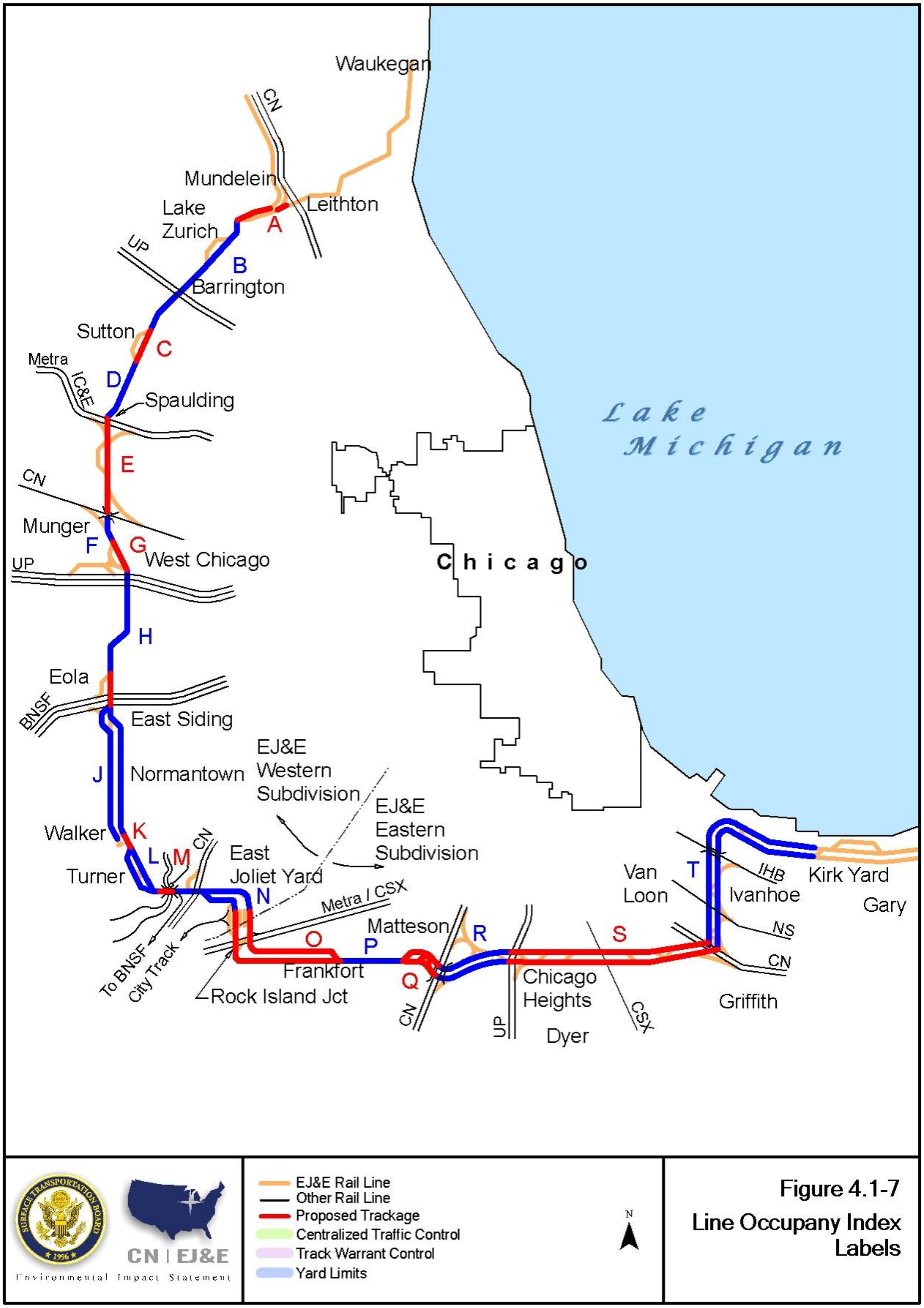


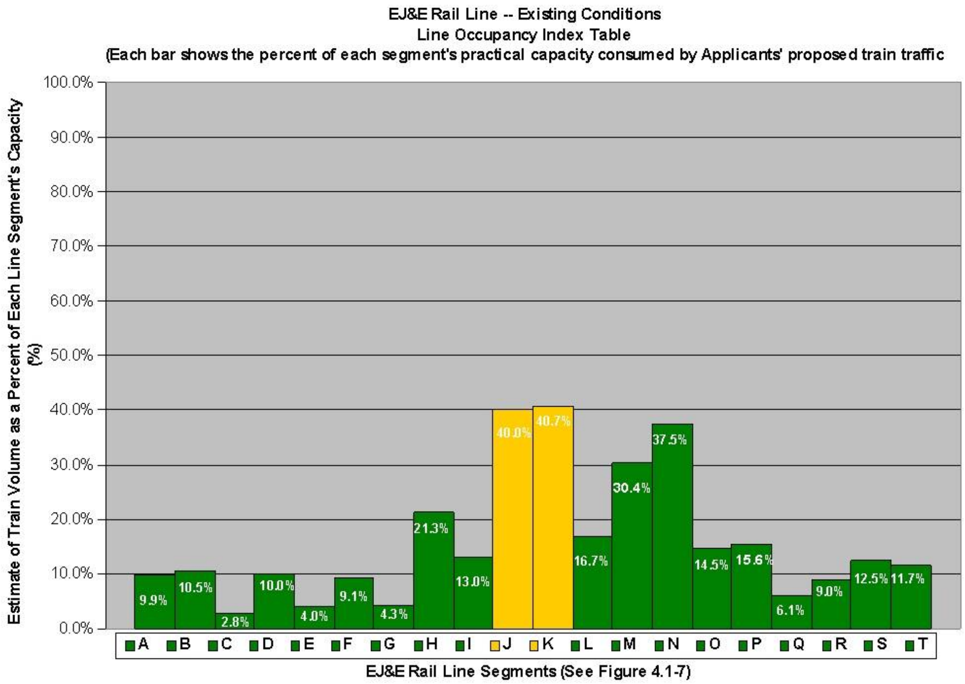
Figure 4.1-7
Line Occupany Index Labels

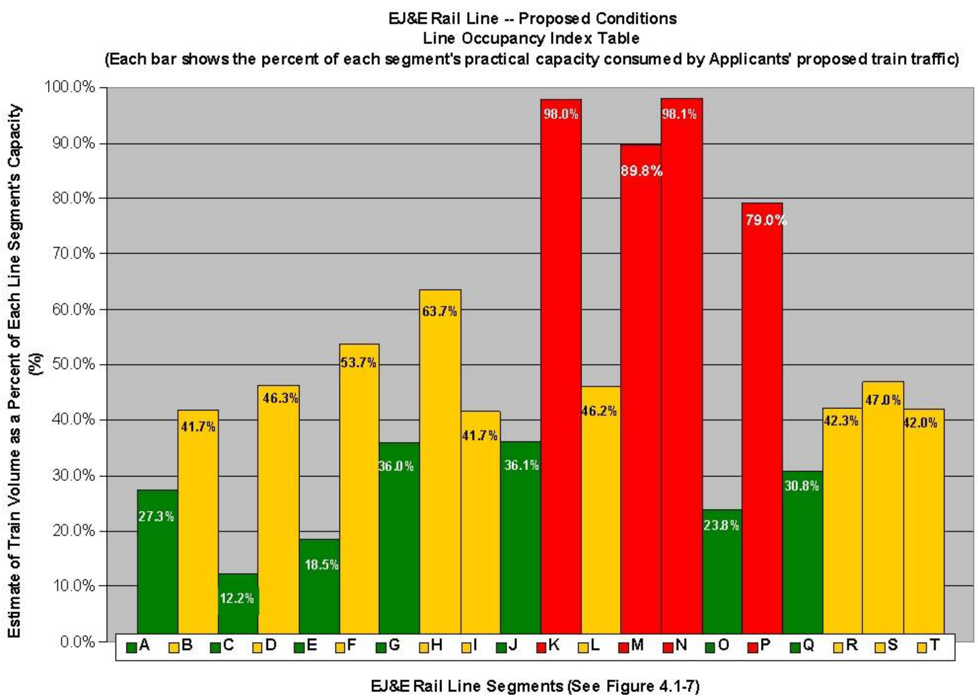
- EJ&E currently controls its trains using three different methods of operation - CTC, TWC, and YL. For the results of the LOI analysis to be more accurate, the Method of Operation must be consistent across the segment. However, some of segments presented in the Application are controlled using two or more methods of operation. Therefore, to comply with the rules of an acceptable LOI analysis, SEA had to use slightly different segments for the LOI analysis, which are shown in Figure 4.1-7, above. The different segments were used only for the LOI analysis, and are not used elsewhere in the Draft EIS.

