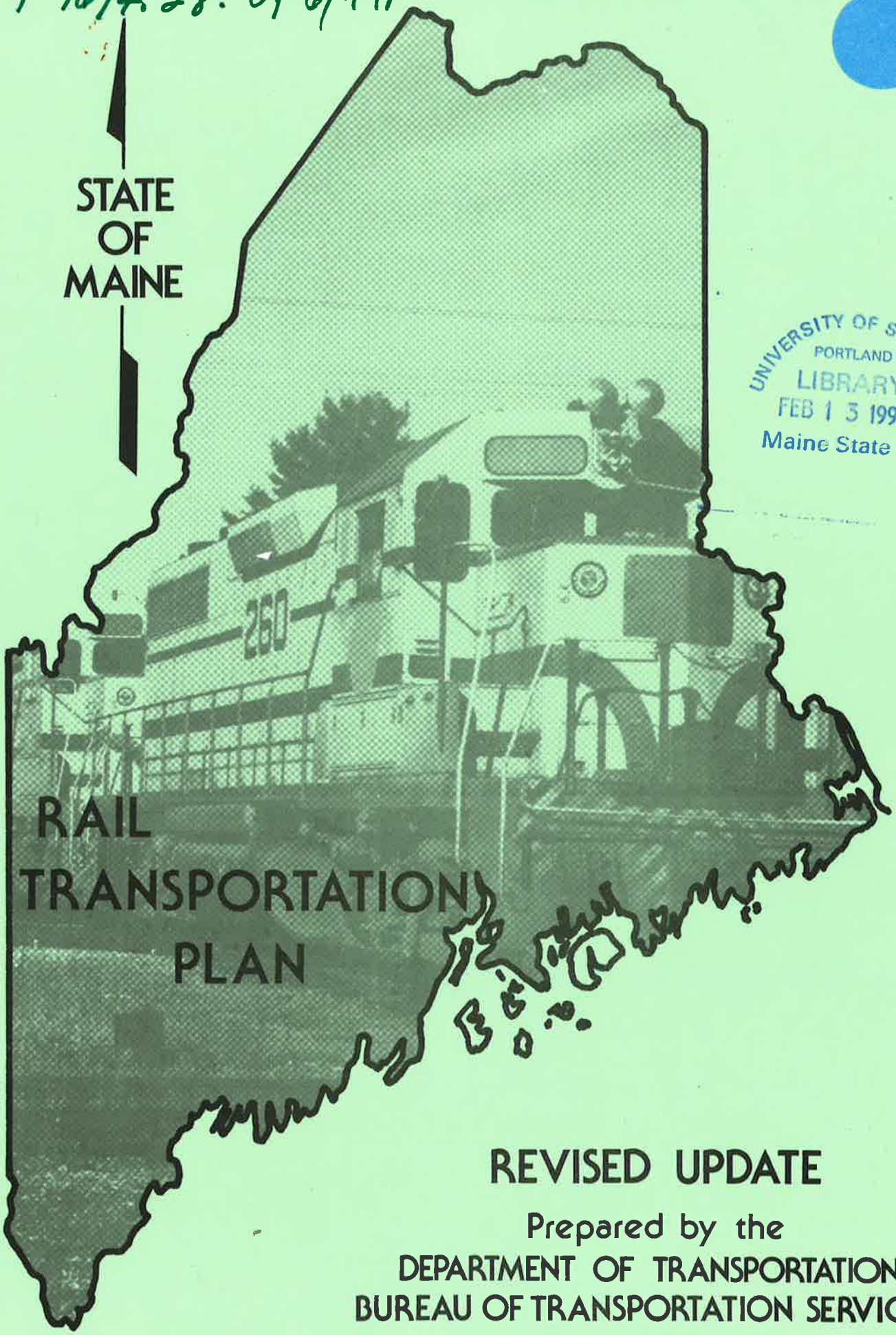
STATE OF MAINE



RAIL TRANSPORTATION PLAN

REVISED UPDATE

Prepared by the
DEPARTMENT OF TRANSPORTATION
BUREAU OF TRANSPORTATION SERVICES

1991

TABLE OF CONTENTS

LIST OF EXHIBITS AND TABLES

PREFACE

The revised update of the State of Maine Rail Transportation Plan has been developed by the Rail Transportation Division, Bureau of Transportation Services of the Maine Department of Transportation pursuant to rules and regulations promulgated in Part 266 of Title 49 of the Code of Federal Regulations.

The original State Rail Plan was submitted to the Federal Railroad Administration in two phases in 1975 and was updated in 1976, 1977, 1978, 1980 and 1986.

Because of the many changes the railroad industry has undergone during the past decade this plan has been rewritten to more accurately address current issues, problems and conditions in today's transportation market.

CHAPTER 1

The decisions which the State of Maine makes regarding the expenditure of resources on eligible rail lines will depend on the criteria which Maine has established for deciding if specific rail lines or services merit assistance and the goals of Maine for such rail services. The specific criteria and goals of the State of Maine for rail service assistance are as follows:

1. To provide and maintain an adequate railroad system in the State of Maine that is effectively linked to the regional and national system.
2. To encourage the present and future financial stability and efficiency of the railroad system to maintain and develop a balanced intermodal transportation system for the State of Maine that will adequately serve the needs of present and future industry.
3. To promote the economic efficiency and energy efficiency of transportation services.
4. To provide sufficient time for the relocation of economic activities and to minimize the social and economic impact from changes in level of service or loss of nonessential rail lines.
5. To preserve to the greatest extent possible the quality of the environment.

6. To encourage the equitable distribution of public costs for preserving essential rail service among federal, state, regional, and local jurisdictions in proportion to benefits received.
7. To develop specific projects for assistance programs that will preserve essential rail services for the present and future needs of the State.
8. To provide alternative strategies to reduce the cost of lost rail service in a manner less expensive than continuing rail service.
9. To preserve abandoned rail corridors wherever it is perceived there is a future transportation or other public use.
10. To support the implementation of programs which would reduce the financial burden to the railroads, such as:
    a. the elimination of duplicate facilities
    b. the updating and rehabilitation of all necessary rail lines to increase operating efficiency, and the advocacy of industrial development along railroad rights-of-way.
11. To continue rail transportation services in the private sector to the greatest extent possible.

CHAPTER 2

HISTORICAL CHANGES IN THE RAILROAD INDUSTRY

Until 1980 the railroad industry was regulated by the Federal government in several areas including safety and rate scheduling. With the passage of the Staggers Act in 1980 federal regulation in the key area of rates was eliminated. The freedom to set transportation rates befitting the market caused major changes in the way railroad management viewed their business options.

Rates dictated by market forces caused the railroads to adopt different strategies, two of which have had a major impact throughout the country as well as in the State of Maine. The first of these strategies is abandonments. To reduce expenditures railroads with many miles of track began to abandon those branchlines carrying light density traffic. The second strategy, an alternative to abandonment, is the sale of light density lines to other owners thus creating a shortline railroad.

Abandonments took place prior to the passage of the Staggers Act, however, of the 400 miles of track abandoned in the State of Maine since 1975,(see exhibit II-1) only 56 miles were abandoned prior to 1980. No new shortlines were created in the two decades prior to 1980 whereas two shortlines, the Saint Lawrence and

Atlantic, and the New Hampshire Northcoast Corporation, were both formed in the 1980's.

This nationwide restructuring of the railroad industry has led the Class I railroads to become primarily operators of long-haul routes, while the shortlines provide short distance haulage on what were formerly Class I branchlines.

In June 1987 the State of Maine purchased two branchlines from the Maine Central Railroad - the Rockland Branch and the Calais Branch. These two lines comprise 179 of the 400 miles of abandoned lines noted above. Through this purchase the Department of Transportation took on a whole new scope of duties and responsibilities not previously envisioned. These duties include but are not limited to maintenance, administration of all railroad right-of-way activities and attempting to bring the lines back into operation.

THE FEDERAL PROGRAM

The Federal Rail Assistance Act provided for three categories of assistance.

Planning: Funds are provided to state agencies responsible for rail planning. This funding supported the development of the original State Rail Plan, subsequent updates, and continues to fund this activity as well as other activities involving state rail planning.

Light Density Line Rehabilitation: Funds were provided for the rehabilitation of light density lines where a positive cost benefit ratio could be established for a specific project. These funds were allocated under the title of Local Rail Service Assistance (LRSA). In 1984 the State of Maine received it's last appropriation for project funds under this program. Since that time funds have been reserved for a rail project as part of the Sears Island development. That development has been delayed due to environmental battles, thus federal LRSA project monies for Sears Island have not been obligated. Until obligation occurs no further project monies will be available to the State through the LRSA program. Since 1984 certain light density lines have been selected by the operating railroad for deferred maintenance, quite often resulting in the ultimate abandonment of the line. Efforts are currently under way within Congress to reestablish the LRSA program, however, reports from the Capitol are not encouraging concerning passage of any such bill.

Operating subsidies: Under contractual arrangements with shippers receiving service on the Farmington Branch (Maine Central Railroad), operating subsidies were paid for the continuation of such service using Federal and local funds from 1978 through 1982. Subsidy for the last year of service was paid 100% by the shippers and the Franklin County Commissioners. Because of increasing costs and decreasing traffic, the shippers decided to withdraw their subsidy and the line was subsequently

abandoned in 1983. The State made no contribution to this program.

EXHIBIT II-1

ABANDONED MAINE RAIL LINES

SEPTEMBER 1, 1989

AROOSTOOK VALLEY RAILROAD

Carson - Sweden	7.20	July 1981
Presque Isle - Washburn	7.55	July 1981
Washburn - Caribou	11.48	July 1981
TOTAL	26.23	

BANGOR AND AROOSTOOK RAILROAD

LaGrange - Packard	27.96	July 1981
Houlton - Monticello	10.14	Jan 1980
Monticello - Bridgewater	10.11	May 1975
Caribou - Stockholm	13.67	Mar 1979
Stockholm - Van Buren	10.90	May 1984
Phair - Bridgewater	17.33	May 1984
Blackstone - Collins	11.66	July 1986
TOTAL	101.77	

MAINE CENTRAL RAILROAD

Brunswick - Augusta	33.60	Dec 1989
Ayers Jct - Eastport	16.58	Nov 1988
Anson - Bingham	16.00	Feb 1979
Pittsfield - Hartland	8.60	July 1983
Jay - Farmington	16.14	June 1982
Calais	.84	July 1984
*Brewer - Calais	126.92	Oct 1985
*Brunswick - Rockland	52.12	Oct 1985
Cobbosseecontee	1.15	Jan 1985
TOTAL	271.95	

CANADIAN ATLANTIC RAILWAY

Houlton - Canadian Border	3.03	Oct 1988
Presque Isle - Canadian Border	29.18	Nov 1988
TOTAL	32.21	

CANADIAN NATIONAL RAILWAY

Portland	2.18	Aug 1988

CHAPTER 3

STATUS OF MAINE RAILROADS

I. AROOSTOOK VALLEY RAILROAD

The Aroostook Valley Railroad (AVR) is a Class III (terminal or short-line) railroad operating entirely within the boundaries of the City of Presque Isle, Aroostook County. AVR interchanges with Bangor And Aroostook Railroad to transload any outgoing and incoming traffic which it handles. The railroad currently operates over 5.00 miles of track

II. BANGOR AND AROOSTOOK RAILROAD

The Bangor and Aroostook Railroad (BAR) is a Class II (regional) railroad servicing the northern half of the state over 434.66 miles of track. BAR's major customers are paper companies located in such diverse communities as Madawaska and Millinocket. BAR interchanges with Canadian Atlantic Railway at Brownville Junction, with Springfield Terminal Railway at Northern Maine Junction, and terminates at a rail/water intermodal facility in Searsport.

The Department continues to hold long-term leases with BAR on several of their lines in Aroostook County, including the following:

Houlton - Monticello	16.55 miles
Bridgewater - Phair	17.31 miles
Collins Siding - Van Buren	10.90 miles
Caribou - Stockholm	13.67 miles
Blackstone Siding - Stockholm	11.66 miles

The Department issues conditional use permits to the Department of Conservation, who manage the property with the goal in mind of providing trails for off-road vehicle users.

III. BELFAST AND MOOSEHEAD LAKE RAILROAD

The Belfast and Moosehead Lake Railroad (BML) is a Class III (shortline) carrier operating entirely within Waldo County between it's termini at Burnham Junction and the City of Belfast. BML is a publicly held corporation, control resting with the City of Belfast. With the closing of the Penobscot poultry processing plant in 1982 the BML freight operation over it's 33 mile track has decreased to negligible levels. From tonnage hauls in excess of 100,000 in 1985 the railroad operation moved only slightly more than 12,000 tons in 1988. Recent years have seen the BML introduce and expand a passenger excursion operation during the summer months and the fall foliage season. The railroad continues to actively seek new freight business.

BML and MDOT entered into an agreement on September 28, 1988, under which MDOT made a lump sum payment of $50,000.00 for maintenance and inspections performed by BML personnel on rail lines owned and operated by both BML and MDOT.

IV. CANADIAN ATLANTIC RAILWAY

The Canadian Atlantic Railway (CAR) is a recently formed subsidiary of Canadian Pacific Limited, a Class I railroad based in Toronto, Ontario. CAR head offices are located in St. John, New Brunswick. CAR trains operate across 201.25 miles of track stretching from Vanceboro in the east, westerly to Jackman and then into the Province of Quebec. Currently this line is the only railroad operating continuous passenger service (provided by VIA-Rail of Canada) in the State of Maine. This passenger service accommodates predominantly Canadian customers travelling between the Atlantic Provinces and Montreal, Quebec.

Completed in 1888 the Canadian Atlantic Railway continues to be an important economic factor in the northern midsection of the State, maintaining a strong presence in Brownville Junction and the surrounding environs. The company preserves a strong commitment to investing capital back into their fixed assets within our borders.

V. GUILFORD TRANSPORTATION INDUSTRIES

Guilford Transportation Industries (GTI) is the parent of three railroad companies that function within the State of Maine: Boston and Maine Railroad, owners of the railroad right-of-way from the New Hampshire border to Portland; Maine Central Railroad, owners of railroad rights-of-way north of Portland; and Springfield Terminal Railway, the operator for all the above mentioned rights-of-way.

After labor troubles leading to strikes in 1985 and 1987, GTI management signed a six year contract with labor early in 1989 thereby alleviating a major problem with the railroad's operating stance. Relieved of that problem, the railroad has been able to concentrate on operating a profitable rail system. During the summer of 1989 the railroad conducted an aggressive tie replacement program between Bangor and Mattawamkeag, and also in the area of Wells. GTI also purchased a rail welding plant that is to be set up in Massachusetts and will serve the entire GTI rail system.

Since 1987, when the State of Maine purchased 179 miles of right-of-way from GTI, the company has carried on a divestiture program designed to create a sleek operating railroad. The following lines have been placed in Interstate Commerce

Commission (ICC) category 1 (lines under consideration for abandonment within three years);

1. Mountain Division (Fryeburg to Portland)
2. Foxcroft Branch (Newport to Dover-Foxcroft)
3. Lewiston Lower Road (Lisbon to Lewiston)

These lines, along with the recently abandoned Lower Road (Brunswick to Augusta), are the centerpiece of ongoing negotiations between GTI and MDOT for purchase by the latter.

VI. NEW HAMPSHIRE NORTHCOAST CORPORATION

New Hampshire Northcoast Corporation (NHN) operates the former Boston and Maine Conway Branch between Ossipee, N.H. and Rochester, N.H. consisting of the 30.7 miles of track of which only 0.33 miles lie within the State of Maine. NHN began operations on the line in May, 1986.

VII. SAINT LAWRENCE AND ATLANTIC RAILROAD COMPANY

The Saint Lawrence and Atlantic Railroad Company (SLR), a subsidiary of Emons Holdings, Inc. acquired the Grand Trunk Eastern Line from Canadian National Railway in May, 1989. The trackage runs from Portland, Maine through Lewiston, South Paris and Gilead, Maine across New Hampshire and into Norton, Vermont.

Emons Holdings is a transportation services company headquartered in York, Pennsylvania that has two primary business groups; the Transportation Equipment Services Group which manages, leases, brokers, and repairs transportation equipment;

and the Railroad Group which operates short-line railroads. The other railroad owned and managed by Emons is the Maryland and Pennsylvania Railroad.

VIII. STATE OF MAINE DEPARTMENT OF TRANSPORTATION

Two branch lines, the Calais Branch and the Rockland Branch, formerly owned and operated by Maine Central Railroad, were acquired by the State of Maine Department of Transportation (MDOT) in June, 1987. The Calais Branch stretches 126.08 miles from Brewer to Calais and the Rockland Branch stretches 51.76 miles from Brunswick to Rockland.

At the time of this purchase MDOT also executed an agreement with GTI whereby MDOT retained the right of first refusal to purchase any railroad rights-of-way which GTI offers for sale in the future. The term of this agreement is 99 years.

Future initiatives on these branchlines by MDOT are discussed in Chapter V of this Rail Plan.

CHAPTER 4

MAPS AND MAP DESCRIPTIONS

RAIL-HIGHWAY SYSTEMS MAP

Past Rail Plans have contained a 1979 version of the State of Maine Rail-Highway Systems Map, which has been updated to a contemporary 1989, 24 inch by 34 inch multicolored map. Exhibit IV-1 is a scaled down black and white version of the larger map. The map displays the relative relationship between the rail system and major highways within the State of Maine and includes an identification of each line by carrier, branchline names and principal junctions.

Copies of both the large and small versions of this map are available and may be obtained upon request from:

Rail Transportation Division
Maine Department of Transportation
State House Station #16
Augusta, Maine 04333

LINES WHERE THE STATE ANTICIPATES PUBLIC ACTION

Exhibit IV-2, Lines Where State Anticipates Public Action, is a Maine Rail System Map depicting branchlines or sections of mainlines on which the State of Maine anticipates public action to occur. Such public action may be in the form of a State lease or acquisition, local subsidy or combination thereof.

Descriptions of the anticipated actions are contained in Chapter 5 of this Rail Plan.

ICC SYSTEMS DIAGRAM MAP

Exhibit IV-3, ICC Systems Diagram Map, depicts those lines in the State of Maine which have been identified by Maine carriers on their amended System Diagram Maps as filed with the Interstate Commerce Commission pursuant to Title 49, CFR Part 1152.13.

49 CFR Part 1152.10 (b) states; "All lines in each carrier's rail system shall be separated into the following categories."

Category 1 - All lines or portions of lines which the carrier anticipates will be the subject of an abandonment to be filed within the three year period following the date upon which the diagram, or any amended diagram, is filed with the commission.

Category 2 - All lines or portions of lines potentially subject to abandonment are those which the carrier has under study and believes may be the subject of a future abandonment application because of either anticipated operating losses or excessive rehabilitation costs, as compared to potential revenues.

Category 3 - All lines or portion of lines for which an abandonment or discontinuance application is pending before the Commission on the date upon which the diagram or amended diagram, is filed with the Commission.

Category 4 - All lines or portions of lines which are being operated under the rail service continuation provisions of 49 U.S.C. 10905 or of section 304(c)(2) of the Regional Rail Reorganization Act of 1973, as amended, on the date upon which the diagram, or any amended diagram is filed with the Commission.

Category 5 - All other lines or portions of lines which the carrier owns and operates, directly or indirectly.

Table IV-1, Lines within the State of Maine in Categories 1 - 4 on 1983 System Diagram Map lists lines in each category by carrier and mileage.

D. Functional Classification Map

Rail lines in the State of Maine are categorized according to the United States Secretary of Transportation's report "Final Standards, Classifications, and Designation of Class I Railroads in the United States".

All railroads in the State of Maine are classified as follows:

A Main Line - 20 million or more gross tons annually
B Main Line - 5 to 20 million gross tons
A Branch Line - 1 to 5 million gross tons
B Branch Line - less than 1 million gross tons.

The A Main Line designation also serves a market of 75,000 carloads annually and is designated essential for national defense. Exhibit IV-4 shows the Functional Classification Map.

E. Areas of Military Importance

Exhibit IV-5, Areas of Military Importance, indicates the location of the major military installations in the State of Maine and other points of military interest. Of the nine military installations in the State of Maine, three are served directly by Maine carriers who have sidings into the

installation. The Bangor & Aroostook Railroad serves Loring Air Force Base located in Limestone, Maine in Aroostook County via its Limestone Branch. The Maine Central Railroad serves the Brunswick Naval Air Station with a siding off its Rockland Branch.[1] The Boston & Maine Railroad serves the Portsmouth-Kittery Naval Shipyard via a siding off its Portsmouth Branch.

Cutler Naval Communication Unit, the Bucks Harbor Air Force Station, and the Winter Harbor Naval Security Group can all be served via the State owned Calais Branch.[2] Caswell Air Force Station can be served by the Bangor & Aroostook's Limestone Branch. Charleston Air Force Station can be served by the Maine Central via its Foxcroft Branch.[3] South Portland Coast Guard Station can be served either by the Maine Central Railroad or Boston & Maine Railroad.

Of the other points of military interest, Bangor International Airport is served directly by the Maine Central Railroad with a siding into the Airport. The Port of Searsport is served by the Bangor & Aroostook Railroad. The Port of Portland and Greater Portland Jetport may be served by the Maine Central, and the Boston & Maine. Bath Iron Works is served by

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1 The Route 24 crossing of this siding is currently (1/1/90) not in place.

2 This branchline has not been in service since 1985, however the tracks are still in place.

3 The Foxcroft Branch has been out of service since 1985, however the tracks are still in place.

the State owned Rockland Branch. The Communications Satellite Station in Andover may be served by the Maine Central via its Rumford Branch or the Saint Lawrence & Atlantic via its main line.

Also included in Exhibit IV-4 are those lines within Maine designated as important to national defense. Section 811 of Public Law 96-418 requires the Secretary of Defense to analyze rail lines important to national defense. These rail lines are comprised of main lines designated for the Strategic Rail Corridor Network (STRACNET) and connectors between these lines and defense installations. This is a nationwide system of 32,500 miles of main line track that was evaluated for condition, clearance, weight limits, and service to important military and civilian installations.

In the State of Maine there are 249 miles designated as STRACNET and 279 as connectors.

