ADDENDUM TO RAILPLAN SOUTH DAKOTA -1981-

MILBANK TO SISSETON BENEFIT / COST ANALYSIS

SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
DIVISION OF RAILROADS
PIERRE, S. D. 57501

SEPTEMBER 1982

PREFACE

This report revises the benefit-cost analysis of the Milbank to Sisseton branch line. The analysis is required to support South Dakota's application for federal funds that, if received, will be used to rehabilitate the line.

Benefit-cost analyses of the Milbank to Sisseton branch line were included in other South Dakota studies:

- A study of the line was conducted as part of the 1980 Railplan. This study concluded that the most economically viable service option for the line was to (a) move grain elevators to the Milwaukee main line and (b) construct a public loading facility on the main line. This option was not pursued because service on the main line was uncertain and the project was unacceptable to shippers.

- An addendum to the 1981 Railplan included a study of the line. This study assessed a shippers group's proposal to rehabilitate the Milbank to Sisseton line and operate it as a short line. Study results indicated that if this was done it would benefit the shippers and the economy. The line was not rehabilitated, however, because federal funds from the Local Rail Service Assistance (LRSA) program were not available when the study was completed and the state had already reached its funding limit for the 1982 fiscal year.

South Dakota plans to apply for LRSA program funds during the 1983 fiscal year that begins October 1, 1982. The application for these funds will propose using them to rehabilitate the Milbank to Sisseton branch line. This study will support the application.

Questions or comments on this study should be addressed to:

Mr. James R. Myers
Director, Division of Railroads
South Dakota Department of Transportation
Transportation Building
Pierre, South Dakota 57501

Phone: (605) 773-3710

TABLE OF CONTENTS

Section		Page
	PREFACE	i
I	INTRODUCTION	I.1
II	MILBANK TO SISSETON LINE BENEFIT-COST ANALYSIS	II.1
	Line Description and Analysis Overview	II.1
	Benefit-Cost Analysis Procedure	II.5
	Benefit-Cost Analysis Results	II.10

LIST OF EXHIBITS

Exhibit		Page
1	South Dakota Main Line and Milbank to Sisseton Branch Line	II.2
2	Milbank to Sisseton Short Line Operation	II.4
3	Allocation of Rail Service Demand to Base Case Shipping Alternatives: Milbank to Sisseton	II.7
4	Base Case Transportation Costs: Milbank to Sisseton	II.7
5	Alternative Case Rail Service Demand: Milbank to Sisseton	II.9
6	Alternative Case Transportation Costs: Milbank to Sisseton	II.9

I. INTRODUCTION

The purpose of this study is to (a) assess the rehabilitation project that has been proposed for the Milbank to Sisseton branch line, and (b) fulfill the analytical requirements of the Local Rail Service Assistance (LRSA) program. If the Federal Railroad Administration approves South Dakota's application for LRSA program funds, the rehabilitation project will be jointly funded by the federal government and the shippers.

In 1978, The Milbank to Sisseton line was studied as part of the state's rail planning process. The line was in poor physical condition and shippers believed it would be abandonded if it was not rehabilitated. The benefits and costs of three alternatives were studied:

- abandonment;
- rehabilitation to Class II; and
- abandonment, relocation of two elevators to the Milwaukee main line, and construction of a public loading facility on the main line.

The third alternative (abandonment, relocation of two elevators, and construction of a public loading facility) had a 3.17 benefit-cost ratio, the highest of the alternatives studied. LRSA program funds were not requested for this project because continued service on the line was uncertain and because the project was unacceptable to the shippers.

In March 1982, the Milwaukee Road abandoned the portion of its main line between Ortonville, Minnesota, and Miles City, Montana. The Milwaukee's abandonment included the Milbank to Sisseton line. In April 1982 the Burlington Northern Railroad began service on the main line between Ortonville, Minnesota, and Terry, Montana, but not on the Milbank to Sisseton branch line.

A group of shippers and businessmen, interested in preserving rail service on the branch line, purchased the line and, in June 1982, began operations. The group requested state help in obtaining federal track rehabilitation funds, and a benefit-cost analysis of the proposed project was performed.