SEA validated the assumptions used for its LOI analysis by reviewing existing conditions with only EJ&E trains operating. For the LOI analysis, SEA partitioned the EJ&E rail line into distinct segments and calculated the amount of time per train required to traverse each segment. Then SEA multiplied this time by the number of trains projected in the Applicants' Operating Plan. The LOI analysis focused primarily on train speed and length, track speed, number of tracks, and other related factors that may affect capacity, such as the amount of switching work to be performed while occupying the main line, or the number of Des Plaines River Bridge openings. SEA also incorporated other factors in the LOI analysis, such as priority of trains, efficiencies of each type of Method of Operation employed, the assumption that several following trains can be moving through a segment simultaneously, two and sometimes three trains can be moving through an interlocking at the same time, and practical versus theoretical capacity. Results of the LOI analysis are shown in Table B4-1 and B4-2, below, and graphically represented in Figure 4.1-8 on the next page.

The LOI analysis confirmed SEA's findings in the bottleneck analysis, that is, that under the Proposed Action there would be several segments of the EJ&E rail line that would operate at or near capacity. On these line segments, there is little capacity beyond the train numbers reflected in the Applicants' Operating Plan, for the Applicants or other railroads to coordinate trackage-rights operations or to ensure non-interference of Applicants' trains with the freight and passenger trains of other railroads crossing the EJ&E rail line at railroad/railroad crossings.

SEA therefore concluded that the Applicants' Operating Plan would consume nearly all of the main line capacity on the EJ&E rail line, after Applicants' constructions are completed. Accordingly, the volume of through trains on the EJ&E rail line would likely not exceed the train volume proposed by the Applicants. In addition, SEA concluded that the EJ&E rail line would be unlikely to have the practical capacity to accommodate additional freight or passenger trains of other railroads, and the Applicants' Operating Plan could have insufficient capacity to allow for non-interference with the existing trains of other railroads that cross the EJ&E rail line without incurring delays to Applicants' trains.





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A: Leithton to Gilmer Road
B: Gilmer Road to W. Sutton
C: W. Sutton to E. Sutton
D: E. Sutton to W. Spaulding
E: W. Spaulding to E. Spaulding
F: E. Spaulding to Hawthorne Lane
G: Hawthorne Lane to W. Chicago
H: W. Chicago to W. Eola
I: W. Eola to W. East Siding
J: W. East Siding to Walker
K: Walker to Turner
L: Turner to East Bridge Jct.
M: East Bridge Jct. to CP 198
N: CP 198 to Rock Island Jct.
O: Rock Island Jct. to Frankfort
P: Frankfort to Richton
Q: Richton to Matteson
R: Matteson to Chicago Heights
S: Chicago Heights to Griffith
T: Griffith to Kirk Yard

Figure 4.1-8

Line Occupany Index Histograms

Table B4-1. Line Occupancy Index Calculations

Existing Conditions

From	To	Route Miles	Train Speed (mph)	Train Length (feet)	Segment Travel Time (min)	Train Length Time (min)	Total Travel Time per Train (min)	Number of Trains in a Block	Fleeting Travel Time
Leithton	Gilmer Road	3.70	30	2760	7.40	1.05	8.45	1.0	8.45
Gilmer Road	W. Sutton	13.00	40	2760	19.50	0.78	20.28	2.5	8.11
W. Sutton	E. Sutton	1.76	40	2760	2.64	0.78	3.42	1.2	2.85
E. Sutton	W. Spaulding	4.64	40	2760	6.96	0.78	7.74	1.0	7.74
W. Spaulding	E. Spaulding	1.55	40	3042	2.33	0.86	3.19	1.0	3.19
E. Spaulding	Hawthorne Lane	4.12	40	2246	6.18	0.64	6.82	1.0	6.82
Hawthorne Lane	W. Chicago	2.62	30	2246	5.24	0.85	6.09	1.0	6.09
W. Chicago	W. Eola	6.41	40	3769	9.62	1.07	10.69	2.0	5.34
W. Eola	W. East Siding	2.19	40	3769	3.29	1.07	4.36	1.0	4.36
W. East Siding	Walker	9.71	40	3881	14.57	1.10	15.67	2.0	7.83
Walker	Turner	5.38	40	3398	8.07	0.97	9.04	1.2	7.53
Turner	East Bridge Jct	3.71	30	3398	7.42	1.29	8.71	1.0	8.71
East Bridge Jct	CP 198	0.30	10	3398	1.80	3.86	5.66	1.0	5.66
CP 198	Rock Island Jct	2.34	10	2742	14.04	3.12	17.16	1.0	17.16
Rock Island Jct	Frankfort	13.75	40	3795	20.63	1.08	21.70	3.0	7.23
Frankfort	Richton	5.79	40	3795	8.69	1.08	9.76	1.2	8.14
Richton	Matteson	1.07	40	3615	1.61	1.03	2.63	1.0	2.63
Matteson	Chicago Heights	3.60	40	3615	5.40	1.03	6.43	1.0	6.43
Chicago Heights	Griffith	10.80	40	3261	16.20	0.93	17.13	2.0	8.56
Griffith	Kirk Yard	9.30	40	2920	13.95	0.83	14.78	2.0	7.39

Table B4-1. Line Occupancy Index Calculations								
Existing Conditions								
RESTRICTIONS								
		Freight		Passenger				
Track Restriction	Train Speed (mph)	Train Length (feet)	Trains Per Day (TPD)	Trains Per Day (TPD)	Signal Clear Time (min)	Work On-Line (min)	Track Restriction Time (min)	Multiple Crossing Trains
Work On-Line						90.00	90.00	1.00
Barrington Diamond	40	5000	4	62	4	0.00	269.68	0.75
Meets/Passes						120.00	120.00	1.00
Spaulding Diamond	40	6000	6	49	4	0.00	230.23	0.75
Spaulding Interchange						80.00	80.00	1.00
Munger Interchange	25	6463	2	0	4	0.00	13.88	1.00
UPRR Interchange	10	7400	6	0	4	0.00	74.45	1.00
W. Chicago Diamond/UP Interchange	40	7400	60	64	4	0.00	622.14	0.75
None						0.00	0.00	1.00
BNSF Interchange/Work On-line	10	7500	5	0	4	180.00	242.61	0.75
Illinois River Br.	10	3500	2	0	4	0.00	15.95	1.00
Romeoville Br	6	7500	2		4	0.00	36.41	1.00
Drawbridge						225.00	225.00	1.00
Rock Is Jct. Diamond	40	6000	6	41	4	0.00	198.23	0.75
Work On-Line						90.00	90.00	1.00
None						90.00	90.00	1.00
Matteson Interchange	10	8000	10			90.00	180.91	1.00
Chicago Hts Diamond/UP Interchange	40	7000	60			90.00	209.32	0.75
Work On-Line						120.00	120.00	1.00
Van Loon Diamond/Work On-Line	30	7000	26			240.00	308.94	1.00

Table B4-1. Line Occupancy Index Calculations							
Existing Conditions							
No. of Tracks	Available Track Minutes per Day	CTC (80%) or TWC (60%)	Theoretical vs. Practical	Max Trains Per Day	CN Anticipated Train Occupancy (TPD)	LOI Segment Label	Capacity (%)
1	1350.00	0.8	0.667	53.5	5.3	A	9.9%
1	1237.74	0.8	0.667	50.3	5.3	B	10.5%
2	2760.00	0.8	0.667	187.4	5.3	C	2.8%
1	1267.33	0.8	0.667	53.0	5.3	D	10.0%
2	2800.00	0.6	0.667	136.8	5.5	E	4.0%
1	1426.12	0.6	0.667	48.3	4.4	F	9.1%
2	2805.55	0.6	0.667	101.2	4.4	G	4.3%
1	973.40	0.8	0.667	50.2	10.7	H	21.3%
1	1440.00	0.8	0.667	82.1	10.7	I	13.0%
1	1258.04	0.6	0.667	39.2	15.7	J	40.0%
1	1424.05	0.6	0.667	45.5	18.5	K	40.7%
2	2843.59	0.8	0.667	110.6	18.5	L	16.7%
1	1215.00	0.8	0.667	60.8	18.5	M	30.4%
2	2731.33	0.6	0.667	49.3	18.5	N	37.5%
1	1350.00	0.6	0.667	44.1	6.4	O	14.5%
1	1350.00	0.6	0.667	41.1	6.4	P	15.6%
2	2699.09	0.6	0.667	141.5	8.6	Q	6.1%
2	2723.01	0.6	0.667	95.3	8.6	R	9.0%
2	2760.00	0.6	0.667	81.4	10.2	S	12.5%
2	2571.06	0.6	0.667	83.0	9.7	T	11.7%