F. General Clearance Categories

Plate C is a Railroad Clearance Diagram published by the Association of American Railroads. This diagram defines an envelope of dimensions within which cars (or lading) must fit if they are to be moved in general interchange service on railroads in the U.S. and Canada. Although some stretches of railroad have higher clearances than provided in this diagram, Plate C dimensions are designed to allow clearance over at least 95% of all railroad mileage.

As shown in Exhibit IV-5, Plate C Equipment Diagram, cars can be a maximum width of 10 feet 8 inches up to a height of 14 feet 2 inches above the rail. The envelope then tapers into a maximum overall width of 7 feet at a height of 15 feet 6 inches. All lines in Maine can handle Plate C cars with the exception of the Saint Lawrence and Atlantic between Portland and Yarmouth.

Special equipment cars such as trailer-on-flat-car (TOFC) equipment as well as auto parts and auto rack cars require vertical clearances in the 16-17 foot range. While such equipment is higher than Plate C, it does not normally fall into the "high and wide" category.

Typically, "high and wide" shipments, in addition to exceeding Plate C clearances require special handling or restricted speed service and are moved under special tariffs which reimburse the carriers for the specific costs incurred because of special handling. Shippers of "high and wide" traffic such as large electrical generators, air separation plants, certain military equipment, etc. usually work with the carriers in advance of shipment to plan a precise route and identify the restrictions to be encountered. Routes selected will depend on the precise dimensions and weight of each shipment.

For rail planning purposes, it is important to recognize and consider the role which certain line segments may play in the through movement of over-dimension loads. Exhibit IV-6 displays routes in Maine by General Clearance Categories. This map is not

intended to depict detailed clearance data which would, if displayed, show all true clearance limits. The clearances shown can be affected by curvature, truck centers, and overall car length.

Exhibit IV-6 shows that clearance of 17 feet or more in height and width of at least 10 feet 8 inches exist on most main line and many branch segments in Maine. The Maine Central Railroad's main lines between Portland and Bangor have a general clearance of 16 feet 6 inches high and 11 feet wide. The best clearance access into Portland is via the Maine Central's Mountain Division (Portland to St. Johnsbury,Vermont).

From the north, the Canadian Atlantic and the Bangor & Aroostook provide very good clearance routes into Maine points. The most restrictive line segment in Maine is on the Saint Lawrence & Atlantic between Yarmouth and Portland where one bridge will not clear Plate C cars.

EXHIBIT IV-1

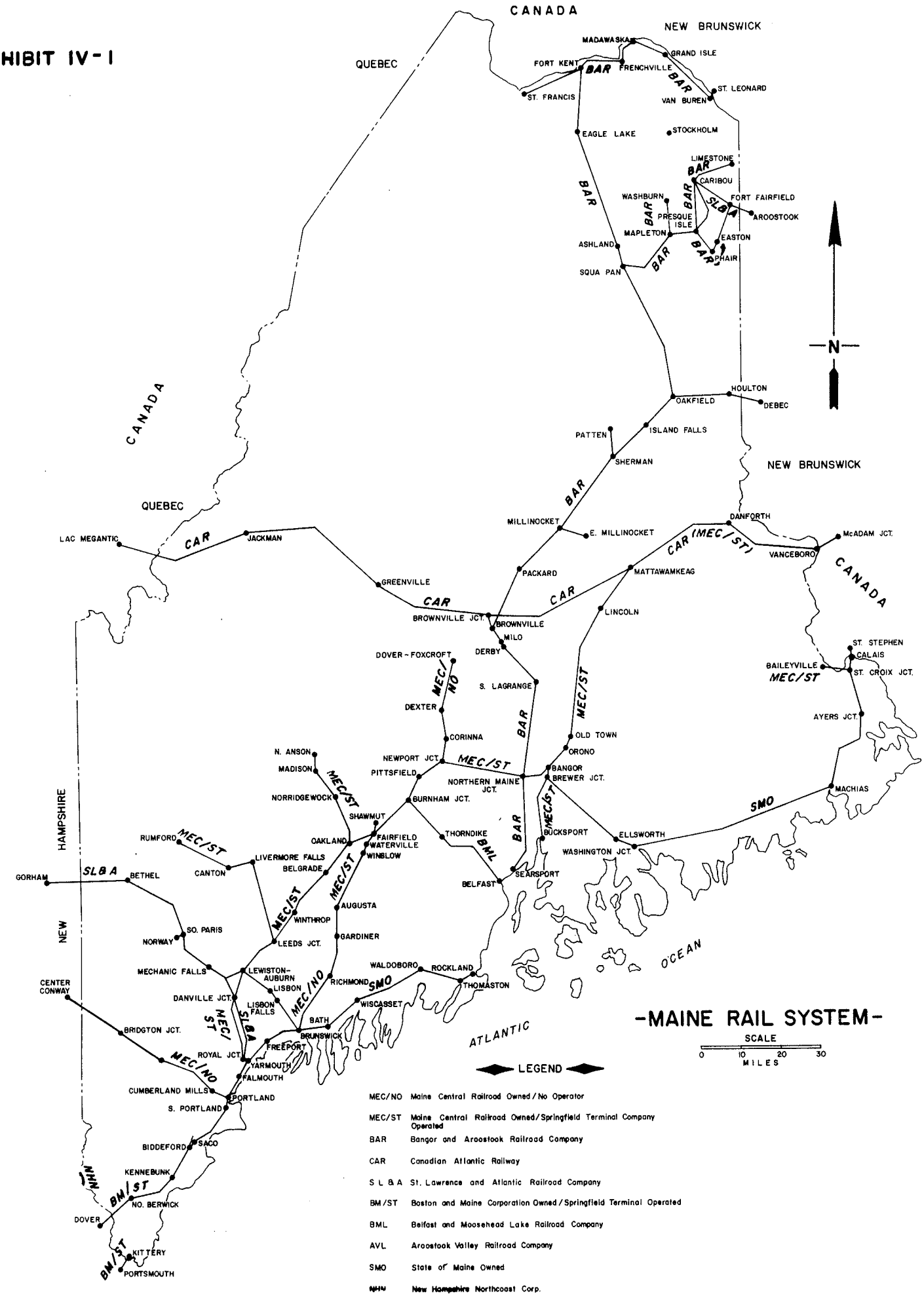

CANADA
NEW BRUNSWICK
QUEBEC
MADAWASKA
GRAND ISLE
FORT KENT
BAR
FRENCHVILLE
BAR
ST. LEONARD
ST. FRANCIS
VAN BUREN
EAGLE LAKE
STOCKHOLM
LIMESTONE
BAR
CARIBOU
BAR
BAR
WASHBURN
BAR
SLB A
FORT FAIRFIELD
PRESQUE ISLE
AROOSTOOK
MAPLETON
EASTON
ASHLAND
BAR
BAR
PHAIR
SQUA PAN
N
CANADA
HOULTON
OAKFIELD
DEBEC
PATTEN
ISLAND FALLS
SHERMAN
NEW BRUNSWICK
QUEBEC
BAR
MILLINOCKET
E. MILLINOCKET
DANFORTH
LAC MEGANTIC
CAR
JACKMAN
CAR (MEC/ST)
McADAM JCT.
VANCEBORO
CANADA
GREENVILLE
PACKARD
MATTAWAMKEAG
CAR
CAR
BROWNVILLE JCT.
BROWNVILLE
LINCOLN
MILO
ST. STEPHEN
CALAIS
DOVER-FOXCROFT
DERBY
BAILEYVILLE
MEC/ST
ST. CROIX JCT.
MEC/NO
S. LAGRANGE
MEC/ST
DEXTER
BAR
AYERS JCT.
CORINNA
OLD TOWN
N. ANSON
NEWPORT JCT.
MEC/ST
ORONO
MADISON
PITTSFIELD
BANGOR
NORTHERN MAINE JCT.
BREWER JCT.
MEC/ST
NORRIDGEWOCK
BURNHAM JCT.
MACHIAS
SHAWMUT
MEC/ST
SMO
HAMPSHIRE
RUMFORD
MEC/ST
OAKLAND
FAIRFIELD
WATERVILLE
THORNDIKE
BML
BAR
BUCKSPORT
ELLSWORTH
WASHINGTON JCT.
LIVERMORE FALLS
WINSLOW
BELGRADE
GORHAM
SLB A
BETHEL
CANTON
MEC/ST
MEC/ST
BELFAST
SEARSPORT
AUGUSTA
MEC/ST
WINTHROP
NEW
SO. PARIS
NORWAY
LEEDS JCT.
GARDINER
MECHANIC FALLS
LEWISTON-AUBURN
WALDOBORO
ROCKLAND
OCEAN
CENTER CONWAY
LISBON
RICHMOND
SMO
THOMASTON
DANVILLE JCT.
LISBON FALLS
MEC/NO
WISCASSET
NEC/ST
SLB A
BATH
BRIDGTON JCT.
BRUNSWICK
FREEPORT
ATLANTIC
ROYAL JCT.
MEC/NO
YARMOUTH
FALMOUTH
CUMBERLAND MILLS
PORTLAND
S. PORTLAND
BIDDEFORD
SACO
NHN
KENNEBUNK
BM/ST
NO. BERWICK
DOVER
BM/ST
KITTERY
PORTSMOUTH
-MAINE RAIL SYSTEM-
SCALE
0 10 20 30
MILES
LEGEND
MEC/NO Maine Central Railroad Owned/No Operator
MEC/ST Maine Central Railroad Owned/Springfield Terminal Company Operated
BAR Bangor and Aroostook Railroad Company
CAR Canadian Atlantic Railway
S L & A St. Lawrence and Atlantic Railroad Company
BM/ST Boston and Maine Corporation Owned/Springfield Terminal Operated
BML Belfast and Moosehead Lake Railroad Company
AVL Aroostook Valley Railroad Company
SMO State of Maine Owned
NHN New Hampshire Northcoast Corp.

EXHIBIT IV-2

LINES WHERE STATE
ITICIPATES
JBLIC ACTION

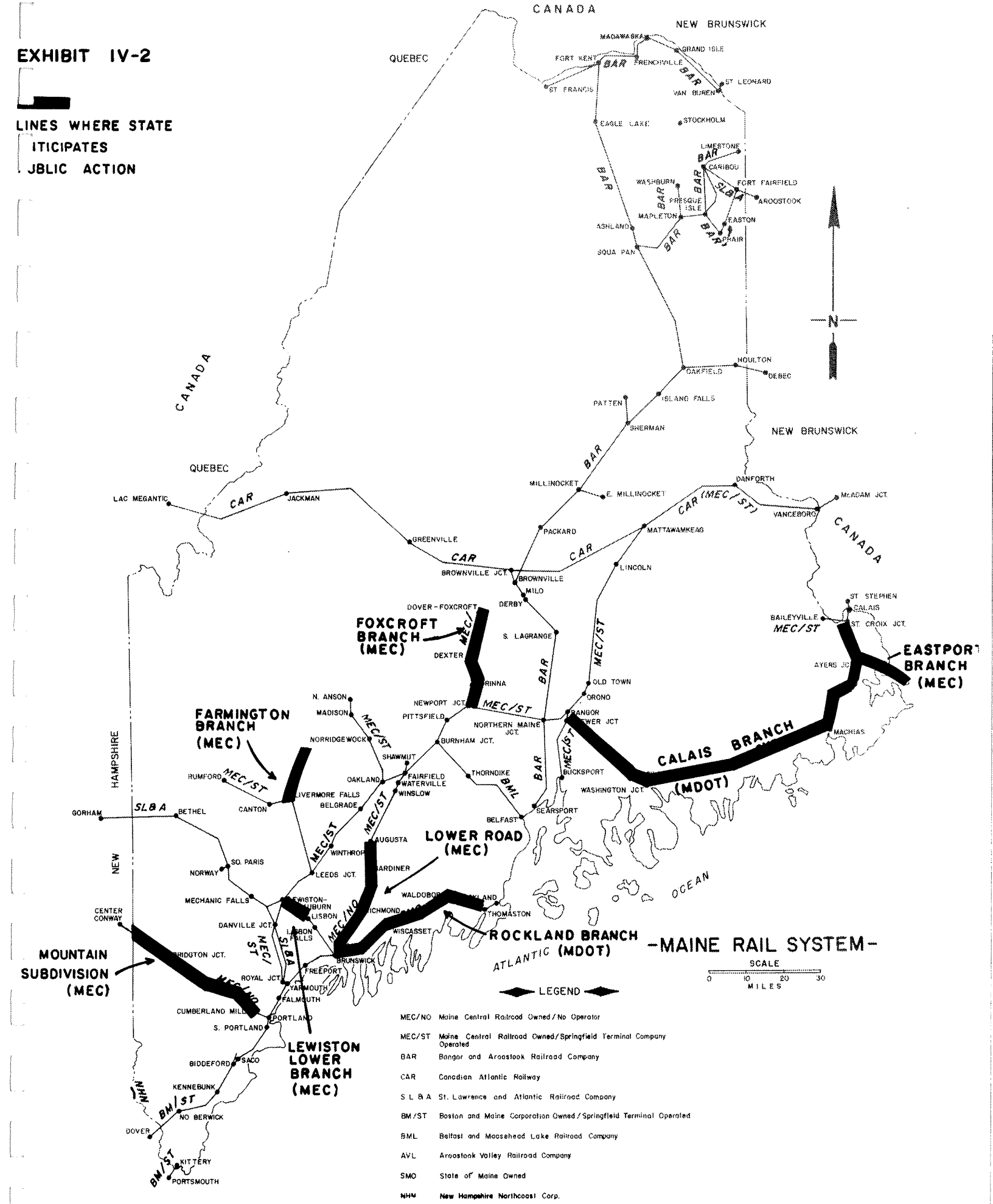
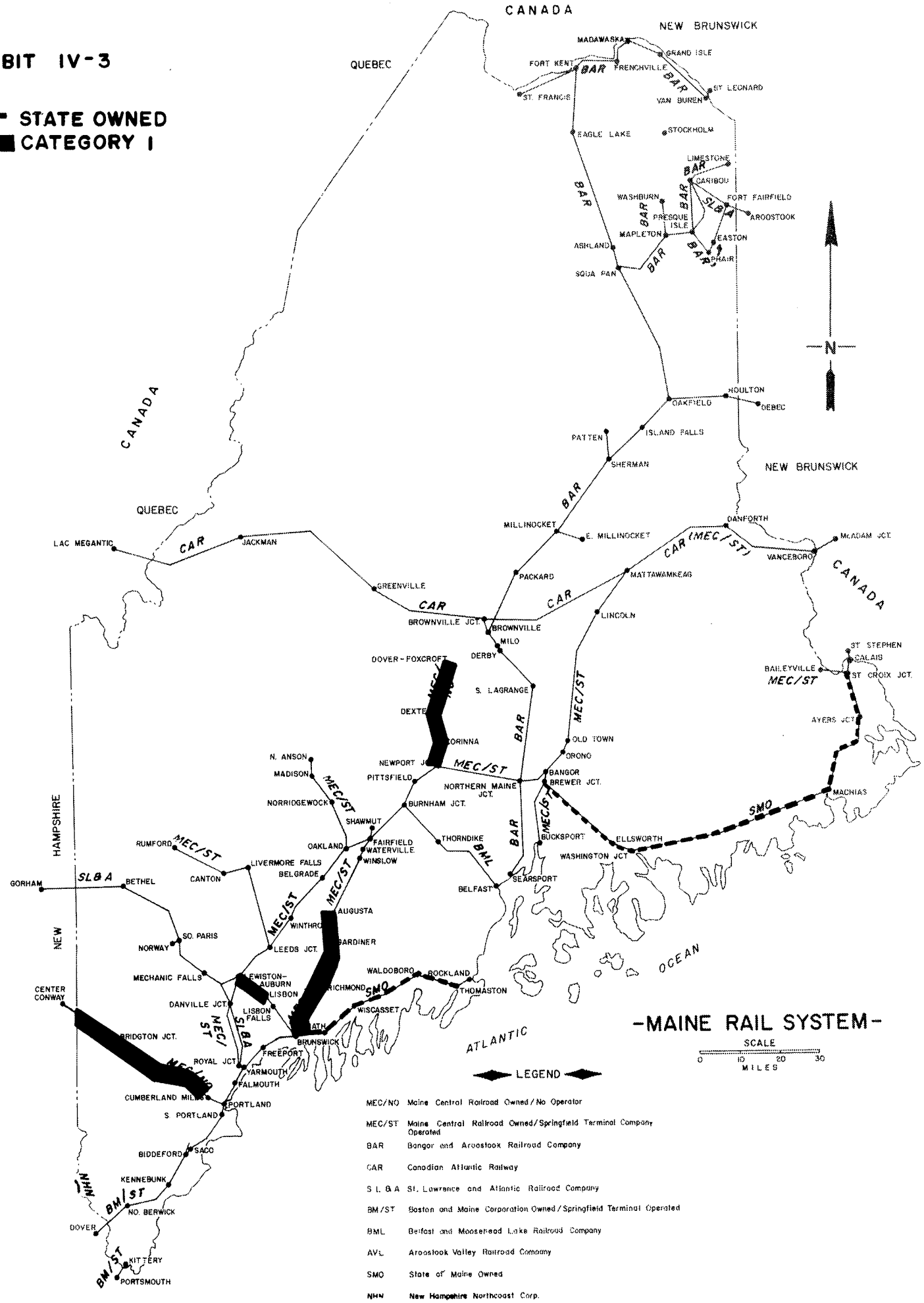


EXHIBIT IV-3

--- STATE OWNED
CATEGORY I



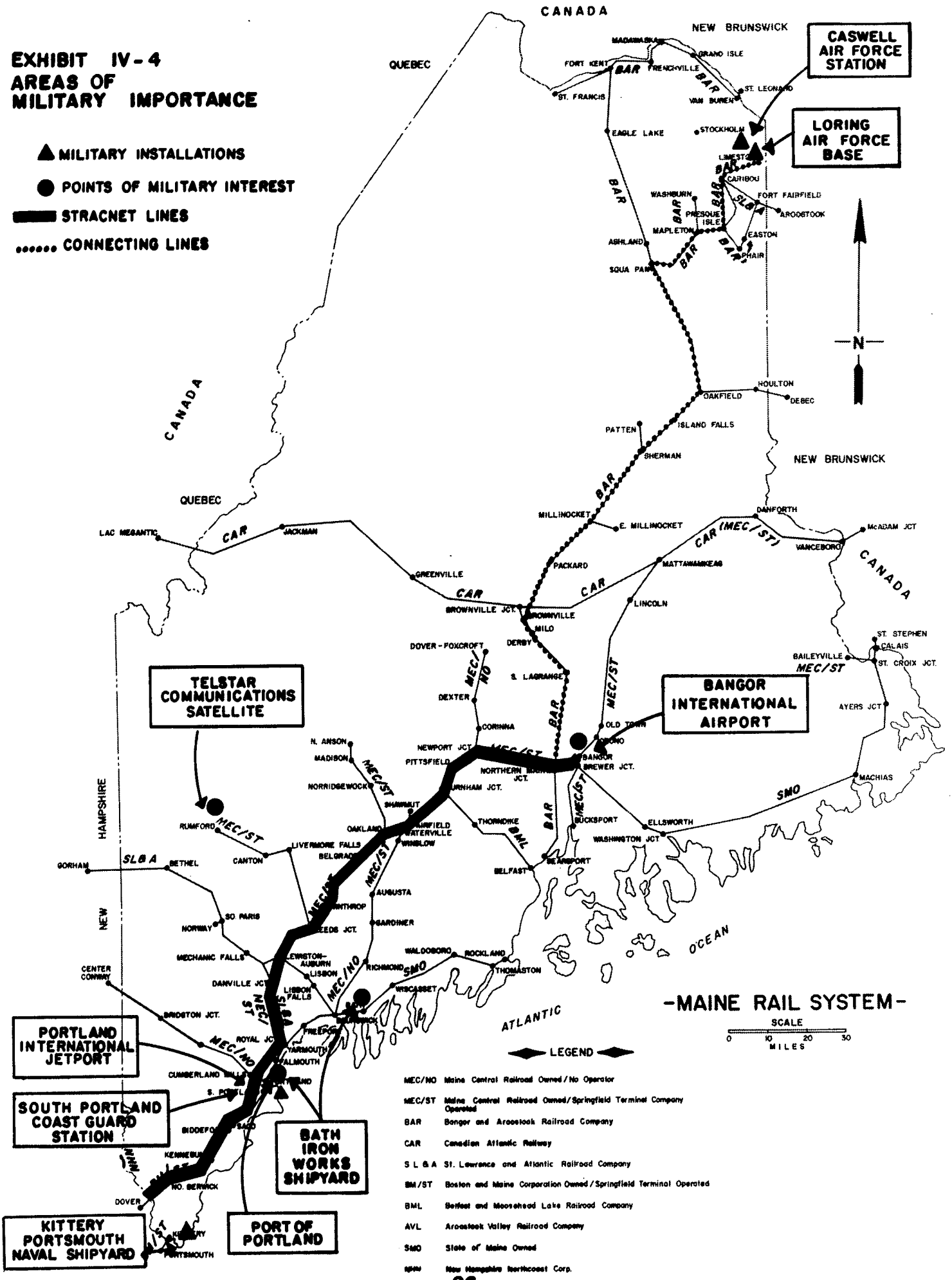
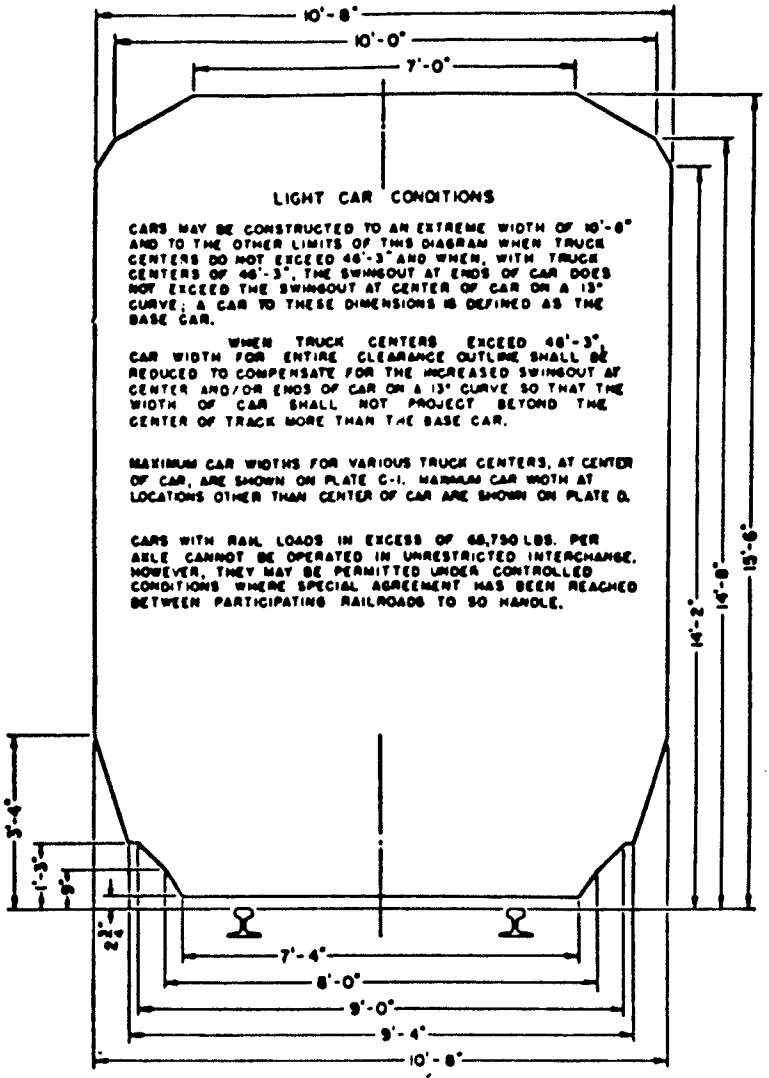


EXHIBIT IV-4
AREAS OF
MILITARY IMPORTANCE
MILITARY INSTALLATIONS
POINTS OF MILITARY INTEREST
STRACNET LINES
CONNECTING LINES
CANADA
NEW BRUNSWICK
QUEBEC
CASWELL AIR FORCE STATION
LORING AIR FORCE BASE
TELSTAR COMMUNICATIONS SATELLITE
BANGOR INTERNATIONAL AIRPORT
PORTLAND INTERNATIONAL JETPORT
SOUTH PORTLAND COAST GUARD STATION
BATH IRON WORKS SHIPYARD
PORT OF PORTLAND
KITTERY PORTSMOUTH NAVAL SHIPYARD
-MAINE RAIL SYSTEM-
SCALE
0 10 20 30
MILES
LEGEND
MEC/NO Maine Central Railroad Owned / No Operator
MEC/ST Maine Central Railroad Owned/Springfield Terminal Company Operated
BAR Bangor and Aroostook Railroad Company
CAR Canadian Atlantic Railway
S L & A St. Lawrence and Atlantic Railroad Company
BM/ST Boston and Maine Corporation Owned / Springfield Terminal Operated
BML Bethel and Moosehead Lake Railroad Company
AVL Aroostook Valley Railroad Company
SMO State of Maine Owned
NHN New Hampshire Northcoast Corp.

