A COMPARISON OF SHORT LINE AND CLASS I LABOR COSTS IN NORTH DAKOTA

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Preface

This document is one of several reports that was written as part of the North Dakota Rail Services Planning Study. Other reports which are or will be available from this study include:

Costs and Profitability of Light Density Branch Lines: BN vs. Short Line Ownership. UGPTI Staff Paper No. 85, July 1987.

Report on Rail Services Planning Study Light Density Railroad Costing Methodology. UGPTI Staff Paper No. 84, May 1987.

Operating Costs and Characteristics of North Dakota Grain Trucking Firms. UGPTI Pub. No. 67, Aug. 1988.

Short Line Impacts on Customer Service Levels for Grain Shippers. UGPTI Staff Paper No. 94., 1989.

Short Line Railroad Development Impacts on Rail Labor. (forthcoming).

Short Line Impacts on Inter- and Intramodal Competition. (forthcoming).

This project is being conducted with funds provided by the Federal Railroad Administration. Copies of any of the reports can be obtained from:

Upper Great Plains Transportation Institute
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EXECUTIVE SUMMARY

The objective of this report is to provide information highlighting the differences between Class I and short line rail labor. Primary data was collected from 48 short line railroads. In addition to various railroad characteristics, information was obtained about employment levels, job classifications, wage rates, and benefit packages. Similar information for Class I railroads operating over light-density lines was obtained from R-1 annual reports.

High rail labor costs are a major reason underlying the recent growth of short line and regional railroads in the United States. Short lines have lower labor costs as a result of lower wage rates, fewer fringe benefits, and less restrictive work rules. A short line's operating labor cost is between one-fourth and one-third of a Class I railroads.

The results suggest that labor cost savings may allow short lines to continue operating light-density rail lines that are unprofitable for a Class I railroad. From a policy perspective, short lines may provide an alternative to rail line abandonment for light-density branch lines.

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Frank J. Dooley and Denver D. Tolliver[1]

I. INTRODUCTION

From 1980 to 1987, 190 new short lines operating 18,237 miles of track were created (U.S. Department of Transportation). In the fall of 1987, line sales almost ceased because of litigation between rail labor unions and the railroads. In June 1989, the United States Supreme Court held that the Pittsburgh & Lake Erie could sell its rail lines to a non-carrier without first negotiating with labor the effects of the sale (Rosenfeld). In response, Class I railroads, lenders, and prospective buyers are pursuing further sales (Abbott). The seven major Class I railroads have reported plans to sell over 17,000 miles of road (Table 1).

The future status of branch lines is an important issue in North Dakota. The North Dakota rail system consists of approximately 4,400 miles of track (Table 2). Almost 65 percent of the system or 2,851 miles are branchlines. The Burlington Northern (BN) has 1,341 miles of branchline in North Dakota (Table 2).

The North Dakota State Highway Department (NDSHD) has identified 1800 miles of light density lines that are likely to be abandoned in the next 30 years. Widespread abandonment would adversely effect rail shippers (primarily grain elevators), rail labor, and the state highway system.[2] According to NDSHD estimates,

> "the 30-year impact of abandonment of 1400 miles of marginal rail lines would be at least $90 million in additional costs for state highways over a 30-year period ($33 million for added pavement thickness and $57 million due to reduced life and earlier repair or replacement needs), plus $23 million for county roads over the same time period (U.S. DOT).

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[1]The authors are both Research Associates at the Upper Great Plains Transportation Institute, North Dakota State University, Fargo, ND, 58105.

[2]See the companion report, *The Impacts of Short-Line and Regional Railroads on Rail Labor in North Dakota*, UGPTI Publication No. 72., for a discussion of the effects of short line creation on rail labor in North Dakota.

