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Conrail (the Consolidated Rail Corporation) began operating important sections of six railroads in the Northeast in April 1976 under a reorganization plan known as the Final System Plan. This plan was developed by the United States Railway Association and approved by the Congress in November 1975. It provided for Government investment in Conrail of up to $2.1 billion through the end of 1979 by the purchase of stock and debentures. The plan included financial projections through 1985 that Conrail would begin to make a profit by 1979 and would remain profitable through 1985. The plan shows that, to make a profit by 1979 and remain profitable thereafter, Conrail would need to greatly improve its rate of use of freight cars over its predecessors' 1973 rate. A projected 28% improvement would save Conrail $1 billion in capital expenditures through 1985 because 26,000 new freight cars would not be needed.
Findings/Conclusions: Although Conrail's use rate for the first 7 months of 1977 was about 13% less than the 1973 rate, the Final System Plan did not anticipate significant improvement in car use during Conrail's first 3 years of operations. The plan estimated that a major part of the improvement would come in 1979 when a new operating control system was to be installed and operating. The control system will not be fully operational before at least 1982 or 1983, thus delaying the benefits anticipated in the plan. Conrail is meeting most of the other recommended improvements called for in the plan. It appears that certain improvements, such as rehabilitating the freight car fleet, may cost more than estimated. Track rehabilitation during 1976 slightly exceeded the goals of the plan. Whether the improvements Conrail is making will be sufficient to provide for a 28% improvement in freight car utilization by 1981 cannot be determined with certainty at this stage. Conrail has stated that it will need additional funding to become self-sustaining and

that its financial position does not allow it to proceed with the new control system until additional funding is available. (Author/SW)

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REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

Conrail's Attempts To Improve Its Use Of Freight Cars

Conrail is trying to improve use of freight cars as recommended by the United States Railway Association in its Final System Plan. Whether Conrail's plans and actions will provide the degree of improvement expected by the Final System Plan cannot be determined at this stage of Conrail's operations.

However, these actions may cost more than the Association projected and will not be implemented as soon as called for. Conrail has stated it will need additional financing to achieve profitability.

CED-78-23

JANUARY 24, 1978

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-164497(5)

To the President of the Senate and the
Speaker of the House of Representatives

This report discusses the Consolidated Rail Corporation's attempts to improve its use of freight cars, an important element in the Corporation's attempt to become a self-sustaining enterprise.

This review was made to determine and report to the Congress on the Corporation's progress in implementing one of the important measures of improvement contained in the Final System Plan approved by the Congress on November 9, 1975.

We made our review pursuant to the Regional Rail Reorganization Act of 1973, as amended (45 U.S.C. 747).

Copies of this report are being sent to the Acting Director, Office of Management and Budget; the Chairman and Chief Executive Officer, United States Railway Association; and the Chairman and Chief Executive Officer, Consolidated Rail Corporation.

Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

CONRAIL'S ATTEMPTS TO IMPROVE ITS USE OF FREIGHT CARS

D I G E S T

Conrail (the Consolidated Rail Corporation) began operating important sections of six railroads in the Northeast in April 1976 under a reorganization plan known as the Final System Plan. This plan was developed by the United States Railway Association and approved by the Congress in November 1975. It provided for Government investment in Conrail of up to $2.1 billion through the end of 1979 by the purchase of stock and debentures. The plan included financial projections through 1985 that Conrail would begin to make a profit by 1979 and would remain profitable through 1985.

The plan shows that, to make a profit by 1979 and remain profitable thereafter, Conrail would need to greatly improve its rate of use of freight cars over its predecessors' 1973 rate. A projected 28-percent improvement would save Conrail $1 billion in capital expenditures through 1985 because 26,000 new freight cars would not be needed. (See p. 1.)

While GAO found that Conrail's use rate for the first 7 months of 1977 was about 13 percent less than the 1973 rate, the Final System Plan did not anticipate significant improvement in car use during Conrail's first 3 years of operations. The plan estimated that a major part of the improvement would come in 1979 when a new operating control system was to be installed and operating. (See p. 5.) The control system will not be fully operational before at least 1982 or 1983, thus delaying the benefits anticipated in the plan. (See p. 8.) Conrail is meeting most of the other recommended improvements called for in the plan.

Meanwhile, it appears that certain improvements--such as rehabilitating the freight car fleet--may cost more than estimated. (See p. 5.) For example, the Final System Plan showed that through 1981, 67,000 freight cars would require major repairs and 2,700 freight cars would have to be purchased. Conrail now estimates that through 1981 it will have to make major repairs to 90,000 freight cars and

purchase 8,700. This means that freight car repairs and purchases will cost about $345 million more than was estimated in the final plan. (See p. 12.)

At the same time, the railroad industry is also trying to improve freight car utilization throughout the industry, which could benefit Conrail. (See p. 23.)

Track rehabilitation during 1976 slightly exceeded the goals of the plan. The beneficial effects of track rehabilitation probably will not materialize for a few years because many track segments either are closed or require use at reduced speeds while being rehabilitated. (See p. 10.)

Whether the improvements Conrail is making will be sufficient to provide for a 28-percent improvement in freight car utilization by 1981 cannot be determined with certainty at this stage. However, the installation of a new operating control system was an important factor for improving the rate of use. Since it will not be installed when expected, Conrail may not be able to meet the use rate established in the Final System Plan as soon as called for. (See p. 20.)

Conrail told GAO that it will need additional funding to become self-sustaining and that its financial position did not allow it to proceed with the new control system until it was assured that additional funding was available.

The United States Railway Association stated its belief that capital improvement projects would be high on the list of items which Conrail will defer if additional funding is not provided to Conrail.

Cutbacks in Conrail's capital improvements may prevent, or will at least delay, Conrail's becoming an efficient railroad system capable of providing satisfactory service. (See p. 21.)

