ALASKA LEGISLATURE COMMITTEE FILES 1987-1988 8672
4829 HLAB HB 485

401

UNITED STATES RAILWAY ASSOCIATION

Board of Directors

Stephen Berger
Chairman of the Board

Charles A. Bowsher
Comptroller General of the United States

L. Stanley Crane
Chairman of the Board, Consolidated Rail Corporation

Elizabeth Hanford Dole
Secretary of Transportation

Reese H. Taylor, Jr.
Chairman, Interstate Commerce Commission

Advisory Board

Stephen Berger, *Chairman*
Investment banker, Odyssey Partners, New York;
Professor, Graduate School of Public Administration, New York University

Frank H. Blatz, Jr.
Attorney, former Mayor of Plainfield, New Jersey
Recommended by the National League of Cities and U.S. Conference of Mayors

James E. Burke
Retired Vice President, United Transportation Union
Recommended by the American Federation of Labor and Congress of Industrial Organizations

Elizabeth Hanford Dole
Secretary of Transportation

Donald T. Regan
Secretary of the Treasury

Thomas P. Salmon
Attorney, former Governor, State of Vermont
Recommended by the National Governors' Association

Stanton P. Sender
Assistant General Counsel-Physical Distribution, Sears, Roebuck and Company
Recommended by large shippers

Reese H. Taylor, Jr.
Chairman, Interstate Commerce Commission

Nathaniel Welch
Executive Vice President, Georgia Freight Bureau
Recommended by small shippers

Robert C. Gresham
Vice Chairman and Counselor to the Board

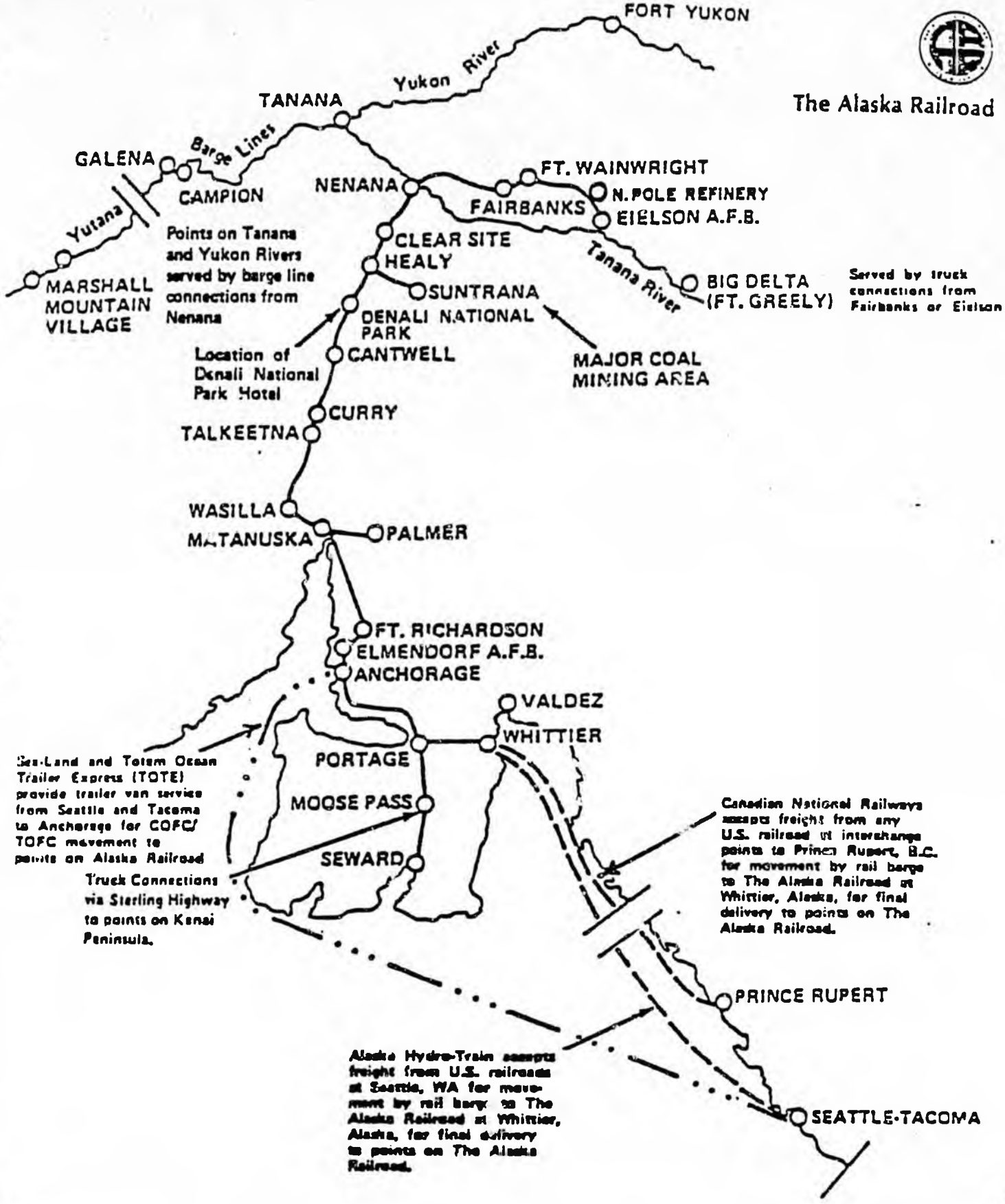
Officers

Cary W. Dickieson
Executive Vice President

John D. Wells
Vice President and Staff Director

The approval and release of this report is an act of the Board of Directors of the Association. Not every member of the Board necessarily concurs in every statement or determination made in the report.

TABLE OF CONTENTS



ALASKA RAILROAD ROUTE MAP

Showing connecting carriers

FOREWORD

Description of the Alaska Railroad

In 1914, Congress authorized construction of the Alaska Railroad to open up Alaska's interior and to facilitate commerce through Alaska's ports. After the arduous job of building a railroad through the wilderness was completed in 1923, President Harding dedicated the railroad and a new era began in Alaska's history. The railroad went on to play a significant role in the development of Alaska's interior and as an armed forces supply link during World War II.

It has been operated by the Federal government since its inception, and today it is administered by the Federal Railroad Administration as part of the Department of Transportation. It currently operates over 525 route miles serving the principal Alaska cities of Anchorage and Fairbanks, the ports of Whittier and Seward, and natural attractions such as Denali National Park. Both freight and passenger service is offered year round. Interline rail freight traffic is interchanged at Whittier with barge lines linking the railroad with Seattle and Prince Rupert, B.C. Principal freight commodities carried include gravel, coal, aviation fuel, pipe, building materials and piggyback.

While the Alaska Railroad performs an important function within the State of Alaska, its operations and patronage are modest when compared with railroads in the lower 48 where it would be classified as a medium-sized "short-line" carrier with below average freight traffic density. Historically, the

railroad has been subsidized by Congressional appropriations. Since 1939, the appropriations have been used almost exclusively for capital and maintenance projects. Since 1975, appropriations have ranged from a low of $3.0 million in 1978 to a high of $12.6 million in 1981.

In fiscal year 1983, which ends September 30, it is estimated that the railroad will have carried 82,000 carloads and 204,000 passengers. Projected fiscal year 1983 revenues are $55.5 million with operating expenses estimated at $50.8 million. As shown in Table 1, this continues a trend begun in fiscal year 1981, the first time since the Alaska pipeline construction years that the railroad's operating revenues exceeded expenses.

Table 1

THE ALASKA RAILROAD
Financial Results

Fiscal Year (1)	Revenue Millions	Expenses (Inc. Dep.) $ Millions	Surplus (Shortfall) $ Millions	Expense/ Revenue Ratio	Feder Appro priati $ Mill
1973	17.7	20.7	(3.0)	117	-
1974	21.5	22.6	(1.1)	105	-
1975	42.3	36.5	5.8	86	6.0
1976(1)	53.7	49.6	4.1	92	9.0
1977	35.0	36.0	(1.0)	103	6.0
1978	29.1	33.6	(4.5)	115	3.0
1979	25.2	31.8	(6.6)	126	9.3
1980	28.9	34.7	(5.8)	120	6.5
1981	43.9	40.6	3.3	92	12.6
1982	58.8	49.2	9.6	84	6
1983	55.5	50.8(2)	4.7	92	

1) Year end changed from June to September in 1976. Transition quarter ignored.

2) For comparison with previous years, excludes $2.3 million of engineering expense previously treated as capital.

3) $7.6 million was appropriated in the continuing resolution, Public Law 97-377 in December 1982. The DOT appropriations bill for fiscal year 1983 contained no funding for the Alaska Railroad.

INTRODUCTION AND SUMMARY

The Alaska Railroad Transfer Act of 1982, P.L. 97-468 (ARTA) was signed into law on January 14, 1983. In that Act, Congress found that while continuation of the Alaska Railroad is necessary to achieve Federal, State and private objectives, continued Federal control and financial support are no longer required to accomplish those objectives. Congress further found that the Alaska Railroad was primarily benefitting Alaska residents and businesses and concluded that the Federal government should offer to transfer the Railroad to the State of Alaska.

ARTA establishes the terms and conditions for transferring the Railroad, sets forth the timetable and procedures for accomplishing the transfer, and authorizes the Secretary of Transportation to effect the transfer upon certification that the State has complied with the Act's terms and conditions. As part of the transfer process, ARTA Section 605(d)(1) directs the United States Railway Association (USRA) to determine the Railroad's fair market value. This report fulfills that requirement.

On July 15, 1983, pursuant to ARTA Section 605(a), the United States Department of Transportation and the State of Alaska submitted a Joint Report (605(a) Report) describing the assets and liabilities to be transferred. As directed by ARTA, USRA has used information contained in that report to the extent relevant to determining the Railroad's fair market value.

In directing USRA to value the Alaska Railroad, ARTA provides three specitic instructions concerning that valuation. First, Section 605(d)(1) states that USRA

> "shall determine the fair market value of the Alaska Railroad under the terms and conditions of this title, applying such procedures, methods and standards as are generally accepted as normal and common practice."

Second, the Act provides that

> "[s]uch determination shall include an appraisal of the real and personal property to be transferred to the State pursuant to this title. Such appraisal by the Association shall be conducted in the usual manner in accordance with generally accepted industry standards, and shall consider the current fair market value and potential future value if used in whole or in part for other purposes."

Finally, the Act requires that

> "[t]he Association shall take into account all obligations imposed by this title and other applicable law upon operation and ownership of the State-owned railroad."

In reaching its determination of value, USRA used the normally accepted definition that fair market value is "what a willing buyer would pay . . . to a willing seller."* In the appraisal field, the valuation of property at fair market value "means merely an attempt to estimate the price for which the

*United States v. Miller, 317 U.S. 369, 374 (1943); United States v. 564.54 Acres of Land, 441 U.S. 506, 511 (1979). While the willing buyer/willing seller definition of fair market value ordinarily focuses on the loss to the seller (i.e., the loss to the United States in disposition of the railroad), ARTA Section 605(d)(1) mandates a focus on the obligations imposed by the buyer under ARTA (i.e., "obligations imposed by this title . . . upon operation and ownership of the State-owned railroad"). Consequently, to be consistent with ARTA's direction, the valuation concentrates on the present value of the property rights to be received by the purchaser under ARTA.

property could be sold by some stipulated seller to anyone else, . . ."*

Thus, fair market value is based on economic value in the marketplace. It assumes that both buyers and sellers act rationally. It ignores the special desire of any particular buyer for the property and any unique value which the property may have to that particular buyer.

This means that the fair market value of the Alaska Railroad properties is not the subjective or special value of those assets to the State of Alaska. The price which the State would have to pay to acquire the rail properties should be based upon how much it would have to pay to outbid any other potential purchaser, subject to ARTA's terms and conditions.

Consistent with ARTA's direction that USRA apply "standards as are generally accepted as normal and common practice", USRA has determined the amount which a rational buyer might pay in the marketplace for the properties to be transferred to the State of Alaska considering both (1) the "terms and conditions" of ARTA that will apply to the State's acquisition of the Alaska Railroad, and (2) all obligations imposed by ARTA and other applicable law upon operation and ownership of the State-owned railroad.