TABLE 1. Line Sales Pending by Major Class I Railroads

Railroad	Miles of Track That May Be Sold
Burlington Northern	2,244
Chicago & North Western	1,797
Conrail	0
CSX	2,115
Grand Trunk Western	142
Norfolk Southern	1,251
Sante Fe	4,000
Soo Line	0
Union Pacific	5,716
TOTAL	17,265

SOURCE: U.S. DOT, Federal Railroad Administration. *Deferred Maintenance and Delayed Capital Improvements on Class II and Class III Railroads.* Washington, D.C., February 1989.

TABLE 2. North Dakota Rail System, by Company and Type of Line

Railroad	Mainline Miles	Branchline Miles	Total Miles
Burlington Northern	1048	1341	2389
Soo Line	353	902	1255
Dakota, Minnesota & Eastern	0	14	14
Red River Valley & Western	59	594	653
SD Rail[1]	103	0	103
TOTAL	1563	2851	4414

[1]SD Rail is owned by the state of South Dakota and is operated by the BN.

SOURCE: Evans, Robert. *An Analysis of the Impact of Proposed Federal Legislation Regarding the Creation of Short Line Railroads on North Dakota Railroad Policy.* North Dakota State Highway Department, Bismarck, 1987.

Thus, from a policy perspective, short lines are viewed as an important alternative to branchline abandonment.

High rail labor costs are a major factor underlying the recent development of short line railroads. Labor costs are especially critical on light-density branch lines. In 1982, labor costs were estimated to be 49.2 percent of total operating costs on Class I railroad light-density branch lines.[3] Rail labor costs may be appreciably lower on short lines because of lower wage rates, smaller crew consists, and less restrictive work rules.

The objective of this report is to provide information highlighting the differences between Class I and short line labor costs. The report is organized in four sections. First, the data sources are identified. Second, Class I labor costs are reviewed. Third, short line and Burlington Northern labor costs are compared. The report ends with a summary and conclusions.

II. DATA

Before proceeding, two aspects of the study should be noted. First, as defined by the American Association of Railroads, a short line railroad is one operating less than 350 miles of track. Second, the labor characteristics of short lines are compared to those of the Burlington Northern (BN). The BN is a good reference carrier for short line comparisons because it still operates a considerable amount of branch line. In addition, BN is one of the carriers aggressively attempting to sell portions of its light-density lines.

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[3]This information was developed from the Burlington Northern's *Application to Abandon the Edgeley to Streeter Line.* Conventional wisdom has always posited that the preponderance of light-density branch line costs consist of fixed maintenance of way and fixed opportunity cost on roadway investment. However, this application suggests that labor comprises nearly fifty percent of the costs on light-density branchlines.

Information about BN labor levels and costs were obtained from a series of annual reports for the years 1978 to 1986.[4] This data was used to develop time series data about Class I job classifications, salary levels, fringe benefits, etc. The salaries, wages, and fringe benefits data were developed from BN's Wage Forms A and B and Schedule 410 of the R-1 Annual Reports to the Interstate Commerce Commission. All size and operating statistics were developed from Schedules 700 and 755 in BN's R-1 Annual Reports.

A mail survey of 99 short line railroads across the United States was the principal source of information about short line labor. The survey included questions about the short line's general characteristics, job classifications, wage rates, fringe benefits, crew sizes, unionization, and types of work contracted to other firms.

The sample frame was developed from Due's list of recently organized short lines. Responses were obtained from 55 short line railroads. Two incomplete surveys and five surveys for railroads operating more than 350 miles of track were eliminated from the analysis. Thus, the final response rate to the survey was 52.2 percent.

III. BURLINGTON NORTHERN LABOR COSTS

The major differences between Class I and short line labor costs are the crew consist and the cost per crew member. In this section of the report, labor costs for the Burlington Northern are analyzed from 1978 to 1986. In particular, the analysis focuses on train and engine crew costs, the principal labor cost component for light-density branch lines (Figure 1).

Like most American railroads, BN began a long-range process of system rationalization in the mid-1970s. In 1980, the BN operated 11,270 miles of branch line

[4]Class I railroads are required to file these reports with the Interstate Commerce Commission.

