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Northeast Corridor Passenger Transportation Data Study

THE AEROSPACE CORPORATION
2350 EAST EL SEGUNDO BOULEVARD
EL SEGUNDO CA 90245



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FINAL REPORT

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FEDERAL RAILROAD ADMINISTRATION
NORTHEAST CORRIDOR PROJECT
WASHINGTON DC 20590

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| 16. Abstract <p>Fourteen measures of performance are recommended for use in Northeast Corridor rail system evaluation and multimodal comparisons. These include performance measures in the categories of system configuration (e.g., daily available-seat miles by vehicle and segment), system performance (e.g., load factor by vehicle and segment) and system economics (e.g., cost per revenue-passenger mile by vehicle and segment).</p> <p>Although current data reported by certificated air carriers and participating passenger railroads are not entirely consistent, sufficient data exist to permit effective intra- and inter-modal evaluation and comparison. Certain disaggregation or allocation algorithms are recommended in some cases, however, to obtain travel segment data at the suggested aggregation level and frequency.</p> <p>Publicly available data for intercity motor passenger carriers are insufficient for the effective evaluation of Northeast Corridor performance. Current data reported to the Interstate Commerce Commission are published only at various aggregated levels and are limited to selected economic data and overall performance measures.</p> | | | | | |
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PREFACE

The Northeast Corridor is one of the most heavily traveled corridors in the United States. Although many agencies have analyzed travel in this corridor, difficulty remains in obtaining reasonably current and consistent data appropriate to each transportation mode for intra- and inter-modal evaluation. The Transportation Systems Center (TSC), under the sponsorship of the Federal Railroad Administration, initiated this study to assess available public transportation data for the Corridor with a view toward recommending possible data system improvements. Such improvements would be oriented toward facilitating evaluation of the current rail system as well as providing for appropriate comparisons with other public transportation modes.

The study was directed by Ms. Judy Gertler, TSC. The Aerospace Corporation, El Segundo, California, was retained as the consultant. The study addressed the following: (1) identification of publicly available configuration, performance, and economic data for the air, bus, and rail modes; (2) determination of desired system performance measures to facilitate management evaluation and intermodal correlation; (3) evaluation of desired performance measures in view of the available data; and (4) appropriate recommendations for the collection of additional data where required to assess performance and causal relationships on a relatively near-term basis.

Primary concentration in the study was on data that are readily available to the public through appropriate regulatory and public operating agencies. Evaluated were the procedures and publications of the Civil Aeronautics Board, the Interstate Commerce Commission, the Federal Railroad Administration, and the National Railroad Passenger Corporation (Amtrak).

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol When You Know Multiply by To Find Symbol

LENGTH

| | | | | |
|----|--------|-----|-------------|----|
| in | inches | 2.5 | centimeters | cm |
| ft | feet | 30 | meters | m |
| yd | yards | 0.9 | kilometers | km |
| mi | miles | 1.6 | | |

AREA

| | | | | |
|-----------------|---------------|------|--------------------|-----------------|
| in ² | square inches | 6.5 | square centimeters | cm ² |
| ft ² | square feet | 0.09 | square meters | m ² |
| yd ² | square yards | 0.8 | square kilometers | km ² |
| mi ² | square miles | 2.6 | hectares | ha |
| | acres | 0.4 | | |

MASS (weight)

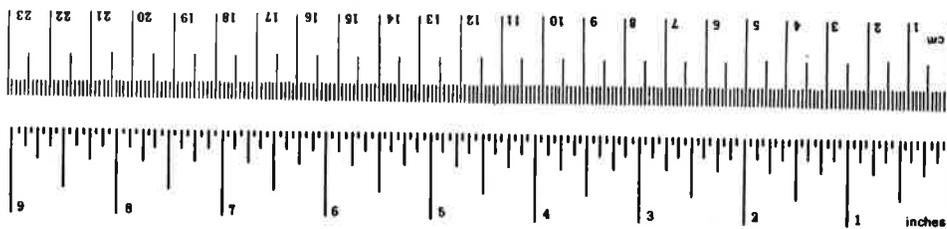
| | | | | |
|----|------------|------|-----------|----|
| oz | ounces | 28 | grams | g |
| lb | pounds | 0.45 | kilograms | kg |
| | short tons | 0.9 | tonnes | t |
| | (2000 lb) | | | |