Table B4-2. Line Occupancy Index Calculations

Proposed Action

From	To	Route Miles	Train Speed (mph)	Train Length (feet)	Segment Travel Time (min)	Train Length Time (min)	Total Travel Time per Train (min)	Number of Trains in a Block	Fleeting Travel Time
Leithton	Gilmer Road	3.70	20	6829	11.10	3.88	14.98	1.0	14.98
Gilmer Road	W. Sutton	13.00	40	6829	19.50	1.94	21.44	2.5	8.58
W. Sutton	E. Sutton	1.76	40	6829	2.64	1.94	4.58	1.2	3.82
E. Sutton	W. Spaulding	4.64	40	6829	6.96	1.94	8.90	1.0	8.90
W. Spaulding	E. Spaulding	1.55	40	6714	2.33	1.91	4.23	1.0	4.23
E. Spaulding	Hawthorne Lane	4.12	40	6714	6.18	1.91	8.09	1.0	8.09
Hawthorne Lane	W. Chicago	2.62	30	6714	5.24	2.54	7.78	1.0	7.78
W. Chicago	W. Eola	6.41	42	6494	9.16	1.76	10.91	2.0	5.46
W. Eola	W. East Siding	2.19	40	6494	3.29	1.84	5.13	1.0	5.13
W. East Siding	Walker	9.71	40	6203	14.57	1.76	16.33	2.0	8.16
Walker	Turner	5.38	40	6203	8.07	1.76	9.83	1.2	8.19
Turner	East Bridge Jct	3.71	25	5842	8.90	2.66	11.56	1.0	11.56
East Bridge Jct	CP 198	0.30	10	5842	1.80	6.64	8.44	1.0	8.44
CP 198	Rock Island Jct	2.34	10	5552	14.04	6.31	20.35	1.0	20.35
Rock Island Jct	Frankfort	13.75	40	6684	20.63	1.90	22.52	3.0	7.51
Frankfort	Richton	5.79	35	6684	9.93	2.17	12.10	1.2	10.08
Richton	Matteson	1.07	20	6256	3.21	3.55	6.76	1.0	6.76
Matteson	Chicago Heights	3.60	30	6256	7.20	2.37	9.57	1.0	9.57
Chicago Heights	Griffith	10.80	35	5721	18.51	1.86	20.37	2.0	10.19
Griffith	Kirk Yard	9.30	33	5721	16.91	1.97	18.88	2.0	9.44

Table B4-2. Line Occupancy Index Calculations

Proposed Action

	RESTRICTIONS							
		FREIGHT		PASSENGER				
Track Restriction	Train Speed (mph)	Train Length (feet)	Trains Per Day (TPD)	Trains Per Day (TPD)	Signal Clear Time (min)	Work On-Line (min)	Track Restriction Time (min)	Multiple Crossing Trains
Work On-Line						90.00	90.00	1.00
Barrington Diamond	40	5000	4	62	4	0.00	269.68	0.75
Meets/Passes						120.00	120.00	1.00
Spaulding Diamond	40	6000	6	49	4	0.00	230.23	0.75
Spaulding Interchange						80.00	80.00	1.00
Munger Interchange	25	6463	2	0	4	0.00	13.88	1.00
UPRR Interchange	10	7400	6	0	4	0.00	74.45	1.00
W. Chicago Diamond/UP Interchange	40	7400	60	64	4	0.00	622.14	0.75
None						0.00	0.00	1.00
BNSF Interchange/Work On-line	10	7500	5	0	4	180.00	242.61	0.75
Illinois River Br.	10	3500	2	0	4	0.00	15.95	1.00
Romeoville Br	6	7500	2		4	0.00	36.41	1.00
Drawbridge						225.00	225.00	1.00
Rock Is Jct. Diamond	40	6000	6	41	4	0.00	198.23	0.75
Work On-Line						90.00	90.00	1.00
None						90.00	90.00	1.00
Matteson Interchange	10	8000	10			90.00	180.91	1.00
Chicago Hts Diamond/UP Interchange	40	7000	60			90.00	209.32	0.75
Work On-Line						120.00	120.00	1.00
Van Loon Diamond/Work On-Line	30	7000	26			240.00	308.94	1.00

Table B4-2. Line Occupancy Index Calculations

Proposed Action

No. of Tracks	Available Track Minutes per Day	CTC (80%) or TWC (60%)	Theoretical vs. Practical	Max Trains Per Day	CN Anticipated Train Occupancy (TPD)	LOI Segment Label	Capacity (%)
2	2790.00	0.8	0.667	74.5	20.3	A	27.3%
1	1237.74	0.8	0.667	48.6	20.3	B	41.7%
2	2760.00	0.8	0.667	167.0	20.3	C	12.2%
1	1267.33	0.8	0.667	48.6	22.5	D	46.3%
2	2800.00	0.6	0.667	121.3	22.5	E	18.5%
1	1426.12	0.6	0.667	43.6	23.4	F	53.7%
2	2805.55	0.6	0.667	87.8	31.6	G	36.0%
1	973.40	0.8	0.667	49.6	31.6	H	63.7%
1	1440.00	0.8	0.667	75.8	31.6	I	41.7%
2	2698.04	0.8	0.667	109.3	39.5	J	36.1%
1	1424.05	0.6	0.667	43.2	42.3	K	98.0%
2	2843.59	0.8	0.667	91.6	42.3	L	46.2%
1	1215.00	0.8	0.667	48.2	43.3	M	89.8%
2	2731.33	0.6	0.667	43.1	42.3	N	98.1%
2	2790.00	0.8	0.667	119.0	28.3	O	23.8%
1	1350.00	0.6	0.667	35.8	28.3	P	79.0%
2	2699.09	0.6	0.667	91.8	28.3	Q	30.8%
2	2723.01	0.6	0.667	74.8	31.6	R	42.3%
2	2760.00	0.6	0.667	72.7	34.2	S	47.0%
2	2571.06	0.6	0.667	71.2	29.9	T	42.0%

Rail Traffic Controller Model

The Rail Traffic Controller (RTC) model was used to analyze the Proposed Action under several different scenarios. The RTC model is an industry-standard dispatching model that uses realistic acceleration and deceleration rates for The Rail Traffic Controller (RTC) model was used to analyze the Proposed Action under several different scenarios. The RTC model is an industry-standard dispatching model that uses realistic acceleration and deceleration rates for a given train tonnage and horsepower-per-ton ratio, adheres to permanent speed restrictions on the railroad, and accounts for actual ascending and descending grades. The RTC train dispatch simulation software is used to determine running times, meet and passes and infrastructure requirements on a segment of rail line or a network of segments. The model is constructed using the existing physical plant of a railroad, which includes the horizontal and vertical alignment, location of turnouts, interlockings, and highway grade crossings. Trains are inserted into the model and their important characteristics specified. The model then performs a simulation using this specified physical plant and train data including estimated starting times (known as “run”) to seek the best fit for the chosen schedule.

The RTC model was constructed for the EJ&E rail line to include the track and connection modifications proposed by CN in its application (Applicants 2007a). Several important details of the proposed modifications, such as location of wayside signaling control points, were not specified by CN; therefore, SEA made assumptions concerning the location of the control points in light of typical railroad industry practice.

SEA made the following assumptions for the RTC model:

1) Passenger trains have precedence at rail/rail at-grade crossings, and freight trains on the EJ&E main line must wait for them to pass.
2) Passenger train occupancy time at rail/rail at-grade crossings was based on Metra’s and Amtrak’s most recent schedule.
3) Freight trains crossing the EJ&E main line at rail/rail at-grade crossings are evenly spaced throughout the 24-hour period.
4) The number of freight trains crossing the EJ&E main line at rail/rail at-grade crossings was based on information provided by various railroad operating personnel in the Chicago area and is an estimated 2008 average.
5) Freight trains crossing the EJ&E main line at rail/rail at-grade crossings were given precedence over trains on the EJ&E main line.
6) Bridge lifts at Joliet are 20 per day based on 15 minutes and are evenly spaced over 24 hours.
7) It was assumed that all EJ&E connections to CN and other railroads at which trains leave the EJ&E main line, as well as East Joliet and Kirk Yards, would promptly accept trains at the time the train is presented, enabling the train to leave the EJ&E rail system without delaying other trains. This assumption implies that yard activity in and around East Joliet and Kirk yards would not interfere with the movement of through-trains at East Joliet Yard or trains entering and exiting Kirk Yard.