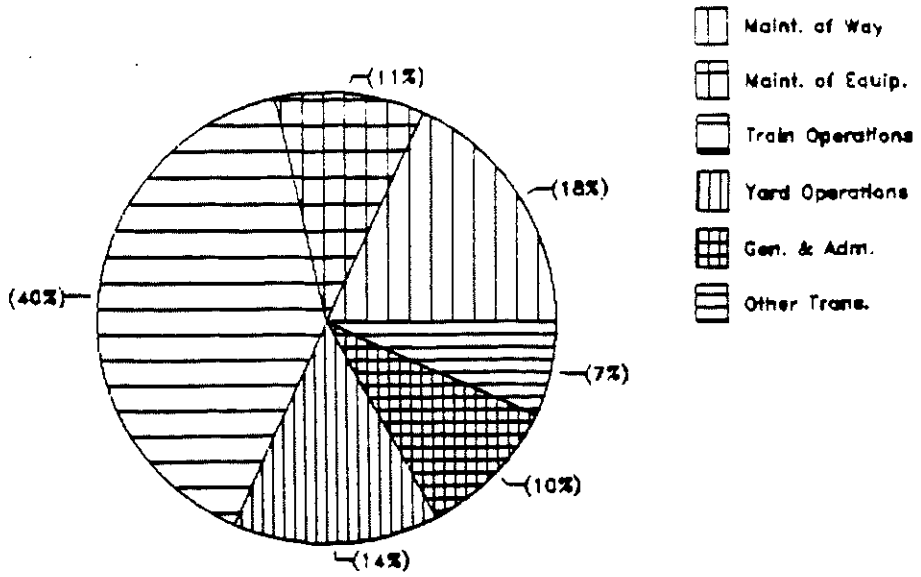

FIGURE 1. Distribution of BN Salaries and Wages.

SOURCE: Interstate Commerce Commission Wage Form A & B. Fort Worth, TX, 1978-1986.

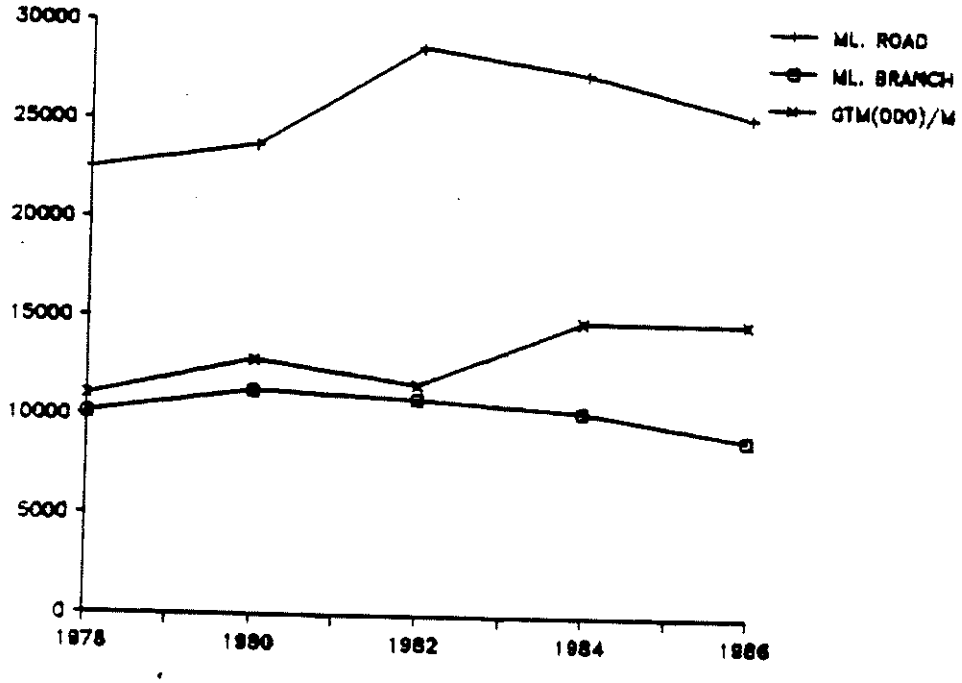

FIGURE 2. BN Miles of Road, Branch Line Track, and System Density.