Exhibit IV-5

UNRESTRICTED ON ALL ROADS EXCEPT ON CERTAIN ROUTES OF THOSE ROADS SHOWN BELOW. FOR SPECIFIC RESTRICTED AREAS ON SUCH ROADS SEE "RAILWAY LINE CLEARANCES"



THE 2-3/4" ABOVE TOP OF RAIL IS ABSOLUTE MINIMUM UNDER ANY AND ALL CONDITIONS OF LADING, OPERATION, AND MAINTENANCE.

EQUIPMENT DIAGRAM
FOR LIMITED INTERCHANGE SERVICE
(WILL CLEAR OVER 95% OF TOTAL MILEAGE)
STANDARD
ADOPTED, 1963: REVISED, 1965, 1966, 1967
ASSOCIATION OF AMERICAN RAILROADS
MECHANICAL DIVISION
DATE: MARCH 1, 1968 | PLATE C

EXHIBIT IV-6

GENERAL CLEARANCE CATEGORIES

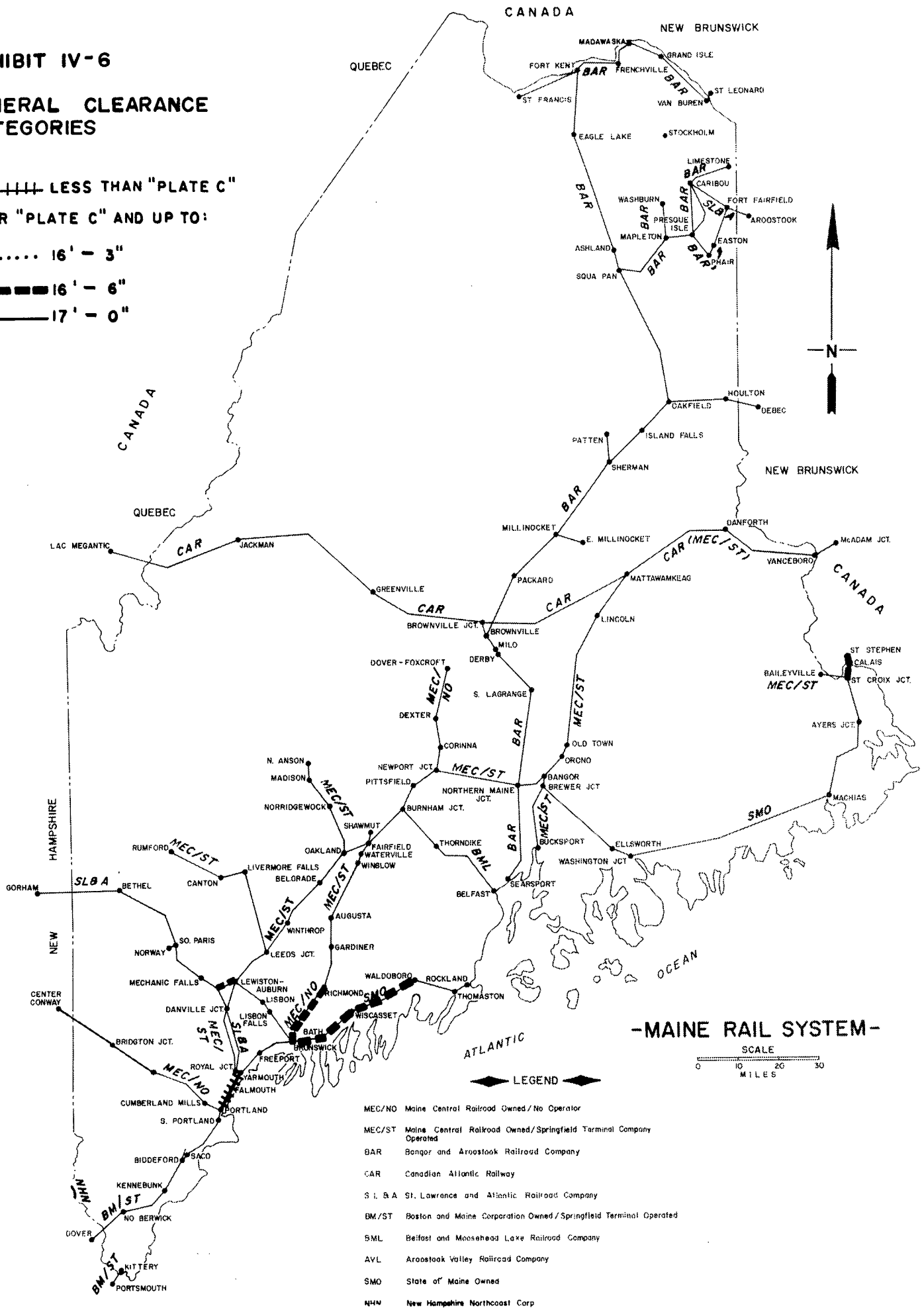
LESS THAN "PLATE C"

OVER "PLATE C" AND UP TO:

16' – 3"

16' – 6"

17' – 0"



-MAINE RAIL SYSTEM-

SCALE

0 10 20 30

MILES

LEGEND

MEC/NO	Maine Central Railroad Owned / No Operator
MEC/ST	Maine Central Railroad Owned/Springfield Terminal Company Operated
BAR	Bangor and Aroostook Railroad Company
CAR	Canadian Atlantic Railway
S L B & A	St. Lawrence and Atlantic Railroad Company
BM/ST	Boston and Maine Corporation Owned / Springfield Terminal Operated
BML	Belfast and Moosehead Lake Railroad Company
AVL	Aroostook Valley Railroad Company
SMO	State of Maine Owned
NHN	New Hampshire Northcoast Corp

CHAPTER V

FUTURE PROJECTS

With the absence of Federal funding through the Local Rail Service Assistance program, the State of Maine cannot participate in any rehabilitation projects on lines owned by private carriers. However, the State of Maine Department of Transportation does intend to fund a rehabilitation project on the State owned Rockland Branch line. Reestablishment of service on this branchline is scheduled for the summer of 1990 through an operating agreement with a private railroad corporation.

As envisioned, freight services will be provided along the entire 52 mile branch, having interline connections with Springfield Terminal Railroad in Brunswick, Maine. Operations will also include commuter services into and out of the City of Bath.

The State intends to partially fund the rehabilitation by using funds remaining from past Local Rail Service Assistance grants for both planning and projects. Following is a benefit -cost analysis supporting the use of those available funds.

Rockland Branch Benefit-Cost Analysis

This section presents calculations of benefit-cost ratios under alternative assumptions for the proposed rehabilitation of the 51.76 mile State of Maine owned Rockland Branch Rail Line. The Maine Department of Transportation seeks to partially fund rehabilitation through use of monies previously granted under LRSA programs, dating back to 1979.

As of January 1, 1990 the Rockland Branch was inactive and had been so since February 1986. The State of Maine anticipates reinstitution of rail service, both freight and passenger, during the summer of 1990. Passenger service will entail the movement of commuters into and out of the City of Bath from both an easterly and westerly direction. These movements will be conducted Monday through Friday into Bath in the morning and exiting Bath in the late afternoon. Freight service will be provided along the entire branch with any necessary interchanges occurring with Springfield Terminal Railway at the Brunswick terminus.

The Department anticipates rehabilitating the line to FRA Class II standards over the area on which passenger service will be provided, from Brunswick to Wiscasset, approximately 14 miles. The remaining track will be rehabilitated to FRA Class I standards. Introduction of rail passenger service will provide external benefits which cannot readily be converted into monetary values. These benefits include reduction of atmospheric

pollution and gasoline consumption through reduction of vehicles on the highways, reduction of U.S. Route 1 congestion, especially at the Carlton Bridge, and a reduction in noise pollution along the Route 1 corridor.

For the purposes of this analysis all benefits and costs are related to freight service which requires line upgrading only to FRA Class I standards.

Alternatives

Base Case.

The base case is defined as the set of conditions which will exist throughout the life of the project should the project not be undertaken. Therefore, for this analysis the base case will be the "null" case. Traffic on the branchline is currently nonexistant and will remain so in the absence of any rehabilitation project.

Under circumstances of non-construction the direct costs and direct benefits will both be zero, therefore no benefit-cost ratio can be calculated. Under base conditions freight will continue to be moved via truck through the mid-coast Route 1 corridor, while workers in the City of Bath will continue to travel to and from work in automobiles, vans and buses, the majority along that same Route 1 corridor.

Rehabilitation.

The proposed project will permit reinstitution of rail service on the Rockland Branch at travelling speeds of ten miles per hour for freight between Wiscasset and Rockland and 25 (30) miles per hour for freight (passenger) service between Brunswick and Wiscasset.

Measurement of Benefits

The benefits attributable to rehabilitation are equal to the difference between transportation costs assuming no action is taken and transportation costs assuming the rehabilitation effort is undertaken. Benefits may be estimated by netting full social cost assuming rehabilitation against full social cost assuming no action. Alternatively, benefits may be estimated by measuring directly the differences in cost in those cost categories that are expected to differ between the base case and the alternative. This approach is valid if the tonnage shipped is the same in both cases, as is assumed here. Hence, the latter approach is used in this report in order to minimize the cost of preparing the analysis. For the same reason, the report makes reference only to direct benefits and omits consideration of possible indirect or pecuniary benefits.

Since the base case exists now and will continue in the absence of any project, and since benefits will not accrue until the project is completed and the line functional, no time delay

is built into the benefit stream. Benefits are assumed to begin accruing at the inception of service.

The major shipper expected to use the rehabilitated Rockland Branch is Dragon Cement Company, which has its main plant in Thomaston. Thomaston is near the eastern end of the branch line. Dragon Cement is currently investigating the feasibility of instituting outbound moves of their final product via rail from Thomaston to Wiscasset, and from there by barge to ports such as Boston and New York, and to a sister facility in Newington, New Hampshire. As foreseen by management at Dragon Cement, the quantities shipped via the above route will be production above and beyond current annual production. Once plant expansion is completed and facilities at Wiscasset are operational the firm hopes to double current production.

Annual production at the Thomaston plant is currently around 400,000 tons of cement, all of which is moved by truck to its final destination. As envisioned, movements of finished products by truck will continue since this method serves a market predominantly within a 100-mile radius of the Thomaston plant. Planned movements via rail/barge will be aimed at penetrating markets outside the 100-mile radius. Although other potential users of the line exist, their total annual carloads are small compared to the projected 4000 annual carloads of cement. Therefore, only transportation cost savings accruing to Dragon Cement have been used in the calculation of benefits.

Further benefits may well occur should other shifts in the transportation of goods into the Dragon Cement plant occur. However, as these shifts are merely supposition at this time they have not been considered in benefit calculations. Table V-1 represents transportation costs as provided by Dragon Cement.

Table V-1

Transport Distance (miles)	Truck	Rail/Barge	Rail	Benefit
100	$20.40/ton	$15.65/ton	$17.30/ton	$4.75/ton
250	23.50/ton	18.65/ton	20.30/ton	4.75/ton

Project Costs.

The Maine Department of Transportation hired the Sverdrup Corporation to perform a condition survey of the Rockland Branch in the fall of 1987. This survey reported back not only the overall condition of the line but also the estimated costs associated with rehabilitating the line to FRA Class I and II, and expected costs to maintain the line at those different levels of operation. Those projected costs have been adopted for use in this analysis even though experienced railroad personnel from other railroads have estimated considerably lower rehabilitation costs for the entire line. All rehabilitation costs are assumed to be expended in 1990 and maintenance costs to begin in 1991. Table V-2 shows the breakout of these cost calculations.

Table V-2

5 Year Project Costs, 1990-2010

Year	Expenditure
1990	$ 875,000
1995	3,805,000
2000	3,805,000
2005	3,805,000
2010	3,805,000
Total	$16,095,000

Benefit-Cost Comparisons.

Benefit-cost ratios have been calculated based on several different assumptions. The results are displayed in the following Table. The base year is defined as 1990, costs for that year representing initial rehabilitation costs to FRA Class I. Costs for each five-year period thereafter represent multiples of projected one-year maintainance costs. Benefits for the base year represent transportation cost differences for that initial year. Benefits thereafter represent multiples of that one-year calculation. The base year does not represent a calendar year, rather it represents a 365 day period from the initiation of service on the branch line.

PRESENT VALUE OF COSTS

Year	Interest Rate 5%	6%	7%	8%	9%
1990	$ 875,000	$ 875,000	$ 875,000	$ 875,000	$ 875,000
1995	3,294,371	3,205,609	3,120,250	3,038,452	2,960,025
2000	5,876,240	5,601,026	5,344,945	5,106,372	4,883,837
2005	7,898,920	7,391,021	6,931,123	6,513,763	6,134,184
2010	9,483,742	8,728,610	8,062,045	7,471,610	6,946,823
Total	$27,428,273	$25,801,266	$24,333,363	$23,005,197	$21,749,869

PRESENT VALUE OF BENEFITS

Year	Interest Rate 5%	6%	7%	8%	9%
1990	$ 475,000	$ 475,000	$ 475,000	$ 475,000	$ 475,000
1995	8,226,006	8,003,491	7,790,375	7,586,149	7,390,337
2000	14,671,296	13,984,165	13,344,805	12,749,155	12,193,550
2005	19,721,315	18,453,273	17,305,037	17,047,602	15,315,308
2010	23,678,200	21,792,850	20,128,627	18,654,480	17,344,237
Total	$66,771,817	$62,708,779	$59,043,844	$56,512,386	$52,718,432

Note: The dollar values arrived at in year 1990 assume a delivery of 100,000 tons of cement during the first year of operation. All figures thereafter are based on full production and shipment of product.

BENEFIT - COST RATIO

Year	5%	6%	7%	8%	9%
1990	0.543	0.543	0.543	0.543	0.543
1995	2.497	2.497	2.497	2.497	2.497
2000	2.497	2.497	2.497	2.497	2.497
2005	2.497	2.497	2.497	2.497	2.497
2010	2.497	2.497	2.497	2.497	2.497

As can be seen from the above table, rehabilitation of the Rockland Branch Rail Line is an economically viable operation. Upon completion of the rehabilitation and of proposed expansion by Dragon Cement, benefits incurred by the Maine mid-coast region shall amply exceed associated costs.

AMENDMENT

TO

STATE RAIL PLAN

(July 1990 Edition)

New Connection to Aroostook Valley Railroad

Rail Facility Construction Assistance

A. Introduction and Background

Aroostook Valley Railroad (AVR) commenced operations in 1912 and at its maximum growth operated 32 miles of line from Presque Isle, Maine serving Aroostook County towns as far north as Caribou and New Sweden with freight and passenger services.

In 1941, a connection was made to a U.S. Air Base in Presque Isle, now the site of Skyway Industrial Park, from which the railroad derives 75% of its freight revenue. The site is also home of the Northern Maine Regional Airport, the third largest airport in the State of Maine.

Canadian Pacific Railway (CP Rail) provided connecting carrier service from inception at Washburn Junction, Presque Isle. The principal commodity was outbound loads of potatoes, moved in CP equipment routed through New Brunswick, Canada to McAdam Junction returning west through Maine to U.S. markets.

Two line abandonments were needed following the loss of farm produce traffic to the highways, and AVR now serves only Skyway Industrial Park and a few other locations, all within the city limits of Presque Isle.

In April 1987, spring floods on the St. John River washed away a bridge on CP Rail's Aroostook Subdivision in Canada and the connection to AVR was severed.

AVR was without interchange service for two weeks until a connection was made between CP Rail at Washburn Junction and Bangor and Aroostook Railroad (BAR) at Saunders, Presque Isle and agreement reached for BAR to serve as haulage contractor for CP Rail between Brownville Junction, Maine and Saunders and for AVR to interchange at Saunders instead of Washburn Junction. With the abandonment of Aroostook Subdivision by CP Rail, this temporary expedient has become permanent and is one of a series of events and situations that make serious adverse impacts on the economics, efficiency and safety of the AVR operation.

The future ownership of this CP Rail owned interchange track along with Washburn Junction is uncertain. CP Rail would sell but no price would be beneficial to AVR in view of the limitations and deficiencies experienced at present now that Washburn Junction is redundant.

A copy of the System Diagram Map and a map of the proposed new connection are attached for reference.

The benefits expected as a result of the subject proposal will improve the safety of the AVR operation by reducing the number of grade crossings commonly used along with the volume of rail/highway traffic exposure; reduce the time taken to interchange traffic and service rail customers; and reduce the total miles of track and right-of-way needed by AVR.

The resulting improvement in productivity for this small railroad is important and the enhanced service to the Industrial Park is essential to gaining additional future traffic. Services, such as warehousing and intermodal facilities, become more achievable and attractive to customers given the direct and speedier access offered by the proposed new connection.

The present interchange is done at random times during the day. The new interchange will be a morning drop-off from the main line and an afternoon pick-up, assuring same day delivery or dispatch for AVR customers.

B. The Case for a new connecting track to Aroostook Valley Railroad

The Saunders Interchange

Traffic is interchanged between AVR and BAR on a single track with only a tail track of three cars-length for switching. The track is at the summit of relatively steep grades. One of AVR's customers is a fertilizer plant and, when commodities are being received, up to 20 loaded cars are sometimes handled in one day.

The option of moving the interchange into downtown Presque Isle would only exacerbate AVR's low productivity caused by the long circuitous haul to Skyway Industrial Park. Washburn Junction is redundant because it is configured as an end-to-end receiving and departure yard and now serves only as a run-around point and provides occasional storage. Remodeling the yard for economy of track would not be cost effective.

Grade Crossing Exposure

Traffic between the interchange track and Skyway Industrial Park, a distance of about five route miles, encounters three

private crossings, two grade crossings with protective lights and at least three other crossings. One of the other crossings is in the process of being equipped with protective flashing lights.

In addition, an extension of an arterial road known as Maysville Street Extension must cross the CP Rail approach track over which AVR operates the interchange movement. This will be a busy thorofare because it will feed a new regional shopping mall abutting AVR property. The lie of the land makes a safe grade crossing difficult to arrange. The highway will intersect the track on down grades from both directions and the track is on a 1.5% grade. Grade separation is possible but will be costly.

The proposed shopping mall extends for 3,900 feet east to west along the southerly boundary of the AVR right-of-way which is unprotected. The shopping mall area will stop at U.S. Rte. 1, Main Street, adjacent to two single track grade crossings protected by lights; one is the AVR main line, and the other is a spur into the fertilizer plant mentioned previously. In the space of about 700 feet of U.S. Rte. 1, there will be a multi-lane highway intersection, a multi-lane entrance to the shopping mall and two AVR grade crossings. The proposed new connection to AVR will eliminate the need for both grade crossings since the fertilizer plant can be serviced from the west with a new rail connection and spur track. This is considered a major reduction in rail/highway traffic exposure. An interim measure to eliminate the industry spur grade crossing is planned quite independent of this grant application project.

The reduction in grade crossing exposure offered by a new connection contributes measurably in avoidable costs and enhanced safety. This is a major thrust in support of this project. The savings are likely to include the costs of retrofitting three crossings with protective gates and protecting two additional crossings with lights. These changes would be needed to cope with a major increase in traffic flow when the shopping mall opens.

A copy of a letter to the President of AVR from the Traffic Engineer for the shopping mall development is attached. The Engineer expresses concern for traffic disruptions by AVR trains at the average annual daily traffic (AADT) count. It is obvious that the concern for highway safety will escalate during the Christmas shopping season when vehicle trips can be nine times* greater than the average and at a time which coincides with the inbound movement of commodities to the fertilizer plant when the U.S. Rte. 1 grade crossings can be occupied as many as 12 times in a working day.

