

**Appendix B**  
**Rail Operations Analysis**



## Content

<u>Section</u>	<u>Page</u>
B.1 Background .....	B-2
B.2 Train Volume Analysis .....	B-3

## Attachments

Attachment B1	Applicants' Projected Rail Traffic
Attachment B2	Rail Line Segment Tables
Attachment B3	Economic Forecast for Rail Traffic on the EJ&E
Attachment B4	Maximum Train Volume Analysis
Attachment B5	Maximum Train Length Analysis

## Appendix B

# RAIL OPERATIONS ANALYSIS

### B.1 Background

The Canadian National Railway Company and Grand Trunk Corporation (collectively, CN or the Applicants) are seeking authorization from the Surface Transportation Board (Board) to acquire control of EJ&E West Company, a wholly owned non-carrier subsidiary of Elgin, Joliet and Eastern Railway Company (EJ&E). The Applicants stated that the proposed EJ&E acquisition would increase and improve rail service because it would provide single-line point to point service; better coordinate its rail operations; and provide better operating efficiency. Rail car movement data collection and analysis, projected traffic levels, and adjusted train densities for rail line segments and yards across the proposed CN/EJ&E system are presented in Appendix B. As the basis of their train density analysis, the Applicants used 2005 rail traffic volume movements among railroads serving the same markets as the proposed combined CN/EJ&E system would serve.

During scoping of this EIS, EPA and other commenters suggested that SEA analyze maximum train volume capacity on the EJ&E rail line. EPA, Barrington Area Council of Governments (BACOG), and other commenters suggested that SEA's analysis include all of the additional train volume capacity that would be created by the Proposed Action, including construction of proposed new connecting tracks between existing rail lines, and construction of several sections of second main track in parallel with existing single main track ("double track"). These constructions are discussed in Chapter 2, Section 2.2.2. According to EPA, BACOG, and other commenters, this analysis would be useful as it would provide an estimate of the upper limit of train volumes that could be expected to be operated by the Applicants on the EJ&E rail line.

The National Environmental Policy Act (NEPA) does not require a "worst case analysis", which is essentially what an assessment of maximum capacity would be (see *Robertson v Methow Valley Citizens Council*, 490 US 332 [1989]). Moreover, looking at the maximum capacity of a rail line differs from the approach that SEA has followed in prior EIS's. Nevertheless, given EPA's, BACOG's, and the other commenters' suggestions, and the questions that commenters have raised regarding the Applicants' train volume estimates, SEA determined it should perform a maximum capacity analysis to provide an estimate of the potential upper limit of train traffic on the EJ&E rail line, and that SEA could use this analysis as a basis for comparing and verifying the effects of train traffic levels proposed in the Operating Plan under the Proposed Action. SEA made this decision in light of the difficulties that are incurred in a maximum train volume analysis. These difficulties include making accurate forecasts of demand for rail transportation services because demand is a subset of global and national economic, social, and technological trends; the unique circumstances presented by rail traffic in the Chicago metropolitan area as it presents railroads with numerous routing and train operating options; and that railroads have numerous methods of optimizing train capacity on a given rail line. In order to address these difficulties, SEA took the position that economic trends of the past 30 years affecting rail traffic were likely to continue without significant rate of change, technical trends were not likely to create any significant and currently unforeseen enhancements in the train volume capacity of a rail line, and that Applicants would likely continue to adhere to long-established rail industry institutional and organizational methods and systems.

SEA's response to the requests of EPA and other commenters is described in Chapter 4 and additionally in this Appendix. Chapter 4 presents SEA's conclusion that the Applicants' ability to expand train volumes significantly beyond that projected in the Applicants' Operating Plan, as a result of the

Proposed Action, is constrained both by economic limits on the demand for rail transportation services, and by the physical capacity of the EJ&E rail line.

## B.2 Train Volume Analysis

In Chapter 4 the Board's Section of Environmental Analysis (SEA) verified that the projected maximum train volume on the EJ&E proposed by Applicants following their acquisition of EJ&E represents a reasonable outcome. SEA used the analysis methods listed in Chapter 4 to verify the maximum train volume projected by the Applicant. The analyses used both economic measurements – demand for rail services – and physical measurements – the practical capacity of the EJ&E rail system following constructions proposed by Applicants.

The economic measurements used by SEA to verify Applicant's maximum projected train volume consisted of:

1. An economic forecast of demand for rail traffic. This economic forecast is detailed in Attachment B3 to this Appendix.
2. Historic trends in rail traffic growth through Chicago.
3. National large-scale growth trends in rail-carried commodity flows that foreseeably could affect Chicago.

The physical measurements used by SEA to verify Applicant's maximum projected train volume consisted of:

1. A "Bottleneck Analysis" – a qualitative assessment of the point(s) on the EJ&E rail line that presented the greatest physical limit to rail traffic resulting from the arrangement and quantity of the trackage and the train operating patterns and demands.
2. A "Line Occupancy Index" analysis – a quantitative assessment of the practical capacity of each contiguous "like segment" of the EJ&E rail line, comparing the nominal practical train volume capacity of that type of rail line segment (e.g., double- or single-track; Centralized Traffic Control or Track Warrant Control, etc.) with the train volume proposed by the Applicants.
3. A Rail Traffic Controller (RTC) train operation simulation. RTC is a software tool that simulates the operation of trains on a given rail line, and assess the conflicts between trains.

Details of these analyses are presented in Attachment B4. Figures shown in this attachment were taken from Chapter 4 of the Draft EIS.

To supplement these three physical measurements, SEA performed an analysis of the effects of operating trains of significantly longer length than the 6,321-foot-long average train projected by Applicants in their Operating Plan. Train length creates substantial effects on the physical capacity of a rail line. The Applicants' Operating Plan did not detail the probability that it might operate trains significantly longer than its average train length; therefore SEA undertook in Attachment B5 to analyze the effects on the train volume capacity of the EJ&E rail line of longer trains.