An issue that was important to the analysis was whether Sisseton line shippers would continue to enjoy a rail rate advantage over competitors located on other lines. The status of the rate advantage seemed uncertain because (a) the

Milwaukee, whose rates created the advantage, had abandoned the line, and (b) other railroads in the region could, at any time, lower their rates and eliminate the advantage. Two benefit-cost analyses were therefore performed:

- The first assumed that the advantage would be eliminated.

- The second assumed that the advantage would be preserved.

After the study was completed, the BN reduced some of its rates. This rate reduction partially eliminated the Sisseton line's rate advantage. The previous study must therefore be revised before LRSA program funds can be requested. This document presents the revised study and reviews the results of previous studies.

II. MILBANK TO SISSETON LINE BENEFIT-COST ANALYSIS

This section of the report reexamines the May 1982 benefit-cost analysis of the Milbank to Sisseton branch line and presents a new analysis based on current estimates of rehabilitation need and rail rate advantage. This section is divided into three subsections:

- Milbank to Sisseton Line Description and Analysis Overview;
- Benefit-Cost Analysis Procedure; and
- Benefit-Cost Analysis Results.

A detailed description of South Dakota's benefit-cost analysis process is contained in the May 1982 Addendum to Railplan, South Dakota, 1981.

LINE DESCRIPTION AND ANALYSIS OVERVIEW

The Milbank to Sisseton line has had a unique role in the State's transportation system. Barley shipped to malters in Minnesota and Wisconsin has been the predominant commodity moving on the line. The line was part of the Milwaukee Road's system until March 1982, and grain elevators on the line benefited from the Milwaukee's barley rates, which usually were less than those of other railroads in the area. These lower rates enabled elevators on the line to develop market areas extending far into North Dakota, South Dakota, and Minnesota.