*Based on 50% of shopping mall business being concentrated in the five weeks before Christmas. The AADT is for the 30th busiest day.

STATE OF MAINE APPLICATION FOR
LOCAL RAIL SERVICE REAUTHORIZING ACT
DISCRETIONARY FUNDS

New Connection to Aroostook Valley Railroad

49 CFR
266.19 (a)(1) $\frac{\text{Abandoned Lines}}{\text{Total Rail Miles}} = \frac{33.6}{1481.28} = 2.27\%$

(a)(2) $\frac{\text{Category 1}}{\text{Total Rail Miles}} = \frac{85.23}{1481.28} = 5.75\%$

(a)(3) The ratio of benefits to cost for the proposed project in accordance with the methodology = 2.46.

(a)(4) The likelihood that Aroostook Valley Railroad will continue operating with the subject rail freight assistance is extremely good, but implementation during the 1991-1992 season is critical.

The 1989 year end results, attached, indicate the dependence AVR has on non-freight operating revenue. In 1989, the operating loss was $154,044. In 1990, it will be less because of an increase in traffic. However, the traffic base is small in volume and in number of customers with little prospect of additional traffic from existing customers. The situation is critical because AVR expects to lose the bulk of its marks revenue within a few months owing to a change in management and ownership of the AVR-marked cars.

Market information in the Presque Isle area points to added services being needed to attract more rail business. Hence the inclusion of modest revenue projections of intermodal traffic, warehousing and reload services.

The Skyway Industrial Park which has rail service exclusively from AVR provides space and opportunity for:

Tree length wood loading from truck to rail;
A petroleum products distribution center;
An intermodal terminal for fresh and processed potatoes, forestry products and inbound food commodities among other things;
An expanded grain terminal;
Transloading and thru-dock loading of manufactured goods such as snowmobiles, agricultural and construction equipment, paper, and box car loadings of fresh and frozen potato products; and
A recycling and transfer station for MSW.

All the above are under active discussion with potential customers and with encouraging indications. Talks are proceeding with the Industrial Park Executive Director. The proposed new connection, chosen as the Project Alternative, is essential to the streamlining of AVR's ability to offer the services listed above. The completion of the new connection to AVR during the 1991-1992 construction season will be timed perfectly.

Although AVR could see competition for such terminal facilities from BAR, it is not likely BAR would duplicate AVR's efforts. City planners favor the Skyway Industrial Park for these services; and in any event, BAR will benefit from line haul revenue on all new traffic. The alternate sites available to BAR would not provide such comprehensive services in one location and would be subject to more stringent planning scrutiny.

It is expected that AVR will use its financial resources to bridge the gap until the benefits from the new connection are experienced. The initial gain in base traffic and revenue in 1991 is estimated at 150 cars at $350 each, or $52,500, even before completion of the new connection.

The estimated operating revenue, expenses, and revenue carloads for 1990-91 are shown below with the 1989 figures for comparison.

	1989	1990*	1991**
Operating Revenue	$139,435	$210,300	$265,000
Operating Expenses	293,479	273,200	275,000
Revenue Carloads	332	421	577

*1990 includes estimated figures for December
**1991 is estimated and includes $52,000 new revenue from warehouse traffic as part of the base traffic.

The increase of traffic in 1991 is not historically significant. Since 1986, total revenue carloads have ranged from 332 to 613.

On completion of the project, the improved interchange service described in Part A above and the ability to handle intermodal trains will induce the new business indicated by local market research.

1992 will be a repeat performance of 1991 and then 1993 should see a further increase of 150 cars through transloading and warehousing plus one intermodal train each week serving the Boston area. The benefit/cost analysis indicates that 1993 traffic can be handled with present resources and with investments within AVR's capability. The projected results to 1993 at today's dollars are:

	1992	1993
Operating Revenue	$265,000	$377,500
Operating Expenses	275,000	275,000
Revenue Carloads	577	577
Intermodal, Trains	--	50

The increased revenue for 1993 is based on 150 additional revenue cars at $350 each plus a switching fee of $600 per intermodal train in and out, 50 trains per year in and out, making $52,500 plus $60,000 for a total of $112,500.

Need for Additional Assistance

It is recognized that this project could lead to a major rail/highway transportation center being established on Skyway Industrial Park. Future financial assistance would be directed toward enhancing the benefits of such a center for the whole region. At that point, Aroostook Valley Railroad should be in good financial and physical condition.

(a)(5) The only potential situation under this section would be the dissolution of Belfast and Moosehead Lake Railroad (BML). At this time, BML's freight revenue base is almost nonexistent with no truly positive prospects in sight. Should operations cease on the 33.07 mile line there would be no impact on the State.

(a)(6) See attached.

STATE OF MAINE APPLICATION FOR
LOCAL RAIL SERVICE REAUTHORIZING ACT
DISCRETIONARY FUNDS

NEW CONNECTION TO AROOSTOOK VALLEY RAILROAD

49 CFR
266.19 (e)(1)

Project Costs

Construction Cost Estimate

Based on 100 lb/yd. rail @ $12 per linear ft.
New 8' - 6" ties, 4500 @ $22 each
2" rock ballast, 2640 yds. @ $6 per yard
Sub-ballast, 5500 yds, in place @ $10.00 per yd.
OTM @ $18.60 per track ft.
Labor at $18.04 per track ft.
Equipment @ $3.85 per track ft.
Required turnouts - 2, No. 8
Grade Crossing - 2-lane highway, with lights

Estimated Costs

Materials	- 472,440		
Equipment	- 31,960		
Labor	- 149,130		
		634,130	
Sub-ballast	- 55,000		
Earthworks	- 190,000		
		245,000	
Turnouts (Installed)	50,000		
Grade Crossing	100,000		
		150,000	(materials: Labor: 60:40)
Engineering	- 50,000		
		50,000	
		TOTAL COSTS	$1,099,103

A map of the proposed route of the new connection is attached to the narrative portion of this application.

Work Schedule
1991 - Complete earthworks and drainage
1992 - Lay sub-ballast and complete installation of track by August 1.

BENEFIT-COST STUDY
by
Thomas B. Bamford
Consultant

New Connection to Aroostook Valley Railroad

Ref: 49 CFR 266 (e) (2)
Rail Facility Construction Assistance

METHODOLOGY

1. Establish Project Alternative

1.1. THE PROBLEM: Aroostook Valley Railroad (AVR) has an excessively long and hazardous interchange, relative to the size of its overall operation.

Between the interchange and customers in Skyway Industrial Park (the source of 75% of AVR's freight revenue) there are three private grade crossings, two grade crossings with protective lights and at least three other crossings with passive signs. In addition, an extension of an arterial road must cross the track leading to the interchange and grade separation versus a grade crossing is presently under design review for that situation.

The rail/highway traffic exposure is about to be impacted by a major shopping mall in 1992. This is of particular significance to the AVR because the surge of Christmas shopping traffic can coincide with the inbound movement of commodities to the fertilizer plant when the grade crossings at U.S. Route 1 may be occupied up to 12 times in a working day. The potential cost of improving grade crossing protection is considerable.

The interchange is done on a single track, making separate visits necessary for inbound and outbound traffic. The distance between Skyway Industrial Park and the interchange is about five route miles. The interchange is one mile from Washburn Junction, the nearest available holding area.

1.2 SOLUTIONS: 1.2.1 Move the interchange point into downtown Presque Isle.

This would eliminate the hazard of interchanging on a summit on a single track but would introduce additional grade crossings into the traffic movement and add mileage. It could not be done without additional costs (presumably

to be passed on to customers) and added grade crossing exposures. This is not considered an acceptable solution.

1.2.2 Move the interchange point back to Washburn Junction.

This was considered by Bangor and Aroostook Railroad (BAR) and CP Rail at the time the temporary connection was made at Saunders. It was unacceptable to BAR. Again, this solution would not contribute enough to solving the overall problem identified above.

1.2.3 Eliminate grade crossings where possible

The proposed new highway intersection on the interchange track could be eliminated by grade separation and the grade crossing on the spur track to the fertilizer plant can be removed by redesigning the track into the plant. These two isolated improvements do not solve the whole problem.

1.2.4 Construct a new rail connection between BAR and AVR at Skyway Industrial Park.

The required connection will be about 8,300 ft. (compared to the five miles existing) and will require only one grade crossing (compared to eight crossings as described in the Problem, paragraph 1.1 above) to reach the first of the customers in the Industrial Park. These comparative improvements apply to 75% of the traffic; also, the balance will enjoy marked improvement over the existing operation.

Three private crossings and two grade crossings with protective lights will be eliminated; one grade crossing/grade separation design problem will be removed; and interchange can take place in a level yard on BAR property.

In addition, rail traffic over four other grade crossings will be reduced by 75%, removing or delaying the urgency to upgrade the protective warning equipment.

This will be the Project Alternative and meets the eligibility criteria as "construction of rail or rail-related facilities".

2. Project Costs

2.1 Construction Cost Estimate

Based on 100 lb/yd. rail @ $12 per linear ft.
New 8' - 6" ties, 4500 @ $22 each
2" rock ballast, 2640 yds. @ $6 per yard
Sub-ballast, 5500 yds, in place @ $10.00 per yd.
OTM @ $18.60 per track ft.
Labor at $18.04 per track ft.
Equipment @ $3.85 per track ft.
Required turnouts - 2, No. 8
Grade Crossing - 2-lane highway, with lights

Estimated Costs

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Sub-ballast	- 55,000		
Earthworks	- 190,000		
		245,000	
Turnouts (Installed)	50,000		
Grade Crossing	100,000		
		150,000	(materials: Labor: 60:40)
Engineering	- 50,000		
		50,000	
		TOTAL COSTS	1,099,103

3. Null Alternative

The null alternative is the status quo, that is, the transportation service continued as is. Minor changes discussed in paragraph 1. are not considered effective.

3.1 Comments

AVR management has succeeded in reducing operating expenses to a minimum and has conserved certain non-freight revenue. But, future marketing endeavors will depend heavily on the Project Alternative and the benefits enumerated herein.

The hazardous and circuitous interchange exposes the Skyway Industrial Park to competition from BAR, which could install intermodal and warehousing services in the downtown area not served by AVR. This would not be the first choice of the City of Presque Isle from a planning perspective, but without Project Alternative in place it becomes an option.

Thus, without the Project Alternative the likelihood of AVR attracting intermodal traffic is extinguished (only one intermodal yard in the city is sensible) and thru-dock and warehouse traffic would be only half of the full potential.

The Null Alternative also bears the future burden of enhanced grade crossing protection as discussed in paragraph 1.1, above.

4. Business Horizon

Standard Planning Horizon - 10 years

5. FRA Discount Rate

FRA Published Discount Rate - 4.5% from FRA Administration, 11-30-90

6. Transportation Efficiency Benefits

6.1 Base Traffic - Train-time Savings

It is estimated that the Project Alternative will save 90 minutes of train time each work day. This is a direct saving because train crew can cross craft lines by union agreement and do track maintenance work that would otherwise be funded separately. This agreement was predicated (by AVR management) on a train crew productivity of 33% (the crew could handle three times present loading without overtime) and 50 percentile of the unscheduled train

crew time can be deployed on other work.

This is worth $165 per day, 250 interchanges per year with base traffic, or $41,250 per year.

6.2 Incremental Traffic

6.2.1 Warehousing

It is estimated the Project Alternative would double the traffic to warehousing from the 150 cars per year included in base traffic projections by AVR management. At $350 per car at present earnings level this is worth $52,500 per year in increased freight revenue. (Base traffic supports between 300 and 600 revenue cars per year). Future years will show traffic to warehousing growth at about 7.5% per year over the 10 year period.

6.2.2 Intermodal Traffic

AVR management estimates that two trains per week of 50 trailers/containers each can be handled with current resources.

For this Benefit/Cost analysis one train per week will be considered because one train can be handled with a modest railroad investment in equipment and track. More ambitious projections may need future grant support.

Thus, with only a nominal switching fee of $15 per unit or $1,200 per train (in and out) with 80% load factor and 50 trains per year this incremental income is $60,000 per year.

6.3 Grade Crossing Savings

6.3.1 Improvement eliminated or postponed beyond the planning horizon

a) Arterial Road Extension - savings, if grade crossing contemplated in year 1 - $140,000

b) Credit on U.S. Route 1 - 2 sets equipment salvaged, year 1 50,000

2 sets of Gates avoided at U.S. Route 1 in year 2 80,000

c) One set flashing lights and crossing rehabilitation avoided in year 3 120,000

6.3.2 Crossing Maintenance avoided

There are 23 crossings that qualify for state maintenance aid on AVR. The yearly maintenance cost is billed at around $20,000 or $870 per crossing per year.

The elimination of one potential future crossing and two crossings at Route 1 gives a savings of about $2,600 per year.

In addition three private crossings are eliminated saving an estimated $1,000 per year in maintenance costs, making a savings of $3,600 in all.

6.4 Track Maintenance Savings

6.3.1 Net Reduction in AVR trackage

The new connection would make 1.25 miles of main line and about 1.0 mile of siding track redundant.

Given the accepted minimum Class 1 track maintenance costs are $3,000 and the sidings track are funded 50% by CP Rail these savings are worth:

1.25 X $3,000	=$3,750
1.0 X 50% X $3,000	= 1,500
TOTAL	$5,250

6.3.2 Net Reduction CP Rail trackage

The amount of CP Rail trackage made redundant happens to be similar to the AVR figure

SAVINGS = $5,250 per year

6.3.3 Deferred Maintenance at Washburn Junction

In 1988 AVR catalogued deferred maintenance, necessary for completion for long term operation of Washburn Junction, which included structural repair to a large culvert. The cost outstanding is estimated at $150,000 at today's dollars. This work would be unnecessary with the Junction becoming redundant.

For this study assume the expenditures saved would be:

$75,000 in year 1

$75,000 in year 2

7. Secondary Benefit

7.1 Creation of new jobs

Consider full-time employment at $8.00 per hour, $320 per week or $16,640 per year.

7.1.2 Warehousing

One full time employee for 2 years; two full time employees thereafter.

Providing benefits $16,640 per year for 2 years and $33,280 per year thereafter.

7.1.3 Intermodal

Three part-time employees, 3 days per week from first year, equivalent to 1.8 full time jobs or $29,950 per year

7.2 State Highway Costs

50 intermodal trains per year, each way, carrying 40 loads each between Presque Isle and the Maine/New Hampshire state line at Kittery, Maine save 50 X 50 X 40 (tons) X 350 (miles) = 56 million highway ton-miles. At 0.36 cents per ton-mile, the FHA published figures for truck subsidies, this saving is worth $201,600 per year. This figure is not used with the Cost/Benefit analysis but is developed to show the powerful benefit that intermodal service at Presque Isle will offer toward reducing highway maintenance cost imbalance in the State of Maine.

8. Salvage Value

The salvage value is based on the materials, including sub-ballast in the Project Alternate cost:

Materials	-	$472,440
Sub-ballast	-	55,000
Turnouts	-	30,000
Grade Crossing	-	60,000
		$617,440

Take salvage value at 65% or $400,000

9. Benefit-Cost Ratio

The total benefit and Benefit-Cost Ratio for the Project Alternative are developed in attachments.

The Benefit-Cost Ratio = 2.46

New Connection to AVR

CALCULATION OF PROJECT ALTERNATIVE BENEFIT-COST RATIO

Ref: 49 CFR 266.19 (e)(2)
Rail Facility Construction Assistance

BENEFIT CATEGORY	- YEAR - 1	2	3	4	5	6	7	8	9	10
1. Transportation efficiency. etc.	479,440	373,440	359,080	243,580	248,580	253,580	259,080	265,080	268,580	278,580
2. Lost Labor Output										
3. Salvage Value end of period										400,000
4. Total (constant $)	479,440	373,440	359,580	234,580	248,580	253,580	259,080	265,080	268,580	678,580
5. Discount Factor at 4.5%	1.045	1.092	1.141	1.193	1.246	1.302	1.360	1.422	1.486	1.55
6. Present Value (4 - 5)	458,794	341,978	314,706	204,174	199,502	194,762	190,500	186,414	180,740	436,948

7. Sum Present value of Benefits = $2,708,518

8. Present Value of Costs = 1,099,130

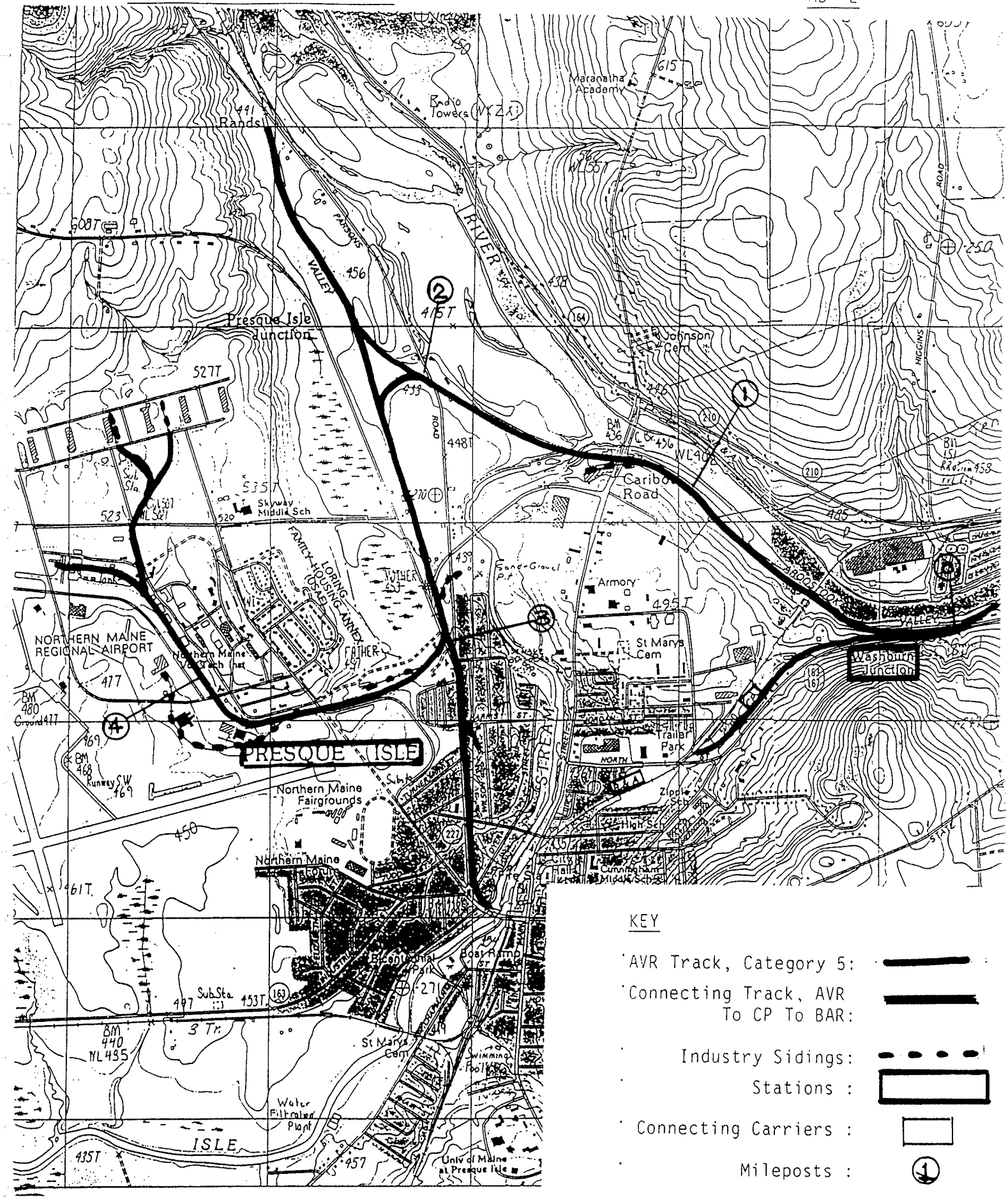
9. Benefit - Cost Ratio (7 - 8) = 2.46

]New Connection to AVR

CALCULATION OF PRESENT VALUE OF PROJECT ALTERNATIVE BENEFIT

Ref: 49 CFR 266.19 (e)(2)
Rail Facility Construction Assistance

BENEFIT CATEGORY	- YEAR - 1	2	3	4	5	6	7	8	9	10
1. Transportation efficiency - operating time saved	41,250	41,250	41,250	41,250	41,250	41,250	41,250	41,250	41,250	41,250
2. Warehouse Traffic Revenue	52,500	56,500	60,500	65,000	70,000	75,000	80,500	86,500	90,000	100,000
3. Intermodal Switching Revenue	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
4. Grade Crossing Improvement Savings	190,000	80,000	120,000							
5. Grade Crossing Maintenance Savings	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600
6. Track Maintenance Savings	85,500	85,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500	10,500
7. Secondary Benefits	46,590	46,590	63,230	63,230	63,230	63,230	63,230	63,230	63,230	63,230
8. Salvage Value										400,000
9. TOTALS	479,440	371,440	359,080	243,580	248,580	253,580	259,080	268,080	268,580	678,580
10. Discount Factor	1.045	1.092	1.141	1.193	1.246	1.302	1.360	1.422	1.486	1.553
11. Present Values	458,794	341,978	314,706	204,174	199,502	194,762	190,500	186,414	180,740	436,948
12. Total										$2,708,818



KEY

- AVR Track, Category 5:
- Connecting Track, AVR To CP To BAR:
- Industry Sidings:
- Stations :
- Connecting Carriers :
- Mileposts : (1)

From 7.5 Minute Topographic Maps, Presque Isle, Maine and Easton Center, Maine by US Department of Interior,

AB-42 AROOSTOOK VALLEY RAILROAD

SYSTEM DIAGRAM MAP


RUNWAY 28
FAIRGROUNDS
PROPOSED NEW RAIL ACCESS
ROUTE 163
SCALE :
800 0 800 1600 2400

AMENDMENT

TO

STATE RAIL PLAN

(November 1991)

The State of Maine, Department of Transportation (MDOT), on February 27, 1991, executed a Purchase and Sale Agreement with Maine Central Railroad, for railroad properties including two yards in Rockland, Maine. The Department is in the process of extending the operating rights of Maine Coast Railroad (MCR) to include not only the 52-mile Rockland Branch MCR currently leases but also all other properties purchased in February 1991.