SOURCE: Interstate Commerce Commission Wage Form A & B. Fort Worth, TX, 1978-1986. Annual Report to the Interstate Commerce Commission, (R-1). Fort Worth, TX, 1978-1986.

(Figure 2). By 1986, the miles of branch line had fallen to 9,049 miles.[5] While the miles of branch line have steadily decreased, the traffic density has increased. Between 1978 and 1986, Burlington Northern increased the average traffic density on its system from 11 million to 15 million gross ton miles per mile (Figure 2).

Over the same period, the number of train and engine crew employees on the Burlington Northern declined. From a high of 14,526 in 1981, the number of train and engine crew members fell to 11,687 in 1986 (Figure 3). This trend is consistent with the process of rail rationalization, wherein Class I carriers are seeking to cut high cost train operations on light-density branch lines.

While branch line mileage and the number of train and engine crew employees decreased, salaries increased. The average annual salary of BN crew members increased from 23,000 dollars in 1978 to 39,000 dollars in 1986 (Figure 4). Furthermore, associated fringe benefit packages increased along with salaries and wages. Fringe benefits, expressed as a percentage of salaries and wages, grew from 24.0 percent in 1978 to 35.6 percent in 1986 (Figure 5).

In summary, the process of Class I rail rationalization has pared down the branch line mileage and reduced the size of the train and engine crew force. However, collective bargaining significantly increased train crew salaries and associated fringe benefits. The inability to control labor costs has led to the movement to sell light-density lines to short line operators. The next section investigates some of the fundamental differences between Class I and short line labor.

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[5]It should be noted that the abandonment process was streamlined with the passage of the Stagger's Rail Act in 1980. Since then, the miles of branch line track have steadily declined.

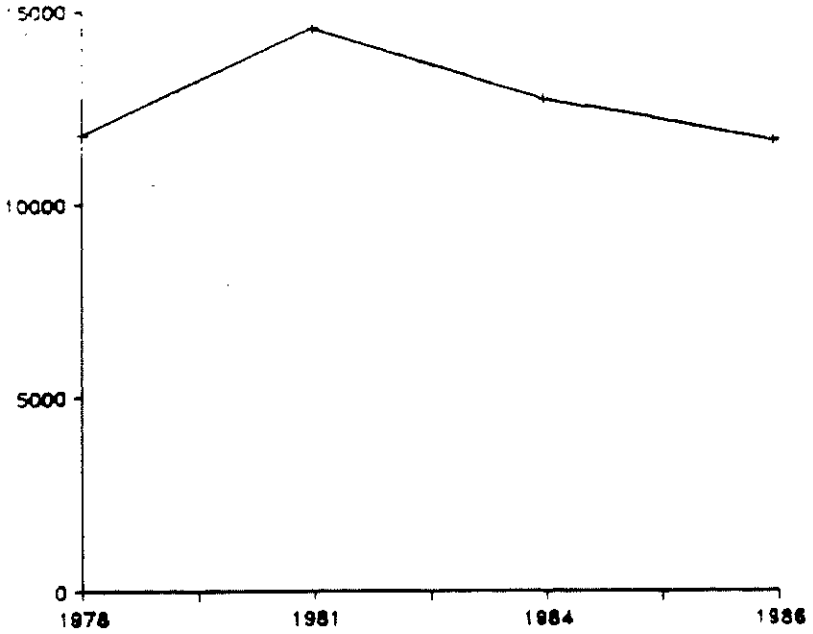

FIGURE 3. BN Average Number of Train and Engine Crew Employees.

SOURCE: Interstate Commerce Commission Form A and B. Fort Worth, TX, 1978-1986.