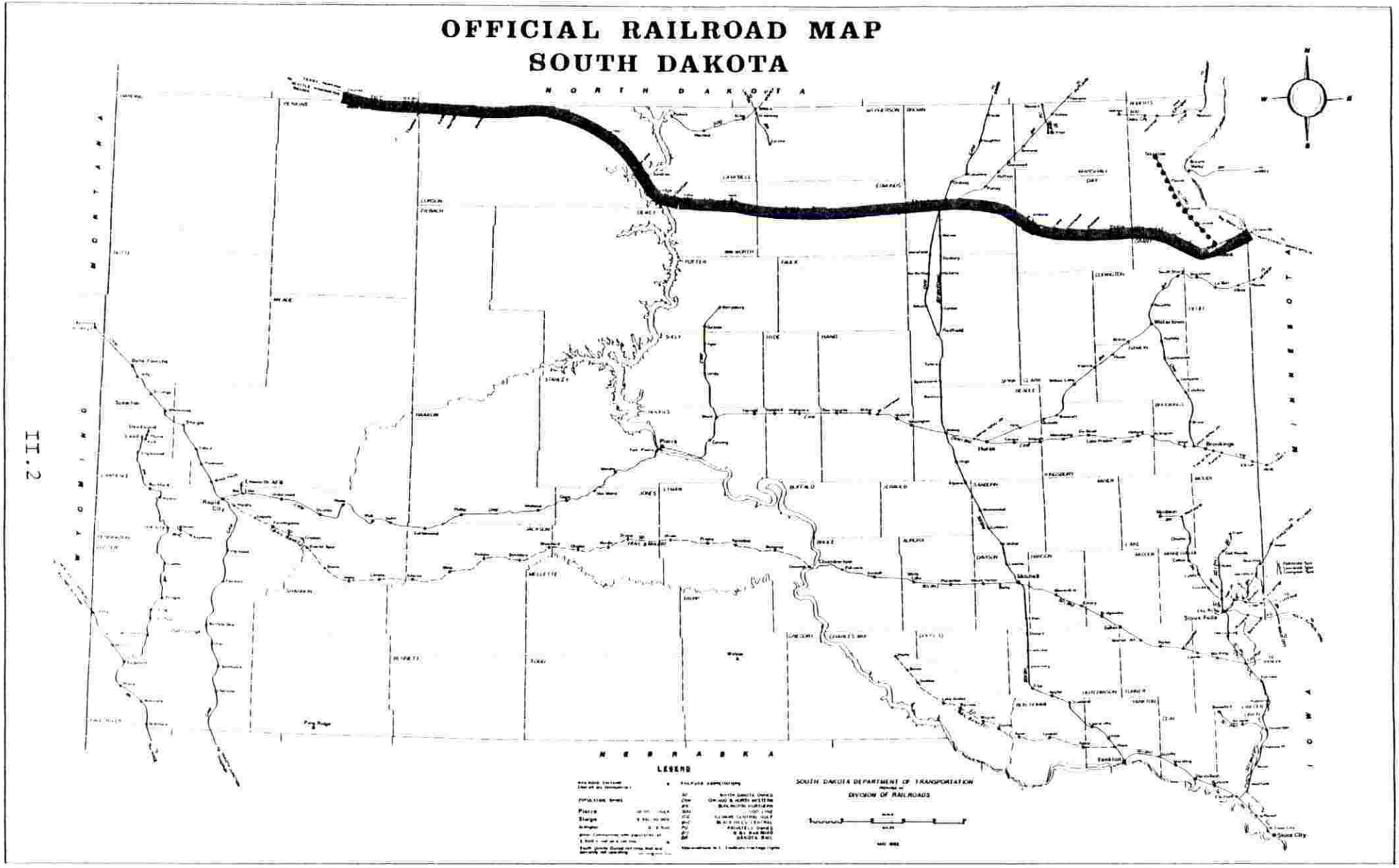
In March 1982, the Milwaukee abandoned its former main line between Ortonville, Minnesota, and Miles City, Montana. The abandonment included the Milbank to Sisseton branch line that connects to the South Dakota main line, as shown in Exhibit 1. South Dakota considered service on the main line essential to the state's economy, purchased the line, and leased it to the Burlington Northern Railroad (BN). The BN began service on the main line in April 1982 but was not interested in operating the Milbank to Sisseton branch line.

After the Milwaukee abandoned the Milbank to Sisseton branch line, it was purchased by a group of shippers and businessmen who were interested in restoring operations. A rehabilitation plan was formulated and a short line, operated by Dakota Rail, was established.

Dakota Rail, believing that Milwaukee barley rates are essential to its success, negotiated rates and an operating agreement with the Milwaukee. The negotiated rates provide for

EXHIBIT 1

SOUTH DAKOTA MAIN LINE
AND MILBANK TO SISSETON BRANCH LINE



II.2

South Dakota Main Line (Operated by Burlington Northern Railroad)

Milbank to Sisseton Line (Operated by Dakota Rail)

continuing the historic rate advantage and the operating agreement provides for interchanging traffic at Milbank. The Milwaukee had abandoned the Ortonville to Milbank segment of its main line, but negotiated with the BN for trackage rights over this segment. The agreement permits the Milwaukee to interchange traffic with Dakota Rail at Milbank. Exhibit 2 illustrates the trackage rights agreement and the Milbank to Sisseton short line operation.

Dakota Rail requested South Dakota's assistance in applying for federal rail rehabilitation funds from the Local Rail Service Assistance (LRSA) program. A benefit-cost analysis of a project to rehabilitate the track to Class I (10-mile-per-hour) standards was completed in May 1982. This analysis contained two scenarios:

1. Rail Rate Advantage Lost. This assumption is consistent with the state's benefit-cost methodology and demonstrates that rail rate policies are subject to change.