An engine-house is located on the property known as the Upper Yard in Rockland. As of November 1, 1991, Maine Coast Railroad possesses no indoor facilities for maintenance of motive power and equipment and has only a small car house in Waldoboro, Maine to use as corporate offices.

The 5-stall Rockland, Maine roundhouse is in suitable condition to justify long-term continued use for railroad purposes. This structure is envisioned as becoming the operational, maintenance and customer service headquarters of the Maine Coast Railroad. This visible presence is desired by not only the Railroad, but also by MDOT and the City of Rockland.

The roundhouse will be used by the Maine Coast Railroad for the following purposes:

A) Maintenance and Repairs:
   1) diesel locomotives
   2) freight and company service cars, including FRA required repairs to foreign freight cars
   3) on track machinery and motor vehicles
   4) protected storage of components, parts and tools
   5) protected layover point for locomotives and motor vehicles during idle hours and weekends

B) Operations:
   1) dispatchment of locomotive and trains
   2) dispatchment and on duty point for train crews and maintenance forces
   3) centralized customer service and supervision (most traffic on Railroad moves to or from Rockland area)

The roundhouse is in need of some repairs to stabilize the structure and correct the years of neglect and non-use in the recent past. Cost of these repairs is relatively small and fully justified on the basis of operational savings to the Maine

Coast Railroad. Rehabilitation costs, detailed below, are estimated at less than 10% of the cost of even a small, limited size and use replacement structure.

Rehabilitation Costs:

1)	repair and replace roof on 5 stalls and office; repair siding and stall doors	$25,000
2)	repair inside walls on center track stall; insulate walls of center stall; lower ceiling in center stall; install oil-fired heaters and ceiling fans for heating efficiency in center stall; repair and insulate office walls	10,000
3)	replace electric turntable motor with air motor supplied from locomotive; repair and replace drainage system to turntable pit	4,000
4)	miscellaneous repairs to roundhouse, turntable and pit	1,000
	Total	$40,000

Operational Savings:

Motive power used by Maine Coast Railroad cannot be left shut down during cold weather months. Railroad locomotives cannot be protected with antifreeze due to the potential for water line leakage and freezing of trapped water in radiators and other components. Standby heating units for locomotive water systems are costly and not totally reliable.

Without the heated storage provided by the Rockland roundhouse Maine Coast Railroad will be forced to keep at least one road locomotive idling at all times during cold weather months (four months per year) with resulting wasted fuel costs and reduction in life span of major locomotive components and rotating parts. One stall of the roundhouse includes a serving pit which allows inspection and repair of traction motors, running gear and brake rigging. Use of the roundhouse negates the need to construct this most vital facility.

Direct fuel savings from rehabilitation of the roundhouse are calculated on the basis of 18 hours of locomotive use per week, or 150 hours of idle time per week.

Locomotive (Alco RS-11m) fuel use/hour 7 gallons
Fuel cost (1991 average price) 69/gallon
7 gallons/hr. x 150 x .69/gallon = $724.50 savings per week
$724.50 per week x 17 weeks cold weather = $12,316.50 annual
Minimum life span of rehabilitation = 10 years
Life span fuel savings $123,165.00

Cost/Benefit Ratio = 3.08

The Maine Department of Transportation and Maine Coast Railroad propose to reallocate $40,000 of the $341,000 already granted by the Federal Railroad Administration for a rehabilitation project on the Rockland Branch. The financial reallocation will reduce tie replacement by 500 ties and ballast installation by 1500 tons.

AMENDMENT TO THE STATE RAIL PLAN

(November 19, 1991)

REHABILITATION

BANGOR AND AROOSTOOK RAILROAD

HOULTON BRANCH

I. DESCRIPTION OF THE HOULTON BRANCH

A. PHYSICAL CHARACTERISTICS

The 17.27 mile Houlton Branch leaves the Bangor and Aroostook (BAR) main line at Oakfield and extends northeastward to Houlton. From Oakfield the main line runs north to Van Buren and south to Searsport and a deep-water connection. Connections to the Canadian Pacific Railway at Brownville, to Guilford Transportation Industries at Northern Maine Junction, and to the Canadian National Railway at Van Buren provide BAR access to the North American rail system (see system diagram map, page 11).

The town of Houlton, the county seat of Aroostook County, has a resident population of 6700 people and serves as the commercial center for a populace in excess of 13,000. The average non-farm population is 4610. Besides basic commercial services, business activity in the region is centered around agriculture and woods operations and some light manufacturing.

The branch line is composed of more than 90% 100 lb. rail with the remainder being 115 lb. rail. Yard tracks and sidetracks are constructed with 80 lb. rail. Sidetracks serve customers along the entire length of the branch and a yard area serves the terminus at Houlton.

Poor tie conditions and fouled ballast contribute to surface and line deviations which restrict operating speeds to 25 miles per hour. Approximately one third of the ties and all fouled ballast should be replaced so that FRA Class II speeds of 25 miles per hour can be maintained.

Details of the units of property are included in **Appendix A.**

B. OPERATING CHARACTERISTICS

The branch serves local agricultural and general merchandise warehouses, forest products processing facilities, manufacturing facilities, and others. There are six (6) major customers who receive and distribute petroleum products, building materials, manufactured products, and chemical products. In the calendar year 1990, 255,586 tons or 4,414 carloads, of products were handled on the branch. 2,949 carloads were forwarded from the branch off line, 42 carloads were received, and 1423 carloads were moved to or from other local points on the BAR system. Waferboard, logs, and forest products (stcc 24) comprised 88.9%, tapioca flour 4.1%, and petroleum products 5.8% of total carloadings.

The largest customer, Lousiana Pacific Corporation, provides regular employment to 100 people in their mill and purchases raw materials harvested throughout the northern part of the

Maine. The raw material, poplar trees, has limited usefulness and harvesting this fast growing forest resource provides employment for over 100 wood harvesting contractors. The mill at New Limerick provides employment stability in an area which is accustomed to seasonal type jobs resulting from a combination of economics and climate.

James River Corporation operates a pulp wood chipping mill with 16 employees producing raw wood chip stock for shipment to the James River mill in Old Town, Maine. The chipping and processing facility supports another 50 woods contractors who supply the raw product from local woodlands. The product is delivered to the processing plant by over thirty (30) contractors and the processed chips are shipped by rail. The chipping and loading system is highly automated and is designed for rail loading. The company anticipates a 100% increase in production in the near future.

The A. E. Staley Company facility at Houlton is a tapioca processing mill employing 55 people. The raw product is delivered to the Houlton processing facility from Thailand by ship to Searsport and by rail transport to Houlton. The output of this mill is a food additive starch product for such items as baby food and like products. In addition to its value as a food product, it also is used in such diverse applications as printing inks and paper modifiers.

Among other goals, the Houlton community opportunity development program is seeking to establish a foreign trade zone in the Houlton area because of its strategic location at the end of Interstate 95 and its junction with the Canadian Interstate system. Plans envision the foreign trade zone as part of a proposed industrial park. At present, a location in the Houlton Yard formerly occupied by potato warehouses is being considered for development. This area is non-conforming in relation to current zoning practices and is laid out around the concept of tracks serving warehouses along narrow corridors. Over the years, certain tracks have been removed and access to the area needs to be improved and updated so that development can occur. The tracks that do serve the area need to be high quality, capable of handling hazardous material safely and efficiently. The concept of grouping activities such as oil handling and storage would be more feasible with convenient access for rail and truck carriers.

Other plans for the industrial park involve making land available for light manufacturing and service type industries that could benefit from low cost rail transportation. Transloading activities could be developed.

The attached **LRA_5** provides details of the traffic originated and terminated on the branch.

II. THE PROJECT ALTERNATIVE

The Houlton Branch is listed in ICC category 5 (not considered for abandonment) of the state system diagram map, as prepared by the Maine Department of Transportation. BAR has informed local town officials that the rehabilitation the Branch will provide for the transportation requirements of shippers with high quality, competitive service.

The Houlton Branch is a low density line on which maintenance has been deferred in deference to limited financial resources and maintenance requirements on the main line between Northern Maine Junction and Madawaska. The Houlton Branch now requires extensive rehabilitation of the track and bridge structures.

Tie conditions are poor and require replacement of a least 24% of the main line ties while selected side tracks on the branch require 100% tie replacement. Ballast must be renewed and surface and line conditions restored. Bridges on the branch have timbers in excess of 37 years of age. Rail conditions are good and with proper maintenance the rail can be expected to serve for many years under present or proposed levels of traffic.

Without a major rehabilitation of the branch, the operating speed will be reduced and increased shipping cost will cause shippers to seek alternate transportation services. Within ten (10) years, FRA safety requirements for Class I track could not be met.

The project alternative calls for rehabilitation of the trackage of the Houlton Branch from the main line switch at Oakfield yard to mile 17.27 in the Houlton Yard. Rehabilitation to FRA Class II Safety Standards will be obtained via alinement and surfacing with quarry stone and new tie installations. 5,250 feet of Houlton Yard tracks serving hazardous materials unloading and distribution area will be ballasted and upgraded with new ties. These tracks lead to the previously mentioned proposed industrial park. Decking ties will be renewed on two bridges.

All work will be performed with BAR equipment and by BAR employees.

III. PROJECT COSTS

Current maintenance expenditures cover basic track repair, adjustment, and snow removal. Maintenance details are contained in **Appendix B** to this document. With assignable costs, the maintenance cost per mile per year is $9693.29. This level of maintenance schedule will not sustain the track to FRA class II standards. In the near future the track

classification will have to be lowered to FRA Class I to assure safe operations yet eliminating BAR's ability to offer competitive service.

Because of the hours of service rules, BAR would need an extra train crew operating out of Oakfield yard as well as an extra locomotive. Under the CLass I scenario the railroad would have to impose a surcharge of $21.14 per carload to cover the costs associated with more personnel and equipment. Increased transportation costs will affect the ability of local companies to compete and may result in lost jobs.

The cost of rehabilitation will be $1,120,524, of which 30% will be paid by BAR. The work will be accomplished during the normal work season and will not require the use of contractors. Details of materials quantities and associated costs are detailed in **Appendix C.**

Discounted Net salvage value of land and rail at the end of the planning horizon is considered to be an adjustment to the cost of the project. Calculation of the opportunity cost for liquidation value of the branch under the null alternative was made under the assumption that the level of service would be non-competitive at the end of the planning horizon.

The project cost plus the opportunity cost plus contingency equal the total discounted project cost of $1,581,227.

IV. THE NULL ALTERNATIVE

The null alternative is defined as continued operation on a continually deteriorating track structure that , at the end of the planning horizon, will result in abandonment and salvage of all track materials.

V. THE STANDARD PLANNING HORIZON

The standard planning horizon on 10 years has been used in this analysis.

VI. THE FRA PUBLISHED DISCOUNT RATE

An after-inflation discount rate of 4.1% was established on September 13, 1991, by FRA Administrator Gilbert Carmicheal.

VII. TRANSPORTATION EFFICIENCY BENEFITS

The most significant benefit of the rehabilitation project will be to reduce local shipper's transportation costs. It will also demonstrate in a realistic manner that State government and BAR can work with shippers as partners in developing strategies in pricing and delivery.

One of the large shippers on the Houlton Branch, Louisiana Pacific (LP), manufactures waferboard, a staple of the homebuilding industry. The firm's plant in New Limerick competes for markets on the eastern seaboard and in the Midwest. LP is currently studying the feasibilty of shipping waferboard in special 100 ton cars. Shipment of these heavier cars would make LP increasingly price competitive.

Without rehabilitation, the Houlton Branch will not be able to accept 100 ton cars and eventually track conditions will force BAR to place the aforementioned surcharge on LP shipments, making shipment via truck the more attractive and eventually the only alternative. Transfer of waferboard shipments from rail to truck could create an economic disadvantage that could affect over 100 employees in the Houlton area as well as an additional 100 contractors.

Transfer to a significant amount of trucks will result in increased highway maintenance costs. The December 1990 issue of "BETTER ROADS", reports information presented to the Transportation Research Board annual meeting by R. Kitamura and H. Zhao, U. C. Davis; and R. Gibby, CSU-Chicago. The data suggests that an increase in traffic density of 25 heavy trucks per day will increase the cost of pavement maintenance $92.45 per mile annually. The diversion of rail traffic to truck increases the cost of paving maintenance since shippers will divert to truck at the rate of 10% of current annual shipments each year of the planning horizon if the null alternative is selected.

Environmental and conservation issues are involved in this project due to the transfer of traffic from rail to truck. The railroad mode of transportation is 4 to 9 times more fuel efficient per ton-mile than trailer trucks. EPA emmision estimates for pollution of the air by hydrocarbons in a year when railroads carried 1/3 more revenue ton miles than trucks show that railroads produced 31,000 tons of hydrocarbons compared to truck production of 251,000 tons of hydrocarbons.

In the event that the null alternative were imposed, the James River plant would probably be faced with moving their facility to rail transportation facilities on the main line at Oakfield. The cost of shipping wood chips by truck from the present plant would be more costly over time than moving operations to Oakfield.

A. E. Staley Company's tapioca processing plant depends on rail transportation to move its incoming raw materials from Searsport to Houlton. The Houlton plant will be faced with serious cost increases if the null alternative is followed and abandonment eventually occurs.

The benefit to the railroad based on operating at 25 miles per hour versus 10 miles per hour is $84,216 annually. Reduced speed would require extra locomotive assignment, increasing the cost of locomotive maintenance and incurring a cost of capital for the $125,000 required to purchase a re-used locomotive.

The benefits accruing to the shippers involve holding present rates and providing new services with higher capacity cars at competitive rates.

VIII. SECONDARY BENEFITS

The Houlton area is an important part of the economy of northern Maine. The ability to compete is enhanced by having a high-quality low cost transportation system. This project does not contemplate new business except for the possibility of increasing the pulp chip shipments for James River Company. However, competitive rail transportation is one more item to convince a new business to locate operations in the Houlton area. The concepts of the FREE TRADE ZONES and dedicated business parks are examples of plans which involve the balanced capability of all transportation modes. No secondary benefits have been quantified in this analysis.

IX. SALVAGE VALUE

The value of the entire line was used in the calculations of the project cost, therefore, the net liquidation value, $350,000, is the salvage value.

X. BENEFIT-COST RATIO

Based on a project cost of $1,581,227 and a present value of the projected benefits over the next ten years, the benefit-cost ratio for the project, as detailed in the attached LRA_4, is 4.02.

SUMMARY:

The project is important to the railroad as a traffic generator but is not one that produces significant returns on investment in track and structures. Rehabilitation of the branch will release capital funds for the purchase and/or upgrade of special purpose railcars. The waferboard shipments will require 100-ton special flat cars and the projected pulp chip traffic will require new rail cars and convenient schedules.

The project will positively affect the Houlton business community as well as the BAR. The manufacturing and processing businesses involved can be given the opportunity to remain competitive and profitable, thus assuring at least stable employment.

The BAR will be able to operate safely and provide competitive, quality transportation services and schedules.

The acquisition of special railcars will be more feasible with a well maintained rail line operating in a safe environment at reasonable cost.

The BAR will be able to respond to future needs of shippers in the Houlton Regional area assuring an environment which provides for development of new ventures.

APPENDIX A

INVENTORY OF PROPERTY UNITS AND CONDITIONS

There are 1.38 miles of 115# jointed rail, and 15.79 miles of 100# jointed rail in main track and 7.41 miles in sidings and yards. The rail weight is 80#. and there are 48 turnouts in sidings at Ludlow (H 6.43), New Limerick (H 10.55), Cary's Mills (H 14.95), Horseback Pit (H 15.97), and Houlton Yard (H 16.90). There are 13 public crossings, of which 6 are protected with automatic flashing light systems, and 23 private, service or farm crossings on the branch.

Bridges are located at H7.02 (Deck Plate Girder-60' 2"), H11.67 (Deck Plate Girder-51' 10"),H 16.56 (Deck Pratt Truss-3 spans @ 99' 8 3/4", 299'), H 17.16 (Deck Plate Girder-410' 6 1/4"), and H 17.25 (Thru Plate Girder-64.7').

The operating speed of the branch is 25 miles per hour and one-third of the ties must be replaced. The ballast is fouled and should be replaced with crushed rock while drainage structures and ditching is satisfactory. Yard and siding tracks are in poor surface and the tie and ballast condition restricts the operating speed.

Details of Rail Installation and Age:

Mile	Manufacturer	Year Installed
A. 115 # Rail		
H0.0 to H1.38	Steelton	1954
B. 100 # Rail		
H1.38 to H1.87	M. S. Company	1928
H1.87 to H3.87	Steelton	1935
H3.87 to H6.55	Maryland	1935
H6.55 to H6.78	Steelton	1935
H6.78 to H7.82	Carnegie	1935
H7.82 to H12.87	Carnegie	1935
H12.87 to H13.88	Steelton	1935
H13.88 to H16.53	Maryland	1935
H16.53 to H17.27	B. S. Company	1943

Crossties in main track:

50,238 Crossties, 6" X 8" X 8' 0".

10/24/91

APPENDIX B

TRACK MAINTENANCE AND REPAIR

Current spending for branch maintenance is basic track repair and adjustment involving 40 manhours per week during the winter period of December through April and 8 man hours per week during the balance of the year. These activities involve daily repairs, removing ice, opening crossings, and the replacement of 10-50 broken ties. The cost of labor (basic) is $36,083 annually and the crosstie cost is $576. Other assignable costs result in a total of $167,231.

This level of maintenance does not support a track speed of 25 MPH. In the near future, the track conditions will not allow a FRA class II track classification. At the present rate of deterioration of line, surface, and tie condition; the speed will be reduced on certain portions of track to 10 MPH early in 1992. This reduction will cause the cost of operation to increase reducing the railroad's ability to offer competitive service on timely basis.
Considering the rate of decline, it is reasonable to expect that the economics and condition of the track structure would force a decision to proceed with the abandonment of the branch within a 10 year period. Given the type of commodity being shipped, it is unlikely that it would be economical to transload the traffic from a highway conveyance to the railroad at Oakfield yard.

It is also reasonable to expect that during the ten (10) year period being considered, the cost tie installations due to emergency conditions will increase at least 10% per year.

9/28/91

APPENDIX C

UNITS AND ESTIMATED COST OF THE PROJECT

A. Units of Work

Creosoted Hardwood Ties 6 x 8 x 8	12,000 Each
Installation of 7 1/2 X 10 Plates	24,000 Each
Installation of Rail Anchors	24,000 Each
Tons of Sharp Quarry Stone	36,260 Tons
Bridge Decking Timber	29.32 MBM
Yard Ties	2,835 Each
Yard Ballast	2,887 Tons

B. Distribution of Basic Cost Without Contingency

Materials	$649,479
Labor	295,269
Equipment	175,776
	$1,120,524

C. Sub-Project Costs

Crosstie and Ballast Installation	$828,267
Yard Crossties and Ballast Renewal	181,861
Bridge Decking H 11.67, H 16.56	110,395
Sub-Total	$1,120,524
Contingency @ 7%	78,437
Sub-Total	$1,198,960
Net Value of Track Salvage	$350,000
Land value, average (system)	32,267
Grand Total	$1,581,227

Note: 30% of Basic Project Cost to be provided by local funding $336,157

10/22/91

AMENDMENT TO THE STATE RAIL PLAN

(December 1991)

REHABILITATION

ST. LAWRENCE & ATLANTIC RAILROAD

MAIN LINE

APPLICATION FOR LOCAL RAIL FREIGHT ASSISTANCE

Introduction

The St. Lawrence and Atlantic Railroad is a Class III regional railroad which owns and operates 165 miles of mainline trackage between Portland, ME and Norton, VT. Of this mileage, 80.88 miles are located in the State of Maine. The St. Lawrence & Atlantic Railroad presently operates thru freight train service between Danville Junction, ME (its connection with the former Maine Central Railroad and Boston & Maine Railroad) to Island Pond, VT where it connects with the Canadian National Railway on a seven day per week basis with symboled trains #393/#394. St. Lawrence & Atlantic Railroad also provides local freight service to the Lewiston and Portland, ME areas five days per week and local service to the Auburn and South Paris, ME areas six days per week.

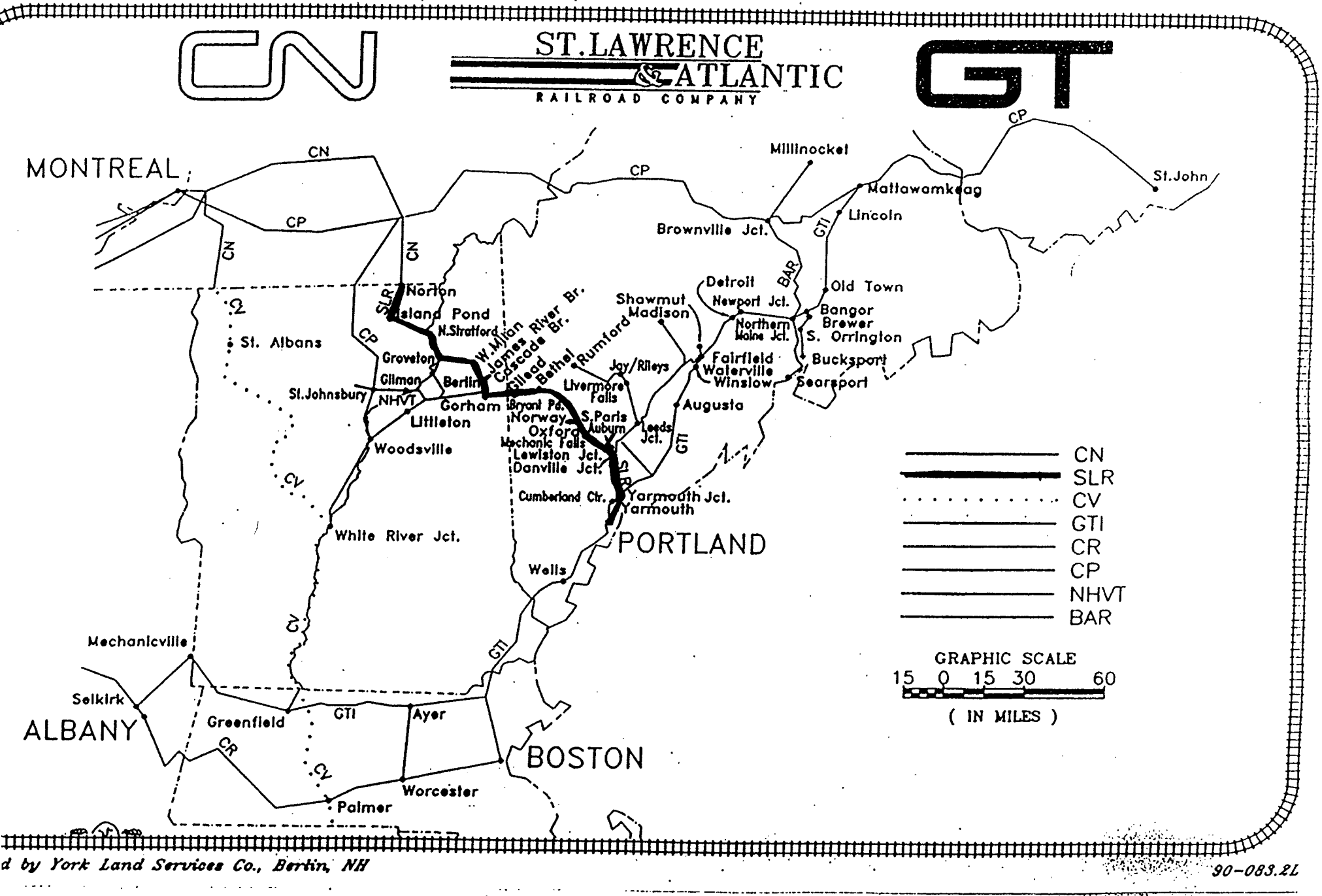
The St. Lawrence & Atlantic Railroad presently provides service to over 50 customers located either on its lines or through interline and/or switching service with the Springfield Terminal Companies, Berlin Mills Railway and the New Hampshire & Vermont Railroad. During 1990 St. Lawrence & Atlantic Railroad handled approximately 15,000 carloads, of which nearly one-third were hazardous materials such as chlorine, caustic soda and sulfuric acid to serve the paper industry and LPG for industrial and

residential accounts. Of these 15,000 carloads, 69% originate or terminate in the State of Maine with on line traffic representing 31% of the St. Lawrence & Atlantic's on line traffic.