Contents

ABBREVIATIONS

AAR	Association of American Railroads
Conrail	Consolidated Rail Corporation
FRA	Federal Railroad Administration
GAO	General Accounting Office
ICC	Interstate Commerce Commission
USRA	United States Railway Association

CHAPTER 1

INTRODUCTION

On April 1, 1976, the Consolidated Rail Corporation (Conrail) began operating major segments of the former Penn Central, Erie Lackawanna, Reading, Lehigh Valley, Lehigh and Hudson River, and Central of New Jersey railroads under a reorganization plan developed by the United States Railway Association (USRA) pursuant to the Regional Rail Reorganization Act of 1973, as amended (45 U.S.C. 701). The purpose of this legislation was to restructure bankrupt railroads in the Northeast and Midwest sections of the country into an economically viable rail system.

The reorganization plan, known as the Final System Plan, was approved by the Congress on November 9, 1975. It provided for Government investment in Conrail of up to $2.1 billion through the end of 1979 by the purchase of debentures and preferred stock. The Federal funds are being provided to supplement Conrail's own internal cash flow to operate and rehabilitate the properties acquired from the bankrupt railroads.

The plan, which made financial projections through 1985, showed that Conrail would begin to make a profit in 1979 and would remain profitable through 1985. In predicting what Conrail would have to accomplish to become profitable, the Final System Plan projected that Conrail's freight car fleet had to be reduced from 176,462 1/ cars in 1976 to 115,609 cars by 1985. At the same time, car loadings were expected to increase. Therefore, an increased amount of business must be handled with considerably fewer freight cars. To handle the increase in business with fewer cars, the Final System Plan stated that Conrail had to achieve a 28-percent increase in its use of freight cars by 1981 and maintain that level through 1985. The plan defined the freight car utilization rate as the number of available car days divided by loads originated. (See p. 6.)

1/ Conrail actually took over a fleet of 164,700; the 176,462 was the inventory of cars on January 1, 1975, which was reduced by retirements. USRA also told us that about 2,400 of the cars which were originally included in the plan were transferred to other railroads.

According to Conrail, achieving this increase could spell the difference between success and failure. Projections included in the Final System Plan showed that Conrail's freight car acquisitions through 1985 could be reduced from 50,000 to 24,000 if car utilization was improved by 28 percent. This represents an avoidable capital investment of approximately $1 billion. The goal must be substantially met for the $2.1 billion in Federal funds to be sufficient to capitalize Conrail as an economically viable rail system. USRA officials told us that Conrail's actual traffic is less than that projected in the Final System Plan and this could offset, to some degree, the extra cars which would be needed if Conrail does not meet its car utilization goals.

Achieving improvement in car utilization is a problem which is not unique to Conrail. In recent years, the entire rail industry has been faced with dramatically increasing costs of owning and operating freight cars. A report on railroad productivity, published in 1973 by the National Commission on Productivity and the Council of Economic Advisers, stated:

> "The freight-car fleet is not meeting either the needs of shippers or the needs of the railroads as it is presently employed. Shippers complain of a freight-car shortage--of difficulty in obtaining empty cars as needed for loading--and of slow and unreliable transit times for loaded cars. At the same time, and despite the alleged shortage, the existing fleet of cars is returning an inadequate profit to its owners. * * * The failure of the existing fleet to satisfy both shipper and carrier can be corrected only by improving car utilization.
>
> "There is almost certainly an opportunity for improving car utilization significantly. The national freight-car fleet consists of about 1.8 million cars that handle about 25 million carloadings per year. Thus, the average car handles only 14 revenue loads per year or one load every 26 days."

A June 1976 report of the Freight Car Utilization Research Demonstration Program set up by the Association of American Railroads (AAR) and the Federal Railroad Administration (FRA) noted:

"Over many years the trend has been for the costs of owning and operating freight cars to become an increasingly larger portion of the railroad industry's total costs. Partly as a result of this trend, the size of the U.S. car fleet has been declining. Shippers have been experiencing declining levels of service, the railroads' market share has been decreasing, and the difficulty of maintaining a satisfactory return on investment (ROI) in the railroad industry has been increasing * * * ."

The report also showed that investment in railroad-owned freight cars increased from 10.4 percent of total railroad investment in 1950 to 31.8 percent in 1973. Each ton of carrying capacity generated $86 of revenue in 1951 compared with $125 in 1975. At the same time, the investment per ton of capacity increased from $24 to $67. Thus, the investment required for the basic asset (the ton of capacity) increased by $43 and annual revenue generated by that asset increased by $39.

It is within the industry-wide context of problems that Conrail has the task of improving its utilization of freight cars by 28 percent within a 5-year period.

For the 9-month period ended December 31, 1976, Conrail's financial statements showed that it had $2.447 billion in revenue and $2.652 billion in expenses with a loss for the period of $205 million. The Final System Plan estimated that Conrail would lose about $295 million for that period. Both the audited financial statements and the Final System Plan presented figures on the basis of generally accepted accounting principles under which track structure replacement expenditures are capitalized when incurred and depreciated over their estimated useful lives. Under the rules prescribed for railroads by the Interstate Commerce Commission (ICC), such expenditures are expensed when incurred. Conrail's loss was $419 million under the ICC rules.

SCOPE OF REVIEW

We reviewed Conrail's plans and programs for improving freight car utilization to determine how Conrail plans to achieve the projected improvement, the progress being made, and what problems exist that could hamper attainment of the goal. We made our review at Conrail headquarters in Philadelphia, Pennsylvania, and at various yards in the Conrail system.

During this review, we (1) reviewed the legislation that established Conrail and Conrail's operating policies and procedures, (2) reviewed pertinent Conrail documents and records, and (3) had discussions with Conrail officials responsible for carrying out the freight car utilization improvement program. We also met with AAR officials regarding industry-wide programs and with shippers.

We discussed the matters discussed in this report with USRA officials and have considered their views in preparing the report.