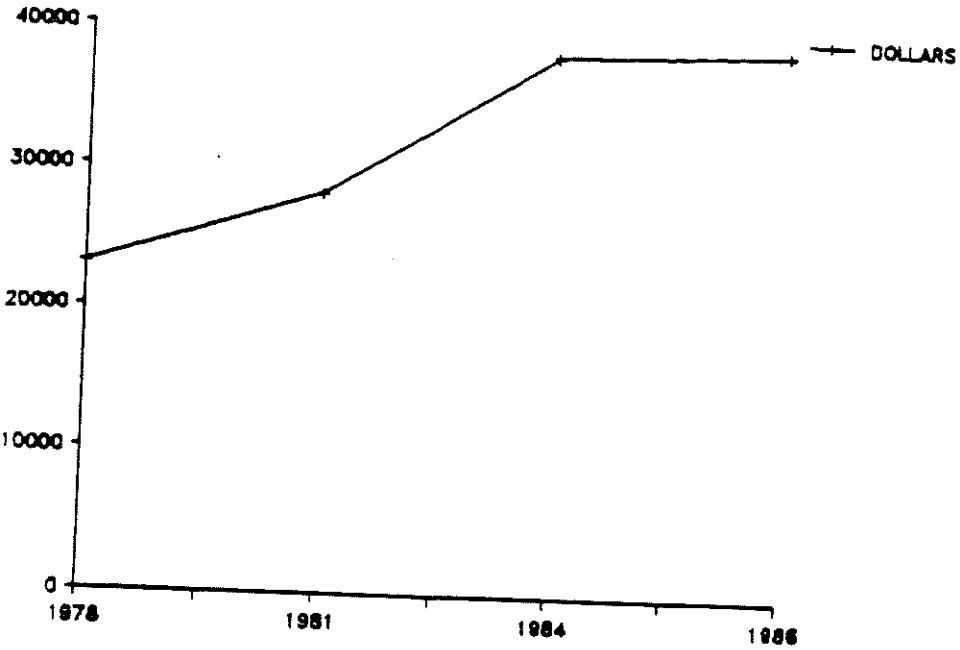

FIGURE 4. BN Train and Engine Crew's Average Annual Salary.

SOURCE: Interstate Commerce Commission Form A and B. Fort Worth, TX, 1978-1986.

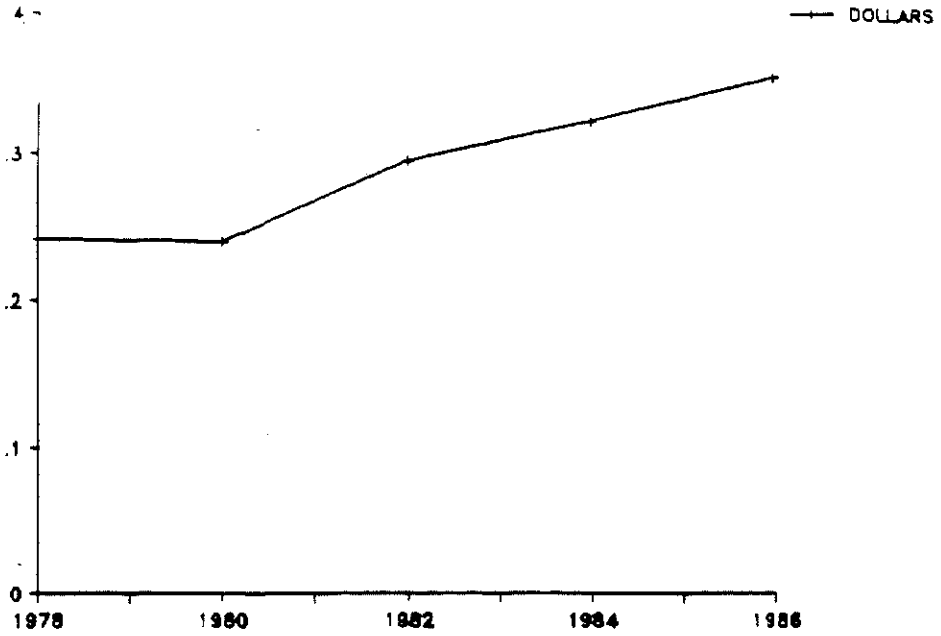

FIGURE 5. BN Fringe Benefits as a Percent of Salaries and Wages.