---

*1 Bonbright, Valuation of Property, p. 65 (1937); accord, American Institute of Real Estate Appraisers, The Appraisal of Real Estate, pp. 23-24 (7th ed. 1978); 1 Orgel, Valuation Under Eminent Domain, Section 20, pp. 90-96 (2nd ed. 1953).

Since ARTA's terms and conditions require the State to operate the Railroad for at least ten years (or railroad properties would revert to the United States under ARTA Section 610(a)), determining the Railroad's fair market value begins with estimating the present value of continuing railroad operations for ten years, including the present value of the Railroad's non-operating real estate.* The next step is to estimate and compare

(1) the present value of continuing rail operations beyond ten years in perpetuity, with

(2) the present value of putting the Railroad's assets in whole or in part to other uses after ten years.

These alternative estimates of fair market value require analyses of the Railroad's operations, its physical plant and equipment, its real estate assets, the costs which the buyer will incur incident to the transfer, and the proceeds and costs that would be incurred if the Railroad's assets were converted to other uses.**

These analyses are described in the sections which follow. They were assembled to determine the Railroad's present fair market value under two alternative hypotheses -- (1) continued rail operations in perpetuity, and (2) rail operations for ten

*Any losses from continued operations could be offset by rents from the non-operating real estate, since ARTA Section 608(a)(5) requires that all railroad revenue "be retained and managed . . . for railroad and related purposes." The term "related purposes" is considered broad enough that this condition would not so restrict the State's use of railroad revenues as to materially affect fair market value.

**USRA was assisted in determining the scope and nature of its analysis under ARTA by the law firm of Nossaman, Guthner, Knox & Elliott.

years followed by putting the Railroad's assets to their highest and best alternative uses. Results of these two scenarios are summarized in Table 2.

Table 2

ARR VALUATION
as of 10/1/83

(in 000)

	Continued Rail Operations Scenario	Alternative Use Scenario
Real Estate	$ 47,800*1	$ 54,800*2
Rail Operations	(25,529)*3	(35,430)*4
	$ 22,271	$ 19,370

*1) Present value of the Railroad's non-operating real estate.

*2) Present value of the Railroad's non-operating real estate plus present value from alternate use of Railroad's operating real estate after 10 years.

*3) Includes all start-up costs.

*4) Includes all costs associated with rail operations during the first 10 years including start-up costs, plus labor protection costs associated with discontinuing rail operations. Also includes net proceeds from assumed liquidation of facilities and equipment.

The fair market value of both the continued rail operations scenario and the alternative use scenario consists of two components: a real estate component and a rail operations component. The fair market value of the Alaska Railroad under these two valuation scenarios was determined by reducing the cash flows from each of these two components to a present value as of October 1, 1983.

Continued Rail Operations Scenario

The real estate component of value was derived by projecting future lease income from the non-operating real property. The Alaska Railroad's historical practice has been to lease to others the property not required for rail operations, and an investor would likely continue this practice. Accordingly, it was assumed that the property presently under lease would continue to be leased and that other property would be leased to the extent possible. The net cash flows were discounted to produce a present value of $47,800,000. This amount does not include the real estate which has been selected by Native corporations. However, for the reasons discussed in Appendix A, Native Claim Selection Analysis, USRA concluded that a prudent buyer would pay nothing for the possibility that significant portions of the lands subject to Native claims might eventually be conveyed.

The value of the rail operations was derived from a forecast provided by the Alaska Railroad and adjusted by USRA. The 605(a) Report was used as a beginning point for the derivation of start-up costs, and estimates of capital requirements were made by

consultants to USRA. These constant dollar cash flows were then discounted to produce a negative value of $25,529,000,* which was then subtracted from the $47,800,000 value of the non-operating real estate to yield an October 1, 1983 fair market value of $22,271,000.

Alternative Use Scenario

In the alternative use scenario, the Railroad is assumed to cease operations at the end of the tenth year, the facilities and equipment removed and sold, and the operating real estate made available for leasing and development in the same fashion as the non-operating real estate. The cash flows generated by this additional real estate were valued in the same manner as the non-operating real estate and increased the 1983 present value of the real estate by $7,000,000 to $54,800,000.**

The value of the rail operations in this scenario is (1) the present value of the cash flow from rail operations for ten years (2) plus the present value of the net proceeds that would be received from dismantling and selling the Railroad's facilities

*It was necessary to estimate the value of the cash flows after the tenth year (the last year of the USRA projection). This was done by calculating a normal year cash flow that could be expected after the tenth year and capitalizing that amount by 16 percent and then discounting the capitalized flows back to present value.

**While the $7 million value may seem small in relation to the real estate involved, it must be kept in mind that the cash flows from alternative use of the operating real estate do not begin until the eleventh year (1994) which causes the present value to be relatively small.

and equipment starting in the eleventh year, (3) less the present value of labor protection payments attendant to discontinuing rail operations. These cash flows, which were all stated in constant dollars, were discounted at the same rate as was used to discount the cash flows in the continued rail scenario. The present value of these flows was a negative $35,430,000 and was deducted from the $54,800,000 real estate value to yield an October 1, 1983 fair market value of $19,370,000 for the alternative use scenario.

Based on these valuation studies, USRA concluded that there was no persuasive evidence that a buyer would be willing to pay more than the present value of continued railroad operations for the speculative possibility that an eventual conversion of some or all of the Railroad's assets to alternative uses would produce greater value. Therefore, USRA determined that the fair market value of the Alaska Railroad pursuant to Section 605(d)(1) of ARTA is $22,271,000.

CONTINUED EARNINGS VALUATION

The purpose of this analysis was to examine the earnings which could reasonably be expected to flow from a continuation of rail service. It was based on revenue and expense forecasts developed by the Alaska Railroad along with a projection of capital requirements to support that level of operations.

These forecasts were reviewed and validated by USRA staff, and adjustments were made as necessary. The validation process included an examination of historic performance levels and trends, field inspections, interviews with railroad and other knowledgeable personnel, and a review of proposed capital projects.

In general, the forecasts made by the Railroad were accepted as presented. As discussed later in this section, adjustments were made to projected operating expenses for some additional maintenance of way expenses. Adjustments were also made to forecasted productivity improvements, since it was USRA's judgment that a potential investor would be unwilling to pay for as yet undemonstrated cost reductions. The projected capital program was modified as well.

Other cost increases resulting from the transfer of the Railroad, identified in detail in the 605(a) report, were also reviewed and adjusted. These items include legal and administrative expenses, tort claims, working capital and employee retirement obligations. Additionally, the cost of compliance with Federal OSHA requirements and State or local

building codes not now applicable to the Railroad were estimated and included, as well as one-time transfer costs.

The resulting modified revenue, expenses, and capital requirements from operations were reduced to a single present value as of October 1, 1983.

Revenue

Revenue is based on an Alaska Railroad passenger and freight traffic forecast for the fiscal years 1984 through 1989 (see Table 3). Passenger revenue is projected to increase 59 percent from fiscal 1984 to 1989, with freight revenue rising 34 percent. Most commodities show a gain over the period with only petroleum products declining. Gravel traffic, which has been increasing over the past several years, is expected to remain at 1983 levels as is coal moving to local Alaska destinations. The commodity showing the largest increase is pipe because of renewed activity on the North Slope and a greater need for replacement pipe.

Of particular importance is the projection of an export coal movement beginning with a test shipment in 1984. This coal would be moved in unit trains from Healy to the port of Seward for shipment to Korea. It would be handled in shipper-owned equipment and would represent a significant addition to the Railroad's traffic base. Planning for this movement has been going on for some time. However, recognizing that the necessary port facilities have not yet been built, the uncertainty of current world coal markets and the possibility of increased costs, USRA modified the Railroad's forecast by delaying the

estimated start-up date by one year. We believe that a prospective purchaser would view the uncertainties associated with the projected export coal movement as being significantly higher than the uncertainty inherent in other elements of the Railroad's forecast.

Neither the Railroad nor USRA has forecast any traffic improvements that are purely speculative. For example, there are major mineral reserves in the area which are a source of potential new traffic. However, additional facilities would be required, probably including substantial extensions of the Railroad's lines.

All elements of revenue are stated in constant 1983 dollars. This means that the average revenue per carload changes only as traffic (commodity) mix or length of haul changes. It was assumed that rate increases will be made in a timely fashion in response to cost increases. To the extent that the Railroad should prove unable to do this, operating margins would be reduced from forecasted levels.

Expenses

USRA adopted most of the Railroad's forecast of operating expenses. The most important modifications were additional maintenance of way expenses, the previously discussed adjustment to projected productivity improvements, and additional legal and administrative expenses attributable to the transfer itself.

Asset Condition and Maintenance Expenses

Since the condition of the Railroad's plant and equipment has been of major concern in the past and could be responsible for major shifts in expense levels, USRA physically inspected facilities and equipment as necessary to make a careful assessment of future requirements.*

Maintenance of Way. The Railroad consists of approximately 650 active track miles in main and branch lines, yards and sidings. The main lines from Seward to Fairbanks and from Portage to Whittier consist of 115 pound rail on wood ties. The branch line and yard rail generally varies from 70 to 90 pounds. New rail was installed on the main line from 1948 to 1952 to overcome deterioration from heavy traffic during the war. Although precise numbers are not known, major tie renewals were also done at that time. The extremely large rebuilding effort during that five-year period and the relatively low traffic levels since have reduced the subsequent need for large program expenditures for tie and rail renewal.

In order to evaluate the Railroad's condition and estimated future needs, the property was inspected by observing the track structure and ride qualities from trains, hi-rail vehicles and selected walking inspections. Some tie renewal and surfacing work was observed in progress, and records for defective rails, derailments, slow orders and other engineering data were

*USRA was assisted in this analysis by Frank S. King and Jackson R. Bell, experts in railway engineering and equipment.

reviewed. This review clearly showed that the Railroad is currently in satisfactory condition to handle present and projected traffic levels. In 1982, the Railroad's highest traffic density was 8 million gross tons (MGT) on the 40-mile segment between Anchorage and Matanuska. The balance of the main line handled less than 4 MGT for the year. These statistics reflect a low-density railroad as compared with other railroads where density may often be over 40 MGT per year for single track lines.

Over the past three years 1981-83, the Railroad will have replaced an average of about 21,000 ties and renewed about 2.75 track miles of rail per year. The Railroad has projected some increases in program levels predicated on increased traffic, but future expense increases are partly offset by projected cost reductions due to greater efficiency.

In its analysis, USRA determined that the maintenance of way costs projected by the Railroad should be increased to assure a track structure adequate for the expected traffic. The magnitude of this adjustment varies from about $800,000 annually to nearly $1.5 million annually, or a total $10.8 million for the ten years, 1984-93. This funding will provide for tie replacements of 35,000 in 1984 rising to 50,000 by 1990. Rail renewal will similarly increase from about 4.5 track miles in 1984 to 10 track miles in 1993. These program increases reflect not only traffic growth but also the age of many ties and much of the rail. Ties and rail installed in the post-war period, 1948-52, will have provided forty years of service within the next ten years, and

this should require increased replacement rates from current levels.

Maintenance of Equipment. The Railroad currently owns 62 locomotives, 46 passenger cars and 1,642 freight cars. In addition, various vehicles, maintenance and shop equipment are also maintained. The demand for equipment is high throughout the summer due to tourism and the construction season. During the winter, demand is low, providing time for programmed equipment repair. Total expenses in this category were about $9.5 million last year, and they are projected to remain at about that level through 1984. After that, consistent with traffic growth, expenses are projected to increase each year, reaching $11.5 million in 1989.

This projected spending should be adequate to provide the necessary level of locomotive overhauls and heavy repairs as well as running and heavy repair to freight cars. Maintenance of passenger equipment has also been provided for, premised on the current scheduled level of trains.

A part of the locomotive fleet is old and expensive to maintain, and much of the freight car fleet is or soon will be over 40 years old. However, the overall condition of the fleet should improve over the ten-year period due to the projected acquisition of new or good used locomotives and freight equipment as provided for in the capital plan.