CHAPTER 2

CONRAIL'S PROGRAM TO IMPROVE UTILIZATION

To achieve the Final System Plan's goal of making a profit by 1979, Conrail must significantly improve its utilization of freight cars. The plan's projections were premised on a 28-percent improvement in utilization over that experienced by the predecessor lines in 1973. Such an improvement would save Conrail $1 billion in capital expenditures through 1985 by reducing by 26,000 the number of new cars Conrail would otherwise have to obtain.

Conrail's program to improve utilization includes the recommended improvements of the Final System Plan--such as adopting a new operating control system--as well as other improvements it believes to be desirable. The railroad industry is also making an effort to improve utilization throughout the industry, which could benefit Conrail. (See chapter 3.)

USRA--which prepared the Final System Plan--did not anticipate any significant improvement in car utilization during Conrail's first 3 years of operations and estimated that a major part of the improvement would come in 1979 when the new operating control system was to be installed. Conrail's utilization rate for the first 7 months of 1977 was actually about 13 percent worse than that of the predecessor lines in 1973. The new operating control system probably will not be operational until after 1980, thus delaying the benefits anticipated in the Final System Plan.

Conrail is addressing most of the freight car utilization improvements called for in the Final System Plan, but it appears that certain improvements--such as rehabilitating the freight car fleet--may cost more than originally estimated. It is too early to determine whether the improvements will be sufficient to provide for the anticipated 28-percent improvement. It should be noted, however, that an important factor for improving the utilization rate was the installation of a new operating control system. Because the timing of this has slipped, Conrail may not be able to meet the utilization rate established in the Final System Plan as soon as anticipated.

FINAL SYSTEM PLAN RECOMMENDATIONS

The Final System Plan did not provide a detailed blueprint for achieving the 28-percent improvement in freight car utilization but it did recommend a course of action which included

--adopting a new operating control system,

--rehabilitation of track to increase train speed,

--implementation of an improved plan to reduce freight car handling in intermediate yards, and

--supporting industry-wide changes, such as pooling freight cars through a clearinghouse and changing the car hire charges from a daily increment to a shorter time period.

The Final System Plan also contained other programs which will improve car utilization, such as the acquisition and repair of freight cars and locomotives, and the rehabilitation and expansion of yards.

The basis of the Final System Plan's 28-percent improvement objective was a study prepared by a consulting firm which evaluated the potential for improving car utilization on the railroads consolidated into Conrail. The consultants examined Penn Central's operational data for 1973 to determine the excess car days which could be controlled through better management of the car fleet.

USRA defined the freight car utilization rate as the available car days divided by loads originated. A rate of 21.8, for example, would indicate that the average car received a load once every 21.8 days. USRA established the following improvement goals for each car type.

Conrail Utilization Rates

(Available car days per load originated)

Car type	1973 utilization level	1981 estimated utilization	Percent improvement
Plain box	33.4	23.0	31.0
Equipped box	24.9	16.6	34.0
Covered hopper	27.8	18.6	33.0
Gondola	27.4	18.7	32.0
Open top hopper	16.6	12.1	27.0
Flat	38.1	24.0	37.0
Trailers on flat cars	4.7	4.5	4.0
Multi-level	11.0	10.8	2.0
All other cars	40.0	37.4	6.0
Weighted average	21.8	15.6	28.4

UTILIZATION RATES FOR 1973 AND 1977

USRA's consultant computed a utilization rate for 1973 of 21.8 car days, based on a "synthetic" data base. Because it does not accumulate data on the same basis, Conrail reconstructed and refined the base year data to be compatible with its current data. Conrail's reconstructed data showed that the utilization rate during 1973 was 25.2 car days. A 28-percent improvement on the revised 1973 base would reduce the utilization rate to 18 car days.

The results of Conrail's operations for the 7-month period January through July 1977 showed an "available car days per load originated" index of 28.4 car days. This rate was about 13 percent worse than the rate for 1973 of 25.2 car days. For Conrail to meet the goal of a utilization rate of 18 car days by 1981, it will have to improve the rate by 37 percent over the first 7 months of 1977.

Conrail's Chairman pointed out that Conrail has had data problems in comparing 1973 and 1977 rates because the 1973 Penn Central data was not directly comparable to Conrail's data. He said that the 1976 rate had slipped about 8 - 10 percent as compared to 1973 and that Conrail was making a slight improvement in 1977, excluding the effects of the severe winter.

The utilization rate by type of car for 1973 and the first 7 months of 1977, according to Conrail records, is shown below.

Car type	1973 utilization level (note a)	Average utilization level for first 7 months of 1977 (note a)
Plain box	32.4	36.2
Equipped box	27.8	28.7
Covered hopper	32.1	36.7
Gondola	23.8	26.1
Equipped gondola	26.7	27.2
Open hopper	18.5	24.1
Flat	50.0	55.8
Multi-level	14.1	19.2
Other	38.9	38.7
Weighted average	25.2	28.4

a/The utilization rates were obtained from information contained in Conrail's automatic data processing system. We did not verify the accuracy of the information because of the extensive time that it would take.

IMPROVEMENT PLANS AND ACTIONS

The status of Conrail's actions to improve freight car utilization are summarized below.

Operating control system

The Final System Plan said that implementation of a more effective operating control system was one of several major requirements necessary to achieve the full improvement potential in freight car utilization. The essential features of the system were (1) an integrated car and yard control system, (2) an accurate online information base, (3) a reliable data base, (4) computer-stored car distribution instructions, (5) automatic application of destinations by the computer, and (6) continuous monitoring for change of destination or movement.

The plan anticipated that Conrail would begin developing the new system shortly after April 1, 1976, and that the new system would be operational in 1979. However, as of October 25, 1977, Conrail did not expect the new system to be fully operational until 1982 or 1983. According to Conrail, it is not meeting the anticipated time schedule because it considered it necessary to (1) develop a detailed plan to determine the total investment required by such a system and (2) evaluate the return on investment as compared with other investment opportunities.