The project that St. Lawrence & Atlantic Railroad is proposing is for extensive rehabilitation of a segment of its mainline trackage within the State of Maine. Within the project area comprising 20 miles, 18 miles of rail were laid prior to 1944 and 58% of the crossties were installed before 1977. The total cost of the project is estimated at $999,749.00 with the St. Lawrence & Atlantic Railroad contributing $338,378.00 of this amount. This work will be completed between April-November 1992. St. Lawrence & Atlantic Railroad is presently expending approximately $1.6 million on track maintenance; however, at this rate we are unable to make up ground on the deferred maintenance situation that St. Lawrence & Atlantic Railroad inherited from the Canadian National upon purchase of the property in late May 1989. Upon completion of this project, the St. Lawrence & Atlantic Railroad mainline between Danville Junction, ME and M.P. 82.60 will be FRA Class III and allow operating speeds of 35 m.p.h.

With the completion of this project, we feel that the St. Lawrence & Atlantic Railroad's physical plant will be able to safely and efficiently transport the freight handled on the line and with our major customers, New England Public Warehouse at

South Paris and Auburn, and United Farmers Coop at Auburn, provide an excellent transportation network to move their products in an economical mode to maximize their market share and continue as significant employers in Maine. Also, by providing a viable rail network, the St. Lawrence & Atlantic Railroad will continue to attract industry and economic development to the local area and the state. Safe Handling, Inc. recently completed a new bulk distribution facility at Auburn, the only facility licensed to transload hazardous materials in the region. Also, Maine Wood Treaters completed construction of a new side track this past summer to handle lumber to their treating plant at Mechanic Falls, ME. During the past two summers, New England Public Warehouse has built new side tracks at both South Paris and Auburn to support their ever increasing distribution activities. The above-mentioned three customers have made significant investments in Maine during the past two years and viable rail service is absolutely critical to the viability of their businesses.



d by York Land Services Co., Berlin, NH

90-083.2L

Railroad Benefits of this Project:

At present, the St. Lawrence & Atlantic Railroad mainline through the State of Maine totals 80.88 miles and located on this trackage are several slow orders which reduce train speeds from the maximum allowable speed of 40 m.p.h. to 25 m.p.h. and in certain places reduce the train speeds even further to 10 m.p.h. As the train speed deteriorates, all major operating cost components increase. Car hire and manpower are calculated by the minute and therefore they increase dramatically. The operating cost of the locomotive consist that is now running far below optimum track speed is also higher with respect to fuel and oil consumed, plus additional wear and tear on all major oil engine components from unnecessary slow speed idling. Additionally, the physical plant continues to deteriorate at an ever increasing rate. But even as dramatic as the impact is on direct operating costs, the real threat comes from having rail line speed deteriorate to such a level that you 1) cannot move freight safely and 2) are no longer competitive which not only causes a loss of the business it now carries but very much hinders any economic development in the region and, in turn, the growth of employment.

Shipper Benefits of this Project:

All shippers gain from a healthy physical plant. By the rail carrier being able to provide safe and efficient transportation, it allows the customers to maintain their products' market share and because of the favorable long-haul rail economics for heavy bulk commodities allow our Maine industries to compete throughout North America. In contrast, an ailing or unsafe physical plant subjects the shipper to the risk of a derailment or accident that will severely impair the inventory pipeline to major customers. The resulting disruption causes the plant to either temporarily cease production and lay off employees or to pay transportation costs to other modes which are substantially higher to make spot deliveries. We feel that from the view of safety and economical transportation a strong rail infrastructure is critical.

Secondary Benefits of this Project:

In addition to the benefits described above, two other points should be made: 1) The St. Lawrence & Atlantic Railroad has been very successful in attracting new industries or industrial expansion to our line in the past 36 months; Maine Wood Treaters at Mechanic Falls, ME; Safe Handling, Inc. at Auburn, ME; and the increased business with New England Public Warehouse at South Paris and Auburn, ME. These events bring new employment to the area and 2) if the present rail freight transported were to be moved over Maine highways, this would place an additional 35,000

trucks on our already strained highways, including approximately 20,000 trucks carrying hazardous material shipments.

BENEFIT - COST ANALYSIS

Establishing the project alternative

The project contemplated is the extensive rehabilitation of a 20 mile segment of the St. Lawrence & Atlantic Railroad's mainline. The mainline segment is in fair condition although the physical plant is aging rapidly due to a lack of recent capital investment under prior ownership.

Although the line's operating profit is positive, its cash flow is not sufficient to fund both its required debt service and the major capital improvement project necessary to overcome the years of deferred investment.

Determining the project costs

The proposed rehabilitation can be completed within a seven month construction cycle to occur in year zero (the current year) at a cost of $999,749. The railroad expects to recover materials for scrap with a value of $38,630. This brings the net cost of the rehabilitation work to $961,119. These costs include the costs of rail, ties, ballast, equipment and labor.

Determining the null alternative

Failure to rehabilitate the mainline will lead to accelerated deterioration of the physical plant causing increased running time and loss of operating efficiency. Over the planning horizon shippers with time sensitive traffic will either find other modes to ship their goods, reduce their output, close up or move away. The result will be a decline in freight revenues and an increase in operating costs. Therefore, the null alternative is continued operation over poor track.

Using the standard planning horizon

The FRA prescribed ten year planning horizon is used.

Using the FRA published discount rate

For purposes of this analysis the FRA published discount rate of 4.1 percent was used. Consistent with the use of the FRA published discount rate no inflation component was included in the analysis. All costs and benefits included in the analysis are in constant dollars.

Determining the transportation efficiency benefits

To determine the transportation efficiency benefits it is necessary to examine the impact on rail traffic shipments and transportation department operating costs under both the project and null alternatives. Since the project alternative represents the status quo or base business level, incremental traffic in this case is traffic saved from extinction under the null alternative. Likewise, the specific cost elements that would increase under the null alternative can be readily identified. Therefore, the calculation of transportation efficiency benefits can be simplified to focus on traffic (freight revenues) saved and costs avoided.

The first step in determining the traffic saved is to calculate the increase in running time caused by the deterioration of the physical plant under the null alternative (see Exhibit 1). This increase in running time gradually causes a decline in time sensitive traffic and a loss of freight revenues (see Exhibit 2). Because the railroad operates under a long-term marketing agreement with Canadian National Railway, it does not have the flexibility to adjust its pricing to shippers as traffic declines. Therefore, the freight revenue retained is the number of carloads saved multiplied by the current average revenue per carload.

Similarly an increase in running time would lead to cost increases in the transportation department for wages, benefits, insurance, car hire and diesel fuel consumption. Wages, car hire and diesel fuel consumption are all affected by hours (minutes) of operation. Both benefit expense and insurance are a function of wages. These costs and their calculation are described in Exhibit 3.

Calculating secondary efficiency benefits.

A decline in the quality of rail service would have a severe impact on the railroad's largest customer in Maine, New England Public Warehouse at South Paris, ME, which provides storage and rail-truck transfer services to numerous customers in central and southern Maine. While the railroad projects that up to 60% of this customer's rail business would be lost, it has been unable to determine how much business would shift to truck and how much would be totally lost.

For shippers on-line in Maine their option under the null alternative is to shift more of their transportation services to truck; however, no calculation has been made to figure the impact on shippers' business volumes, transportation expenses or lost profits. Shippers in Maine for whom the St. Lawrence & Atlantic Railroad is an overhead route have the choice of another rail route or truck transportation. Most of the overhead traffic originates in Canada to the north and west of the paper mills in central and southern Maine. For this traffic the likely alternative is truck; however, some shippers might elect to shift their source of raw materials. No calculation has been made to determine the impact on shipper's profit margins.

Eventually under the null alternative, the railroad loses 7,850 carloads of freight which is equivalent to 35,000 annual truck movements (loaded and empty) over Maine roads and highways. Some 20,000 of those movements involve hazardous materials.

At some point increased highway maintenance and increased air pollution result from the shift in traffic from rail to truck. While these effects are real they have not been quantified in the benefit - cost analysis.

Calculating the salvage value

It is estimated that the useful life of the rehabilitation project taken as a whole would average 30 years. Since the planning horizon is ten years the salvage value for the last year of the planning horizon would be 2/3 of the original net project cost or approximately $644,000.

Calculating the benefit - cost ratio

The worksheet identified as Exhibit 4 shows the calculation of the benefit - cost ratio under the prescribed methodology. The net benefits for each year are summed and then discounted to a present value using the FRA discount rate. When the total present value of the project's benefits is divided by the project cost the result is a benefit - cost ratio of 10.0.

EXHIBIT 1

RUNNING TIME ASSUMPTIONS

PROJECT AREA

Year	Track Speed 35 mph	25 mph	10 mph	5mph	One way Running time	One way delay
1	11 mi.	5 mi.	4 mi.	0	.91 hr.	-
2	8	6	6	0	1.07	.2
3	6	8	6	0	1.09	.2
4	4	8	8	0	1.23	.3
5	2	8	10	0	1.38	.5
6	-	8	12	0	1.52	.6
7	-	5	15	0	1.70	.8
8	-	-	20	0	2.0	1.1
9	-	-	20	0	2.0	1.1
10	-	-	-	20	4.0	3.1

EXHIBIT 2

TRAFFIC ASSUMPTIONS

	Total Traffic	Time Sensitive Traffic	Average Revenue
In project area	2,968	1,780	$447/carload
On-line in Maine outside project area	1,675	670	$447/carload
Overhead between CN and Guilford	6,000	5,400	$400/carload
Stations in New Hampshire	4,454	-	$266/carload
	15,097	7,850	

Year	Carloads saved
1	0
2	0
3	785
4	1,570
5	2,355
6	3,925
7	5,887
8	7,065
9	7,065
10	7,850

EXHIBIT 3

DEFINITIONS AND CALCULATIONS

Affected Traffic

Traffic in project area plus overhead traffic via New Hampshire plus on-line in Maine via New Hampshire

Car Hire Saved

Car hire rate times delay time, times affected traffic (counted once each for both loads and empties)

T & E Wages Saved

Wage rate times delay time, times crew size, times number of crews affected

Fuel Saved

Fuel consumption times delay time, times fuel cost, times number of trains affected

Relief Crew

To stay within the federally mandated hours of service a relief crew would be necessary approximately 100 times per year beginning in year 10 when the delay time exceeds 2 hours one way.

Relief Crew Travel

Transportation expense necessary to ferry the relief crew to the point where the regular crew is outlawed

ASSUMPTIONS

Car Hire

$.65/hour per diem or $60.00 per revenue carload

Diesel Fuel Consumption

84 gallons/hour for a train consist of 3 locomotives

Diesel Fuel Price

$.85/gallon

Days of Operation

360 days/year

Train & Engine Wages

$11.50 per hour straight time
$17.25 per hour overtime

Benefits and Insurance

$.78 per $1.00 of wages

Crew Size

3

BENEFITS – COST ANALYSIS
MAINE REHABILITATION PROJECT

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
FREIGHT REVENUE RETAINED										
STATIONS IN PROJECT AREA	$0	$0	$79,566	$159,132	$238,698	$397,830	$596,745	$716,094	$716,094	$795,660
OTHER STATIONS IN MAINE	0	0	29,949	59,898	89,847	149,745	224,618	269,541	269,541	299,490
BRIDGE TRAFFIC CN TO GUILFORD	0	0	216,000	432,000	648,000	1,080,000	1,620,000	1,944,000	1,944,000	2,160,000
TOTAL REVENUE SAVED	0	0	325,515	651,030	976,545	1,627,575	2,441,363	2,929,635	2,929,635	3,255,150
OPERATING EXPENSES										
Car Hire Incurred	0	0	(47,100)	(94,200)	(141,300)	(235,500)	(353,250)	(423,900)	(423,900)	(471,000)
Car Hire Saved	0	3,640	3,436	4,848	7,569	7,859	8,437	9,917	9,917	24,785
T & E Wages Saved	0	4,968	4,968	7,452	12,420	14,904	19,872	40,986	40,986	115,506
T & E Benefits Saved	0	3,875	3,875	5,813	9,688	11,625	15,500	31,969	31,969	90,095
Fuel Saved	0	10,282	10,282	15,422	25,704	30,845	0	0	0	0
Relief Wages Saved	0	0	0	0	0	0	0	0	0	26,400
Relief Benefits Saved	0	0	0	0	0	0	0	0	0	20,592
Relief Travel Saved	0	0	0	0	0	0	0	0	0	10,000
Total Expenses	0	22,765	(24,539)	(60,665)	(85,919)	(170,268)	(309,441)	(341,028)	(341,028)	(183,623)
TOTAL PROJECT BENEFITS	0	22,765	300,976	590,365	890,626	1,457,307	2,131,922	2,588,607	2,588,607	3,071,527
LESS: SALVAGE VALUE										(643,950)
DISCOUNT FACTOR @ 4.1%	0.9606	0.9228	0.8864	0.8515	0.8180	0.7858	0.7548	0.7251	0.6965	0.6691
PRESENT VALUE	$0	$21,007	$266,796	$502,710	$728,520	$1,145,109	$1,609,223	$1,876,983	$1,803,058	$1,624,298

PRESENT VALUE OF BENEFITS $9,577,703

PRESENT VALUE OF COSTS 961,119

BENEFIT-COST RATIO 10.0

CHAPTER VI

METHODOLOGY FOR COMPARING BENEFITS AND COSTS OF LOCAL RAIL SERVICE ASSISTANCE PROJECTS

A. Introduction

This report presents methods of calculating and comparing benefits and costs for projects eligible for assistance under the Local Rail Service Assistance Act of 1978. The description of these methods is pursuant to 49 CFR Part 266.15 (c)(5) and has been prepared for inclusion by the Maine Department of Transportation (MDOT) in the Maine State Rail Plan.

The methods described below were developed on the basis of a review of the following documents:

> U.S. Department of Transportation, Federal Railroad Administration, Rail Planning Manual, Vol. II, Guide to Planners (Washington, D.C., 1978).
>
> U.S. Department of Transportation, Federal Railroad Administration, Office of Federal Assistance, Office of State Assistance Programs, "Benefit-Cost Guidelines Rail Branch Line Continuation Assistance Program" (mimeographed, January 11, 1980).

Methodological statements contained in Rail Plans submitted by states other than Maine were also examined prior to the preparation of this document.[1]

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[1] A good overview of issues in benefit-cost analysis is presented in Richard A. Musgrave and Peggy B. Musgrave, Public Finance in Theory and Practice, Third Edition (New York: MaGraw-Hill, 1980), Chapters 8 and 9.

B. Project Selection

The benefit-cost methodology described herein is applied to all projects submitted to the Federal Railroad Administration (FRA) for funding under Section 5 of the Department of Transportation Act. The projects subject to analysis are selected through a screening process applied to potentially eligible projects.

Potentially eligible projects are those that involve some form of assistance to eligible and potentially eligible lines. Eligible and potentially eligible lines include the following:

> Lines subject to possible abandonment. This category includes two types of lines specified on carrier ICC system diagram maps: Category 1, all lines or portions of lines which the carrier anticipates will be the subject of an abandonment or discontinuance application to be filed with the Commission; and Category 2, all lines or portions of lines potentially subject to abandonment which the carrier has under study and believes may be the subject of a future abandonment application because of either anticipated operating losses or excessive rehabilitation costs as compared to potential revenues.
>
> Lines eligible or potentially eligible under Section 5 density criteria. This category includes two types of lines: all lines carrying less than 3 million gross ton miles per mile and all lines carrying more than 3 million but less than 5 million gross ton miles per mile, pending authorization by the Federal Railroad Administration Administrator.

Eligible and potentially eligible lines, as defined above, comprise the overwhelming majority of total rail mileage in Maine. It is estimated that lines carrying less than 3 million gross ton miles per mile account for approximately two thirds of the state's total rail mileage. In light of the large number of eligible lines, MDOT will limit the number of projects subject to detailed benefit-cost analysis to those satisfying a variety of relevant criteria. Projects will be given higher priority to the extent that:

a. Abandonment is anticipated at an earlier date;

b. Gross ton mileage carried is greater;

c. The condition of the track warrants rehabilitation;

d. The employment impact from abandonment is expected to be greater;

e. Continuation or upgrading of service is consistent with State industrial development policies;

f. There is strong carrier and local shipper interest in the project.

The screening process will rely on data generated through the MDOT's Light Density Line Evaluation and Prioritization Project. This project, as outlined in the Department's 1979 Planning Work Statement, will generate a data base covering all eligible track mileage in the State. With the assistance of a consultant, the Department will establish prioritization criteria and gather information relating to such variables as:

a. weight and condition of rail;

b. type and condition of ties;

c. condition of roadbed and drainage;

d. volume of traffic (tonnage);

e. type of traffic;

f. frequency of train movements;

g. economic data for the service area;

h. strategic importance of the line.

These variables will then be examined by the Department in order to rate each eligible line for project assistance eligibility and will serve "as a basis for prioritization should a railroad file for a project on that line in a given year". High priority projects considered for submission to the FRA for assistance will be subject to a detailed benefit-cost evaluation in accordance with the methodology described below.

Local rail service assistance is available under Title 5 of the DOT Act, as amended, for the following types of projects:

Acquisition. "... the cost of acquiring, by purchase, lease, or in such other manner as the State considers appropriate, a line of railroad or other rail properties, or any interest therein, to maintain existing or provide for future rail service."

Subsidy. "... the cost of rail service continuation payments."

Rehabilitation. "... the cost of rehabilitating and improving rail properties on a line of railroad to the extent necessary to permit adequate and efficient rail freight service on such line."

Substitute service. "... the cost of reducing the costs of lost rail service in a manner less expensive than continuing rail service."

Construction. "... the cost of constructing rail or rail related facilities (including new connections between two or more existing lines of railroad, intermodal freight terminals, sidings, and relocation of existing lines) for the purpose of improving the quality and efficiency of rail freight service."

Benefit-cost analyses are prepared for all types of assistance other than subsidy ("rail service continuation assistance").[2]

C. The Benefit-Cost Model

Benefit-cost analysis can be used in a variety of ways. In the present context, the purpose of the analysis is to determine if the proposed expenditure contributes to or subtracts from the total economic welfare, regardless of the distribution of benefits and costs among the citizens. Economic welfare is assumed to be enhanced if the present value of benefits exceeds

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[2] 49 U.S.C. 1654, Section (f) (1) through (5).

the present value of costs (i.e., the ratio of benefits to costs is greater than one). Economic welfare is assumed to be lowered if the present value of costs exceeds the present value of benefits (i.e., the ratio of benefits to costs is less than one).

It should be emphasized that benefit-cost analysis is an analytical component of a larger decision making process and that the positive net-benefit criterion is not the sole criterion upon which acceptance or rejection of projects is based. Distributional considerations are a valid concern of the planning process and cannot be evaluated in the benefit-cost framework. These considerations, in addition to such questions as the relationship between a given project and the State's regional growth policies, are addressed outside the benefit-cost model through the political decision-making process. Thus, the model presented here makes no effort at incorporating distributional weights for direct and indirect benefits and costs.

For each proposed project, the following ratio is calculated:

$$\frac{PVB}{PVC}$$

where

$$PVB = \frac{B_1}{1+i} + \frac{B_2}{(1+i)^2} + \frac{B_3}{(1+i)^3} + \ldots \frac{B_n}{(1+i)^n}$$

and

$$PVC = \frac{C_1}{1+i} + \frac{C_2}{(1+i)^2} + \frac{C_3}{(1+i)^3} + \ldots \frac{C_n}{(1+i)^n}$$

PVB is the estimated present value of benefits and PVC is the estimated present value of costs. B and C are benefits and costs

for each of the n years of the projects life. The discount rate is i.

D. Costs

Principles

In general, costs involve two components: the opportunity costs of resources used in executing the project and any environmental damage ("external cost") associated with the execution of the project. For purposes of the benefit-cost analyses of local rail service assistance projects, cost estimates are limited to the former category, which may be refered to as "project costs." It is recognized that negative environmental impacts should be considered in determining overall project desirability, but that these impacts are often difficult or impossible to express in dollar terms. Consequently, an attempt is made to discover and quantify external costs, but no effort is made to place dollar values on these effects or to include such effects in calculated benefit-cost ratios.