SOURCE: Interstate Commerce Commission Form A and B. Fort Worth, TX, 1978-1986.

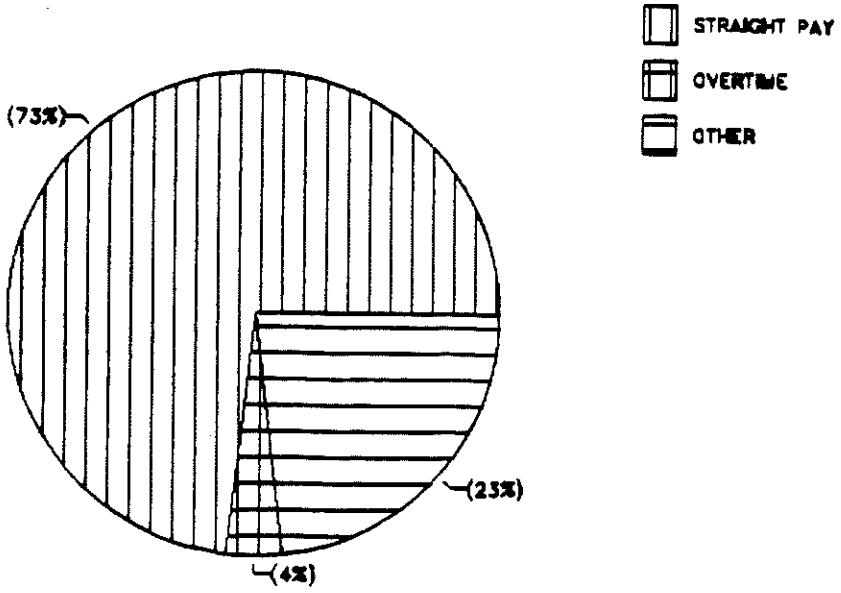

FIGURE 6. Distribution of Compensation for BN Train and Engine Crews.

SOURCE: Interstate Commerce Commission Form A and B. Fort Worth, TX, 1978-1986.

IV. DIFFERENCES BETWEEN SHORT LINE AND BN LABOR

There is a two-fold source of labor cost savings. First, labor is more productive on short lines than Class I railroads because of more flexible work rules. Second, short line labor wage rates are much less than those for comparable Class I rail employees. General information and comparisons for short line and Burlington Northern job classifications/work rules and wage rates/benefits are presented in this section.

JOB CLASSIFICATIONS AND WORK RULES

There are four major differences between short lines and Class I carriers in the areas of rail labor work rules and job classifications. The first difference is the scale of the work force. Second, is the number of job classifications. Third, is the distribution of employees among the classifications. Fourth, is the utilization of job classifications, particularly regarding train and engine crews.

First, the size of the labor force for the Burlington Northern is much larger than that of the typical short line. At the close of 1986, BN had 34,402 employees, or 1.33 employees per mile of track.[6] In comparison, the typical short line only had 13 full time workers, or 0.33 employees per mile of track. Thus, when controlling for size, the typical short line railroad's work force is only 25 percent of the BNs.[7]

The second major difference between short line and Class I railroads is the number of job classifications. Class I railroads may have contracts with up to 19 different unions. Work rules generally segregate work duties by union, preventing employees from performing duties outside their classification.

The number of job classifications for short lines is difficult to determine. Most short lines do not distinguish between job classifications. As a result, a direct com-

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[6]Burlington Northern. *Interstate Commerce Commission Wage Form A, 1986.*

[7]In addition to size, the scale of the work force is related to the density of traffic, the presence of powerful labor organizations, and other variables.

parison between job classifications for short line railroads and the BN cannot be made. Nevertheless, 40 of the short line operators grouped their employees among eight general job classifications (Table 3).