During August 1976, an industry task force was established at Conrail's request to validate the need for a more effective operating control system, estimate the cost and benefits associated with an improved system, and the time needed to make it operational. In October 1976, the industry task force concluded that there was a need for a more effective operating control system at Conrail to provide

--proper discipline in the field to insure prompt and accurate reporting of car movements and insure local compliance with car distribution requirements,

--enhanced functional capabilities to utilize the improved car and train data, and

--the incentive to change the way car distribution functions were organized in the field to facilitate improved controls.

The task force found that installation of a new system would cost less and be accomplished more quickly than an upgrading of Conrail's existing system.

The industry task force concluded that the total development and implementation costs of an effective system would be about $60 million and would provide annual savings of at least $37.5 million. The task force noted that its estimates did not adequately reflect the impact on car utilization because its time frame did not permit a more thorough and detailed analysis of savings. The task force believed that total savings would be substantially greater. The task force report showed that the majority of the $37.5 million annual savings would result from the prevention of the mishandling of cars. For example, the task force estimated that over 600 cars a day were sent

to the wrong destination. These mishandlings usually result in 5 lost car days and 200 extra car miles each, or over 2 million lost car days annually, which costs Conrail $25 million annually.

Conrail had completed field tests and concluded that a disciplined system, such as that installed on another railroad, would improve the quality, timeliness, and accuracy of car movement reporting. A Conrail official told us that, before installation of the new system can start, approval has to be obtained from Conrail's Board of Directors. Subject to the Board's approval, $12 million will be requested in Conrail's 1978 budget to start installing the new system. He said that Conrail did not ask for earlier Board approval of the matter for two reasons. First, it was completing a realignment of its car distribution organization. Second, because of the large capital investment needed to install the system, it was necessary that Conrail complete a thorough review of this proposed investment as compared to other capital investment alternatives. The official told us that it would probably take about 44 - 56 months to completely install the new operating control system and that the first benefits would not be realized until after half of the railroad was covered by the new system.

While Conrail stated that it has been actively evaluating a new system, an official of USRA told us that his understanding is that Conrail will not install a new system but will instead upgrade its existing system. He also told us that a good operating control system is important and that USRA is concerned about Conrail's delay in taking action.

Track rehabilitation

When Conrail began operations on April 1, 1976, 7,790 of its track miles, or about 23 percent, were subjected to speed restrictions or "slow orders." On April 1, 1977, 7,641 miles, or about 22 percent, were subject to slow orders. Conrail had removed over 2,000 miles of slow orders, but new ones were placed in other locations not yet reworked or currently being worked on. This resulted in thousands of car days lost because of the slower movement of freight cars. The condition of the track also resulted in poorer service for customers, increased labor costs for train crews in the form of overtime, and train derailments. For example, during ConRail's first year of operation, there were 688 track-caused train accidents that resulted in damages of $15.4 million.

During 1976, Conrail started a track rehabilitation program that is expected to improve freight car utilization by increasing train speeds and reducing derailments. For the period 1976-81, Conrail expects to spend $1,619 million to rehabilitate track, $12 million less than the $1,631 million forecasted in the Final System Plan. However, Conrail's production goals exceed the Final System Plan's for this period.

1976-1981 - Track Rehabilitation Program Production Goals

	Conrail	Final System Plan
Rail (miles)	6,234	6,234
Ties (millions)	28.24	25.63
Surfacing (miles)(note a)	49,800	41,962

a/Surfacing involves the distribution and compacting of ballast material to correct the track's profile and the cross level relationship of one rail to the other.

Track rehabilitation accomplished during 1976 slightly exceeded Final System Plan goals. Conrail installed 4.55 million ties, surfaced 8,260 miles of track, and laid 727 miles of continuous welded rail, at an estimated cost of $212 million.

Conrail's 1977 track rehabilitation program calls for the installation of 1,041 miles of rail, replacement of 5 million ties, and surfacing of 8,300 miles of track at a cost of $303 million. The program is composed of about 1,600 projects, with primary emphasis being given to the rehabilitation of key routes and yards supporting those routes. For example, by rehabilitating the 132-mile route between the New York metropolitan area and a major yard in Selkirk, New York, Conrail cut its running time from 7.5 to 3.8 hours.

The track rehabilitation program adopted by Conrail for 1977 exceeds the rehabilitation projection made in the Final System Plan. Conrail decided to accelerate the program because the expected return on investment from track rehabilitation made an accelerated repair schedule advantageous. However, the beneficial effects of the track rehabilitation program systemwide probably will not materialize for a few years because many track segments are closed or operating at reduced speeds while the tracks are being rehabilitated.

Repair and acquisition of freight cars

The deteriorated condition of Conrail's freight car fleet results in thousand of lost car days and wasted car movements because so many cars are not suitable for shippers' needs. Cars are moved empty, sometimes hundreds of miles, to fill a customer's order for an empty car only to have the shipper reject the car because of its poor condition.

In December 1976, over 3,000 cars were rejected by shippers who claimed that they were unfit for loading. During August 1977, the number of cars rejected by customers because of poor condition increased to 4,200. Conrail attributed the increase to more complete reporting of defects by its field personnel rather than to a worsening of the condition of the freight cars.

Unfit cars are poorly utilized. For example, a gondola with a bad floor, which was rejected as unfit by shippers three times during November and December 1976, did not carry any loads for these 2 months while it traveled 733 miles throughout the railroad. During January 1977, it was only used to carry scrap for 2 days, over a distance of 121 miles.

Prior to April 1977, Conrail had not attempted to repair all defects immediately because its shops were operating at capacity. Instead, cars were kept in service while Conrail searched for a shipper that could use the defective car. Conrail introduced a new operating procedure in April 1977, which provides that a car rejected by a shipper be sent directly to a repair facility.

According to Conrail's Chairman, the light and medium repair shops were at physical capacity while the heavy repair shops were at manpower capacity. He said that Conrail was studying an expansion of its medium repair facilities and would increase manpower if more heavy repairs were warranted.