Furthermore, project costs are adjusted to reflect differences that are thought to exist between project expenditures and opportunity cost. Ideally, project cost should measure the value of goods and services foregone due to the diversion of productive resources away from alternative uses. The prices these resources command in the market would measure this opportunity cost if market structures conformed with the perfectly competitive model. However, there may be gross

differences between what resources are paid in their current uses and what they could command in their best alternative uses. Such differences can result, for example, from artificial or real constraints on the local supply of a productive service. In cases where such distortions appear to be present, project costs are measured not by payments made but rather by estimates of the prices that a given resource or service would be expected to command in its best alternative use (so-called "shadow prices").

Cost Measurement

Project costs are defined and measured in accordance with the cost categories outlined for each type of project in "Benefit-Cost Guidelines Rail Branch Line Continuation Assistance Program."[3] These costs sum to total program outlays as specified in the application for Federal assistance, including all Federal as well as non-Federal funds.

Appropriate shadow prices for labor inputs whose wage is thought to overstate opportunity cost are obtained from the Maine Bureau of Employment Security.

E. Benefits

Project benefits can be divided into two major categories: direct benefits and indirect benefits. Direct benefits, in turn, are defined as either primary or secondary. Primary direct benefits consist of project-induced reductions in the cost of

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[3] Op. cit., pp. 36-40.

transporting the amounts of commodities that would be shipped by firms located on a branch line if the proposed project were not undertaken. Secondary direct benefits consist of increases in economic surplus attributable to increased shipments by firms located on the branch relative to quantities that would be shipped if the project were not undertaken. Indirect benefits consist of the economic surplus generated by firms that would cease operations if the branch were closed. The principles defining direct and indirect benefits are set forth below.

Direct Benefits: Principles

The total direct benefit from any investment project is defined as equal to the change in economic surplus expected to result from the project. (The benefit, of course, may be positive or negative.) Economic surplus consists of two components: (1) consumer surplus -- the sum of the difference between the prices purchasers are willing to pay for each unit of a service and the price they have to pay; and (2) producer surplus -- the sum of the difference between the opportunity cost of each unit of a service and the price the producer receives.

Given the demand for a service, the economic surplus generated by that service changes when unit cost changes. If unit cost falls as a result of an assisted project, economic surplus will rise. The increase in economic surplus will consist of several components. First, if the unit cost falls and price remains unchanged, the quantity of the service purchased will remain unchanged. The increase in surplus will be equal to the

reduction in unit cost times the amount of the service purchased. (It is also equal to the total cost of the service prior to the change in unit cost minus the total cost of the service after the change in unit cost.) This is the primary direct benefit of the project. Secondly, if the decrease in unit cost is accompanied by a decrease in price, then normally an increase in quantity purchased will occur. If an increase in quantity purchased occurs, there is a further accompanying increase in economic surplus. This further increase has two components, which, combined, are defined as the secondary direct benefit of the project. The first component is an increase in producer surplus attributable to the increased quantity sold. This increase will be equal to the change in quantity sold, times the difference between the new unit cost and the new price. The second component of increased surplus is an increase in consumer surplus. The increase in consumer surplus will be equal to the difference between the prices purchasers are willing to pay for each of the additional units purchased and the price they have to pay -- the new, lower price.

In general, the changes in producer surplus that are expected to arise from a projected change in unit cost are directly measurable. Measurement requires knowledge of the projected new price, the projected new unit cost, and of the old and projected quantities purchased.

The change in consumer surplus that may arise from a change in price is not directly measurable since the prices that people

are willing to pay for additional units of the service are not known. However, the increase in consumer surplus can be estimated to be equal to one-half of the additional quantity purchased valued at the difference between the old and new price.

If each of these is known or acceptably estimated, the impact of the proposed project on economic surplus can be measured as the sum of the following three elements, for each commodity shipped.

(1) $(c_0 - c_1)(q_0)$

(2) $(q_1 - q_0)(p_1 - c_1)$

(3) $1/2\ (p_0 - p_1)(q_1 - q_0)$

Element (1) is defined as the primary direct benefit of the project. Elements (2) and (3) constitute the secondary direct benefit of the project.

The application of this formula may be illustrated with reference to a hypothetical rehabilitation project. For purposes of illustration, it is assumed that only one product is shipped over the branch line. It is also assumed that if track improvements are not made the branch will be abandoned. The commodity in question would then be shipped by truck from origin on the branch to destination somewhere off the branch. If the cost per ton of shipping the commodity from origin to destination is lower by rail than by truck, then the primary direct benefit of the project will be positive. The gain in surplus attributable to the reduced cost of shipping by rail the same quantity of the commodity that would have been shipped by truck

if the branch line closed is equal to $(c_0 - c_1)(q_0)$, where c_0 is the truck cost per ton shipped the required distance; and q_0 is the amount that would be shipped by truck if the branch were to close.

The change in surplus will be altered if rail shipping rates for the given commodity are lower than truck shipping rates and the differential in rates results in increased shipments. Here the two remaining components of the above formula come into play. The additional producer surplus generated will be equal to $(p_1 - c_1)(q_1 - q_0)$, where $(q_1 - q_0)$ is the additional amount shipped. The additional consumer surplus can only be estimated. On the assumption that the demand schedule has a constant slope between the point representing the truck rate and truck quantity and the point representing the rail rate and rail quantity, the gain in consumer surplus is equal to one-half the amount of gain that would be generated if the net surplus attributable to each additional unit shipped were measured by the difference between the truck rate and the rail rate, i.e., $1/2\ (p_0 - p_1)(q_1 - q_0)$.

On the further assumption that none of the values of the above-specified variables will change over the life of the project, the annual direct benefit of the project will be the sum of the three components described above for the single commodity shipped. If more than one commodity is shipped, then the total direct benefit will be the sum of the calculated annual benefit for each commodity.

Indirect Benefits

Projects receiving local rail service assistance may affect industrial location. A rehabilitation project that either up-grades a branch or prevents abandonment may forestall the closing of plants located on the line. Acquisition or provision of substitute service may do likewise. New construction may stimulate the location of new production facilities on the branch or the expansion of existing facilities. The impacts on economic surplus stemming from such changes in industrial location are defined as indirect benefits.

In general, indirect benefits are considered legitimate components of benefits and are included in benefit calculations when they are measurable, expected to be of significant magnitude, and valid within a statewide perspective on benefit incidence.

When a plant closing is expected to be avoided as a result of the project under review, the value of the associated benefit is the economic surplus that would have been generated by the plant. This economic surplus -- again, equal to the sum of producer and consumer surplus -- is the difference between the value consumers place on the commodity and the opportunity cost of the resources used to produce it. If a national perspective were taken on benefits measurement and if productive resources were perfectly mobile, the opportunity costs of inputs would be equal to their current rate of pay. However, the rate of pay of a resource that would otherwise be unemployed overstates its

opportunity cost. For example, if a plant closing resulted in the release of labor resources that were to become permanently unemployed, the opportunity cost of those resources would be zero. In this case, calculation of surplus would exclude from total cost the cost of labor services. Similarly, if a plant closing resulted in the release of plant and equipment that were to become permanently unused, the opportunity cost of that plant and equipment would be zero and would not be included in cost in calculating consumer surplus. The effect of excluding from production cost the returns to resources that will become unemployed is to add the value of those resources in their current use to the amount of surplus. Put another way, when the effect of a project is to avoid displacing resources that will become unemployed, the value of those resources in their current use is a true benefit of the project. In the case of labor resources, this value is equal to the amount of labor times its current wage. In the case of plant and equipment, this value is equal to the current imputed rental value of this plant and equipment. In all instances, the imputation of values for otherwise unemployed resources should be limited to the duration of unemployment.

In practice, the imputation of the value of otherwise unemployed resources is generally the only element of economic surplus included in measured benefits attributable to the avoidance of plant closings. The computation may also include an estimate of producer surplus when reliable information on cost of

production is obtainable. Consumer surplus is omitted from indirect cost calculations in light of the fact that demand functions are not known and can be estimated with a reasonable degree of confidence only at great expense.

The geographical perspective taken for purposes of defining indirect benefits is that of the state. For example, the value of otherwise unemployed resources is included as a benefit even when they are expected to be reemployed outside of the state. The shift of value from in-state to outside the state when resources move is considered a loss from the state's perspective and the avoidance of this loss through an assisted project is considered a benefit.

Extenal Benefits

Values for external benefits are not included in the benefit-cost calculations. These benefits can be of two types: pecuniary and real. Pecuniary external benefits amount only to increases in the value of assets or additions to money income stemming from the project. For example, if increased rail traffic and higher local employment levels have the effect of raising local land values, the increase in land values is a pecuniary benefit. However, the increase is not included as a project benefit because it does not represent an increase in the net value of goods and services produced by the national economy; there will be a corresponding decrease in asset values elsewhere. Similarly, if increased local economic activity forces up wage

rates in the community, the increase in wages is not considered a benefit for purposes of the analyses. The increase is considered a transfer of money income from elsewhere in the economy.

Real external benefits are, in principle, legitimate components of the benefits from any investment project. These effects include the enhancement of the environment or of human health and well-being through means other than the price system. For example, closing a branch that passes near a residential area may have the positive effect of reducing noise pollution. Although such effects constitute changes in human welfare, they are not included in the benefit calculations for analyses prepared in support of local rail service assistance applications. This omission is justified by the difficulty of placing dollar values on these impacts and by the general assumption that such impacts are likely to be small. In instances where direct non-pecuniary external impacts are likely to be substantial, an effort is made to describe and quantify these impacts and evaluate their significance through the planning process.

Summary

While all of the direct and indirect benefits defined above are in principle legitimate components of benefits, not all are calculated for each analysis. In all instances, primary and secondary direct benefits are calculated. The indirect benefit calculation is, however, truncated. In recognition of the

difficulty of measuring consumer surplus, indirect benefits calculations are limited to that portion of increased output that arises from avoiding the unemployment of resources for that period over which resources are expected to be unemployed.

F. Measurement Conventions and Data Sources

The data required to complete calculations of direct and indirect benefits may be obtained by various means that differ in regard to specificity relative to the case at hand and cost of acquisition. At one extreme, data on transportation costs and rates can be taken from published sources. The cost of these data is low, but they may not represent local or carrier-specific cost conditions accurately. At the other extreme, costs can be developed for each branch and for each alternative transportation mode by examining railroad, shipper, and non-rail transportation film records. In practice, for purposes of constructing benefit-cost ratios for proposed projects, a mix of sources is used. The conventions that govern the choice of sources and methods of calculations are outlined below. For purposes of this presentation, the condition of not undertaking the proposed project will be referred to as the null case and the condition of undertaking the proposed project will be referred to as the project case.

Direct Benefit Calculations

Rates. Rail rates (p_1) and rates for the null case (p_0) are obtained from carriers and shippers. Rates are stated in terms of dollars per ton for a specified distance shipped. The distance shipped is the distance shipped in the null case. This distance will be either the distance in miles from origin to destination or the distance in miles from the shipper's location on the branch to the nearest rail connection. Information on origins and destinations and on whether, in the null case, the shipper will ship from origin to destination or to the nearest rail connection is obtained from a survey of shippers on the branch. When the shipper expects to ship by other means to the nearest rail connection for transfer to rail, rates are defined to include transfer costs.

Unit Costs. As noted above, rail costs (c_1) and null case costs (c_0) may be estimated in a variety of ways. In instances in which the null case involves shipment by truck, variable line-haul trucking costs are obtained from published Interstate Commerce Commission (ICC) schedules.[4] Origins and destinations and amounts expected to be shipped in the null case are obtained through a survey of shippers. Distances from origin to destination (or from shipper to nearest rail connection, as the case may be) are estimated from the Rand-McNally Standard Highway Mileage Guide, most recent edition. Estimated costs of

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[4]U.S. Interstate Commerce Commission, Bureau of accounts, "Update Ratios for Class I and Class II Motor Common Carriers of General Commodities... (Washington, D.C.: mimeographed, most recent date of publication).

transferring commodities from truck to rail are included in alternative-mode estimates, when appropriate. Transfer costs are based on estimates provided by shippers. Total null case costs are expressed on a per-ton basis for each commodity shipped and aggregated over all commodities to estimate total annual cost of transportation in the null case.

In general, on-branch rail costs for the project case are derived from carrier data. When economically feasible, these costs are developed specifically for the branch in question. Otherwise, system-wide cost estimates are used. When costs are developed for the branch in question, they are defined to include the full costs of shipping over the branch (including imputations of indirect cost) and include each of the following cost components: locomotive costs, crew costs, car costs, and maintenance-of-way. The methods used for estimating the contributions of each component are those genereally outlined in "Benefit-Cost Guidelines Rail Branch Line Continuation Assistance Programs". However, the bases for calculating specific cost components may vary from project to project depending on the availability of data from the carrier. Carrier labor costs are replaced by shadow price values for labor services when it seems apparent that carrier wages exceed those for persons of comparable skill levels in Maine. Shadow prices are obtained from the Maine Employment Security Commission. Off-branch rail

costs are taken from ICC published schedules.[5]

In instances in which the null case does not involve shipment by alternative modes (e.g., upgrading the branch line), cost data are derived solely from rail carrier records.

Quantities. Estimates of quantities to be shipped in the null case are based on interviews with shippers. Raw data on shipments in recent periods are provided by the carrier. Using these data as a reference point, shippers are asked to indicate expected levels of shipments in the null and project cases. Shipper responses are evaluated for reasonableness through discussions with carrier representatives and other potentially knowledgeable sources.

As noted above, in general, the only element of indirect benefit included in estimated project benefits is the value of resources that would become unemployed in the null case. The primary source of information on indirect impacts is the shipper survey. Shippers are asked to indicate if they expect to remain in operation should the null condition occur. For shippers who indicate that they expect to go out of business, information is obtained on numbers and types of employees and pay rates. Estimates of the expected duration of unemployment for each type of employee are developed from duration-of-unemployment statistics provided by the Maine Bureau of Unemployment Security. Estimated lost income is then included as a benefit in the years

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[5] U.S. Interstate Commerce Commission, Bureau of Accounts, Rail Carload Cost Scales, 1977, updated to most recent date by Rail Update Ratios.

during which unemployment is expected to persist.

Discounting

Benefits and costs are discounted to present value when they accrue during future periods.

Costs. In general, project costs are assigned to years in which they are incurred. The opportunity cost of the project is assumed to consist only of foregone consumption, since there is no ready basis for estimating the proportion of costs that take the form of foregone capital formation. In the case of rehabilitation projects, direct project costs will be incurred solely during the construction phase. For projects that are to be completed within one year, project costs are assigned to the calendar year in which the majority of expenditures are to be made. That year is then treated as Year Zero, and costs are not discounted over the one-year period. (In effect, direct project costs are treated as if incurred entirely on the first day of the year in which the expenditure is made.) For projects requiring more than one year to complete, expenditures are assigned to the calendar years in which the expenditures are made -- and discounted accordingly.

Benefits. Benefits are assigned to the calendar years in which they are expected to accrue. For rehabilitation projects that are expected to require more than one year for completion, benefits are pro-rated to construction-period years in proportion to project expenditures. In cases where the rehabilitation is premised on the avoidance of abandonment, benefits are assumed

not to accrue until the year abandonment would be expected to take place in the absence of the rehabilitation effort.

Project life. The project life establishes the outer limit of the time period over which benefits are discounted. For rehabilitation projects, project life is defined as that period over which the railroad is expected to maintain the line at a level sufficient to avoid deterioration to a standard below that which is achieved as a result of the rehabilitation. This expectation is established through agreement between MDOT and the railroad.

Discount rate. Project benefits and costs are discounted at a rate intended to represent the real private marginal rate of time preference. This rate is estimated as equal to the yield on Federal bonds of a term equivalent to project life, minus the estimated inflation premium contained in that yield. (Use of the real rate is justified since estimates of future benefits and cost are not adjusted upward for expected inflation.) On the assumption that the inflation premium reflects a market expectation that inflation will continue at current rates, the inflation premium is estimated to be equal to the current annual rate of increase in consumer prices as measured by the U.S. Department of Labor Consumer Price Index (All Urban Consumers).

CHAPTER VII

DESIGNATED STATE AGENCY

The State of Maine Department of Transportation has been designated by the Governor of the State of Maine as the agency to coordinate state rail planning and to develop and administer a continuous State Rail Plan.

The direct responsibility for rail planning and project inspection is housed within the Bureau of Transportation Services of the Department of Transportation.

The organizational plan for the State of Maine Rail Transportation Program is presented in chart format in Exhibit VII-1.

STATE OF MAINE

RAIL TRANSPORTATION PROGRAM

ORGANIZATION PLAN

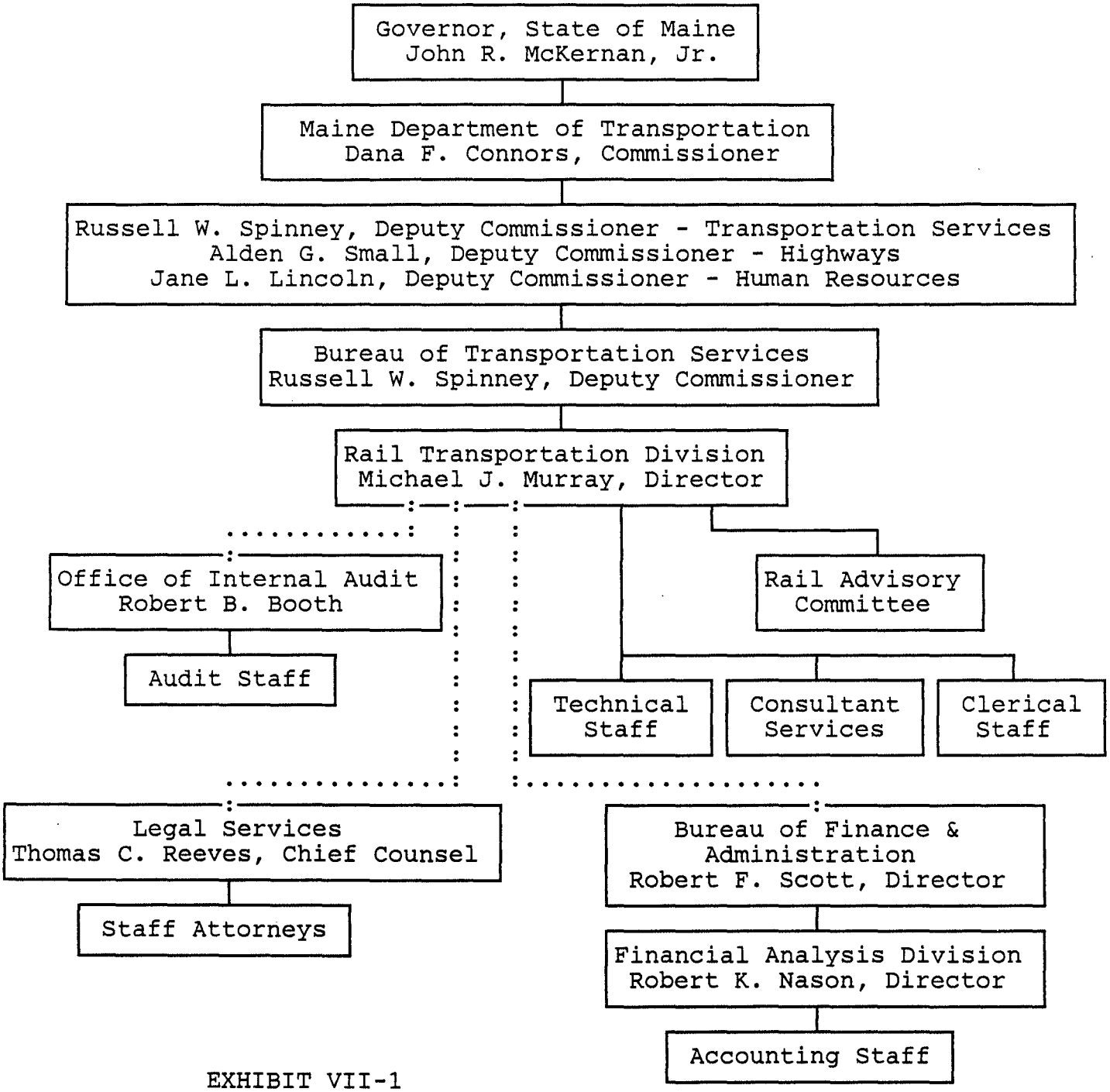


EXHIBIT VII-1

CHAPTER VIII

PUBLIC PARTICIPATION IN THE RAIL PLANNING PROCESS

The unique characteristics of each railroad issue, the planning techniques used to evaluate the issue and the degree of effort required to resolve the issue necessitates different forms of public participation. Maine's rail planning program provides for public participation in the following ways:

- Initial contacts are made with local officials and regional planning commissions as rail issues arise to determine interest and degree of involvement.

- Where local interest is indicated, the Maine Department of Transportation holds public informational meetings to provide assistance and receive input regarding any ICC abandonment proceedings or service continuation subsidy proposals. Notices of such public meetings are placed in area newspapers.

- MDOT helps communities and/or local rail users develop methods by which local share requirements can be secured and provide for service.

- Shipper surveys and personal interviews provide much of the preliminary input in the Department's rail issue analysis.

- The Department will afford Maine citizens the opportunity for a public hearing on any rail issue through newspaper notices and notification of local officials.
- Public hearings will be held on each update of the Rail Transportation Plan and upon request on each update amendment or project application.

Examples of the rail planning process are included in this update in Appendix B.

CHAPTER IX

OTHER STATE OF MAINE RAIL ISSUES

A. Passenger Service

As of January 1, 1990 the only passenger service available in the State is provided by VIA Rail Canada, Inc. over the Canadian Atlantic trackage between Vanceboro and the Maine/Quebec border west of Jackman. Prior to this date VIA Rail provided daily service between Halifax, Nova Scotia and Montreal. Due to budget constraints, the Canadian government reduced subsidies for rail passenger service and trips on the above mentioned route were reduced to thrice weekly.

The State of Maine has hired a consultant to conduct a statewide Rail Passenger Service Study with specific emphasis on the Portland to Boston corridor. This five stage study has been designed to permit the Department to analyze the potential for reestablishing rail passenger service on various corridors in the State before committing large sums of money to any such undertaking. The first two stages, a demand analysis, is scheduled to be completed by June 30, 1990. Should the numbers generated in this portion of the study show sufficient demand, the Department may proceed with further stages leading ultimately to reestablishing service on one or more corridors.