TABLE 3. Short Line Employment by Job Classifications, 1987

Employee Classification	Percent of Short Lines Reporting	Mean Number of Employees on a Short Line
Train Crew	95.0	4.4
Administration	82.5	2.2
Maintenance of Way	57.5	6.6
Mechanical	40.0	3.4
Clerks & Freight Handlers	35.0	2.6
Communications & Signals	27.5	1.2
Yard Crew	15.0	4.0
Shop Crafts	10.0	2.0

The BN obviously has employees from all job classifications. None of the short lines, however, had employees in all of the job classifications. The three most common job classifications reported by short line railroads were train crews (95.0 percent), administration (82.5 percent), and maintenance of way (57.5 percent) (Table 3). No other job classification was reported by more than 40 percent of the respondents.

The third major difference between short line and Class I rail labor is the distribution of employees among job classifications. While short line and BN job classifications are not directly comparable, several broad categories do match-up. The major difference in the distribution of employees concerns the category of train and engine crews. At the close of 1986, Burlington Northern's train and engine crew work

force comprised 34.0 percent of all BN workers (Table 4). In comparison, the typical short line classified almost 53 percent of its workers as train and engine crew employees.

TABLE 4. Employees in Major Rail Job Classifications, in Percent

Job Classification	Burlington Northern	Typical Short Line
	----------Percent----------	
Executive, Professional, & Administrative	20.3	15.8
Maintenance of Way	22.5	20.9
Maintenance of Equipment	17.8	5.4
Train & Engine Crews[1]	34.0	52.6
All Other	5.4	5.3

[1]Includes both road train and yard crews.

Utilization of job classifications is the final difference between short line and Class I railroads. There are three reasons why short lines can succeed with fewer job classifications. First, employees perform more than one type of duty. Second, short lines contract out some of the less routine work. Finally, strict Class I work rules are relaxed on short lines.

First, the short line job classifications are somewhat misleading because employees typically do several types of work. For example, it is not unusual for a short line employee to operate a train one day, repair track a second day, and make sales calls a third day. Owners and employees may both benefit from the less structured system of job classifications. Responding to an open-ended question, many owners of short lines railroads stated that the lack of strict job classifications led to operational flexibility and large cost savings.

According to the owners, the employees also benefited by being encouraged to perform a variety of tasks. The owners felt that employees were more satisfied with their work because their jobs were less tedious and more interesting. This observation has not been corroborated by short line employees.

Second, short lines are able to decrease the number of job classifications by contracting some types of work out to other firms. The types of work most frequently contracted are track maintenance (60.4 percent), car and engine repairs (52.4 percent), and equipment repairs (35.4 percent) (Table 5). This is consistent with the low percentage of short lines reporting employees for these types of job classifications. Contracting may also allow the short line to avoid the associated fixed costs for items such as track maintenance and repair equipment or car and locomotive shops.

TABLE 5. Types of Work Contracted Out by Short Lines

Type of Work	Percent of Short Lines Contracting
Track Maintenance	60.4
Car & Engine Repairs	52.1
Equipment Repairs	35.4
Other[1]	14.6
Administrative/Clerical	8.3
Communications	6.3

[1]Other includes miscellaneous repairs, dirt moving, radio and signal maintenance, bridge work, and actual operations.

Finally, Class I railroads feel antiquated work rules restrict their operations (Gohmann). For example, many trains continue to operate with four or even five man crews. Train crews continue to include firemen and brakemen although trains are diesel powered and often do not pull cabooses. In contrast, the average crew size on a

short line is only 2.13 workers.

WAGES AND BENEFITS

Three major differences exist between wages and benefits for short line and BN employees. First, the absolute wage scale is much lower for short line than BN employees. Second, the method of payment for the two types of employees differs. Finally, benefit packages are less attractive for short line employees.