On April 1, 1976, about 164,700 freight cars in generally poor condition were conveyed to Conrail by its bankrupt predecessors. The Final System Plan estimated a fleet size of 115,609 by 1985 but did not estimate the fleet size for any other years. Conrail has estimated fleet size only through 1981.

Conrail's goal is to reduce the size of the fleet to 135,000 cars by 1981 but to handle more traffic than during 1976. This goal is to be accomplished by

--major repairs to over 90,000 freight cars between 1976 and 1981 at a cost of over $500 million,

--the retirement of cars considered uneconomical to repair, and

--the acquisition of 8,700 new freight cars at a cost of $317 million.

As of May 1, 1977, no new purchases had been made and the total fleet size had been reduced to 150,800 freight cars by retiring 13,900 cars considered uneconomical to repair. However, 19,500 of the remaining fleet of 150,800 were out of service because of needed repairs--an out-of-service percentage of 12.9 percent, which is considerably over the industry standard of 5 percent.

During 1976, Conrail made major repairs to 10,853 freight cars--slightly more than projected in the Final System Plan. Because Conrail found the fleet to be in worse condition than anticipated, it plans to increase the number of major repairs to more than 90,000 cars between 1977 and 1981--over 23,000 more than projected in the plan--at a cost of $434 million.

In addition, Conrail plans to accelerate the acquisition of new cars. The Final System Plan had projected that about 2,700 new cars would be needed through 1981. Conrail now projects that it will need to acquire 8,700 cars through 1981, with a corresponding reduction in acquisitions after 1981.

The plan included a single cost estimate for the repair of equipment and did not identify the estimated cost to repair freight cars. The plan did show, however, that 67,000 freight cars would require major repairs through 1981. Conrail's December 31, 1976, business plan stated that it planned to increase the number of cars to 90,000.

It appears that the repair cost for the additional 23,000 cars was not included in the Final System Plan. At Conrail's estimated average cost of $5,500 to repair freight cars, the additional 23,000 cars will cost $127 million to repair. Also, the 6,000 additional cars Conrail plans to purchase by 1981 will cost about $218 million more than the cost shown in the plan through 1981.

Repair and acquisition of locomotives

The deteriorated condition of Conrail's locomotive fleet results in thousands of lost freight car days (idle time) because locomotives are not available to move the freight cars awaiting departure from yards. During Conrail's first 13 months of operations, through April 20, 1977, over 1.4 million lost car days were recorded due to an inadequate supply of serviceable locomotives. A Conrail official advised us that the actual number of lost car days was probably much higher, but the data collection system does not report all delays.

When Conrail began operation on April 1, 1976, it inherited about 4,600 diesel and 180 electric locomotives from its bankrupt predecessors. The locomotive fleet was described in the Final System Plan as "basically sound", but Conrail found that it included more than 800 units overdue for overhaul, which had not been anticipated.

Starting in 1976, Conrail began a 6-year effort to improve the condition of its locomotive fleet. Through 1981, 4,898 locomotive overhauls are planned at a cost of $336 million, which is in line with Final System Plan projections. The plan anticipated that 713 new locomotives would be purchased through 1981 at a cost of $343 million. According to Conrail's December 31, 1976, business plan, the number of planned purchases was reduced to 429 new locomotives at a cost of $231 million, mainly because it will not retire as many units as the plan predicted, preferring to continue to use low horsepower locomotives as switch engines, rather than as road engines.

During 1976, 779 locomotives were overhauled, about 150 more than forecasted in the Final System Plan. During the early part of 1977, however, overhauls were slightly behind the plan schedule due to the impact the severe winter had on shop operations. Despite the large number of overhauls, the average number of locomotives awaiting repair increased from 600 in April 1976 to 760 in May 1977. During the same period, 260 locomotives were retired because they were uneconomical to repair.

To minimize the delays caused by locomotive shortages, during 1976 Conrail leased locomotives on a short-term basis from other railroads at a cost of $3.4 million. This leasing cost was not included in the Final System Plan. Conrail is continuing to lease locomotives during 1977.

Yard and terminal improvements

The large number of yards operated by Conrail and their deteriorated physical condition adversely impacts on freight car utilization by increasing trip time. The large number of yards resulted from the predecessor railroads having overlapping operations in some cities and also from an era when railroads were more involved in short distance hauls. A photograph of a Conrail yard is on p. 16.

Yard and terminal improvement projects are planned or underway which are expected to decrease the time it takes to process a car through a yard and terminal and also decrease the number of intermediate yards a car must pass through while moving from origin to destination.

The Final System Plan estimated that Conrail would expend $91 million through 1981 to improve 15 yards and terminals; whereas Conrail plans to expend about $83 million on the 15 yards listed in the Final System Plan plus 2 other yards. Because the Final System Plan did not provide details of the $91 million estimate, the reason for the variances could not be determined.

Although no firm plans have been made to proceed, major projects being considered by Conrail include:

--The construction of a major yard in the Newark, New Jersey, area at a cost of $38 million. This area served traffic from three of Conrail's bankrupt predecessors and has a series of small deteriorated yards that traffic currently moves through. The new yard would consolidate the operations and eliminate the processing time in intermediate yards.

AERIAL VIEW OF A CONRAIL YARD

SOURCE: ASSOC. OF AMERICAN RAILROADS

--The construction of a major yard in the Cleveland, Ohio, area which currently has a series of nine deteriorated yards inherited from the bankrupt predecessors. The project would consolidate operations into one major yard and one support yard and significantly decrease car processing time. The largest of the nine yards currently averages 35 hours to process each of 1,372 cars per day. The project, as proposed, would decrease the processing time to 20 - 24 hours and, in addition, eliminate the need for handling in intermediate yards.

--A major consolidation of yards is planned for Philadelphia, Pennsylvania, which would include the closing of a series of small yards and eliminate the intermediate handling of many cars.