The essential output of the RTC model is a “delay ratio.” This number is the numeric comparison between the ideal transit time across a rail system by a single unimpeded train, multiplied by the number of trains anticipated to operate in a day, and the likely transit time of all the trains after adjusting for their interactions.

The delay ratio captures the lost time in a rail operation – the time trains spend waiting for a clear track ahead. High delay ratios indicate a rail system that is overloaded with trains, or that trains are of excess length or insufficient horsepower for the system, or all three. High delay ratios show a railroad system that operates at close to capacity and may be unduly sensitive to any mechanical malfunction, track maintenance activity, or weather condition that may interrupt or slow train traffic. General industry practice is to avoid an increase in train volumes that leads to a delay ratio of 20 or greater.

SEA modeled six different cases. The first case constructed is Case 5, as it represents the typical "best case" the RTC model is designed to seek. In this type of scenario, trains entering the system are spaced evenly throughout a 24-hour period in order to maximize the capacity of the physical plant and to provide the best possible allowance for unforeseen conditions such as weather, mechanical failure, or track maintenance. Even spacing is also used in the effort that adjoining physical plant not modeled – such as yards, connecting subdivisions, or interchanges – are not unrealistically overloaded with and entire day's worth of trains attempting to enter or exit them simultaneously. Case 5 generated an unacceptably high delay ratio of 57%, indicating that either an even-spacing model was inappropriate, or the physical plant was insufficient to handle the trains, or the trains required more power or shorter length, or all three. To test this assumption, five additional cases (1-4 and 6) were constructed for the RTC model in order to calibrate the model and to seek alternative scheduling or train length and horsepower scenarios that would reduce the delay ratio, which are shown in Table B4-3 below.

TABLE B4-3. DELAY RATIOS

Case #	Case Description	Delay Ratio
1	100% fleeted trains, 0.86 hp/ton, and maximum train length 6,321 feet	29%
2	Same as Case 1 with six 10,000 trains substituted	35%
3	Same as Case 1 with 1.19 hp/ton substituted	22%
4	Same as Case 1 with six 10,000' trains and 1.19 hp/ton substituted	26%
5	Same as Case 1 but without fleeting	57%
6	Same as Case 5 but with 1.19 hp/ton substituted	47%

Case 1 shows a scenario in which trains are "fleeted," i.e., the railroad is operated as one-way for 12 hours, then reversed for 12 hours, in order to eliminate the delays inherent as trains seek a limited number of sidings in order to leave the main track, then wait for a train running in the opposite direction. Case 1, as with Cases 2-4, were adjusted around the Metra train schedules in order to reduce to a minimum delays to EJ&E trains waiting for Metra trains at rail/rail at-grade crossings during the morning and evening commuter rush periods. Case 1 uses the average train length of 6,321 feet provided by CN in its Operating Plan. Case 2, identical to Case 1, but with six 10,000 foot trains substituted for six 6,321 foot trains, encountered a higher delay ratio.

To test the hypothesis that a higher horsepower per ton ratio may ameliorate the delay ratio, Cases 3 and 4 replicated Cases 1 and 2 but with a 1.19 hp/ton ratio substituted. (These hp/ton ratios were calculated assuming all trains are of average weight.) Significantly better delay ratios resulted.

Case 6 replicates the "real world" Case 5 but with the higher hp/ton ratio, improving the delay ratio from 57% to 47%.

The four fleeting scenarios are unrealistic as they presume that Kirk Yard, adjoining CN subdivisions, and adjoining foreign-road subdivisions can accept large quantities of trains in a compressed period. Their value is that they indicate that even with the EJ&E operated under circumstances most favorable to the EJ&E system itself, the EJ&E system with physical plant improvements proposed by

CN is unlikely to be able to accept the total number of trains proposed by CN in its Operating Plan, even with a significant increase in horsepower per ton.

SEA then conducted further studies based on the Applicants' Operating Plan. The delay ratios resulting from these analyses, which are described in Table B4-4 below, project different operating situations and train volumes. The results indicate that Case 1, the Applicants' Operating Plan, would have the lowest delay ratio, and as more trains are added, the delay ratio increases, in some cases drastically.

TABLE B4-4. DELAY RATIOS FOR APPLICANTS' OPERATING PLAN

Case #	Case Description	Delay Ratio
1	Applicants' Operating Plan - all CN trains on EJ&E rail line at 6,321 feet long	28%
2	Same as Case 1 with Romeoville Coal Train operated	32%
3	Same as Case 2 with six 10,000-foot trains operated	60%
4	Same as Case 3 with increased Metra and UP traffic at West Chicago	77%
5	Same as Case 4 but with all trains on EJ&E at 6,321 feet long	58%

Another common output of an RTC model is the "stringline" diagram. This diagram is a visual graph that shows, on the y-axis or left-hand side of the graph, the EJ&E rail line between Leithton (at the top of the graph) and Kirk Yard (at the bottom of the graph). The time of day is shown along the bottom of the graph beginning at midnight on the left hand side of the graph and extending to midnight the next evening on the right-hand side of the graph. Each line on the stringline diagram represents a train moving either from Leithton to Kirk Yard (which slopes downward from left to right), or from Kirk Yard towards Leithton (which slopes upward from left to right). A horizontal segment in the line means that the train would be stopped at the location indicated on the left axis of the graph, and the train is making no forward progress. Where the sloping lines cross indicates where trains meet and pass each other as they traverse the rail line.

The stringline diagrams shown in Figure 4.1-9 below indicate that under the Proposed Action, trains would experience major delays at several locations along the EJ&E rail line. The addition of more trains would serve only to increase those delays and further reduce the efficiency of the system. SEA concluded from this analysis that under the Applicants' Operating Plan, the EJ&E rail line would be operated at or very near to capacity, and that there is little, if any, room for growth in the anticipated daily train volumes.