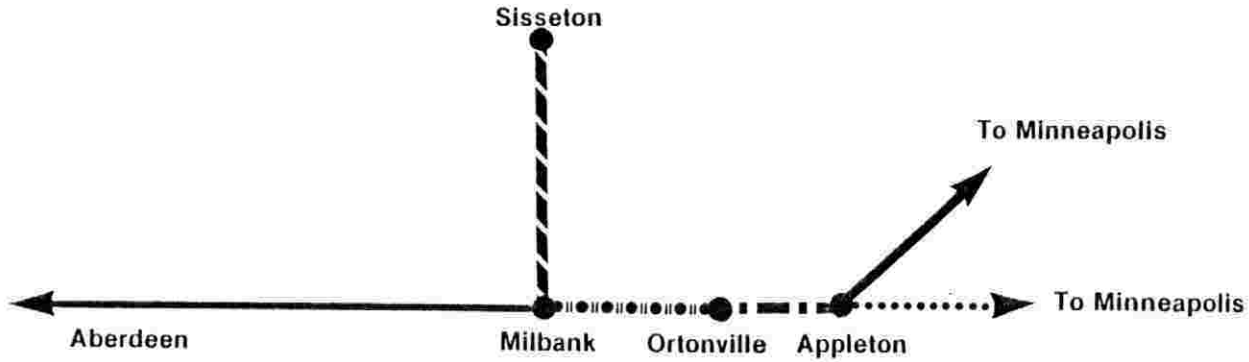
2. Rail Rate Advantage Preserved. This assumption reflects shipper belief that the differential in rail rates will continue and that the differential represents the primary economic justification for retaining service on the line.

Preparing the benefit-cost analysis under both scenarios enabled shippers, Dakota Rail, the state, and the federal government to determine the importance of the rail rate advantage to the economic potential of the line. The Federal Railroad Administration (FRA) approved the study methodology, but the state did not apply for LRSA program funds because South Dakota had reached its funding limit for fiscal 1982.

The BN recently reduced its barley rates, partially eliminating the Sisseton line's rail rate advantage. The previous benefit-cost study, containing scenarios for (a) eliminating the advantage and (b) preserving the advantage at historic levels, did not contain a scenario for (c) preserving the advantage at a reduced level. The unexpected rate reduction requires revising the analysis to consider the rate advantage at current levels.

EXHIBIT 2

MILBANK TO SISSETON SHORT LINE OPERATION



Milbank to Sisseton Short Line
Burlington Northern
Milwaukee Road
Milwaukee Road Trackage Rights over Burlington Northern
Burlington Northern Trackage Rights over Milwaukee Road

BENEFIT-COST ANALYSIS PROCEDURE

Benefit-cost analysis evaluates a proposed project by defining and comparing the economic status of the line before and after performing the project. This is accomplished by defining a base case and an alternative case.

- Base Case. The base case represents either the line's current status or its status if the project is not performed. In this study, the base case is abandonment because Dakota Rail will not be able to perform the rehabilitation necessary to sustain operations and still offer rates to shippers that will allow them to remain competitive.

- Alternative Case. The alternative case represents a projection of the line's status if the proposed project is performed. In this study, the alternative case is a Class I (10-mile-per-hour) operation of the line. Three variations of the alternative case are analyzed to reflect three possible levels of rate advantage:

  - advantage preserved at historic levels;

  - advantage preserved at current levels; and

  - advantage not preserved.

Base Case

The base case is the abandonment of the Milbank to Sisseton line. This means that unless the line is rehabilitated, operation of the line will probably be impossible. During the base case scenario we analyze traffic volumes, shipping patterns, and transportation costs to allow comparison with the alternative case.

Traffic Volume and Shipping Patterns

In the analysis, we use traffic volumes developed from Milwaukee Road data and 1980 and 1981 grain elevator shipping records to calculate an average of the two years. We then use this average as the estimate of rail service demand, which totals 215,875 tons (3,607 cars) annually.

The base case analysis, line abandonment, requires that rail traffic be diverted to other transportation options. After discussions with shippers, we developed the following options:

- truck from existing elevator to final destination;

- rail from Ortonville, Minnesota, through a new facility;

- rail from New Effington, South Dakota, through an existing facility; and

- rail from Fargo, North Dakota, through an existing facility.

Volumes allocated to each option reflect information received from shippers or projections of most likely shipper action. As shown in Exhibit 3, 90 percent of traffic demand is expected to be shipped by rail if the line is abandoned.