The Newark project has been designed and cost estimates prepared; however, the project's implementation is dependent on the availability of capital funds. The Cleveland project is in the design phase and final cost estimates have not been made. The Philadelphia project is in the conceptual phase.

Major projects underway include:

--The rehabilitation of track in many yards. This is expected to decrease the car processing time and produce savings of $7.5 million during the first year through the avoidance of car derailments.

--Improved block arrangements of cars with common destinations. This permits some intermediate yards to be bypassed with a decrease in the time spent in other yards.

--The rehabilitation and modernization of a major yard near Syracuse, New York. The work includes changes in track layout for improved efficiency, installation of a computer-controlled switching and speed control system, a track scale to weigh cars in motion, and a more efficient local yard for service to local industries.

While moving from origin to destination, freight cars are usually routed through several yards. The following are types of freight car movements which Conrail hopes to correct.

--A box car traveling the 57 miles from Fairless, Pennsylvania, to Hillside, New Jersey, was processed by three intermediate yards and took 6 days to get to the destination.

--A box car traveling the 975 miles from Louisville, Kentucky, to Nicholson, Pennsylvania, was processed by nine intermediate yards en route; the trip took 13 days.

--A box car traveling the 539 miles from Jeffersonville, Indiana, to Augusta, Michigan, was processed by six intermediate yards and took 8 days.

The number of yards a freight car must be processed through while traveling from origin to destination significantly increases trip time since it generally takes at least a day to move through each yard.

Clean car program

The adverse impact of "dirty cars" on freight car utilization was not mentioned in the Final System Plan. Conrail considers it a significant problem, however, because of the large number of cars that customers refuse to load resulting in wasted car movements.

Conrail has 18 locations throughout its system at which car cleaning is performed. Most of the car cleaning is done by contractors and is of a minor nature--removing debris from cars and sweeping them out. In October 1976, Conrail began attacking the "dirty car" problem through more rigorous enforcement of an ICC requirement that receivers thoroughly remove all debris from the car and release it in a clean condition. Violators are identified and notified of their obligation.

If a car is furnished to a shipper in a dirty condition--containing refuse, lading, or dunnage from a prior load--the shipper can reject that car for loading and require that another car be furnished. This causes lost car days and costly and nonproductive car movement. A Conrail study showed that in December 1976 about 1,300 cars were rejected by shippers because the cars were dirty. We visited several shippers who had refused to load dirty cars and were advised by these shippers that they reject only the "extremely dirty cars" and clean the other cars themselves prior to loading. Thus, the 1,300 cars rejected in December 1976 does not mean that all other cars were clean.

Another study done by the Penn Central in January 1976 showed that of 250 general service box cars released by consignees, 17 percent were unusable by any shipper without cleaning and another 33 percent would be unusable by 50 percent or more of the shippers.

The effect of this problem on car utilization is shown by the example of an empty box car that was sent 199 miles from Oak Island, New Jersey, to Mehoopany, Pennsylvania, for loading by a customer. The customer rejected the car, however, as unfit for loading because it was dirty and the car was sent back 199 miles to Oak Island, New Jersey. The round trip took 3 days.

During August 1977, customers rejected about 1,400 cars because they were dirty. Even though the number of rejects did not decrease from that experienced in December 1976, Conrail claimed that the clean car campaign was starting to show positive results because more complete reporting of rejects is being obtained from its field personnel than when the reporting system first started in late 1976.

Analysis of car movement data

In attempting to develop a plan to improve freight car utilization, Conrail recognized that a major problem was the absence of car movement data in a form which would permit analysis of specific traffic patterns to determine specific problem areas and set improvement goals.

Because of this problem, a special study was started in late 1976 to establish a data base that could be used to analyze how specific improvements could be made and to set specific improvement goals. This study uses Conrail's car movement data for April to November 1976 as a source. The study will assemble the data into a format whereby the movement of all cars on Conrail during that 8 months is broken down into component parts to show the amounts of time that cars spend in various portions of the empty-loaded-empty-trip cycle, such as at the shipper's siding, in yards, actually moving in a train, and so forth.

Conrail expects that this study will serve as a starting point from which actions impacting on car utilization can be measured and evaluated. Such actions might include additional fleet acquisition, changes in the composition of the fleet, alternative routing, blocking and classification strategies, equipment repair programs, track and yard rehabilitation, and modifications to car service rules.

In October 1977, a Conrail official told us that Conrail was gathering similar data for the first 10 months of 1977. He said that this type of data will be used on a continuing basis--in 1977 and future years--as a yardstick for measuring the effects of improvements and changes made.

CONCLUSIONS

To become profitable by 1979, Conrail must significantly improve its freight car utilization rate. For the first 7 months of 1977, however, Conrail's utilization rate was not as good as the 1973 rate.

Some of the improvements being made by Conrail may cost more than anticipated in the Final System Plan while others may cost less than anticipated. Overall it appears that the improvements will cost more than the plan projected. Thus, Conrail may not reach the 28-percent utilization improvement goal by 1981 at the cost estimate contained in the plan.

Although Conrail is addressing most of the recommendations of the Final System Plan, it has not started to install a new operating control system, which was to be operational by 1979, an important recommendation of the plan. A later study confirmed that an improved system was needed and estimated that substantial savings would result. It appears now that the earliest such a system can be fully operational is 1982 or 1983, thus delaying the benefits anticipated by the plan. According to Conrail, it has not yet asked for approval of a new system by the Board of Directors because of the impact which the planned organization would have on the car distribution function and because it is subjecting the new system to a critical analysis of costs and benefits before asking for approval of such a large investment.

CONRAIL'S AND USRA'S COMMENTS ON THE AVAILABILITY OF FUNDS FOR IMPROVING CONRAIL'S OPERATING CONTROL SYSTEM

In the draft report sent to Conrail for its comments, we suggested that Conrail promptly submit its proposal for an improved operating control system for approval by the Board of Directors so as to take advantage of the savings projected by the Final System Plan and Conrail's own task force.