The need for additional or replacement freight cars will have to be continually re-evaluated as traffic develops. The Railroad

has had some success in getting shippers of bulk commodities to obtain and finance needed equipment. Currently one of the major gravel shippers provides hopper cars for regular unit train moves, and the potential coal exporter has agreed to provide not only the necessary cars, but also the locomotives.

The opportunity for additional shipper equipment agreements will depend on future traffic developments. Surplus freight equipment in the lower forty-eight states may provide an economical source for some of the Railroad's future needs. In summary, based on the projected traffic and expected equipment acquisitions, the expense levels projected should be adequate not only to maintain the current fleet condition but to permit some improvement.

Forecasted Capital Requirements

Historically, capital spending has varied widely, and government appropriations have been required to permit any reasonable capital program. According to data provided by the Railroad, since 1975, capital spending has ranged from a low of $2.8 million to a high of $11.8 million.* Uncertain funding and resulting wide swings from year to year made effective capital planning difficult, often leading to last-minute decisions on project approvals.

*Alaska Railroad annual reports have reported capital expenditure totals that included the cost of major track work such as tie replacement, rail renewal, track surfacing, bridge repairs, etc. Under ICC accounting, these costs properly belong in operating expenses. The spending totals shown reflect this adjustment.

The Railroad provided USRA with a capital plan averaging $14 million annually from 1984 to 1988 funded by the Railroad's cash flow. After reviewing that plan and a proposed project list, discussions with management and on-site inspections, a yearly allocation of $12 million was considered adequate to continue operations and to handle forecasted traffic growth.

Approximately half of this amount is allocated for acquiring and upgrading locomotives, cars and other equipment. The remaining amounts provide for rehabilitation of bridges and tunnels, track construction to serve new and existing customers, stabilization of the roadbed in the Healy Canyon and elsewhere, realignment work to reduce curvature, and other plant requirements.

Start-up Costs

In Appendix L of the 605(a) Report, the State of Alaska and the Department of Transportation identified 15 items which they considered to be potential start-up obligations under the Act. The Report characterized these as "'start-up' responsibilities, because they are new undertakings by the railroad, not previously imposed on the railroad because of its Federal status." For the most part, these responsibilities are not "one-time"; rather, they affect ongoing expenses and result from various changes in access to Federal government resources. USRA treated these issues as follows.

(1) Vehicle Leasing. Under Federal ownership, the General Services Administration assigns vehicles to the Railroad for a

monthly lease payment which includes maintenance. The State, the Department of Transportation, and the General Services Administration have not yet resolved whether the existing leased vehicles will be transferred. In the event the Railroad acquires the existing fleet of older leased vehicles, it will be required to make other arrangements for maintenance. USRA determined that the Railroad could most likely continue to lease vehicles at terms and conditions equivalent to those currently in effect. Regardless of the final outcome, there would be no significant change in net costs to the Railroad for vehicles, and USRA's analysis includes no adjustment to the Railroad's projected expenses for this item.

(2) Supplies and Materials. After transfer, the Alaska Railroad can no longer acquire supplies through Federal government supply depots. However, USRA's valuation assumes that the purchasing power of the State-owned railroad will offset the loss of the ability to purchase through the Federal government. USRA did include increased administrative costs associated with an additional purchasing agent.

(3) Legal Fees. Currently, much of the Railroad's legal work is performed by United States government attorneys. After transfer, this will no longer be the case, and the Railroad will have to do more of its own legal work as well as retain outside counsel. After consultation with the Alaska Railroad and with others, USRA concluded that an additional $600,000 per year is an appropriate additional cost to factor into the valuation.

(4) Additional Administrative Expense. USRA has assumed that, as a result of the loss of certain administrative support currently provided by various Federal agencies, the Railroad will incur an additional annual expense of $108,000 representing three person years to handle this work.

(5) Tort Claims. Currently, all tort settlements or awards in excess of $2,500 are paid by the Federal treasury. After transfer, these will all be the responsibility of the Railroad. Over the four-year period 1980-83, the Federal treasury paid a total of $288,000, an average of $72,000 a year. From this experience, USRA assumed an additional average cost of $75,000 per year.

(6) Working Capital. As with all businesses, the Railroad will require working capital. USRA assumed that none of the revolving fund will be transferred to the State because pre-conveyance claims and contingent liabilities that must be paid are likely to consume the entire fund. After reviewing the working capital requirements of other railroads, it was USRA's judgment that one month's worth of operating expenses would be adequate working capital for the Alaska Railroad. This amounts to approximately $4.4 million in the first year, varying over the forecast period as operating expenses vary.

(7) Lack of Access to Federal Surplus Equipment. After transfer, the Railroad's access to excess Federal equipment will be greatly diminished. In our judgment, this should not increase the Railroad's costs.

(8) ARTA Section 604(d)(3) Employee Protection Obligations. Section 604(d)(3) requires the Secretary of Transportation to certify that the State-owned railroad has established arrangements to protect the employees of the railroad for the two years immediately following the transfer. This provision requires continuation of current labor agreements, retention for two years of all employees (other than certain officers) who elect to transfer to the Railroad, continuation of compensation at current levels, re-employment priority, and maintenance of benefit programs, as well as other items. The essence of these provisions is to continue the employees' current status. Since the forecast calls for maintaining rail operations at current levels, USRA assumed that all present employees would be offered jobs by and would transfer to the State-owned railroad. Since USRA's forecast of cash flows also assumes the continuation of current compensation levels, no protection payments would be required under these assumptions.*

(9) Section 607 Retirement Obligations. ARTA Section 607 requires that, after transfer to the State, the Railroad must provide retirement benefits substantially equivalent to current levels for all employees who elect to transfer. As stated in the 605(a) Report, the Department of Transportation asked the Office of Personnel Management (OPM) "to calculate retirement costs and

*If, in fact, there are large numbers of employees who elect not to transfer, then this could cause significant disruptions to the smooth operation of the railroad which could prove to be costly. USRA has no way of directly quantifying either the likelihood of this occurring or its cost.

benefits for existing employees who participate in the Federal retirement system and to prepare an estimate of the financial consequences if all of those employees transferred to the State-owned railroad at this time" (605(a) Report, pp. 69-70). The 605(a) Report further states (at page 70) that:

> "[i]n preparing its calculations, OPM assumed that if transferred employees remain in the Federal retirement system pursuant to Section 607(a)(1), the language of that provision governing the amount of the State-owned railroad's employer contributions . . . would require the State-owned railroad to pay, as the employer contribution, 29.06 percent of basic payroll for those transferred employees into the Federal retirement fund to fully fund retirement benefits that accrue for those employees after transfer. OPM's calculation assumes the current seven percent employee contribution would remain unchanged.
>
> This is an increase of 22.06 percent over the amount the Alaska Railroad has contributed as a Federal agency and reflects the manner in which the Federal retirement system is normally funded, which for Federal agencies includes other payments from the U.S. Treasury."

The ultimate resolution of this issue will not occur until after the date of this report. Indeed, in the 605(a) Report, the Department of Transportation and the State of Alaska acknowledge that an "accurate estimate of the retirement obligations that would be imposed on the State-owned railroad pursuant to Section 607(a) cannot be calculated at this time." However, for purposes of completing this valuation in a timely manner, USRA has been required to make assumptions as to the cost of this provision to the Railroad.

USRA's analysis assumes that all permanent employees would transfer to the State-owned railroad and would be included in a plan that will have an annual cost to the Railroad equivalent to the cost that OPM has suggested -- that is, a 22.06 percent

additional contribution over and above the 7 percent contribution which the Railroad is currently paying. USRA assumed all new employees hired after the date of the transfer would be covered under a new pension plan that would require the Railroad to contribute 12 percent of the new employees' base salary.

USRA's analysis of the additional pension costs used the actuarial base developed by OPM which listed current employees, by sex, for each year until the last Railroad employee currently in the Federal retirement system has left the payroll. These data were costed using the 1983 average wage levels to yield the total wage base for each year. This wage base was multiplied by an additional 22.06 percent to arrive at the additional pension costs.

As each current employee leaves the payroll, USRA assumed a replacement would be added, but that the replacement's pension expense would be only 5 percent in addition to the current 7 percent contribution. This approximates the contribution now required for employees of the State. These cash flows were then included with all other expenses, and the first 10 years of additional pension expense is shown on Table 3.

The Department of Transportation and the State acknowledge that "the exact number of employees who will transfer and the value of their retirement benefits will not be known until the date of Transfer". Thus, the assumptions which USRA has made could be significantly different from the actual outcome. However, we believe the estimates provided by our assumptions are

reasonable and fair to both the Federal government and the State, as well as to any other buyer.

(10) Section 607 Severance Obligations. The severance obligations imposed upon the Railroad by Section 607 of the Act require the Railroad to pay certain compensation to employees whose employment is terminated without cause during the first two years after transfer. Because of the activity levels forecasted, we have assumed that no employees will fall into this category and, therefore, no upward adjustment to the Railroad's projected operating expenses is necessary.

(11) Non-Availability of Statutory Exemptions if the Railroad Ceases to be a State Instrumentality. If, after transfer, the Railroad ceases to be an instrumentality of the State, then the Railroad would lose its exemption from Federal income taxes, the Railroad Retirement Act, the Railway Labor Act, and the Federal Employer's Liability Act. Because of the nature of the projected cash flows, no tax liability would accrue even if a private purchaser, and not the State, acquired the Railroad. USRA also assumed that there would be no significant changes in cash flow if the labor related statutes were applied. Therefore, we have made no adjustments for these provisions.

(12) Section 608(a)(1) Antitrust Applicability. After transfer, the exemption which the Railroad enjoys from certain antitrust laws will be lost. While this may become an issue in the future that could adversely affect the Railroad's revenues, USRA has no way of quantifying what the long-range effect might be.

(13) ICC Regulation. Currently the Railroad is subject only to partial regulation by the ICC under Executive Order 12434. After transfer, ARTA Section 608(a) provides that the Railroad will be fully regulated by the ICC in a manner similar to other railroads of the same class (most likely Class II). While there will be some additional costs, they are not significant enough to quantify separately. However, as previously stated, upward adjustments were made to both legal and other administrative costs to cover these as well as other contingencies.

(14) Compliance With Various Safety Statutes and Regulations. USRA considered three separate categories of potential expenses -- OSHA, State and local building codes, and facility condition.

* OSHA. Based on an updated study provided by the Alaska Railroad, which indicates approximately $2.5 million additional funding will be required to eliminate the remaining deficiencies, we have included $500,000 per year for five years. These funds will be utilized to correct problems associated with buildings, facilities and equipment beyond expenditures budgeted elsewhere.

* State and Local Building Codes and Existing Condition of Facilities. A recent report prepared for the State estimated the total cost to correct building deficiencies to be about $85 million. Condition problems accounted for about 62 percent or $53 million with the balance of $32 million being related to code violations. Repairs, additions or replacement costs

were based on bringing the existing buildings into compliance, regardless of current use.

In the future, the Railroad will have to correct some code violations and improve the condition of some buildings. However, the Railroad will certainly conduct a careful review of current and future railroad operating needs before any large expenditures are made. Some buildings are no longer required, and some consolidations may be possible. If replacement is necessary, a much smaller and more efficient facility might be adequate. The Railroad currently has an on-going program to correct some of these deficiencies. In addition, there is some overlap with the funding required to correct OSHA deficiencies reported earlier. After consideration of these factors, discussions with the Railroad and the State, and on-site inspections, the following future needs were considered reasonable and are reflected in USRA's analysis:

-- Building code deficiencies -- an allocation of $1.5 million per year for ten years for a total of $15 million. This allows for items such as fire separation, fire resistance in wall coverings, ventilation, lighting, electrical deficiencies, handicapped access, and other code related items.

-- Condition discrepancies -- Justified projects in this category would be funded under the Railroad's normal capital budgeting process. As discussed

previously in this section, this total budget is forecast at $12 million per year for ten years.