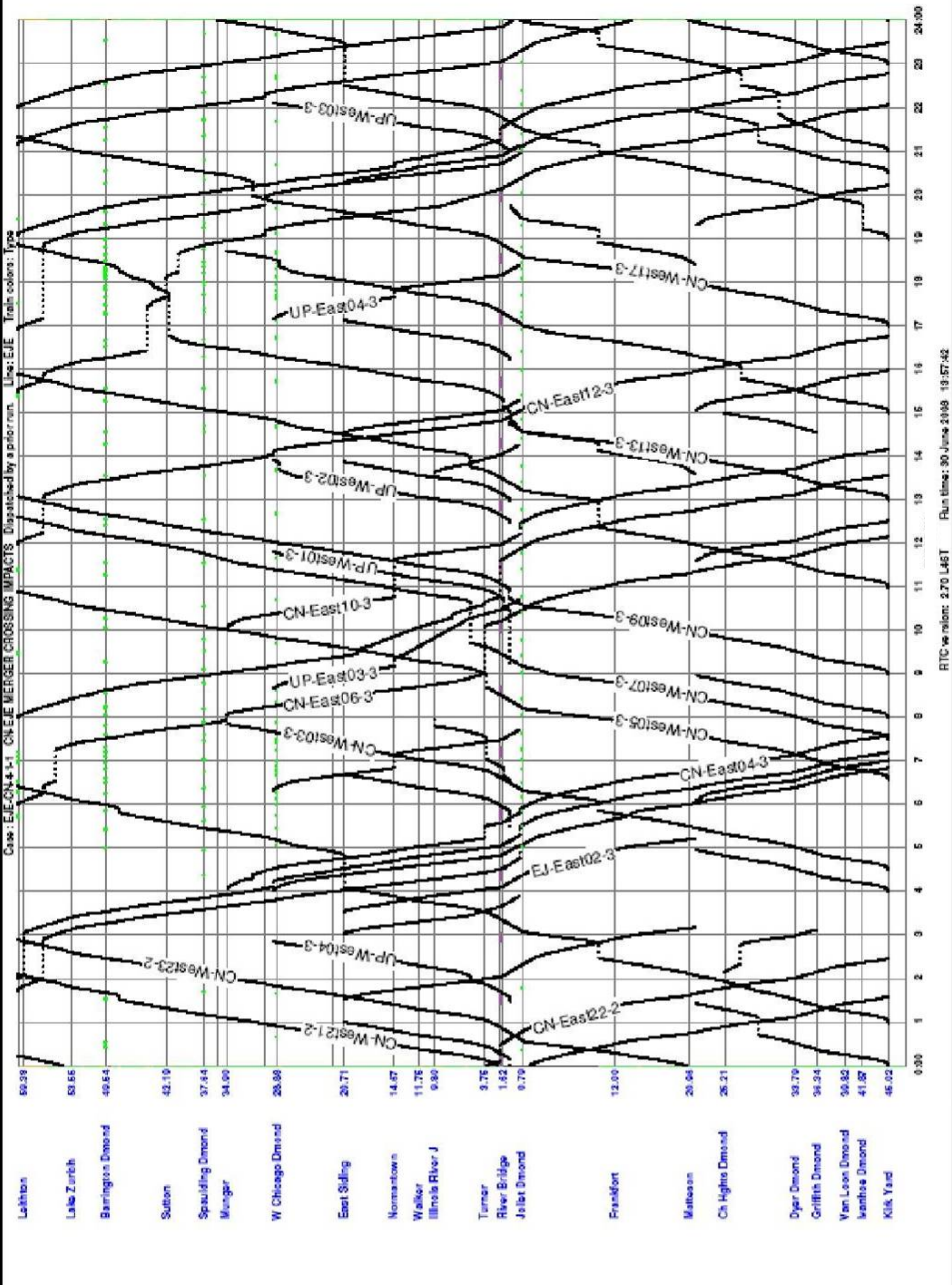

Figure 4.1-9
RTC Stringline
Case 1

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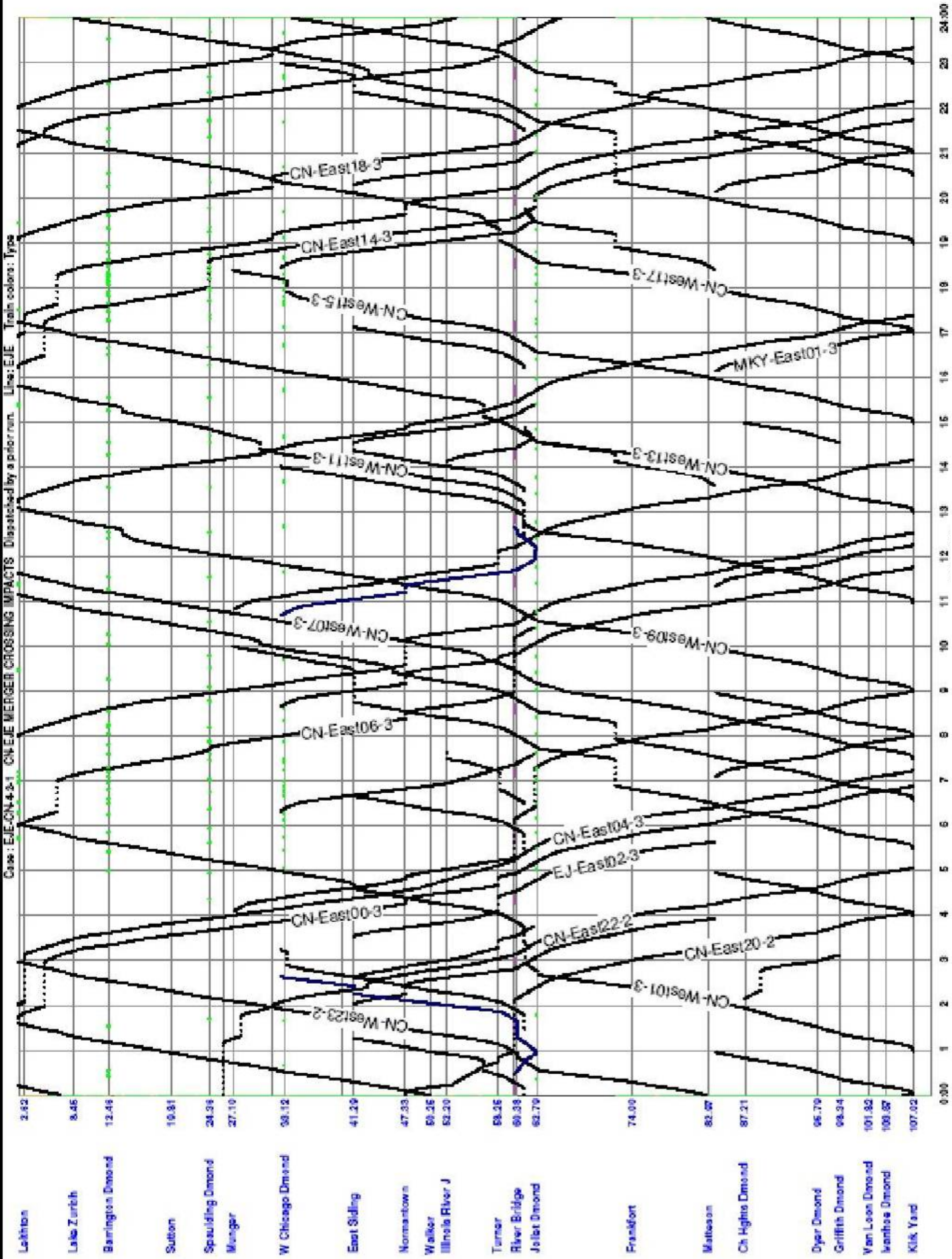