Transportation Costs

We develop rail transportation costs using a Rail Form A cost calculator, and motor carrier transportation costs using a truckload cost calculator. We calculate only the variable or avoidable costs of providing transportation services. Exhibit 4 illustrates the expected costs of moving Sisseton line traffic via alternative methods. The benefit-cost analysis compares these costs with the cost of operating the Sisseton line.

Alternative Case

The alternative case analysis examines the assumption of service on the branch line by a short line railroad and interchange of traffic with the Milwaukee at Milbank. This scenario, now in operation, maintains rail service and enables continued access to the Milwaukee's barley rates.

We address four issues in the alternative case analysis:

- traffic volume and shipping patterns;

- short line operating plan;

- transportation costs;

- rail rate advantage; and

- rehabilitation cost.

Traffic Volume and Shipping Pattern

We use the same traffic volume used in the alternative case analysis as the volume used in the base case analysis because in this scenario the rehabilitation project permits the Sisseton line to be operated and allows all rail service demand to be

EXHIBIT 3

ALLOCATION OF RAIL SERVICE DEMAND TO BASE CASE SHIPPING ALTERNATIVES: MILBANK TO SISSETON (TONS)

COMMODITY	TRUCK TO DESTINATION	RAIL FROM ORTONVILLE	RAIL FROM NEW EFFINGTON	RAIL FROM FARGO
Wheat	12,992	1,152	4,544	-
Rye	1,302	-	-	-
Oats	2,025	-	-	-
Corn	374	-	-	-
Soybeans	64	-	-	-
Sunflowers	672	1,428	462	-
Barley	3,780	67,909	91,080	28,091
Total	21,209	70,489	96,086	28,091

EXHIBIT 4

BASE CASE TRANSPORTATION COSTS: MILBANK TO SISSETON

	Volume (Tons)	Cost Per Ton	Total Cost
Rail	194,666	$11.69	$2,276,565
Truck	21,209	$17.90	379,744
Total	215,875		$2,656,309

met. Exhibit 5 illustrates the composition of rail service demand and shows that barley makes up 88 percent of total carloads and tons. Most destinations for this traffic are in the Minneapolis, Milwaukee, and Duluth areas.

Short Line Operating Plan

In June 1982, Dakota Rail began operating the Sisseton line on an as-needed basis. An annual average of three round trips a week will be needed to move expected traffic as long as current track conditions exist. Replacing the 60-lb rail now on the line with a minimum of 90-lb rail would permit heavier car loadings and reduce the number of trips needed to serve the forecast tonnage. Rail replacement is not planned for the near future. Dakota Rail is using covered hopper cars supplied by the Milwaukee Road and Rex Railways.

Transportation Costs

We calculated transportation costs for the on- and off-branch portion of each movement:

- On-branch costs, representing the short line operation, are developed using information provided by Dakota Rail.

- Off-branch costs, representing service provided by the Milwaukee and other railroads, are developed using a Rail Form A cost calculator.

The results, shown in Exhibit 6, indicate that alternative case costs are $297,465 higher than base case costs. This cost difference suggests that operating the Sisseton line (alternative case) is more costly than abandoning the line and providing transportation services through other methods (base case).

Rail Rate Advantage

Dakota Rail was organized with the assumption that shippers located on its line will continue to have a barley rate advantage over competitors on other lines. We therefore analyze three benefit-cost scenarios that reflect three possible rail rate developments:

- restoration of historic rail rate advantages (before BN rate reduction);

- preservation of current rail rate advantage; and

- elimination of rail rate advantage.