(15) Transition Expenses. Upon transfer to the State, there will be certain one-time costs that will have to be incurred. These would include such things as legal costs, filing fees, consulting fees and administrative costs as well as costs to the Railroad ranging from remarking equipment to indicate the new ownership to printing stationery. We estimate these one-time costs to be $1,750,000.

Table 3

ALASKA RAILROAD ADJUSTED CASH FLOW FORECAST FOR RAIL OPERATIONS
1984-1993
($ IN 000)
CONSTANT 1983 $

ITEM	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
RR FORECAST REV. *	56746	64106	65446	67806	70186	72656	72656	72656	72656	72656
RR FORECAST EXP.	46590	50130	50790	51390	51990	52610	52610	52610	52610	52610
NET CASH	10156	13976	14656	16416	18196	20046	20046	20046	20046	20046
ADJUST RR FORECAST										
EXPORT COAL	0	-1750	-250	0	0	0	0	0	0	0
PRODUCTIVITY	-580	-624	-632	-639	-647	-654	-654	-654	-654	-654
MOW ADJUSTMENT	-1220	-810	-850	-870	-1010	-1050	-1150	-1110	-1270	-1440
CAPITAL EXPENDED	-12000	-12000	-12000	-12000	-12000	-12000	-12000	-12000	-12000	-12000
ADJ. RR FORECAST	-3644	-1208	924	2907	4539	6342	6242	6282	6122	5952
STARTUP COSTS										
PENSIONS	-4514	-4316	-4145	-3967	-3821	-3675	-3524	-3377	-3225	-3079
CODE CONFORMITY	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500	-1500
ADD'L LEGAL FEES	-600	-600	-600	-600	-600	-600	-600	-600	-600	-600
OSHA	-500	-500	-500	-500	-500	0	0	0	0	0
TORT CLAIMS	-75	-75	-75	-75	-75	-75	-75	-75	-75	-75
OTHER EXPENSES	-108	-108	-108	-108	-108	-108	-108	-108	-108	-108
WORKING CAPITAL	-4377	-95	-168	-57	-49	-42	4	16	-1	-2
ONE TIME STARTUP	-1750	0	0	0	0	0	0	0	0	0
TOTAL STARTUP	-13424	-7194	-7096	-6007	-6653	-6000	-5803	-5644	-5509	-5364
ADJUSTED CASH	-17068	-8402	-6172	-3900	-2114	342	439	638	613	588

* DOES NOT INCLUDE REAL ESTATE LEASES, DOES INCLUDE MISCELLANEOUS LEASES SUCH AS WIRE AND PIPE EASEMENTS OF $296. REAL ESTATE LEASES ARE TREATED SEPERATELY.

Present Value of Future Cash Flows

As previously discussed, the fair market value of the Alaska Railroad is the amount which the State would have to pay to outbid (e.g., by one dollar) any competing potential purchaser. To determine the maximum bid of a competing non-government purchaser, the estimated future cash flows must be discounted to present values at a rate equal to the cost of capital that the private purchaser would employ in valuing this railroad.

In arriving at a weighted average cost of capital to use as the discount rate in this valuation, numerous factors were considered. Among these were railroad debt-equity ratios, the cost of debt, the average real return on equities, and risk premiums used in other rail valuations. The resulting constant dollar discount rate was then compared to discount rates used in various other railroad related valuations as well as to the cost of capital for the nation's railroads as found by the ICC in Ex Parte 436. These comparisons served as a check on the reasonableness of the rate used in the Alaska Railroad valuation.

USRA determined that the appropriate constant dollar discount rate to use in this analysis was 16 percent as applied to the projected cash flows expressed in constant dollars.* The

*This discount rate is not comparable to the rate used in the real estate analyses for two reasons: (1) As noted above, the continued earnings valuation was performed in constant dollars. In contrast, the real estate analysis considered the effects of appreciation in value of the real property, and was performed in inflated dollars. (2) Different special considerations were relevant to the real estate analysis than to the continued earnings valuation.

development of this discount rate required weighing the special considerations attendant to the Alaska Railroad. Elements of these special considerations include:

* The possibility of not realizing cash flows that, in turn, are based on estimates, not on historical evidence,
* The change from Federal ownership,
* The onset of full regulation by the ICC upon the change in ownership, and
* The uncertainties on the world energy markets.

Measuring Potential Alternative Use Value

To measure the possible alternative use value of the Alaska Railroad's assets under the terms and conditions of ARTA, USRA hypothesized that, beginning in the eleventh year, there would be an immediate cessation of all rail operations to permit the Railroad's operating assets to be placed in their highest and best alternative uses.* To assess the effect of such an option on value, USRA performed the following analyses.

*In determining possible alternate uses for the Railroad's real estate, it was USRA's judgment that it would be highly speculative to assume that any operating real estate could be otherwise developed under a continued operations scenario, particularly during the early years following transfer to the State. Not only would such development require relocation of existing yards or other facilities, but it is also uncertain that any major redevelopment plan could easily obtain the required approvals of various disparite interests. Further, any assembling of operating and non-operating real estate would most likely be affected by existing leases. In light of these factors which would affect both the timing and costs of any partial alternative development of the operating real estate, USRA concluded that its consideration of the alternate use value of these parcels in a liquidation scenario after ten years was a fair method of measuring their value for other purposes.

Rail Operations

If the Alaska Railroad were planning to totally cease operations, it might well cut back dramatically on all its expenses before the eleventh year. It is also true that shippers would begin to find alternative modes of transportation; consequently, the Railroad's revenues would also drop dramatically. For purposes of this analysis, we have assumed that revenues would drop by the same dollar amount per year as expenses. We have used the cash flows generated by the Railroad for the continued operations scenario (as adjusted by USRA) as being representative of the cash flows that the Railroad would generate in the liquidation scenario.

Labor Protection

As a result of discontinuing rail operations, USRA has assumed that there would be imposed on the owners of the Alaska Railroad labor protection conditions similar to those commonly known as "New York Dock". These conditions essentially require employees (depending on seniority) to be paid their full salary and benefits for six years, unless they find other jobs. In the case where an employee finds another job at a lower rate of pay than the one he had on the railroad, that employee is entitled to the difference in pay between his new job and what he received on his old job. Protected employees also have the option of taking a one-time lump sum payment equivalent to one year's pay.

In order to calculate the cost to the State of these labor protection conditions, USRA assumed that all permanent employees

would be eligible to receive labor protection payments. Of these employees, based on the current age profile of the Railroad's employees, USRA assumed that (1) all those 55 and older would choose to retire, (2) 25 percent of the eligible employees would take the lump sum settlement, and (3) 25 percent of the remaining work force would find new employment each year.

FACILITIES AND EQUIPMENT ASSETS

USRA selected Frank S. King and Jackson R. Bell, experts in railway engineering and equipment, to assist in determining the alternative use value of the Railroad's facilities and equipment; they determined the net value that could be realized from disposition of these assets taking into consideration all of ARTA's terms and conditions. Their analysis is described in greater detail in their report to USRA.

USRA first assembled and validated the Railroad's inventories of track, equipment, and other facilities. These assets include approximately 650 track miles,* yards and port facilities, shops, buildings, bridges, communications facilities, 1,642 freight cars, 46 passenger cars and 62 locomotives, as well as maintenance and shop machinery. Physical inspections were made as required to determine the condition of the assets,** and a determination was made as to which asset categories would be sold as scrap and which could be sold to others for re-use.

*This figure represents the total of all the Railroad's track including not only its 460-mile main line from Seward to Fairbanks, but also its branch lines as well as passing tracks and yard tracks.

**USRA also relied on this condition assessment to determine the Railroad's maintenance and capital requirements for use in determining the Railroad's continued operations value, previously discussed.

USRA estimated the range of market prices for resale and for scrap, dismantling costs, shipping costs from Alaska, and costs to comply with environmental or other regulations.* In making these estimates, USRA considered various market data such as the demand for scrap and the supply and demand for used railroad equipment and used rail.

Since ARTA requires that the State must continue to operate the railroad for at least ten years or suffer reversion, the state could not realize any alternate value from liquidating these assets until ten years after transfer.** USRA estimated that an orderly dismantling and liquidation program would require 2 1/2 years, beginning in 1994 and finishing in 1996.

USRA determined that the net proceeds from sale of the Railroad's track and facilities plus its equipment would be $11.6 million in 1983 constant dollars.

---

*USRA was assisted in these areas by Mr. Michael V. Cody.

**Indeed, based on the Railroad's forecast, the positive earnings projected for 1994 and later years, if realized, would prevent the Railroad from obtaining authority to abandon under the applicable provisions of the Interstate Commerce Act. This represents a major uncertainty that any purchaser would weigh heavily before paying a price based in part on asset values to be received many years in the future and only if rail operations could be discontinued.

REAL ESTATE ASSETS

USRA selected Jackson-Cross Company, a nationwide real estate appraisal firm, to assist in valuing the Alaska Railroad's real estate assets. Jackson-Cross determined the present value, as of October 1, 1983, of the Railroad's real estate taking into consideration all of ARTA's terms and conditions. Their analysis is described in greater detail in their appraisal report to USRA.

To consider the ARTA Section 610(a) requirement that the State must continue to operate the railroad for at least ten years or suffer reversion, USRA instructed Jackson-Cross to consider the Alaska Railroad's real estate assets in two categories:

* "Non-operating" property -- land which is not necessary for the railroad's operations. This is essentially real estate which is leased to third parties, or which is available for development.

* "Operating" property -- all other property, such as the right-of-way, yards and other facilities, including the port facilities at Whittier and Seward.

Because the Railroad's "non-operating" property is not required for rail operations, it is not affected by the continued rail operation requirement. However, because of ARTA's restrictions, USRA assumed that no value could be realized from alternate use of the Railroad's operating real estate until ten years after transfer to the State.* Jackson-Cross was instructed to determine

*In some locations, the Railroad is presently earning income from easements or permits on operating property which do not interfere with rail operations. This income was considered in USRA's

(Continued)

(1) the present value of the cash flow which can reasonably be projected from continued development of the Railroad's non-operating real estate, and (2) the present value of the cash flow which could reasonably be projected from alternate use of the Railroad's operating real estate beginning ten years after transfer.

Most of the Alaska Railroad's real property not required for rail operations is currently leased to others, and there was no reason to assume that a purchaser of the property would change this practice. Jackson-Cross, therefore, based its appraisal upon the assumption that the Railroad's real estate would be leased rather than sold. To the extent that any current rents are below market levels, the lease assumption explicitly considers that fact. USRA assumed that the State will be required to honor the terms and conditions of these leases. They were thoroughly reviewed and analyzed. and USRA has considered their effect in determining the value of the Railroad's real estate.

Jackson-Cross then assumed that, except as prevented by existing leases, rents would be set at market levels. It

---

(Continued)
continued operations valuation. As discussed later, the Railroad lacks clear title to much of the right-of-way so that it would no longer be entitled to income from such property upon conversion to alternate uses. As to right-of-way properties where the State will acquire clear title under ARTA, it was not considered feasible to attempt to ascribe any separate value to this potential income, since the highest and best alternate use might well either (1) preclude the continuance of the easement or permit or (2) result in the lessee, rather than the fee owner, collecting such easement or permit income.

estimated the net revenues that most likely would be realized from a normal leasing and management program as well as the period of time an investor would perceive as necessary to realize those net revenues. Jackson-Cross then discounted these projected net revenues to consider the cost of money over time and the risk of uncertainty that those projected net revenues would, in fact, be realized.*

USRA classified the Railroad's real estate into "non-operating" and "operating" based on current railroad operational requirements with reasonable estimates for operational expansion. All land presently leased to others was classified as non-operating, including lands leased to tenants who are also shippers on the railroad.

There is no definitive inventory available of exactly what constitutes the property of the Alaska Railroad. USRA compiled maps from the Railroad's records to correspond with an inventory estimate which had been prepared by the Department of Transportation in 1981. Additional inventory information was contained in the 605(a) Report. However, despite the best efforts of all parties involved to assemble whatever inventory data are available, substantial questions still remain.