Figure 4.1-9
RTC Stringline
Case 2

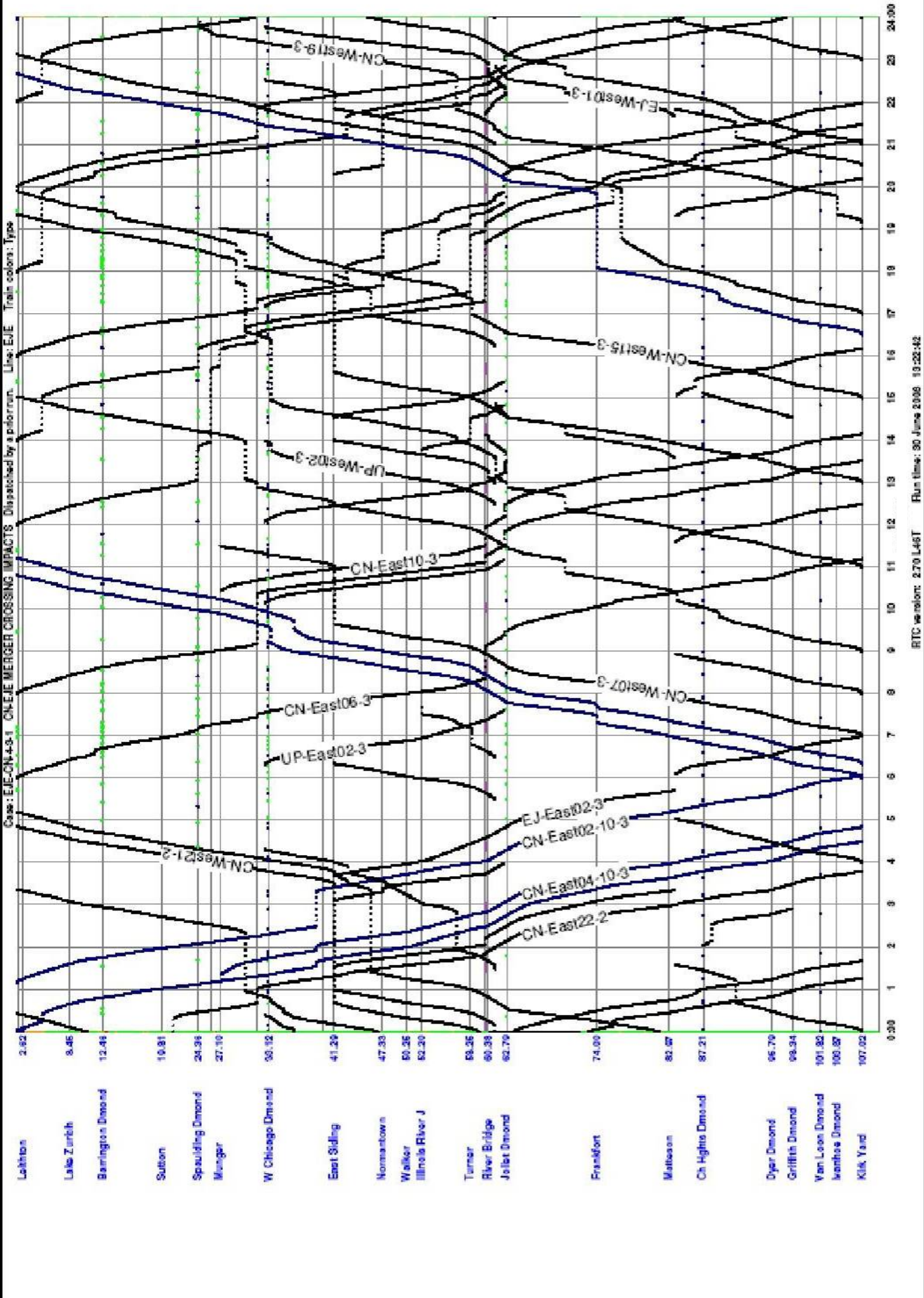

Figure 4.1-9
RTC Stringline
Case 3

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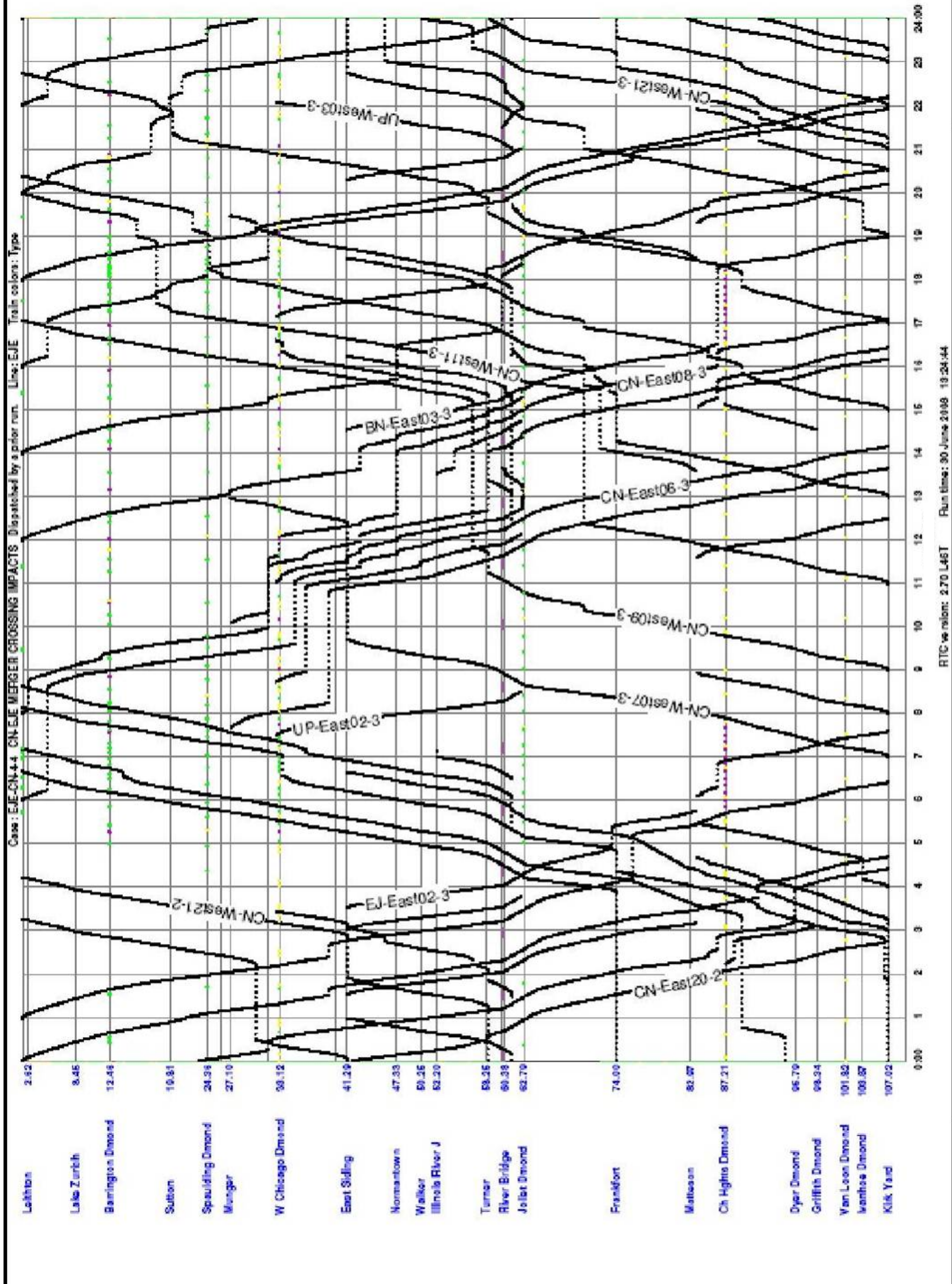

Figure 4.1-9
RTC Stringline
Case 4

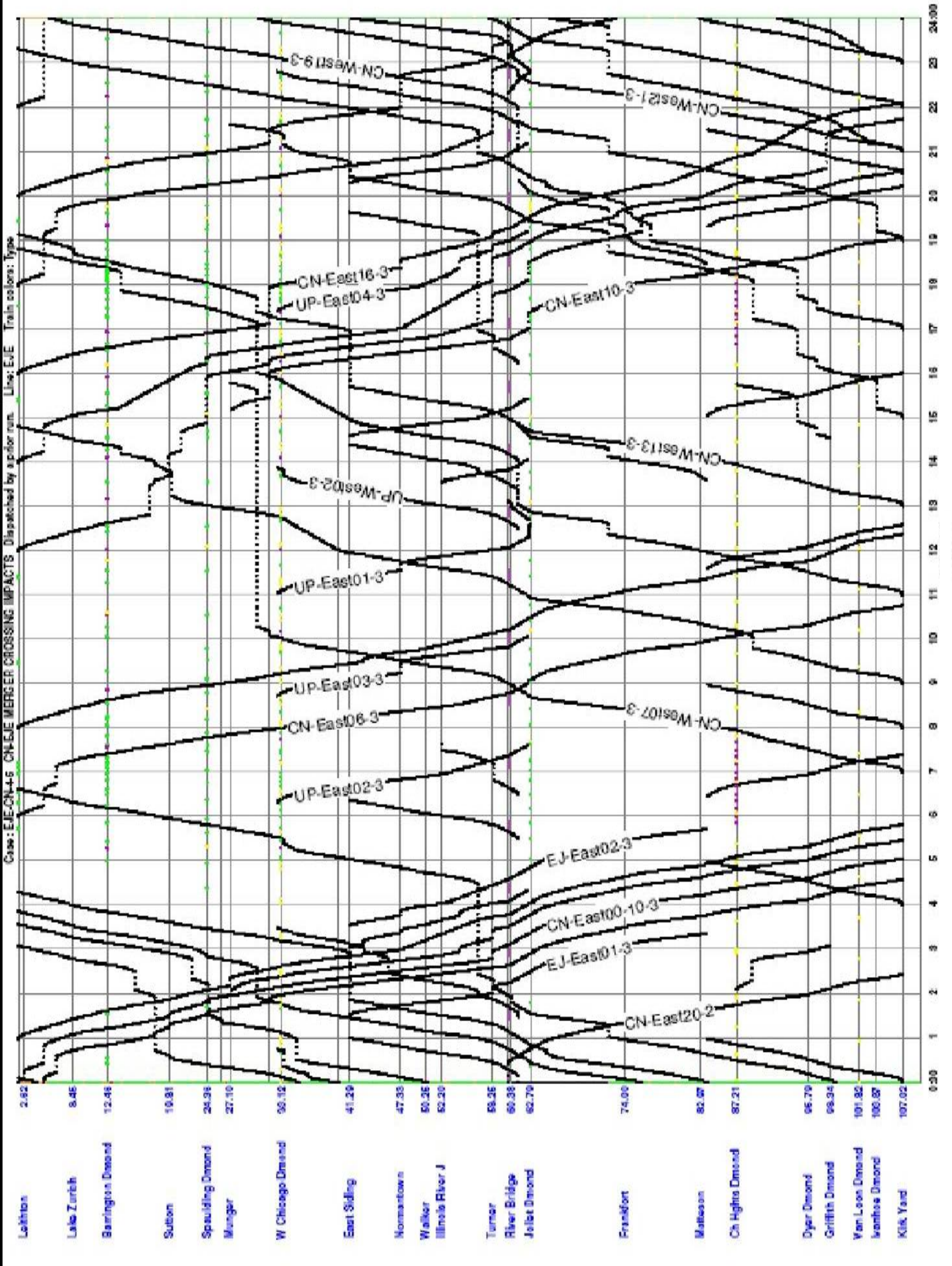

Figure 4.1-9
RTC Stringline
Case 5

CN | EJ&E
Environmental Impact Statement

Attachment B5

Maximum Train Length Analysis

Attachment B5
Maximum Train Length Analysis

Rail Operations

Attachment B-5 describes SEA's maximum train length analysis. Train length is a critical element of rail operation because rail lines are a batch process, not a continuous process like a pipeline or electric power transmission line. The unit of the batch process is the train. Movement of freight requires that railroads load freight into discrete rail cars or entire trains, assemble each train at its origin, move the train through the railroad as a unit, and disassemble and unload the train at its destination.