B. State Acquisitions

The Department of Transportation is currently in negotiations with Guilford Transportation Industries for the

purchase of several lines that are either abandoned or are currently carried in I.C.C. Category 1 by GTI. The subject lines are as follows: a portion of the "Lower Road" between Brunswick and Augusta; the remaining section of the Rockland Branch between Brunswick and East Brunswick; the Lewiston Lower Road between Lisbon and Lewiston; the Mountain Division between Westbrook and the New Hampshire border at Fryeburg; the Foxcroft Branch from Newport to Dover-Foxcroft; the Farmington Branch from Livermore Falls to Farmington; and the Eastport Branch from Ayers Junction to Eastport. Together these lines comprise in excess of 175 miles of trackage, which, when added to the currently State owned 179 miles trackage will give the State of Maine a significant railroad right-of-way infrastructure.

Table IX-1, Statewide Track Status Summary, lists all railroad rights-of-way in the State according to their I.C.C. Category classification. Reference is also made to Table II-1 which shows all lines abandoned in the State since 1975.

As of 03-01-90

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
RAIL TRANSPORTATION DIVISION
STATEWIDE TRACK STATUS SUMMARY

Category 1 - Subject to Abandonment Within 3 Years

Maine Central		
Mountain Subdivision (Windham T.L.-N.H. Line)	43.79	
Foxcroft Branch (Newport-Dover Foxcroft)	30.32	
Lewiston Lower Road (Lisbon-Lewiston)	9.54	
Portland Terminal		
Mountain Subdivision(Westbrook-Windham T.L.)	1.58	
TOTAL		85.23

Category II - Lines Under Study for Abandonment - NONE

Category III - Lines for Which Abandonment is Pending Before the Interstate Commerce Commission - NONE

Category IV - Lines Under Subsidy - NONE

Category V - Active Lines

Aroostook Valley	5.00	
Bangor & Aroostook	434.66	
Belfast & Moosehead Lake	33.07	
Canadian Atlantic	201.25	
Greater Portland Development Corporation	3.04	
Lewiston Auburn Railroad Company	5.43	
New Hampshire Northcoast	.33	
St. Lawrence & Atlantic	89.72	
Springfield Terminal	412.11	
TOTAL		1184.61
Calais and Rockland Branches (Abd. Tracks in Place)		179.04
TOTAL		1448.88

TABLE IX-1

C. Safety Programs

Railroad safety programs in the State of Maine are separated into several areas either through the U.S. Department of Transportation or the Maine Department of Transportation.

The Federal Railroad Administration has the responsibility for operational safety and track safety standards. Additionally, the Maine DOT employs three railroad safety inspectors, two track inspectors and one motive power & equipment inspector. These three gentlemen are expected to be certified by the FRA by October 1, 1990 and at that time will assume inspection duties on all lines and carriers within the State of Maine.

The Maine Department of Transportation has responsibility for crossing safety programs, yard lighting, and track clearances.

Both agencies participate in accident investigations involving railroad equipment resulting in personal injury and/or death.

Table IX-2, Rail-Related Safety Programs, depicts the current operational railroad safety programs in the State of Maine.

TABLE IX-2

RAIL-RELATED SAFETY PROGRAMS

Safety Item	Responsible Agency
Highways Crossings	MDOT
Handrails and Walkways	MDOT
Track Safety Standards	FRA
Operating Equipment	FRA
Yard Safety	MDOT
Clearances	MDOT
Accident Investigations	MDOT & FRA

Highway Crossing Program

Highway/rail crossings in the State of Maine are separated into several different categories depending on the volume of traffic. The highway system with the largest volume of traffic is the Federal Highway System. Next in the amount of traffic are the State-maintained roads followed by the town and county roads.

The railroads are required to maintain all public crossings to 18" outside of the outside rail. Any private crossing costs are borne by the owner of the abutting property.

All public crossing rehabilitation and/or safety programs involving expenditures of public funds are handled by the Department's Bureau of Planning in conjunction with the Bureau of Transportation Services.

Railroad-Highway Grade Crossing Improvement Program

The Maine Department of Transportation is continuing its ongoing efforts to reduce accidents and improve safety at public railroad-highway crossings within the State as mandated by the 1973 Highway Safety Act and amended by subsequent acts in 1976 and 1978.

To facilitate this effort, a systematic inventory and field review of all public grade crossings within the State was conducted and is utilized in the identification of locations where additional safety measures are necessary. Prioritization and selection of proposed improvements are based on the results of a diagnostic team field review and evaluation of those crossings considered to be deficient from a safety standpoint.

The diagnostic team is comprised of representatives from the Department's Bureaus of Planning and Transportation Services, the FHWA, the local community and representatives of the various railroads operating in Maine. Priorities are established based on a comprehensive evaluation methodology which considers overall need as determined by the diagnostic team, crossing surface roughness, sight distance, roadway alignment and geometrics, and an accident probability index. Department officials believe that this technique provides an effective means of determining the most hazardous crossings and is a direct positive effort toward railroad grade crossing safety.

Through the ongoing efforts of the diagnostic team, crossing projects are identified and eventually are funded through the Federal 130 Program. These projects vary in complexity from simple clearing work through surface rehabilitation, to installation of new automatic crossing warning devices. In the 1988-1989 biennium 46 projects were scheduled for construction. Fewer projects will be funded in the 1990-1991 program because of a reduction in federal funding.

Operation Lifesaver

During the fall of 1982 the Department of Transportation became an active participant in the crossing safety program "Operation Lifesaver".

Yard Safety

In the general provisions of the State of Maine Inspection and Safety Program is the area of yard safety for railroad employees. This involves several areas such as night lighting, switch stand illumination and general yard safety.

Also covered are lighting on equipment, as well as clearances on side and overhead of tracks.

The Department responds to complaints from the yard employees on the condition of lighting and other safety matters, such as side clearance on cars.

Accident Investigation

The Department investigates accidents resulting in loss of human life, or injury requiring three days or more hospitalization. On other railroad accidents involving rolling stock, the Federal Railroad Administration will conduct an investigation if it deems necessary.

In 1978 the Federal Railroad Administration, Office of Safety, established a district office at Bangor, Maine. That office is staffed by a Motive Power and Equipment Safety Inspector and a Track Safety Inspector.

These two inspectors are primarily responsible for investigating railroad accidents; investigating complaints from the general public, railroad employees, labor organizations, state and local government officials, etc.; and the investigation of petitions for exemption made by rail carriers. The inspectors are also responsible for conducting periodic inspections of

railroad equipment, track, other facilities and required records to insure carrier compliance with federal safety regulations.

The Bangor district includes the rail carriers and routes in Maine.

FRA safety inspectors who deal with operating practices, signal and train control and hazardous materials transportation in the State of Maine work out of the Cambridge, Massachusetts regional office.

APPENDIX A

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
WASHINGTON, D.C. 20590

ASSOCIATE ADMINISTRATOR

Mr. George N. Campbell, Jr.
Commissioner
Maine Department of Transportation
Transportation Building
State House Station 16
Augusta, ME 04333

MAR 10 1981

Dear Mr. Campbell:

Your rail plan update, State of Maine Rail Transportation Plan '79-'80 Update, is hereby approved. The rail plan update is an annual requirement and this approval will expire one year from the date of this letter.

Enclosed are several comments which should be helpful to you in preparing future revisions and updates to the plan. If you have any questions concerning this approval, please contact Mr. Harold E. Levine, Eastern Regional Director of Federal Assistance at 215/597-3617.

Sincerely,

William E. Loftus
Associate Administrator for
Federal Assistance

Enclosure

U.S. Department
of Transportation
**Federal Railroad
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

FEB 22 1982

Mr. Russell W. Spinney
Engineer of Transportation Services
Maine Department of Transportation
State House Station 16
Augusta, ME 04333

Dear Mr. Spinney:

Thank you for your draft of the "Methodology for Comparing Benefits and Costs of Local Rail Service Assistance Projects." This office has reviewed the methodology and we find it acceptable for inclusion in the 1982 Update of the Maine Rail Transportation Plan.

We offer two comments which should be useful in improving the methodology:

1. The methodology should indicate how to measure the duration of unemployment when indirect benefits are to be calculated.

2. The methodology should have a procedure for counting for the difference between truck taxes and their appropriate share of roadway costs, when the difference is material.

If you have any questions, please call Mr. Harold Levine, Eastern Regional Director of Federal Assistance at 215/597-3617.

Sincerely,

Walter C. Rockey

Walter C. Rockey
Director, Office of State
Assistance Programs

APPENDIX B

NOTICE OF PUBLIC HEARING

You are hereby notified that the Bureau of Transportation Services of the State of Maine Department of Transportation will hold a Public Hearing in the 3rd Floor Conference Room, Transportation Building, Child Street, Augusta, Maine on the 21st day of February, 1984, at 1:00 p.m. to receive comments on the January 1984 Update of the State of Maine Rail Transportation Plan.

This hearing location is accessible to the physically handicapped.

The Update was prepared pursuant to the requirements of the Federal Railroad Administration's Local Rail Service Assistance Program (Section 5 of the Department of Transportation Act, 49 U.S.C. 1654, as amended by the Local Rail Service Assistance Act of 1978) to insure the State's continued eligibility for federal funding.

Persons who are unable to attend the Hearing, but desire to comment on the Update, may file written comments no later than 5:00 p.m. on February 22nd, 1984 to:

Russell W. Spinney, Director
Rail Transportation Division
Maine Department of Transportation
State House Station #16
Augusta, Maine 04333

Draft copies of the Update are available for public inspection during normal business hours at the following location:

Bureau of Transportation Services
3rd Floor, Transportation Building
Child Street
Augusta, Maine

For additional information, contact Ernest E. Baker, Rail Specialist at (207) 289-3318.

MAINE DEPARTMENT OF TRANSPORTATION

William F. Fernald, Deputy Commissioner

February 6, 1984
Augusta, Maine

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
TRANSPORTATION BUILDING
STATE HOUSE STATION 16 AUGUSTA, MAINE 04333

December 15, 1983

To: Interested Parties

From: Russell W. Spinney, Director, Rail Transportation Division RWS

Subject: Maine Central Railroad's Rockland Branch

The Maine Central Railroad Company is studying the possibility of abandoning all or a significant portion of the so-called "Rockland Branch" extending from mile post 30.00 in Brunswick to its terminus at mile post 85.82 in Rockland.

Since the Interstate Commerce Commission's Abandonment Regulations have been streamlined by partial deregulation requiring written comments by interested parties within 30 days of the filing of an abandonment petition with the Commission by a railroad, the Maine Department of Transportation will conduct a public meeting on December 28, 1983 to discuss the potential impacts of abandonment and methods to prevent same.

The meeting will be held as follows:

Date: Wednesday, December 28, 1983

Time: 10:00 a.m.

Place: Wiscasset Town Office, located at Junction of U. S. Route 1 and State Route 27 in Wiscasset, Maine.

The Department encourages your attendance at this meeting.

RWS/el

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
TRANSPORTATION BUILDING
STATE HOUSE STATION 16 AUGUSTA, MAINE 04333

mdot

GEORGE N. CAMPBELL JR.
Commissioner

March 3, 1981

Mr. Richard M. Plante
Town Manager
P.O. Box R
Pittsfield, Maine 04967

Dear Mr. Plante:

This is written at the request of State Representative Patrick McGowen to address your concerns regarding Maine Central Railroad's recent listing of its branchline between Pittsfield and Hartland in Category I on its Systems Diagram Map.

A Category I designation of a branchline indicates that the line may be the subject of an abandonment petition within the next three (3) years. This act initiates more detailed recordkeeping and data release on the part of the railroad and is the beginning of certain planning activities by the State, localities and shippers affected.

The abandonment of a rail line under the rules of the Interstate Commerce Commission (ICC) is a multi-staged process during which states and other protestants are afforded input only at certain key points. Attached is a summation of the various stages of the abandonment process.

The Maine Central has initiated the abandonment process on the Hartland Branch by including it in its system diagram map. The next stage is the posting of a "Notice of Intent to Abandon Line or Discontinue Service" which is likely to occur some time during the following period of four months to three years.

You may wish to contact the railroad through its Vice President, Bradley Peters, at 773-4711 to obtain precise information about Maine Central's plans and reasons for the Category I designation. Generally, abandonments occur because a railroad can no longer operate a line profitably. Therefore, a community may wish to find out what measures might be taken to make the service more economically attractive to the railroad and thus prevent the abandonment altogether.

Should you have any questions or desire more information regarding this matter, please contact me at 289-2841.

Very truly yours,

MAINE DEPARTMENT OF TRANSPORTATION
Bureau of Public Transportation
William F. Fernald, Director

Russell W. Spinney

Russell W. Spinney
Transportation Engineer

RWS/el
Attach.
cc: Rep. Patrick K. McGowen

Rail Line Abandonment Procedures

Stage I. Railroad lists branchline under Category I in its annual system diagram update.

Stage II. (Up to three years after Stage I) Railroad posts and publishes "Notice of intent to abandon line or discontinue service".

Stage III. (at least 30 days after Stage II) Railroad files abandonment application with ICC (filing date) accompanied by a certification that the posting and publishing requirements of the "Notice of Intent" have been satisfied.

Stage IV. (within 45 days of the filing date)

a. If no protest is received from State, shipper or other parties within 30 days of filing date, the ICC shall find that the public convenience and necessity require or permit the abandonment or discontinuance. In such a case, the ICC shall, within 45 days of the filing date, issue a certificate which permits the abandonment or discontinuance to occur within 75 days of the filing date.

b. If a protest is received within 30 days after the filing date, the ICC shall, within 45 days after the filing date, determine whether an investigation is needed.

   i. If the ICC decides that no investigation is to be undertaken, the ICC shall, within 75 days after the filing date, decide whether or not to permit abandonment, taking into consideration the application of the railroad and any material submitted by protestants. If the ICC decides to allow abandonment, it shall, within 90 days of the filing date, issue a certificate which permits the abandonment to occur within 120 days of the filing date.

   ii. If the ICC decides that an investigation should be undertaken, the investigation must be completed within 135 days and an initial decision rendered within 165 days after the filing date. The initial decision shall become the final decision 30 days after its issuance unless it is appealed. If an appeal is heard by the ICC, the ICC shall issue its final decision within 255 days after the filing date. Whenever the ICC decides upon investigation to permit abandonment

ii. Cont'd.

it shall, within 15 days of the final decision, issue a certificate which permits abandonment to occur within 75 days of the final decision date.

Stage V. (within 10 days of the publishing of the ICC's abandonment decision in the Federal Register)

Any person or party may offer to pay the railroad a subsidy or offer to purchase the line.

Stage VI. (within 15 days of the publishing of the ICC's abandonment decision in the Federal Register)

If the ICC finds that a financially responsible person (FRP) (including a government authority) has offered financial assistance which will likely equal railroad costs for that line, the ICC shall postpone the issuance of the abandonment certificate and:

a. If the railroad and the FRP enter into an agreement which will provide continued rail service, the Commission shall postpone the issuance of the certificate for so long as the agreement is in effect.

b. If the railroad and the FRP enter into an agreement to purchase the line and continue rail service, the ICC shall approve the transaction and dismiss the application for abandonment.

c. If the railroad and the FRP fail to agree on the sale amount or terms of the subsidy, within 30 days after the offer is made:

i. If either party requests the ICC to establish the conditions and amount of compensation, the ICC shall render its decision within 60 days of the request and shall be binding on both parties, except that the FRP may withdraw his offer within 10 days. In such case, the ICC shall immediately issue the certificate of abandonment.

ii. If neither party requests that the ICC establish the conditions and amount of compensation, the ICC shall immediately issue the certificate of abandonment.

PRESQUE ISLE INDUSTRIAL COUNCIL

Developers of SKYWAY INDUSTRIAL PARK — *Larry E. Clark, Executive Director*

November 16, 1982

Mr. Ernie Baker
Maine Department of Transportation
Transportation Services
Station 16
Augusta, Maine 04333

Dear Ernie:

Enclosed is a copy of the Aroostook Valley Railroad Study recently compeleted by Mallar Development Services. The report was submitted to the Industrial Council on October 21st at which time Roger Mallar was present to discuss the study.

During the course of the study, we have gained considerable knowledge in railroad matters and certainly are much better prepared to deal with future situations. As Roger noted in his presentation, we are fortunate to have rail service, even with its limitations, and our course should be one of help and encouragement to the AVR. Some of the areas we will be watching closely in the days ahead will be (1) 1982's financial statement, (2) substantial increases or decreases in traffic count, (3) new leadership evolving as a result of Saul Kronovets recent death, (4) any major changes with the Bangor & Aroostook or Canadian Pacific in regards to the Melon situation and (5) any user problems.

Since the initiation of the study, the rail situation has steadily improved. Obviously, we are interested in service continuing to improve and for the AVR to become profitable, which Roger believes it can with present management strategies.

I have requested a meeting with Linda Dyer on her next visit to Presque Isle, to discuss the study and recommendations in which the City can be of assistance. In regards to this matter, I would appreciate any information regarding the availability of any state or federal funds for short line railroads.

P.O. Box 831, Presque Isle, Maine 04769-0831 — *Telephone (207) 764-4485 Extension 42*

Also, as we discussed, it is my understanding state funds were set aside to pay for a portion of the AVR study. The total cost of the study including travel, telephone calls, printing, etc was $8,991.37. At your convenience please advise as to how this matter is to be handled.

On behalf of the Industrial Council and City I wish to express our appreciation for your interest and guidance in the AVR situation. Your continued input and suggestions will be most helpful and I look forward to your comments regarding the study.

Sincerely yours,

Larry E. Clark
Executive Director

LEC/alm

Enclosure

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
TRANSPORTATION BUILDING
STATE HOUSE STATION 16 AUGUSTA, MAINE 04333

mdot

GEORGE N. CAMPBELL, JR.
Commissioner

April 26, 1983

Dear Sir:

Enclosed is a copy of the formal notice, "AB 83 (Sub. No. 4)" posted by the Maine Central Railroad of its intent to abandon its line of railroad from the Town of Pittsfield to the Town of Portland, a distance of 8.60 miles.

Please review this notice and advise this office of your position in this matter. You will note that petitions to investigate, and written comments must be filed with the Interstate Commerce Commission no later than June 16, 1983.

The Maine Department of Transportation is presently evaluating the State's position on this intent-to-abandon, and your input will be very important to this effort.

Very truly yours,

William F. Fernald
Deputy Commissioner

WFF/EEB/el

Enc.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
TRANSPORTATION BUILDING
STATE HOUSE STATION 16 AUGUSTA, MAINE 04333

December 15, 1983

To: Interested Parties

From: Russell W. Spinney, Director, Rail Transportation Division

Subject: Bangor and Aroostook Railroad's Limestone Branch

The Maine Department of Transportation has received an inquiry from the Bangor and Aroostook Railroad regarding federal or state assistance to rehabilitate their so-called "Limestone Branch" from Caribou to Limestone.

The Department has arranged a meeting with representatives from the Department of Defense's Military Traffic Management Command from Washington, D.C. and Colonel Gillis from Loring Air Force Base to discuss the branch line's future.

We invite and encourage you or your representative to attend the following meeting:

Date: Tuesday, January 17, 1984

Time: 9:00 a.m.

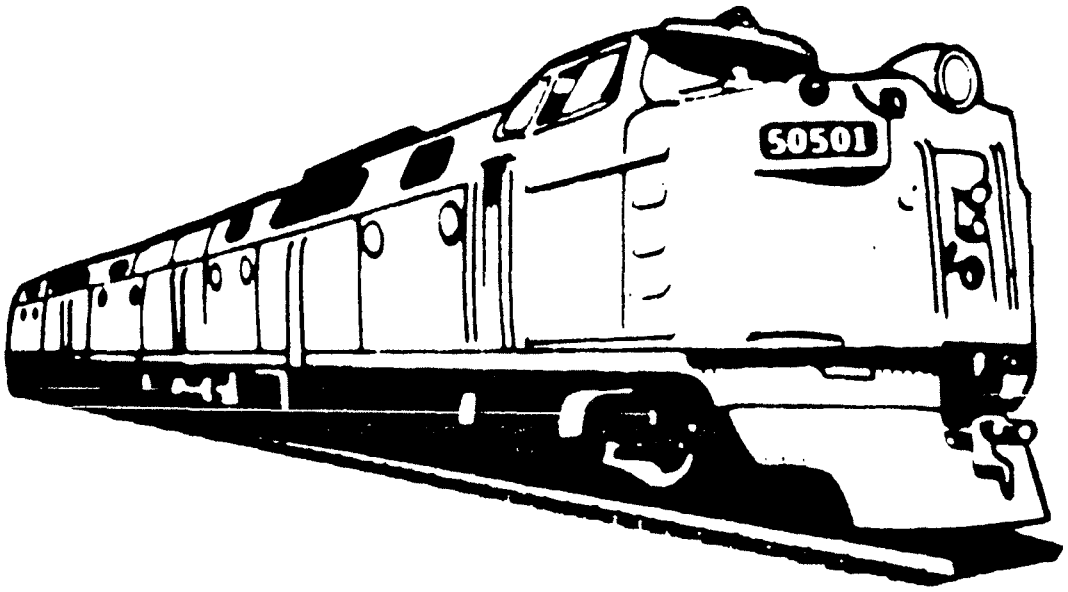
Place: Commissioner's Conference Room, 3rd Floor,
Transportation Building
Child Street, Augusta, Maine

RWS/el

The Aroostook Valley Railroad

A Study of Rail Service Conditions and Options

Prepared for
The Presque Isle Industrial Council



by
Mallar Development Services, Inc.
September 1982

FRA Comments on Maine Rail Transportation Plan '79-'80 Update

1. The Local Rail Service Assistance Act of 1978 requires that each State Rail Plan include, as soon as practicable, a methodology for determining benefits to costs of various types of projects. As we have stated previously, until such a methodology is approved as an amendment to the plan, or as part of a future rail plan update, the Federal Railroad Administration (FRA) will treat the benefit-cost analyses of projects submitted for Federal funding on a case-by-case basis.

2. Abandonment of lines or rail services which have been discontinued since the last submission of state rail plan update, should be identified.

3. Although the update presents appropriate revenue and cost information, there appears to be no analysis of these rail lines to see whether the new situation affects State transportation policy. Rail lines pending abandonment should be analyzed.

4. While the public participation process described meets FRA requirements, it would be helpful if the process directly involving the shippers and the services provided them, were more fully explained.