*In practice, the lease assumption produces the same value as an assumption that the real estate would have been sold over a period of years, subject to the existing leases. This is because the prices investor(s) would be willing to pay are a function of the rental income that could be earned, taking into consideration both present rents and projected future rent increases.

Most notable of these questions is the definition of exactly what rights will ultimately be conveyed to the State of Alaska. Depending on future adjudication or negotiation, there are many instances where the State may receive less than fee title to portions of the Alaska Railroad's real estate, particularly its right-of-way. Exhibit 1 to the 605(a) Report summarizes existing claims against the property. According to that exhibit, prepared by the Anchorage office of the Bureau of Land Management, more than half of the Alaska Railroad's right-of-way passes through lands which were patented to private parties or to the State without a specific reservation for the Railroad's right-of-way.* In a limited number of areas, mining claims have also been filed which are near to or encroach upon the right-of-way. Further, in other locations, ARTA provides that the State will only receive an "exclusive use easement" to certain portions of the right-of-way.

Therefore, in an alternative use scenario, the Railroad would have no legal interest to transfer in considerable portions of its right-of-way. Accordingly, in determining the value of the Railroad's operating real estate for alternate uses after ten years, Jackson-Cross was instructed not to include value for any parcels where ownership would disappear upon cessation of rail

*Of a total of 619.11 miles of right-of-way, 142.34 miles have been patented to individuals; 137.87 miles have been patented to the State; and 91.25 miles have been tentatively approved for patent to the State upon survey. An additional 85.92 miles have been selected by the State, and another 1.3 miles appear to have been patented to both private parties and to the State.

operations. Further, because clear title existed for very little of the right-of-way, Jackson-Cross was also instructed not to consider "corridor value" for the Alaska Railroad's right-of-way in its alternate use determination.

Additionally, significant portions of the right-of-way, as well as certain parcels of land adjacent to or away from the right-of-way, are subject to claims under the Alaska Native Claims Settlement Act of 1971 (ANCSA) and the 1906 Native Allotment Act. These claims will not have been settled prior to the issuance of this report. It is not possible for USRA to know the final outcome with respect to these parcels. Therefore, as further discussed in Appendix A, USRA has analyzed the value of these parcels separately and has evaluated their impact on the Railroad's fair market value.

Jackson-Cross determined the present value of the Railroad's non-operating real estate to be $47.8 million. Jackson-Cross determined that the present value resulting from alternate use of the Railroad's operating real estate after a hypothetical discontinuance of rail operations is $7 million.

APPENDIX A

NATIVE CLAIM SELECTION ANALYSIS

The Alaska Railroad's real estate inventory includes certain parcels which are subject to claims under the Alaska Native Claims Settlement Act of 1971 (ANCSA) and the 1906 Native Allotment Act. Section 606(b)(1)(A) of ARTA directs that "[d]uring the ten months following the date of enactment of this Act, . . . the Secretary of the Interior, Village Corporations with claims of valid existing rights, and the State shall review and make a good faith effort to settle as many of the claims as possible." Failing settlement, ARTA Section 606(b)(2) further directs that the "Secretary of the Interior shall complete the final administrative adjudication required under this subsection not later than three years after the date of enactment of this Act."

According to data furnished by the Alaska Railroad and the Anchorage Office of the Bureau of Land Management, Native claims have been filed for the following ten parcels.

LOCATION	ACRES	GRAVEL RESERVE	ROCK RESERVE
EAGLE RIVER	1596	Yes	No
BIRCHWOOD	978	Yes	No
EKLUTNA	605	Yes	Yes
MATANUSKA	238	No	No
PITTMAN	140	Yes	No
BROAD PASS	561	Yes	No
HEALY	123	No	No
NENANA	231	No	No
HOLY CROSS	60	No	No
MOOSE CREEK			

No negotiated settlements have been reached, and the ultimate disposition of these parcels cannot be known at this time. However, despite these unresolved issues affecting the basic inventory to be valued, ARTA directs that USRA report one number representing the Railroad's fair market value.

At this time, there are considerable uncertainties as to whether any of these parcels will ultimately be conveyed to the State. The possibilities range from conveyance of all or a substantial portion of these parcels, which would suggest an upward adjustment to value of as much as $3.2 million,* to conveyance of only operating real estate and the loss of access to currently used rock and gravel reserves, in which case a reduction in value approximating $1.8 million** would be appropriate. If the status quo was maintained -- that is, if the Railroad was conveyed lands underlying rights-of-way and facilities and the continued right to withdraw rock and gravel as needed from currently utilized reserves -- no adjustment to value would be appropriate. Moreover, some parcels may be conveyed

---

*Jackson-Cross estimated the fair market value of the Railroad's total real estate inventory with and without the parcels subject to Native claim selection. From this analysis, USRA determined that the Railroad's fair market value would be increased by $3.2 million if all parcels subject to Native claim selection were conveyed to the State. This estimate assumes all the previously described ARTA terms and conditions.

**USRA also considered the impact on value if the Railroad were to lose all of its present rights to withdraw gravel or rock from these parcels. While precise estimates are not available, increased costs for using alternate sources of rock and gravel would reduce the Railroad's fair market value by about $1.8 million.

only if, in subsequent negotiations, the State agrees to exchange other State lands for such parcels.

In light of this broad spectrum of unknown and virtually unpredictable future events, USRA can find no basis for assuming that a prudent investor would pay for the speculative possibility that significant portions of the Native claim parcels would be conveyed in the future. Therefore, we consider that it is inappropriate for our fair market value determination to include any amount ascribed to these parcels. We feel that this conclusion is a fair balancing of both the downside risk that the Railroad might lose access to the gravel and rock reserves and the upside possibility that at least some of these parcels beyond those directly utilized in support of current rail operations might ultimately be conveyed to the Railroad in fee.

EXECUTIVE SUMMARY

The results of our examination of the fixed facilities and equipment of The Alaska Railroad, including analysis of the data provided by the United States Railway Association and The Alaska Railroad, and information obtained by on-site inspections and interviews with officials of The Alaska Railroad, are summarized as follows:

The inventory of the fixed facilities has been prepared using The Alaska Railroad records and information furnished verbally by knowledgeable railroad personnel. This information was supplemented by sample inspections, but actual physical counts were beyond the scope of this effort. The track chart, yard maps, timetable and certain estimated counts furnished by the railroad are the basis for the inventory of track materials. The total quantities of this material are reasonably accurate, although there may be some insignificant variations in sub-total quantities of the smaller weight rail and associated track materials. Total counts of rail in track are within 0.7 percent of the reported total mileage of the railroad. Bridge, trestle, culvert, tunnel, building, marine facility and highway crossing schedules or summaries were prepared from lists furnished by the railroad. Communication and signal information was furnished in part verbally and from records furnished by the Engineering Department of the railroad.

The track structure of the railroad appears to be in relatively good condition for present day tonnages and train speeds. Most of the 115 lb. RE rail laid on the main line and Whittier subdivision is in relatively good condition with only minor wear and would be suitable for cropping, welding and relaying in Class 1 railroad branch lines or even low tonnage mainline tracks. However, except for some 115 lb. turnout material and a relatively few 13 inch double shoulder tieplates, other track materials would probably not be reusable on railroads in the "lower 48." The bridges including the wood trestles are in good condition. Most railroad communications are transmitted through a modern micro-wave system, including but not limited to, radio equipped locomotives, maintenance of way and automotive equipment supplemented by approximately 150 portable type radio receiver-transmitter sets.

Spending in recent years for rail, ties, ballast and surfacing appears to have been adequate to properly maintain this railroad. However, because of the overall age of the crossties and the lighter weight rail, it appears that some increase in spending is warranted for the installation of these materials. Both capital and expense spending have been adequate to properly maintain bridges, trestles and culverts, marine and communication facilities. Operating expenses for these facilities should continue at about the same level. However, capital spending will have to be increased somewhat if the railroad should be

transferred from Federal ownership. Additional expenditures will be required to correct OSHA and State of Alaska building code violations.

To estimate the Railroad's alternate use value, costs have been estimated in 1983 dollars to dismantle the tracks, to load the material (excluding crossties and ballast) into cars, and to transport it to the port at Whittier. At current scrap prices, the cost of picking up, loading, moving to port and shipping to a location of a quantity buyer would exceed the sale value of all types of steel scrap. Therefore, this report provides two options; one for handling only that material, 115 lb. reusable rail, turnouts and tieplates, with a positive resale value, and the second for reclaiming all track materials (including all steel scrap) except crossties, timber and ballast, regardless of value. Because the cost of dismantling the bridges, trestles and culverts and moving the reclaimed material to a marketplace would exceed the sale value, it is assumed that these structures would remain in place (except for the Tenana River Bridge discussed in detail at page 64). The micro-wave communication system would probably be of value to some public body or a private communications company "where is, as is."

The inventory of equipment has been prepared using The Alaska Railroad records, supplemented by on-site inspections and interviews with selected officials of the Railroad's Mechanical Department. Representative samples of each general category of

equipment were inspected and formed the basis for judging the condition of equipment.

The fleet of 62 locomotives, excepting the five GP-40-2 locomotives delivered in May 1983, is generally in poor to fair condition. Locomotives are maintained on an as needed immediately basis or on an as funded basis. Due to the relatively low annual mileage, the Railroad has managed to maintain locomotives without any major planned maintenance/ overhaul/rehabilitation programs.

The passenger fleet of 52 cars is generally in fair condition with the exception of the recently rehabilitated all-electric cars which are in very good condition and which represent 20 percent of the fleet. The passenger car fleet is well maintained, but again without planned maintenance/rehabilitation programs.

The freight car fleet of 1,642 cars ranges in condition from new to not fit for service or too old for interchange. By the end of 1983, 46 percent of the fleet will be prohibited in interchange. These cars are also maintained on an as needed basis.

The highway vehicles, most of which are owned by the General Services Administration and leased to The Alaska Railroad, are generally in good condition and well maintained. Miscellaneous equipment such as snow plows, locomotive cranes and spreaders are

generally in fair condition and maintained/repaired as required. The cabooses have all been rebuilt and are in good condition.

The maintenance of way equipment is generally in fair to good condition and well maintained. Formal records for equipment maintenance are not kept by individual piece of equipment; therefore, maintenance history of equipment is difficult to determine.

The shop equipment, such as turret lathes, wheel machines, armature extractors, boring mills and drill presses, is in fair to good condition. Shop overhead cranes need general overhaul and repair and the drop pit needs total rehabilitation. The Alaska Railroad is just beginning to develop planned maintenance programs for shop equipment.

We assessed equipment condition from the point of view of service life and maintainability to provide the required service for the continuing operation analysis, and we have categorized equipment by type, quantity, scrap or reusability based upon current condition and age for the alternative use scenario.

Conclusions

The following table summarizes our analysis of projected operating expenses and capital expenditures which will be required from 1984 through 1993 to maintain the railroad's fixed facilities and equipment in adequate condition for the forecasted traffic.

PROJECTED OPERATING EXPENSES
AND CAPITAL EXPENDITURES

Facilities & Equipment
(Millions of 1983 Dollars)

Year	Operating Expenses*		Capital Expenditures**
	Engineering	Equipment	
1984	10.56	9.38	14.00
1985	10.58	10.71	14.00
1986	10.68	10.92	14.00
1987	10.76	11.11	14.00
1988	10.96	11.30	14.00
1989	11.06	11.50	13.50
1990	11.16	11.50	13.50
1991	11.12	11.50	13.50
1992	11.28	11.50	13.50
1993	11.45	11.50	13.50
Totals	109.61	110.91	137.50

* Excluding depreciation.