Rail lines are designed, constructed, and operated with definite assumptions about the maximum length of trains. For example, on a single-track railroad, trains operating in opposite directions must meet and pass at a siding. If both trains are no longer than the clear length of the siding, then either train can enter the siding; generally the train that arrives first enters the siding and waits for the second to pass: only one train must stop. If one train is longer than the siding, operational flexibility is diminished. If the first train to arrive is longer than the siding, it cannot clear the main track and the second train must stop and wait for the first train to move around it. If both trains are longer than the siding, then the two trains cannot meet and pass.

Train lengths also interact with the location of wayside signals. Signaling systems are designed and constructed with assumptions about the maximum length, weight, and braking characteristics of trains. Signal systems that employ "absolute signals" create a special effect on train length. Absolute signals are a type of signal that authorize trains to proceed. Absolute signals when displaying a stop indication may not be passed by a train unless authorized verbally by a train dispatcher (the dispatcher overrides the signaling system). Absolute signals, when used, govern track segments where trains could potentially approach each other from different directions and collide. In practice, the locations of absolute signals consists of any intersection between two main tracks, or a main track and a siding where trains regularly meet and pass. The issue with train length and absolute signals is that trains regularly are stopped at them, to wait for trains proceeding in the opposite direction to pass, or for trains on an intersecting line to pass. Long trains stopped at an absolute signal may extend rearward over one or more at-grade crossings, either rail/highway or rail/rail; when stopped at the absolute signal, the train blocks the crossing. Thus the length rearward from an absolute signal to the nearest significant rail/highway at-grade crossing or rail/rail at-grade crossing is a significant limit on practical train length as well as the effects of trains on at-grade crossings. This is not a factor so long as the train is in continuous movement, but if trains stop for any reason, one or more at-grade crossings is more likely to be blocked as train lengths increase. Trains stop as a result of unforeseen mechanical or operating events, but more often trains stop to await a clear track ahead.

Maximum practical train lengths have increased substantially in the 200 years since the invention of railroads. By 1900, typical train lengths of 3,000 feet were practical. By 1940, typical train lengths of 6,000 feet were practical with some railroads with unique characteristics able to operate trains of 10,000 feet long. At present, 10,000 foot trains are practical on many important railroad main lines in North America, and up to 20,000 feet on specialized, single-purpose railroads.

The Applicants' propose in their Operating Plan that freight trains will average 6,321 feet. It's not feasible to project a distribution around Applicants' average train of the likelihood of shorter and longer trains, as train length on railroads varies according with fluctuations in traffic demands and changes in operating patterns and shipper needs. For example, during periods of low traffic, railroads can feasibly operate much longer trains than during periods of high traffic because meet-and-pass events greatly decline in frequency, and classification yards will not be overwhelmed by the need to accept or build a train of great length. During periods of high traffic, railroads generally tend to operate trains of more uniform length in order to optimize the capacity of their rail lines and classification yards.

Physical distances between the wayside signals that authorize train movement on the EJ&E rail line and the rail/highway at-grade crossings of the EJ&E rail line results in a limited number of locations where trains can stop without blocking rail/highway at-grade crossings. As train lengths increase, the number of locations that a train can stop without blocking an at/grade crossing decreases.

Ideally, trains approaching an interlocked rail/rail at-grade crossing can stop and wait at the absolute signal at the entrance to the interlocking without blocking any rail/highway at-grade crossings. (In most cases, the absolute signal is within 300 feet of the rail/rail at-grade crossing.) Trains too long to stop at the absolute signal without blocking a rail/highway at-grade crossing, or longer than any nearby holding place between rail/highway at-grade crossings, require that the train dispatcher instruct it to hold back several miles until such time as the interlocking is known to be clear. Conditions that may have allowed the train dispatcher to believe it was reasonable to advance a train toward the interlocking in the expectation it would be clear by the time the train arrived can change by the time the train arrives. This can result in the train being forced to stop while blocking rail/highway at-grade crossings. A rail/highway at-grade crossing blocked by this train will remain blocked until the interlocking is clear and a proceed signal is received by the train. The farther away from the interlocking a train must be held, the more likely changes in conditions at the interlocking might also change by the time arrives.

Absolute signal placement at each interlocking also dictates the length of time that a train occupies the interlocking. In some instances on the EJ&E rail line these absolute signals are at a considerable distance from each other and the rail/rail at-grade crossing because of rail/highway at-grade crossings in close proximity to the rail/rail at-grade crossing. For instance, at the rail/rail at-grade crossing at Barrington, the absolute signal for southward/westward trains on the EJ&E rail line is located at Lake Zurich Road at milepost 50.4, and for northward/eastward trains the absolute signal is located at Main Street, milepost 49.2.

SEA accordingly undertook to analyze the effect of longer train lengths on the length of time that trains block rail/highway or rail/rail at-grade crossings while accelerating away from a standing stop at an absolute signal. SEA used the Rail Traffic Controller (RTC) model, an industry-standard dispatching simulation tool, to develop acceleration curves for longer trains that could operate on the EJ&E rail line. SEA assumed that CN's projected horsepower/ton ratio of 0.86 would be consistent for all train tonnages. These curves are graphed in Figure B5-1.

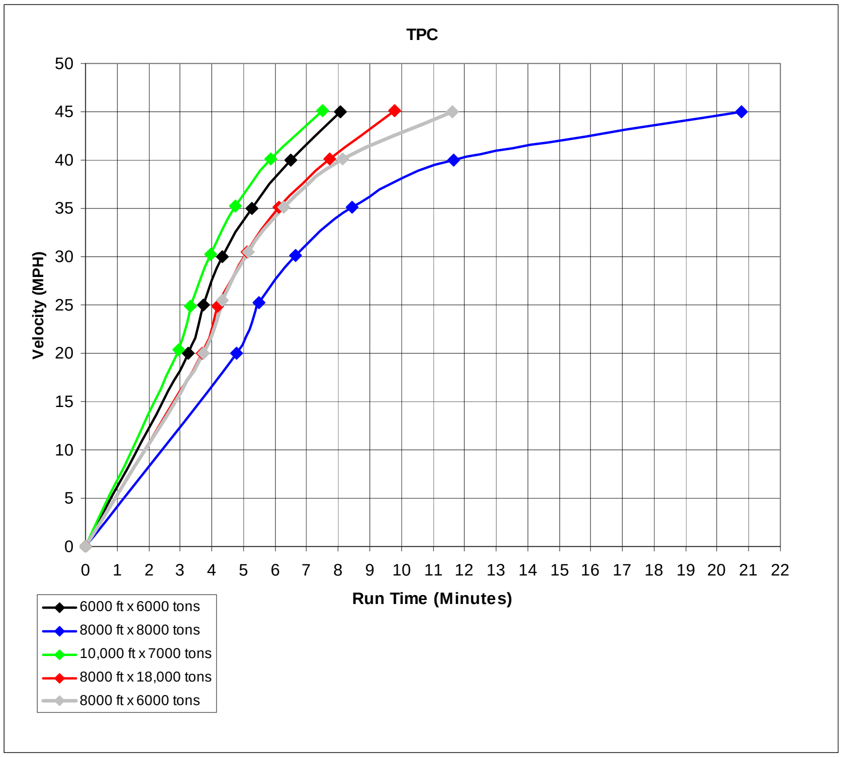

Figure B5-1. Acceleration curves of sample train lengths and tonnages showing time required to accelerate from 0.0 to 45.0 miles per hour

Applicants' average train as shown in Table 4.1-2 is 6,321 feet long. Using the curves developed in Figure B5-1, the time required for Applicants' average train stopped at the absolute signal at Lake Zurich Road to receive a proceed indication, accelerate from a stop to the maximum authorized track speed of 45 mph, and its rear end clear the other end of the interlocking at Main Street 1.2 miles distant, is approximately seven minutes, presuming the engineer of the stopped train accepts the proceed indication at the moment it is offered and accelerates the train at the maximum rate consistent with Applicants' train-handling and train-operation rules. Until the train on the EJ&E rail line clears the signal at Main Street, trains on the other rail line seeking to use the rail/rail at-grade crossing at Barrington cannot proceed. Moreover, because signals are arranged in a progression of indications from clear to approach to stop (red-flashing yellow-yellow-green), the signals on the rail line crossing the EJ&E may have already directed approaching trains to reduce speed. Other interlockings on the EJ&E rail line have much less distance between the absolute signals, thus the Applicants' average train can pass through in much less time. For instance, at Spaulding, the 6,321-foot average train would require approximately 5.3 minutes to accelerate from a stop and clear the other absolute signal.