In his comments on our draft (see app. I), Conrail's Chairman and Chief Executive Officer stated that, while the suggestion might be sound technically, Conrail's financial situation was not such that Conrail could proceed with a $60 million investment which would not produce substantial benefits for 4 or 5 years. He said that Conrail had informed USRA that some form of additional financing (in addition to the authorized $2.1 billion Federal investment) will be necessary for Conrail to become financially self-sustaining as well as to accomplish its other mandates under the Rail Act and that, until Conrail is assured such financing will be available, it would be difficult to support a major investment in a system for which the payback is so far off.

USRA officials told us Conrail has indicated that it will need additional funds from Government and/or private sources but that Conrail has not officially requested any specific amount. They said that Conrail is to submit its financial projections by February 15, 1978, and that USRA does not plan to ask the Congress for more funds until Conrail submits an official request for a specific amount. The USRA officials said USRA has developed a detailed work plan for reviewing Conrail's projections.

The USRA officials said they considered an improved operating control system to be a priority item but they recognized that Conrail has to prioritize its projects to determine how to use the funds it has. They said that USRA plans to review Conrail's methodology for prioritizing projects and noted that they believed any capital improvement projects--such as the operating control system or yard improvements--would be high on the list of items which Conrail might defer.

While Conrail will have to cut back on expenditures if it runs short of funds, it seems to us that cutbacks on capital improvements may prevent, or at least delay, Conrail from becoming an efficient railroad system capable of providing satisfactory service to its customers. One of the factors in the decline and fall of Conrail's predecessor railroads was their failure or inability to make needed capital expenditures.

We agree that Conrail needs to prioritize its capital improvement projects to determine the most effective use of its funds, including the improved operating control system.

CHAPTER 3

INDUSTRY APPROACHES TO IMPROVING THE UTILIZATION OF FREIGHT CARS

Because of rapidly escalating ownership costs of freight cars and associated utilization problems, the railroad industry in recent years has devoted an increasing amount of its attention to the car utilization problem. Several recent major efforts are underway which may benefit Conrail, including:

--A 6-year research-demonstration program on car utilization set up jointly in 1975 by AAR and FRA to identify major factors which contribute to utilization inefficiencies and to suggest changes which which will promote improved freight car utilization.

--A freight car clearinghouse experiment that began in 1974 which involves the pooling of cars by certain railroads in order to reduce the movement of empty cars between railroads. Conrail became a member of this pool in November 1977.

--A change, scheduled to take place in 1978, in the method of calculating the charge made by one railroad against another for the use of its cars (per diem) from a daily rate to an hourly rate to to improve car utilization through reduction of yard congestion during certain hours.

AAR also operates a computerized freight car information and control system (referred to as TRAIN II). AAR's central computer receives information on freight car movements throughout the "empty to loaded to empty" car cycle. The system contains information on such things as how long cars belonging to a railroad are being held by another railroad, origin and distribution reports, and loadings and unloadings. The TRAIN II data enables AAR to make short-range forecasts of loadings, unloadings, and inventories of available empty cars and, among other things, provides data needed by AAR to assure an equitable distribution of freight cars among railroads. An earlier version of the computerized system was inaugurated in 1970; the current system became operational in 1975.

In 1973, a free-running industry-wide pool of 50-foot boxcars was started (referred to as RAILBOX). AAR officials told us that there are 10,000 cars in the pool and there are plans to add 2,500 more. They said that Conrail has about 25 percent of the RAILBOX cars.

RESEARCH-DEMONSTRATION PROGRAM

In July 1974, a task force of representatives from several railroads, AAR, and FRA outlined a proposed program for research into how car utilization could be improved. A cooperative research effort was authorized by the AAR Board of Directors, and work began in January 1975. The program is jointly funded by FRA, AAR, and individual railroads and suppliers which furnish manpower and/or facilities. It is managed by AAR under the guidance of a steering committee representing Government, railroads, shippers, and labor interests.

The program is a 6-year, three-phase effort which is scheduled for overall completion by December 31, 1980. Under the first phase of the program, completed June 30, 1977, task forces were organized to deal with (1) the development of a manual of useful practices being employed in the industry so that all railroads could consider using the best practices; (2) the development of a definition of freight car utilization, including utilization measures and a demonstration project to assess costs and benefits; (3) the initiation of alternatives to industry rules and practices in the areas of car service rules, orders and directives, per diem demurrage, and car condition; and (4) the design and carrying out of a series of experiments for evaluating the impact of improvements in rail service reliability on car utilization.

The second phase of the car utilization research-demonstration program is just getting underway and will take the information gathered in phase I and begin to apply it more specifically in the study of specific aspects of car utilization. Topics which will be studied include the effect of management organizations and practices on car utilization, utilization impacts of railroad operating plans, improved railroad-customer coordination, an improved nationwide freight car management system, and the effectiveness of freight car distribution systems used by various railroads. This phase is scheduled to be completed in mid-1979.

The third and final phase of the program is scheduled to begin when the second phase has been completed. Although the specific tasks to be done in the third phase have not been finalized, they may include such topics as equipment design, work rules, and evaluation of railroad and public policy questions.

An AAR official told us that the benefits from the research-demonstration program and their impact on Conrail's car utilization may not all be measurable. The chief benefit of this program will be to produce data which will be useful to railroad management in developing their own programs to improve car utilization.

FREIGHT CAR UTILIZATION EXPERIMENT

One of the most visible aspects of the car utilization problem is the movement of empty cars between railroads. During the last 7 months of 1976, Conrail's cars traveled empty about 46 percent of the time. Of the 1.34 billion car miles traveled, 614 million were empty car miles. Conrail estimated the cost of the empty car miles to be $135 million. AAR officials told us that the industry-wide norm for empty cars was 40 percent.