** Includes expenditures required for compliance with OSHA as well as state and local codes.

The following describes the results of our analysis of the net liquidation value of the fixed facilities and equipment of The Alaska Railroad. These results are provided in two options:

Option No. 1----------$13,925,000
(does not include any scrap track materials)

Option No. 2----------$11,639,000
(includes all metallic scrap track materials)

INVENTORY AND CONDITION ASSESSMENT

Rail

Track materials comprise the major element of the fixed facility inventory, of which the biggest and most valuable item is the 115 lb. RE rail. Most of this rail was rolled by Colorado Fuel and Iron Company in the early 1950's and laid during the same period. Although much of this rail has now been in track for over thirty years, wear, except on the sharper curves, has not been appreciable due to the low tonnages handled. See Traffic Density Charts, Appendix II, Exhibit 41. A sampling of rail head wear measurements were taken on both heavy and light tonnage lines which carried 7.90 and 2.60 million gross tons respectively in 1982. These measurements indicate relatively light wear except on the sharper curves where flange wear is appreciable. See Appendix I. Exhibit 1.

The detected defective rail history is relatively good and presents no problem. Prior to 1978 the Alaska Railroad operated rail defect detector equipment over its lines once every five years, but since that time they have been operated annually except for 1978 when two inspections were made and 1979 when none was conducted. During the five-year period from 1978 through 1982, these inspections detected a total of 147 115 lb. rail defects which includes 23 defects caused by outside sources, i.e., engine burn fractures, defective welds and broken bases.

See Appendix I, Exhibit 2. For this period an average of 3.17 defective rails per year were detected per 100 miles of main track, laid with 115 lb. rail, including the Whittier subdivision. This history does not adversely affect the suitability of this rail in its present service or for relying on light tonnage tracks.

On-the-ground inspections revealed that, except for rail laid on curves of four degrees or more, the main line 115 lb. rail is in good condition with very little bending at the joints. See Appendix II, Track Pictures. Some chipping of the rail head running surface at the joints was observed which can be corrected by welding for its present usage or by cropping1/ for relayer use. The railroad is turning and renewing rail on curves as required. Much of this worn reclaimed rail is then relaid in yard, industrial and storage tracks.

This 115 lb. rail laid on the main line and the Whittier Subdivision is in such condition that, with the projected program, it will adequately carry present and projected traffic levels with spot renewals on curves and replacement of defective rails as they occur. However, some of this rail will be removed from the main line in the next ten years in order to replace light rail in yard and siding tracks. Most of this 115 lb. rail

---

1/ Cropping a rail means sawing off approximately 18 inches on each end which eliminates the worn joint area.

is of such quality that, if it were to be removed, it could be cropped, welded into long strings and relaid in light tonnage main tracks, branch lines, sidings or yard tracks.

The inventory of rail was developed by using the track chart, the timetable, yard valuation maps, actual lengths of track and quantities of rail by section all furnished by The Alaska Railroad. Since the lengths of all tracks other than the main were provided from clearance point to clearance point or end, a factor was applied to account for the rail used on the turn-out side to the clearance point. See Appendix I, Exhibit 3. Half of this turnout rail is considered scrap to allow for worn stock rails and curved lead rails. Also, most of the rail on curves of four degrees or more is considered not reusable, and, therefore, is classified as scrap. Those scrap rail assumptions for turnouts and curves including spirals should adequately compensate for the occasional other rails with engine burns or other defects disqualifying them for main or branch line use.

The calculated length of all rail presently in track is 658.0 track miles. Inasmuch as there is no market for large quantities of rail sections of 90 lbs. or less, all rail other than the 115 lb. is considered scrap which amounts to a total of about 15,900 net tons including an estimated 238 in storage on the ground. There is approximately 14,800 net tons of 115 lb. scrap rail which is about 14.1 percent of the total of this rail presently in track. In addition, there is an estimated 435 tons of

reusable, hereafter referred to as "fit," rail in storage. The method used for calculating tonnage figures is shown in Appendix I, Exhibit 4. The fit 115 lb. rail in track and in storage amounts to approximately 90,400 net tons. A breakdown for all rail by section and track is shown in the Appendix I, Exhibit 5.

In addition, there is a small quantity of new 115 lb. rail stored on the ground principally at Anchorage. Fit and scrap material in storage was estimated by the Railroad which provided the quantities of stored fit and scrap rail. As of February 23, 1983 there was $701,699 worth of new rail, other track material (OTM) and turnout material on hand. See Appendix II, Exhibit 42. For the purpose of this study, it is assumed that this material would, in general, be used prior to any hypothetical date of cessation of service and that scrap sales would continue so that, at that date, new material would be exhausted and scrap and fit materials on hand would be at approximately the same level as today. This same assumption is made regarding all other new maintenance of way materials now in stock.

In the latter part of 1982, the Alaska Railroad began buying and using a chrome alloy (Chroma) rail in 78-foot lengths to reduce curve wear and rail joint maintenance. At this time, the quantity of this rail, which has all been used to replace worn out curve rail, is relatively small and is, therefore, not singled out as an individual inventory item. Depending upon wear it will either be fit or scrap and fall into its proper category as described above.

Other Track Material (OTM)

The OTM used with all rail sections is generally in good condition for its present usage. However, most of it is obsolete or of too small a size and weight to be considered reusable by another railroad. Therefore, for the purpose of this inventory, with several exceptions, most of this material is classified as scrap.

Several years ago, The Alaska Railroad changed their standards for both 115 lb. tieplates and splice bars. The new tieplates are 13 inch, double shoulder punched for both rail and hold-down or anchor spikes. These tieplates replace 11 inch double shoulder plates punched only for four rail holding spikes. Thirty-six inch, six hole splice bars replace 24 inch, four hole bars. The track between Portage and Girdwood, 10.3 miles, is equipped with the new bars and plates. Approximately another 2,000 pairs of these bars and 100,000 each of the 13 inch tieplates are scattered over the main line.

Splice bars on this railroad are well maintained including periodic oiling to prevent corrosion. Most of the 24 inch bars and all of the new 36 inch bars are in good condition, but none have any value as reusable. Any railroad buyers of the 115 lb. rail would weld it into long continuous strings eliminating

the need for the conventional splice bars. This railroad does not presently have in place any continuous welded rail except for short strings through grade crossing.

No major railroad would buy and spend the money to install small 11 inch plates including those showing any interest in the 115 lb. rail. However, the 13 inch plate punched for anchor spikes should be marketable and they are, therefore, considered as fit for resale and reuse. There are relatively few of these, numbering about 159,000. The Seattle, Washington, price of this fit material is $2.80 each2/ or $286 per net ton.

Although the other 115 lb. OTM including rail anchors, spikes, bolts and nutlocks is in adequate condition for its present use, none has a resale value for reuse. Rail anchors are not as effective after the first application and not worth a reasonable price plus the costs of distributing and applying. Bolts and nutlocks are not required for the same reason that splice bars have no market as described above. Spikes once driven and then pulled are usually bent making them undesirable for further use. See the Appendix I, Exhibit 6 for additional information on the inventory of other track material (OTM).

2/ Mr. Michael Cody, a consultant retained by USRA, furnished all values and prices of fit and scrap track materials in his report to USRA dated September 1, 1983.

Turnouts

The Alaska Railroad utilizes three different size turnouts in basically two rail sections. They are No. 7's and No. 9's in the 70 lb. ASCE and 115 lb. RE sections (one No. 7, 75 lb. ASCE) and 115 lb. No. 11's used in the main tracks primarily at passing sidings. Sample on-the-ground inspections revealed the 115 lb. turnout components; switches, frogs, guard rails, etc., to be in good condition although some worn and chipped switch points, a few worn stock rails and slightly worn frogs were noted. The 70 lb. turnouts were, generally, in fair condition with a few found to have well worn switch points, loose braces and other worn components.

It is estimated that 85 percent of the 115 lb. No. 11 turnouts and 80 percent of 115 lb. No. 9's in the main track are fit for reuse, and approximately 75 percent of the 115 lb. No. 9's in use in other than in main tracks are considered reusable. For the purpose of classifying fit turnout material, this report considers only turnout packages.3/ No tabulation has been made of individual switch points, frogs, guard rails, plates or other turnout components. These turnout packages for 115 lb. rail are presently being purchased new by the railroad.

3/ "Turnout packages" include switch points, rods, plates, braces, heel blocks, frogs, frog plates, guard rails and all bolts associated with complete switches, frogs and guard rails if needed. They do not include any rail including the stock rails, regular tieplates, rail splice bars, track bolts, track nutlocks, anchors, switch stands or any switch timber.

Similar to the handling of 70 lb. rail and OTM all reclaimed 70 lb. turnout material is considered scrap and so tabulated in tons. Although approximately 77 No. 7-115 lb. turnout packages are in good condition and fit for reuse, there would be no buyer. Most railroads prefer No. 8 turnouts as a minimum size and use the shorter, sharper turnouts only for special unique situations. The Alaska Railroad is now replacing worn out No. 7's with No. 9's whenever possible and also avoiding the use of No. 7's in new construction. There are a total of 208 No. 9 and 93 No. 11 115 lb. turnout packages considered saleable for reuse. See Appendix I, Exhibit 6.

Crossties and Switch Timber

There are approximately 2,092,000 crossties and approximately 690,000 lineal feet of switch timber in track. The ties are soft wood, for the most part hemlock and fir. All ties are creosote treated and those installed in recent years and at the present time measure 7 in. x 9 in. x 8 ft. 6 in. Both ties and switch timber are generally in good condition.

These ties and timber would have little value in the alternative use scenario. It is, therefore, assumed that they would be left in place. There may be opportunities to sell a modest number of these ties and timber on a "where is-as is" basis after track removal, but the net proceeds would be negligible. Other railroads would not spend the money to buy and install used softwood ties.

Ballast

For many years the ballast used on this railroad was pit run gravel with the grading ranging from sand to river stones as large as a man's head. In recent years the railroad has been crushing this gravel to a maximum size of about two to two and one-half inches. This has made a considerable improvement in track conditions and expedited surfacing and lining with modern track maintenance equipment. Although in many areas, but not all, this ballast is clean and dry, any reuse value would be difficult to estimate and would be less that the cost of salvaging.

Bridges, Trestles and Culverts

There are 76 undergrade steel bridges of various types, all in good condition. See Appendix II, Bridge Pictures. These bridges are listed by location and type in Appendix II, Exhibit 43. Sample inspections were made of 17 of these structures. Although many have not been painted for some time, there was no evidence of oxidation or corrosion. Abutments and piers appeared to be in good condition with little or no spawling or undercutting. Most of these bridges have open decks. A considerable amount of bridge timber has been renewed in recent years so that the decks, in general, are in good condition. The

only component of these structures with any value is the steel as scrap. However, the cost of dismantling these bridges and loading and transporting the steel to a market would far exceed the sale price.

There are 129 wooden trestles on this railroad as of February 28, 1983; a schedule of these trestles is shown in Appendix II, Exhibit 44. Sample inspections were made of 34 of these structures. All were found to be in good condition. The Chief Engineer stated that all of the other trestles were in a similar condition. All decks, except three with ballast, are of the open type. The bridge timber on the open deck trestles, as on the steel bridges, is in good condition. Two of the ballast deck trestles were inspected and no exception could be taken. The structure condition is good, the ballast clean and dry. The track condition is good including rail, ties, surface and line. All timber including piling, caps, cross bracing, stringers and decking is treated and in good condition. Even though this timber is in good condition, its market value would be far less than the cost of dismantling.

A listing of all culverts by location, type, size and length, dated July 31, 1983, indicates a total of 1,506 scattered over the entire railroad. There are at least twelve different types including open top wooden track boxes, built with logs, built with lumber, corrugated metal pipe, concrete pipe, and multi-plate. Sizes vary from concrete and metal pipe 12 inches in

diameter to twin ten foot diameter multiplate with lengths varying from eight to 216 feet. A summary of this listing can be found in Appendix II, Exhibit 45.

Sample inspections of two multiplate and 12 corrugated metal pipe culverts were made and these facilities were found to be in good condition, open at both ends with adequate length and grade suitable for the physical characteristics of the location. There were 49 open top track boxes installed between 1949 and 1968 of which most were built in 1953 and 1958. The railroad has an ongoing program to replace these boxes with below grade pipe culverts, and by the end of this 1983 fiscal year there will be a significant reduction in their number. There are four culverts in service constructed of logs between 1935 and 1938 which will probably require replacement within the next few years. Also, of importance when considering maintenance and capital expenditures are the 226 culverts constructed with lumber or timber between 1937 and 1967.