On Line Segment Number EJE-14, CN indicated that its average train would be 6,829 feet long (see Figure 4.1-2). This train would require approximately eight to nine minutes, depending on the number of locomotives on the train, to accelerate from a stop signal at Lake Zurich Road and then clear the interlocking limits at Barrington.

Compiling the effects of a series of interlockings upon each other, the stringline diagrams shown in Figure 4.1-9 indicate that approximately 10-11 minutes is needed to "slot" (move) a train through an interlocking on the EJ&E rail line during the morning or afternoon commuter rail rush periods. Depending on the timing of a train's arrival at an interlocking, plus its corresponding train length, it would be feasible to move some of the trains envisioned in Applicants' Operating Plan over the EJ&E rail line during commuter rush periods with no or minimal delay to Metra's schedules. This would require Applicants' to plan arrival and departure times of trains onto and off the EJ&E rail line. This planning strategy is used for existing traffic now operating on the EJ&E rail line to coordinate with Metra's fluctuating schedule and Amtrak schedule deviations, as well as the schedules of crossing freight trains.

SEA undertook to examine potential operating scenarios for trains 8,000 and 10,000 feet in length, as described in the following four scenarios. These scenarios illustrate some of the operating conditions and constraints on the EJ&E rail line. They are not necessarily typical but their reading describes some of the real-time problem-solving and continual advance planning that must occur to operate a large volume of trains efficiently and safely on the EJ&E rail line.

Scenario 1: 8,000-foot eastward train, arriving Leithton at 2:00 a.m.

At 2:00 a.m., this 8,000 foot train (Train ID: 1/8000E) arrives at Leithton. Train 1/8000E slows to 15 mph as it passes through the connection at Leithton moving from CN's Waukesha Sub to EJ&E's Western Subdivision. As the CN crew is qualified to operate on EJ&E, no crew change is performed. As no Metra trains are operating at this hour, train 1/8000E runs between Leithton and Kirk Yard without stopping arriving at Kirk Yard at 4:00 a.m., two hours after entering EJ&E's network. Train 1/8000E is classified upon arrival at Kirk Yard, departing as a different train symbol approximately 8 to 10 hours later for either Memphis or the Port Huron/Detroit area.

Scenario 2: 8,000-foot eastward train, arriving Leithton at 5:30 a.m.

Train 2/8000E (8,000 feet in length) arrives at Leithton at 5:30 a.m. This train arrived at Leithton just ahead of Metra North-Central train #100 which is due to arrive at the station in Mundelein at 5:44 a.m. Between 12 and 15 minutes later, train 2/8000E arrives at Barrington. Metra Northwest train #606 is due at Barrington at 5:55 a.m. Train 2/8000E would proceed through Barrington without delaying Metra train #606. At Spaulding, train 2/8000E arrives between 6:02 a.m. and 6:05 a.m., passing through the Spaulding interlocking without delaying either Metra train #2206 at 6:01 a.m. or Metra #2210 at 6:30 a.m. At Spaulding, sufficient room is available north of the interlocking to hold any length train, so train 2/8000E could be held at this location without blocking any at-grade crossings, should the need arise. At West Chicago, train 2/8000E arrives between 6:15 a.m. and 6:20 a.m. and must wait north of Hawthorne Road until Metra train #20 passes through the West Chicago interlocking at 6:22 a.m. After moving through West Chicago, train 2/8000E would arrive at East Joliet Yard at approximately 7:15 a.m., and after the passage of Metra Train #414 at 7:17 a.m. at Rock Island Junction, could proceed toward Kirk Yard. If Kirk Yard could not accept train 2/8000E immediately if there was no clear track available in South Yard, train 2/8000E could be held between CP Kirk Yard Junction and West 5th Street without blocking any at-grade crossings until such time as the train can be brought into the yard.

Scenario 3: 10,000-foot eastward train, arriving at Leithton at 5:00 p.m.

Train ID 3/10000E (10,000 feet long) arrives at Leithton at 5:00 p.m. As this train would if allowed to continue to proceed arrive at Barrington at 5:25 p.m. and, because the train is longer than the 5,900 foot clear space between Lake Zurich Road and Cuba Marsh Road, the train dispatcher would need to hold train 3/10000E at Gilmer Road until approximately 6:30 p.m. when this train could be advanced to Barrington and pass through the interlocking without delay immediately after Metra train #645 passes at 6:36 p.m. However, if there was an opposing 8,000-foot train (ID 4/8000W) arriving on the single main track at Barrington, then train 3/10,000 must wait until train 4/8000W arrives at Gilmer.

Train 3/10000E could then move through the EJ&E rail line toward Kirk Yard as permitted by opposing train movements and could meet long trains at West Chicago, East Siding, and Turner. As this 10,000 foot long train would arrive at East Joliet Yard at 8:00 p.m., it would need to wait there until Metra train #523 passes through Rock Island Junction at 8:07 p.m. Train 3/10000E would block Woodruff Road until a proceed signal is received at Rock Island Junction after the Metra train clears.

Scenario 4: 8,000 foot westward train, departing Kirk Yard at 2:00 p.m.

In this scenario, train ID 4/8000W originates at Kirk Yard and travels to Leithton, where it enters the existing CN system. It departs at 2:00 p.m. and advances to Chicago Heights, where it must wait for a Union Pacific train. Due to the fact that there is no place to hold this train near the interlocking, train 4/8000W must hold back clear of the interlocking, between Torrence Avenue and Cottage Grove Avenue, until the interlocking is clear. At 4:00 p.m., train 4/8000W must either hold back at Frankfort, clear of the crossings, or advance towards Joliet. At 4:24 p.m., after the passage of Metra #418, the interlocking at Rock Island Junction is clear of Metra traffic and train 4/8000W can proceed through the interlocking. If at that time, a UP loaded coal train is moving from Joliet Yard onto the Romeoville Branch, a move that requires 20 minutes of time as the Romeoville Branch is restricted to 6 mph between May 15th and September. Train 4/8000W must clear the interlocking at Rock Island Junction by 5:01 p.m. for Metra train #407. Train 4/8000W follows the UP train as it enters the EJ&E main track, both trains moving under Yard Limit rules. Once the UP train is clear of the Western Division main track, train 4/8000W advances toward Walker. If the Walker local is working on Main Track #2 to switch industry tracks, train 4/8000 would use Main Track #1 to pass by the local. As train 4/8000W approaches Spaulding at 5:30 p.m., it must hold back of Stearns Road until the interlocking at Spaulding is clear of Metra train #2231 which should occur at 5:40 p.m. As there is 12 minutes between Metra #2231 and #2233, train 4/8000 should be able to move through Spaulding without stopping Metra #2233 (though it may experience some delay as it receives signal indications requiring it to reduce speed. At Barrington, train 4/8000W arrives at 6:15 p.m. and must hold back south of Otis Road until the interlocking at Barrington is clear of Metra crossing movements, the last of which should occur at 6:36 p.m. with the passage of Metra train #645. Train 4/8000W meets a 10,000 foot train waiting in the siding at Gilmer (see Scenario #3). As train 4/8000W approaches Allanson Road north of Leithton, it must wait for Metra North-Central Train #117 due to pass through Mundelein at 7:07 p.m.

Conclusions

These scenarios indicate that under some conditions, 8,000-foot and 10,000-foot trains can operate on the EJ&E rail line without serious effects on at-grade crossings, either highway/rail or rail/rail. However, these scenarios are not necessarily indicative of train operations as they may actually occur. Reference to the stringlines in Figure 4.1-9 indicates that there is little spare capacity on the EJ&E rail line at certain locations such as Joliet. Trains significantly longer than Applicants' average train length require greater operational planning and reduce operational flexibility for unforeseen events.