First, short line hourly wage scales are significantly lower than comparable BN wage scales (Table 6). Average hourly wage rates for short line labor range between 8.85 to 13.01 dollars per hour. In contrast, BN labor receives between 17.00 to 25.00 dollars per hour.

TABLE 6. Short Line and BN Hourly Wage Rates and Wage Rate Ratio, by Job Classification, 1987

Employee Classification	Burlington Northern[1]	Typical Short Line	Wage Rate Ratio
	----Average Hourly Wage Rates----		--Percent--
Train Crew1	$25.00	$10.10	247.5
Administration	19.77	13.01	152.0
Maintenance of Way	18.00	8.85	203.4
Mechanical	17.00	10.49	162.1
Yard Crew	25.00	12.06	207.3

[1]Calculated from ICC Wage Forms A and B. Wages include straight time actually worked, overtime, time paid but not worked, constructive allowances, vacations, and holidays. Service hours are actual hours worked at straight pay and overtime rates.

The typical BN employee receives between 152 and 247 percent as much as the typical short line employee (Table 6). This is quite significant from a policy perspective. A short line's train and engine labor cost would increase by 130 percent if it was

required to pay labor at the prevailing union scale. A labor cost increase of this magnitude could stymie future line sales.

Second, perhaps a more important distinction between the two types of rail labor is the difference in the method of payment. Short line employees are paid on an hourly basis. Overtime is paid on the basis used in most industries, time-and-a-half. The typical work day for a short line employee is 8.26 hours.

Class I rail labor's total salaries are extremely complex to calculate. Class I train and engine crews are paid on a dual basis of distance traveled and length of time on duty. Their standard work day is eight hours or a run of 108 miles. This sets a minimum flat payment for all runs, even those that require less than eight hours or 108 miles.

The calculation of overtime is complicated because it also is a function of mileage and time. Overtime payments for Class I train and engine crews may vary according to factors which influence train speed such as track condition, traffic, or geography of the area. In general, overmiles (miles run in excess of 108 miles per day) are paid on a flat rate per mile. Overtime is paid on an hourly basis at time-and-a-half.

The calculation of Class I train and engine crews salaries is also complicated by work rules resulting in additional compensation for several factors not related to work. This includes payment for items such as deadheading, terminal delays, and held-away-from-home terminal. The total salary cost for items other than straight pay and overtime is estimated to equal 23 percent (Figure 6.).

Fringe benefits are the final major difference between short line and Class I employees. As a percentage of annual salary, the average fringe benefit package of BN employees was over twice that of short line employees. In 1986, BN's employees fringe benefits were estimated to be 35.56 percent of their total salary. A comparable figure for short lines was 16.96 percent.

Class I employees have attractive comprehensive benefit plans. The fringe benefits offered to short line employees are much more limited. According to survey results, benefits vary somewhat from short line to short line with larger firms offering more benefits. The most commonly offered benefits were health insurance, railroad retirement, and dental insurance which were offered by 76.2, 57.1, and 35.7 percent of all short lines, respectively. Other fringe benefits offered by fewer short lines (between 10 and 25 percent) included life insurance, paid vacation, profit sharing, pension plans, bonuses, paid holidays, and unemployment insurance.

V. SUMMARY AND CONCLUSIONS

Since the mid-1970s, Class I railroads have been attempting to rationalize their rail networks by either abandoning or selling their light-density branch lines. High train and engine crew labor costs are a major reason underlying this strategy. The average salary of a Burlington Northern crew member has increased from 23,000 dollars in 1978 to over 39,000 dollars in 1986. When forced to operate with four or five man crews, Burlington Northern's crew cost per train hour totals 152 dollars. This is 247 percent of the mean hourly train crew cost for a typical short line.

In conclusion, short line carriers may be an important alternative to the continued abandonment of rail lines by Class I carriers. More flexible work rules, fewer job classifications, and lower wage rates may allow short line operators to lower operating costs significantly for light-density branch lines. Thus, short line carriers may provide a mechanism for the profitable rail operation of light-density branch lines.

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