Tunnels

There are eleven tunnels on the railroad ranging in length from 136 feet to two and one-half miles. See Appendix II, Exhibit 46. None of these tunnels is lined. The seven tunnels between Seward and Portage are in relatively poor condition. The portals are poor to fair and the tunnels are seeping with water and have poor drainage causing serious problems. In the winter it is a seven day a week job to control the ice using bulldozers

to keep these tunnels passable for train movements. Two tunnels, one about 3/4 mile and the other one about 2-1/2 miles long, are located between Portage and Whitter. Of the 11 tunnels, these appear to be in the best condition, although they are unlined and do seep some water. Track surface and alignment appeared good and the drainage was adequate. In both cases the portals are well built and in good condition. The other two tunnels located in the vicinity of Healy appeared to be in better condition than the Seward to Portage tunnels insofar as water seepage and drainage is concerned. Track surface and alignment are adequate for the maximum authorized speed.

A wooden snow shed 225 feet long is located just south of tunnel No. 11.35. This shed is of timber construction and is in relatively poor condition. Drainage, water and track conditions within the shed are deplorable. At the time of our inspection, there was one location in this shed where 10 inch shims were in place between the ties and the rails. See Appendix II, Shim Pictures. A large diameter metal pipe is programmed to replace this shed, and also the former 460 foot snow shed north of this tunnel which was removed in the Spring of 1983.

Buildings

See Appendix II, Exhibit 47 for a list of the buildings now in use by, or on the operating property of, the railroad. Sample inspections of these buildings indicate that most of them are in relatively good condition and well maintained. There are a few buildings requiring exterior refinishing or painting and some roof work. However, there appears to be a surplus of building space. For example, warehouse #4 in Anchorage, formerly leased out, is practically vacant. A truck storage shed was found to be empty and a B. and B. Butler building was loaded with military surplus, electrical and mechanical equipment. Building consolidations could result in savings in maintenance and capital spending.

A $2,300,000 project is presently underway to change heating methods and conserve energy in the major buildings including shop facilities in Anchorage. This project will result in an improved environment within the buildings and a return on the investment of 10 percent.

In general these buildings compare well with similar railroad structures in the "lower 48."

Marine Facilities

A description and listing of the major marine facilities is in Appendix II, Exhibit 48. With the exception of rail barge slip #1 and the transit shed at Whittier, these facilities

appear, from a overall general inspection, to be in fair condition. The #1 slip at Whittier is presently out of service due to electrolysis of the steel piling in the foundations under the towers.

Signals

Except for three dragging equipment detector (DED) signals, the only signals on this railroad are for highway grade crossing protection. However, there are only four sets of these automatic flashing light crossing signals owned and maintained by the railroad. Two sets are over 20 years old and the other two were installed during the past six years. There are a number of other crossing signal sets owned by the State, City of Anchorage or armed services for which the railroad is reimbursed for all maintenance costs.

Communications

The Alaska Railroad utilizes a modern micro-wave communication system with the exception of two short segments, i.e., the Whittier Subdivision and on the main line between Moose Pass and Portage where communications are handled through open wire and seven miles of underground cable. The original micro-wave system was installed between Portage and Anchorage in 1957 and 1958, and is being rebuilt this year using all new modern solid state components replacing vacuum tube equipment at

a cost of $200,000. See Appendix II, Exhibit 49 for a more detailed inventory of this communication equipment.

Transmitter-receiver radio equipment is installed in the following types of equipment: locomotives, rail-highway vehicles, track mounted maintenance of way machinery, motor cars, and certain automobiles assigned to the Transportation, M. of W., M. P. & E., Administrative and Security Departments. In addition, there are 120 portable handheld and 30 portable lunch box radios. A list of this equipment is also shown in Appendix II, Exhibit 49. All of these transmitter-receiver sets are in fair to good condition, many of which are relatively new. The entire system operates on FRA assigned frequencies.

The railroad is presently dismantling the open wire pole lines replaced by the micro-wave system. Most of this work should be completed by the end of the next year.

Locomotives

The Alaska Railroad's locomotive fleet currently consists of sixty-two (62) diesel-electric locomotives, summarized as follows:

Alaska Railroad Locomotive Fleet

Quantity	Type	Horsepower
13	F-7's	1500
10	GP-7's	1800
3	GP-35's	2500
2	E-8's	2400
2	MRS-1700's	1600
11	RSD-4's	1600
21	GP-40's	3000
62		

Source: The Alaska Railroad

Eight (8) of these locomotives are currently out-of-service due to various major repair needs.

The F-7's, GP-7's, GP-35's and RSD-4's are generally in poor condition, needing substantial rehabilitation and repair of electrical wiring, rotating equipment and engines.

Sixteen (16) of the GP-40's are in fair to good condition, needing some engine work and basic truck overhaul. Five (5) of the GP-40's, the GP-40-2's, received by The Alaska Railroad in May, 1983, are in very good condition.

The maintenance history of the E-8's and MRS-1700's is unknown.

The Alaska Railroad will take delivery of four (4) new GP-49 diesel-electric locomotives in October, 1983.

'leet is detailed in the Appendix I, Exhibit
turer, class/type, date buil'/rebuilt, date
(b: ..aska Railroad, original owner, current
and comments. The information contained in this
..bit was compiled from railroad data, interviews with the railroad's equipment managers, and by actual inspection of available units.

The locomotive fleet, though able to handle the traffic, will require substantial planned maintenance and rehabilitation to maintain current and meet increased traffic requirements. Tradeoffs of cost to repair and rehabilitate many of the Railroad's locomotives will likely result in "buy new" decisions. The following provides some detail on locomotive condition and required repair/overhaul and rehabilitation:

The 1500 Series, F-7 locomotives which were built between 1949 and 1953, were purchased new from General Motors Corporation, Electro-Motive Division. Miscellaneous upgrading has been done on these units over the years. The general condition of these locomotives is poor as they are in need of rewiring, truck overhaul, electrical rotating equipment rehabilitation and engine rebuild.

The GP-7, yard and freight service locomotives, were built in 1951 and acquired from the Army in 1960. These locomotives were rebuilt in 1975, 1976 and 1977, and are currently in need of truck, intermediate engine, and electrical rotating equipment overhaul.

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY

The locomotive fleet is detailed in the Appendix I, Exhibit 7, by number, manufacturer, class/type, date built/rebuilt, date received by the Alaska Railroad, original owner, current condition and comments. The information contained in this Exhibit was compiled from railroad data, interviews with the railroad's equipment managers, and by actual inspection of available units.

The locomotive fleet, though able to handle the traffic, will require substantial planned maintenance and rehabilitation to maintain current and meet increased traffic requirements. Tradeoffs of cost to repair and rehabilitate many of the Railroad's locomotives will likely result in "buy new" decisions. The following provides some detail on locomotive condition and required repair/overhaul and rehabilitation:

The 1500 Series, F-7 locomotives which were built between 1949 and 1953, were purchased new from General Motors Corporation, Electro-Motive Division. Miscellaneous upgrading has been done on these units over the years. The general condition of these locomotives is poor as they are in need of rewiring, truck overhaul, electrical rotating equipment rehabilitation and engine rebuild.

The GP-7, yard and freight service locomotives, were built in 1951 and acquired from the Army in 1960. These locomotives were rebuilt in 1975, 1976 and 1977, and are currently in need of truck, intermediate engine, and electrical rotating equipment overhaul.

The 2500 series, GP-35 locomotives, were purchased new from General Motors, EMD Division, in 1963 and 1964 and have had no major repairs since new. They are currently in need of intermediate engine, truck and electrical rotating equipment overhaul.

The E-8 passenger service locomotives were purchased from AMTRAK in 1981, and they are currently being upgraded for operation on the Alaska Railroad.

The MRS-1700 work train service locomotives were built in 1952 and acquired from the Navy in 1977. The maintenance history of these locomotives is unknown.

The RSD-4 series, yard switcher locomotives which were built in 1953 by General Electric/ALCO and acquired from the Army in 1974 and 1975, have not had major repair work done on them since they were new. Five (5) of these units are currently stored with bad order engines and the remaining units are in poor condition requiring considerable repair/rehabilitation.

The GP-40 freight service locomotives were bought new from General Motors in 1964, 1975, 1976 and 1978 and are generally in fair condition. Five (5) of these will need intermediate engine overhaul and all units will require truck overhaul in the near future.

The GP-40-2, freight service locomotives purchased from Chrome Crankshaft (out of a Conrail lease), are in very good condition.

Photographs of some typical Alaska Railroad owned locomotives are included in Appendix II.

Passenger Equipment

The Alaska Railroad passenger fleet currently consists of 52 cars, 46 of which are owned by the Railroad and six of which are leased from AMTRAK.

The Railroad owned passenger equipment is generally in fair condition with the exception of the recently rehabilitated all-electric cars which are in like new condition. The all-electric cars include six chair cars, one lunch counter/cafe lounge, one dome car and two baggage cars. The average age of the passenger car fleet is 29 years.

The passenger car fleet is detailed in Appendix I, Exhibit 8, by manufacturer, class/type, date built/remanufactured, date received by the Railroad, original owner, current condition, and comments/repairs needed. The information detailed in this Exhibit was obtained from The Alaska Railroad data, the railroad's equipment managers and by visual inspection of available equipment.

Photographs of typical Railroad owned passenger cars are included in Appendix II.

Freight Cars

The Alaska Railroad currently owns 1,642 freight cars of the following types:

Quantity	Type
386	Gondolas
320	Hoppers
315	Flats
131	Boxes
123	Tanks
106	Ballast
76	Air Dump
56	Insulated Box
27	Hy-Cube Box
23	URB Flats
21	Bulkhead Flats
19	Covered Hoppers
15	Reefers
14	Shuttle Flats
10	TOFC Flats
1,642	

Source: The Alaska Railroad

Of the 1,642 freight cars owned by the Alaska Railroad, 197 cars are presently prohibited in interchange due to age. By the end of 1983, a total of 752 cars will be prohibited in interchange due to being over forty years old.

Thirty-six hopper cars and 51 tank cars are operating in restricted service, exclusively on the Alaska Railroad, until December 31, 1983 under a waiver granted by the Federal Railroad Administration.

There are 114 cars in service that are over 50 years old, 87 operating under FRA waiver and 27 in maintenance of way service.

The average age of The Alaska Railroad owned freight car fleet is approximately 31 years.

The freight car fleet is detailed in Appendix I, Exhibit 9, by type, date built/age, capacity, quantity, current condition and comments/repairs needed. This information was obtained from The Alaska Railroad supplied status reports, interviews with the railroad's equipment managers and by on-site inspections of available equipment.

Photographs of typical Railroad owned freight cars are included in Appendix II.

Highway Vehicles-Owned and Leased

The Alaska Railroad owns a fleet of 33 highway vehicles, 24 of which are equipped with hy-rail gear, and leases 106 highway vehicles from the General Services Administration. A complete listing of the leased vehicles, including lease rates, is detailed in Appendix II, Exhibit 51. The highway vehicle fleet is generally in good condition.

A schedule of Railroad owned highway vehicles, including vehicle condition, is contained in Appendix I, Exhibit 10.

A photograph of a typical hy-rail equipped highway vehicle is included in Appendix II.

Snow Plows, Cranes and Miscellaneous Equipment

The Alaska Railroad currently maintains 45 pieces of miscellaneous equipment including three snow plows, 11 locomotive cranes and ditchers, three spreaders, 27 cabooses and a business car.

The snow plows, cranes and miscellaneous equipment condition is described in Appendix I, Exhibit 11.

The three snow plows are in fair condition, six of the locomotive cranes/ditchers are in good condition and five are in poor condition. One of the spreaders is in poor condition and two are in good condition.

The general condition of the caboose fleet is good as they have been recently refurbished.

The Alaska Railroad business car, "Denali", was recently rebuilt and is in good condition.

Photographs of representative spreaders, locomotive cranes, cabooses and the business car are included in Appendix II.