EXHIBIT 5

ALTERNATIVE CASE RAIL SERVICE DEMAND: MILBANK TO SISSETON

COMMODITY	CARS	TONS
Wheat	292	18,688
Rye	21	1,302
Oats	45	2,025
Corn	6	374
Soybeans	1	64
Sunflowers	61	2,562
Barley	3,181	190,860
Total	3,607	215,875

EXHIBIT 6

ALTERNATIVE CASE TRANSPORTATION COSTS: MILBANK TO SISSETON

	Volume (Tons)	Cost Per Ton	Total Cost
On-Branch Cost (Short Line)	215,875	$ 4.09	$ 883,807
Off-Branch Cost	215,875	9.59	2,069,967
Total Cost			$2,953,774

South Dakota, believing that rates should not constitute the primary basis for justifying a rail project, does not usually consider them in benefit-cost analysis. Rates are included in this study because Dakota Rail assumes that a rate advantage will continue. We analyze two levels of advantage to illustrate (a) historic advantage and (b) the present situation.

Rehabilitation Cost

Dakota Rail estimates that it will cost $1,169,744 to rehabilitate the line to Class I (10-mile-per-hour) standards. Such a rehabilitation program, which will greatly improve track conditions and eliminate deferred maintenance, will include:

- installing 28,000 used cross ties;
- resurfacing the entire line with 77,000 net tons of ballast;
- installing rail anchors on the entire line; and
- installing other track materials, as needed.

Dakota Rail is completing a maintenance program addressing the most serious problems on the line and enabling service to continue until the rehabilitation program can be performed. After rehabilitation, the line will require only annual maintenance that shippers will finance through their operating budgets.

BENEFIT-COST ANALYSIS RESULTS

We calculated the annual benefits and costs of rehabilitating the Milbank to Sisseton line, based on three scenarios:

- rail rate advantage is preserved at historic level (Summary Table 1);
- rail rate advantage is preserved at current level (Summary Table 2); and
- rail rate advantage is not preserved (Summary Table 3).

The short line is organized based on the belief that Milwaukee rates will remain lower than other railroad rates in the Sisseton market area. Summary Tables 1 and 2 illustrate the effect of rail rate advantage on the project's viability. According to the state, rate differentials should not be the

Milbank to Sisseton Benefit-Cost Analysis: Summary Table 1

- Base Case: abandonment
- Alternative Case: operate short line railroad and rehabilitate line
- Rate Assumption: rail rate advantage is preserved at historic level

TYPE OF IMPACT	RAILROAD	TRUCK	COMMUNITY SHIPPER	STATE	TOTAL
Primary Efficiency Benefits ($)	$ --	$ --	--	$ -297,465	$ -297,465
Secondary Efficiency Benefits					
Income ($)	+ 33,229	- 9,494	--	+ 23,735	+ 23,735
Highway Costs ($)	--	--	--	+ 19,747	+ 19,747
Taxes ($)	--	--	--	- 7,312	- 7,312
Net Salvage Value ($)	--	--	--	--	--
Other:					
Rail Rate Advantage	--	--	--	+993,092	+993,092
Elevator Construction	--	--	$ +259,895	+259,895	+259,895
Total Benefits ($)	$ + 33,229	$ - 9,494	$ +259,895	$ +991,692	$ +991,692
Costs ($)	--	--	--	$ +202,673	$ +202,673
Other:					
Jobs	+ 7	- 2	--	+ 5	+ 5
Energy (Gallons)	+ 30,482	-56,244	--	- 25,762	- 25,762
Air Pollution (lbs.)	+ 20,942	-38,640	--	- 17,698	- 17,698
Benefits Minus Costs					$ +789,019
Benefit/Cost Ratio					+ 4.89

STUDY LINE ANALYSIS SUMMARY	
Rehabilitation Project Cost	$ 1,169,744
Project Benefit-Cost Ratio	+ 4.89
Estimated Payback of Project	2.04 Years

The statements and projections presented above have been prepared on the basis of the information and assumptions set forth in this section. The achievement of any economic, financial, or usage forecast may be affected by fluctuating economic conditions and is dependent upon the occurrence of other future events which cannot be assured. Therefore, the actual results achieved may vary from the projections, and such variation could be material.