Railroads must comply with ICC rules which state generally that when one railroad unloads another railroad's car on its own line, it must either (1) reload the car with a load destined to a point on the lines of the railroad which owns the car, (2) reload the car to a destination nearer to the lines of the railroad which owns the car than the location at which it was unloaded, or (3) deliver the car empty to the railroad which owns the car or to the junction at which the car was originally received under load. During periods of car surplus, movement of empties is particularly prevalent because these cars cannot be reloaded and must be moved to comply with the rules and to avoid payment of unnecessary car hire charges to the railroad which owns the cars.

In 1974, three railroads--Southern, Missouri Pacific, and Milwaukee--formed a clearinghouse which, in effect, established a pool of their general service cars. ICC granted a temporary exemption from its rules and allowed these railroads to use each others' cars as though they were their own. Procedures were established to balance the supply of cars between the three railroads.

According to a February 1977 evaluation prepared for AAR by a consultant, the clearinghouse appeared to be successful in reducing empty car movements during its first year of operation. The consultant estimated that during its first year, the clearinghouse reduced empty car movements by about 5 million car miles and saved $700,000. The consultant estimated that savings in future years from the continued operation of the clearinghouse would be about $1.4 million annually. The success of the clearinghouse experiment encouraged seven additional railroads to join the clearinghouse in 1976, bringing the total membership to ten.

AAR plans to continue evaluating the clearinghouse experiment. In addition, AAR is studying the impact of ICC rules on car utilization by comparing utilization rates for freight cars which are subject to ICC rules with utilization rates for cars which are exempt from the rules, such as the clearinghouse cars.

Early in 1977, Conrail requested membership in the clearinghouse from the 10 railroads involved and became an operating member in November 1977. Membership in the clearinghouse should provide Conrail with the opportunity to reduce the movement of empty cars and to improve the utilization of its car fleet.

HOURLY CAR HIRE

For decades, car hire has been on a 24-hour or per diem basis. Under this practice, a railroad which has another railroad's cars on its line pays the railroad which owns the cars a set amount for each day that the cars are on its lines. If a railroad could deliver a car to another railroad before midnight, however, it avoided an additional day of car hire cost. According to the Department of Transportation, this practice caused terminal congestion around the midnight hour because of the railroads' interest in delivering cars immediately prior to midnight and was found to act against high-quality service, reliability, and effective car utilization.

AAR feasibility studies indicated that a change to hourly car hire would eventually promote both better service and more efficient operations resulting from reduced congestion at and near interchanges, improved train scheduling, and increased incentives to move cars timely and reliably.

Conversion to hourly car hire was recently passed unanimously by AAR and was scheduled to be implemented in January 1978. AAR officials told us in November 1977 that AAR had petitioned ICC to change the effective date to July 1, 1978, but ICC had not taken any action on the petition.

The Department of Transportation estimated that conversion costs would be $1.6 million and that the cost savings would have a present value of $40 million to $80 million for the national railroad system, with annual net cost savings of $19 million to $33 million.

APPENDIX I

CONRAIL

EDWARD G. JORDAN
CHAIRMAN
CHIEF EXECUTIVE
OFFICER

November 28, 1977

Mr. Henry Eschwege, Director
Community and Economic Development Division
U. S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

Thank you for sending me a draft copy of your report entitled "Status of Conrail's Efforts to Improve Its Use of Freight Cars." We greatly appreciate the opportunity to review this report prior to release. I would like to clarify several items in the report, and then comment briefly on your recommendation.

(See GAO note, p. 30.)

APPENDIX I

(See GAO note, p. 30.)

On page 24, I suggest that the second sentence of the second paragraph be amended as follows, "According to Conrail, it has not yet asked for approval of a new system by the Board of Directors because of the impact which the planned organizational changes would have on the car distribution function. Furthermore, Conrail is subjecting the new system to a critical analysis of proposed costs and benefits before asking for approval on such a large investment. A recent study has confirmed that an improved system would enhance the quality and timeliness of car movement information, which is one of the prerequisites to improved car utilization. Conrail is convinced that implementation of a new system should follow only if procedural systems (e.g., car distribution practices, train dispatching methods, accountability for car hire) on which it depends are at least adequate. In particular, what is needed is a thorough analysis of the "management style" which would be most consistent with the use of the system. Choosing to install the system necessitates also the difficult decision to make a substantial change in the way the company is managed. Given the inherent disruption associated with making changes like this, we need to be sure that the benefits of the change outweigh both the financial and non-financial costs."

In closing, I feel compelled to give a reaction to your recommendation that "Conrail promptly submit the new operating control system for approval by the Board of Directors." That recommendation may be sound technically, since implementation of such a system would probably help to improve car utilization. However, the recommendation is made as if in a situation where money is no object -- and where financing is so sure that Conrail can proceed with a $60 million investment that will not produce substantial benefits for 4 or 5 years. Emphatically, that is not Conrail's situation. We have already informed USRA officially of our view that some form of additional financing will be necessary for Conrail to become financially self-sustaining as well as to accomplish our other mandates under the Rail Act. Until Conrail is assured such financing will be available, it is difficult to support a major investment in a system for which the payback is so far off.

Again, I appreciate the opportunity to review this draft report. Please contact me if you need clarification or additional information on these comments.

Sincerely,

Edward Jordan

GAO note: Deleted material suggests changes which have been incorporated in the report.

Note: Page references in this appendix refer to our draft report and may not correspond to the pages of this final report.

APPENDIX II

PRINCIPAL OFFICIALS RESPONSIBLE FOR ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office From	To
CONSOLIDATED RAIL CORPORATION		
CHAIRMAN AND CHIEF EXECUTIVE OFFICER:		
Edward G. Jordan	Apr. 1976 [1/]	Present
PRESIDENT AND CHIEF OPERATING OFFICER:		
Richard D. Spence	Apr. 1976 [1/]	Present

Note 1: Date operations began.

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