Maintenance of Way Equipment

The maintenance of way equipment is summarized in Exhibit 12 of Appendix I by type, quantity, current condition and comments and is detailed in Appendix II, Exhibit 50. This information was supplied by The Alaska Railroad and was supplemented and updated by the railroad's equipment managers and by actual inspection of available equipment.

The general assessment of the maintenance of way equipment is fair to good and it is well maintained.

Typical photographs of snow removal equipment and maintenance of way cranes are included in Appendix II.

Shop Equipment

The Alaska Railroad shop equipment is detailed in Appendix I, Exhibit 13, by equipment description, quantity, capacity, location and condition.

The shop equipment, with the exception of overhead cranes and some speciality items such as drop tables, is generally in fair to good condition.

The listing of equipment and its general condition was provided by The Alaska Railroad and has been supplemented by discussions with the railroad's equipment managers.

Photographs of typical shop equipment are included in Appendix II.

CONTINUING OPERATION EVALUATION

Fixed Facilities Assessment

The condition of track components, bridges, tunnels, buildings, marine facilities, signals and communication equipment has been briefly described, but it is appropriate to elaborate on track conditions.

Samples of all types of track, main line, branch line, sidings, yard, shop, storage and industrial were inspected by hy-rail vehicle and/or on foot. A walking inspection was made of the full length of the Anchorage yard with spot inspections of most of the tracks and all ladder tracks. Spot walking inspections usually consisted of a minimum of 20 rail lengths. In addition, an overall inspection was made of the main line in both directions between Anchorage and Fairbanks from a special train.

These inspections indicated the rail to be in relatively good condition for the use intended, i.e., main track, siding, yard, etc. Traffic on the sharper curves on the main line is causing considerable head wear. However, worn rail is turned4/ or renewed well before the occurrence of any problems. In fact, curve worn rail is turned or renewed well before it is worn to the extent

---

4/ Turning means reversing a rail in the same location so that the gauge or inside becomes the field or outside, and the unworn field side becomes the gauge side.

that eastern United States heavy tonnage railroads would take similar action. When it is decided to relay this rail, it is renewed with a chrome alloy (Chroma) rail in 78 foot lengths.

On siding and yard tracks the light 70 lb. ASCE rail is generally in fair condition. Because no rail anchors are used on this rail, it is running (moving longitudinally) and, in certain instances, skewing ties at joints. A few poor conditions were noted on the auxiliary tracks at Birchwood and in Anchorage yard, involving defective and skewed ties together with poor surface and line. But, generally, surface is fair with some bent joints in certain locations, and for the most part this is not a problem. This rail, undoubtedly, would not hold up under heavy tonnage conditions. It is being replaced with second hand (S.H.) or fit 115 lb. rail as it becomes available from main line renewals.

The 90 lb. rail is in two sections, ASCE and RA of which there is a total of 17.8 track miles. Approximately 37 percent of this track was laid without tieplates. Stretches laid with tieplates and rail anchors, i.e., the Fairbanks Airport Spur, are in good line and surface. The 75 lb. ASCE rail laid only on the Eielson Branch is in fair condition. Light rail, 65 and 70 lb., is laid on the tracks in the out-of-service Valdez facility and not a factor.

For the past six years they have averaged about 20,200. See Appendix I, Exhibit 15. For this year, 40,000 were originally programed, but this number has been reduced to a projected 25,000. At present, 50,000 are programmed for 1984. Sample spot track inspections seem to indicate that a level of tie renewals somewhat more than presently projected for 1983, but less that programmed for 1984 should be adequate for the next five years. Beyond that, renewals will probably have to be increased significantly.

The Alaska Railroad has been pursuing an ambitious reballasting and surfacing program with excellent results. With the exception of certain locations, the greater portion of this railroad, including branch lines, sidings and yards, is well surfaced and lined on clean dry ballast. The crushed gravel now in use is a vast improvement over the pit run gravel. During the past two years, an average of about 77,000 cubic yards of ballast were dumped and 180 miles of track surfaced. This means that about 55 percent of the actual total mileage on the railroad was surfaced in this two year period.

Because of many factors peculiar to the Alaskan climate and the primitive methods of sub-grade construction (by today's standards) used on the original lines, there are significant miles of track that must be surfaced every year after the surface frost is gone to remove shims and long stretches of slow orders. It appears that the level of this type of work performed during the past two years is adequate. However, an increase in

The railroad projects the renewal of 31,200 feet of rail in 1983 and is presently programming 52,800 feet for 1984. Considering present and projected traffic volumes together with the present relatively good rail conditions, the Railroad's 1983 and 1984 levels appear adequate. However, in future years, new rail quantities should increase to account for increased curve wear and the need to use some main line rail to replace worn light rail in yards and sidings.5/

Even though the crossties are softwood with many of them now in track approaching or over 30 years, they are in very good condition. A few inspections revealed as few as one defective tie per 20 rail lengths (780 feet). There was no instance found where the ties did not meet the FRA Class 3 track standards on the main line or Class 2 on sidings and in yards with the few exceptions at Birchwood and Anchorage yard. Some replaced ties were inspected of which many did not appear defective as defined in the FRA Track Safety Standards. It is apparent that the tie renewals during the past five years have been adequate to properly maintain this railroad.

The railroad estimates average tie life at 37 years so that normal tie renewals should average approximately 56,000 annually.

5/ The Railroad developed a "Normal Capital Program" (see Appendix 1, Exhibit 14) covering all desired projects if cash flow and traffic warranted. That program would provide for 20 miles of new rail per year. However, future needs may not necessarily increase to the levels projected in that "Normal Capital Program".

ballast is programmed for this year and next, with a moderate increase in miles of surfacing. Regardless of depth, all ballast is charged to capital. The following table provides a comparison.

Actual and Projected Ballast and Surfacing
1981 Through 1984

	Actual Average 1981 & 1982	1983	Inc. vs 81 & 82		1984	Inc. vs 81 & 82	
			Actual	%		Actual	%
Ballast-Cu. Yds.	77,000	120,000	43,000	56	160,000	83,000	10
Surfacing-Trk. Mi.	180	200	20	11	200	20	1

Source: The Alaska Railroad

There are many other conditions causing problems with expensive solutions. Maintaining banks to hold the subgrade along the Turnagain Arm against the tides and along rivers against the current requires continual dumping of rip-rap or armor rock. In 1981, approximately 3,800 cubic yards of this material was placed followed by 2,000 in 1982. This work continues this year and must continue in future years to keep the line in service.

Since frost heaves during the severe winters are a major problem, continual shimming is required to keep operating even under slow order conditions. Special track fastenings to permit shims up to 10 inches thick were found in the snow shed at mile post 11.3, and at mile post 151.3, concrete ties have been

installed with threaded fastenings permitting the use of "slotted" steel shims up to six inches thick. See Appendix II, Shim Pictures. At this location both sides of a short stable stretch heave every winter requiring the shimming of the rails across the stable or "low spot." Then, as the frost thaws the track must be closely watched in order to remove these shims at the right time to avoid unsafe surface or cross level conditions. After the shims are removed surfacing and lining is usually required to restore the track to a normal speed operation. These are just two examples of an expensive frost and shimming problem on this railroad. There are 27 buildings each containing 96 sq. ft. of which the only purpose is to store shims, and they are referred to as shim sheds.

Some stretches of the main line are adjacent to hills on which there are mud slides. This mud pushes up against the track and in instances over it. See Appendix II, Slide Pictures. Drainage ditches are blocked and in some cases the track is moved from its alignment. All this results in considerable expense to move this mud out either to the opposite side of the track or to another location via dump cars. At some locations, the railroad has actually driven rail piling at the toe of the slope of the hill or mountain to reduce the pressure of these slides against the track in an attempt to preserve the alignment.

The timetable lists 35 slide areas covering a total 39.65 miles. Of these, 23 are for snow, 11 for mud and dirt and 25 for rock. (This totals more than 35 because in some slide areas more than one type of material is involved.) All types of slides can, and some do, cause disruption to train operations and considerable cost to remove the material and restore the track to service.

Conditions on the line between Seward and Portage, specifically between mile posts 40 and 54, result in severe operating problems and high maintenance expense. This stretch of track winds its way through and over the mountains around curve after curve of up to 14 degrees and up and down steep grades, including the ruling grades, southbound, 3.0 percent and northbound, 2.0 percent. Six of the poorest unlined rock tunnels with continual seeping and dripping water with poor drainage further compound the problem. In the winter large icicles as big as stalactites form and ice fills the track to over the rail. All of this must be continually removed to keep trains operating.

Between the tunnels there are rock cliffs or one side with attendant winter snow slides and falling rock at any time, with 5.7 miles of this stretch designated as "Slide Area." A steel deck truss bridge is located immediately south of the south portal of the first tunnel, another steel bridge between the first and second, and a third between the fourth and fifth tunnel. During the winter it is a seven day per week job, using

heavy equipment, to keep the track through this area open for rail traffic.

Another critical stretch of track is located in the Healy Canyon between mile posts 348.5 and 357. In this area the railroad is built on the side of the mountain along the west side of the twisting Nenana River. This stretch of track is practically all curves up to 10 degrees. The mountain rises sharply along the west side of the track, and the sub-grade on the east side drops steeply to the river over 100 feet below. Although there are rock slides on the mountain, the biggest problem is the slipping or subsidence of the sub-grade into the river. Piling has been driven along the east side of the track in many areas in an effort to stabilize the track. See Appendix II, Healy Canyon Pictures. As a result of subsidence and continual changes in alignment, no record of the degree of some curves in this area is recorded on the track chart.

Maintaining a railroad under these conditions is a most expensive undertaking. Ballast and fill materials must be repeatedly dumped, and the track surfaced and lined even for a 20 mile per hour maximum speed for passenger trains and 15 for freight. But even more critical is the fact that under the right conditions with a large volume of water draining off the mountain into the sub-grade, a slip might occur sending a stretch of the track structure down into the Nenana River. Railroad personnel are continually on the alert for such an occurrence and are, of

course, protecting the movement of all trains. If the railroad is to continue to increase its traffic and train movements and operate a reliable service, reconstruction or relocation of the track structure through this area appears to be a necessity.

Severe Alaskan winters bring heavy accumulations of snow and ice over the entire railroad resulting in abnormally high costs, considering winter traffic volumes, for removal to keep the railroad operating. The following table shows these costs for the past five years as reported by the railroad.

Costs - Snow and Ice Removal*
FY 1979 to FY 1983

1983	$936,789	(to May)
1982	941,130	
1981	703,140	
1980	657,925	
1979	660,919	

* The costs for 1981 through 1983 were furnished by the Engineering Department. Those for 1979 and 1980 are from the Financial Statements, Maintenance of Way Operating Expense, captioned "Removing Snow, Ice and Sand and Car Cleaning." (Maintenance of Way performs no car cleaning.)

Equipment Assessment

The general condition of locomotives, passenger cars, freight cars, highway vehicles, snow plows, cranes and miscellaneous equipment, maintenance of way and shop equipment has been described in the Inventory and Condition Assessment section of this report. However, for purposes of the continued operations

analysis, the condition assessment is looked at from the point of view of the service life and maintainability of the equipment to provide the required service.

To establish the maintainability of equipment, we inspected the Railroad's shops and shop facilities and had discussions with The Alaska Railroad personnel responsible for equipment maintenance.

These inspections and interviews indicated that the rolling stock has generally been maintained on an "as needed repair" basis rather than on a programmed rehabilitation/overhaul basis. However, the railroad is now establishing certain programmed maintenance, such as F-7, GP-7 and GP-40 locomotive rehabilitation and shop overhead crane overhaul.

The passenger car fleet is in fair condition and maintained to meet service requirements. Major overhaul/rehabilitation of passenger equipment has not been done on the Railroad. The all-electric passenger train overhaul/conversion was contracted to General Electric's overhaul/rehabilitation facility in Hornell, New York.

The highway vehicle fleet, including the vehicles equipped with hy-rail gear, is in good condition. However, should the ownership of The Alaska Railroad be transferred from the Federal Government, the leased vehicle fleet may no longer be available from the General Services Administration. If this fleet were no