Milbank to Sisseton Benefit-Cost Analysis: Summary Table 2

- Base Case: abandonment
- Alternative Case: operate short line railroad and rehabilitate line
- Rate Advantage Assumption: rail rate advantage is preserved at current level

TYPE OF IMPACT	RAILROAD	TRUCK	COMMUNITY SHIPPER	STATE	TOTAL
Primary Efficiency Benefits ($)	$ --	$ --	--	$ -297,465	$ -297,465
Secondary Efficiency Benefits					
Income ($)	--	- 9,494	--	+ 23,735	+ 23,735
Highway Costs ($)	+33,229	--	--	+ 19,747	+ 19,747
Taxes ($)	--	--	--	- 7,312	- 7,312
Net Salvage Value ($)	--	--	--	--	--
Other:					
Rail Rate Advantage	--	--	--	$ +645,510	$ +645,510
Elevator Construction	--	--	$ +259,895	$ +259,895	$ +259,895
Total Benefits ($)	$ +33,229	$ - 9,494	$ +259,895	$ +644,110	$ +644,110
Costs ($)	--	--	--	$ +202,673	$ +202,673
Other:					
Jobs	+ 7	- 2	--	+ 5	+ 5
Energy (Gallons)	+30,482	-56,244	--	- 25,762	- 25,762
Air Pollution (lbs.)	+20,942	-38,640	--	- 17,698	- 17,698
Benefits Minus Costs					+441,437
Benefit/Cost Ratio					+ 3.18

STUDY LINE ANALYSIS SUMMARY	
Rehabilitation Project Cost	$ 1,169,744
Project Benefit-Cost Ratio	+ 3.18
Estimated Payback of Project	3.14 Years

The statements and projections presented above have been prepared on the basis of the information and assumptions set forth in this section. The achievement of any economic, financial, or usage forecast may be affected by fluctuating economic conditions and is dependent upon the occurrence of other future events which cannot be assured. Therefore, the actual results achieved may vary from the projections, and such variation could be material.

Milbank to Sisseton Benefit-Cost Analysis: Summary Table 3

- Base Case: abandonment
- Alternative Case: operate short line operation and rehabilitate
- Rate Assumption: rail rate advantage is not preserved

TYPE OF IMPACT	RAILROAD	TRUCK	COMMUNITY SHIPPER	STATE	TOTAL
Primary Efficiency Benefits ($)	$ --	$ --	$ --	$ -297,465	$ -297,465
Secondary Efficiency Benefits					
Income ($)	+33,229	- 9,494	--	+ 23,735	+ 23,735
Highway Costs ($)	--	--	--	+ 19,747	+ 19,747
Taxes ($)	--	--	--	- 7,312	- 7,312
Net Salvage Value ($)	--	--	--	--	--
Other:					
Rail Rate Advantage	--	--	--	--	--
Elevator Construction			$ +259,895	+259,895	+259,895
Total Benefits ($)	$ +33,229	$ - 9,494	$ +259,895	$ - 1,400	$ - 1,400
Costs ($)	--	--	--	+202,673	+202,673
Other:					
Jobs	+ 7	- 2	--	+ 5	+ 5
Energy (Gallons)	+30,482	-56,244	--	- 25,762	- 25,762
Air Pollution (lbs.)	+20,942	-38,640	--	- 17,698	- 17,698
Benefits Minus Costs					$ -204,073
Benefit/Cost Ratio					- 0.01

STUDY LINE ANALYSIS SUMMARY		
Rehabilitation Project Cost	$ 1,169,744	
Project Benefit-Cost Ratio	- 0.01	
Estimated Payback of Project	None	Years

The statements and projections presented above have been prepared on the basis of the information and assumptions set forth in this section. The achievement of any economic, financial, or usage forecast may be affected by fluctuating economic conditions and is dependent upon the occurrence of other future events which cannot be assured. Therefore, the actual results achieved may vary from the projections, and such variation could be material.

primary justification for a rail project, and Summary Table 3 illustrates the effect on the benefit-cost analysis of not considering the rate issue.

In all three scenarios, project benefits include (a) employing people on the short line railroad, (b) avoiding highway maintenance costs (caused by the truck traffic resulting from rail abandonment), and (c) avoiding relocating an elevator from Sisseton to Ortonville.