VOLUME

| | | | | |
|-----------------|--------------|------|--------------|----------------|
| tsp | teaspoons | 5 | milliliters | ml |
| Tbsp | tablespoons | 15 | milliliters | ml |
| fl oz | fluid ounces | 30 | milliliters | ml |
| c | cups | 0.24 | liters | l |
| pt | pints | 0.47 | liters | l |
| qt | quarts | 0.95 | liters | l |
| gal | gallons | 3.8 | liters | l |
| ft ³ | cubic feet | 0.03 | cubic meters | m ³ |
| yd ³ | cubic yards | 0.76 | cubic meters | m ³ |

TEMPERATURE (exact)

| | | | | |
|----|------------------------|----------------------------|---------------------|----|
| °F | Fahrenheit temperature | 5/9 (after subtracting 32) | Celsius temperature | °C |
|----|------------------------|----------------------------|---------------------|----|



Approximate Conversions from Metric Measures

Symbol When You Know Multiply by To Find Symbol

LENGTH

| | | | | |
|----|-------------|------|--------|----|
| mm | millimeters | 0.04 | inches | in |
| cm | centimeters | 0.4 | inches | in |
| m | meters | 3.3 | feet | ft |
| | | 1.1 | yards | yd |
| km | kilometers | 0.6 | miles | mi |

AREA

| | | | | |
|-----------------|-----------------------------------|------|---------------|-----------------|
| cm ² | square centimeters | 0.16 | square inches | in ² |
| m ² | square meters | 1.2 | square yards | yd ² |
| km ² | square kilometers | 0.4 | square miles | mi ² |
| ha | hectares (10,000 m ²) | 2.5 | acres | ac |

MASS (weight)

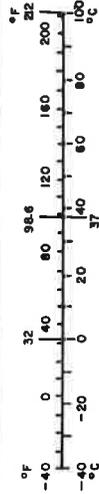
| | | | | |
|----|------------------|-------|------------|----|
| g | grams | 0.036 | ounces | oz |
| kg | kilograms | 2.2 | pounds | lb |
| t | tonnes (1000 kg) | 1.1 | short tons | st |

VOLUME

| | | | | |
|----------------|--------------|------|--------------|-----------------|
| ml | milliliters | 0.03 | fluid ounces | fl oz |
| l | liters | 2.1 | pints | pt |
| | | 1.06 | quarts | qt |
| m ³ | cubic meters | 0.26 | gallons | gal |
| | | 35 | cubic feet | ft ³ |
| | | 1.3 | cubic yards | yd ³ |

TEMPERATURE (exact)

| | | | | |
|----|---------------------|-------------------|------------------------|----|
| °C | Celsius temperature | 9/5 (then add 32) | Fahrenheit temperature | °F |
|----|---------------------|-------------------|------------------------|----|



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SYMBOLS AND ABBREVIATIONS

| | |
|-------|--|
| AAIMS | An Analytical Information Management System |
| ARTS | Automated Reservation and Ticketing System |
| ATA | Air Transport Association of America |
| CAB | Civil Aeronautics Board |
| DOT | Department of Transportation |
| ER | Economic Regulation |
| FRA | Federal Railroad Administration |
| ICC | Interstate Commerce Commission |
| NAMBO | National Association of Motor Bus Owners |
| NRPC | National Railroad Passenger Corporation (Amtrak) |
| TSC | Transportation Systems Center . |

1. SUMMARY

1.1 STUDY PURPOSE

Although many agencies have evaluated, in some detail, the public transportation situation in the Northeast Corridor, there is currently no consistent public data base that permits continuous and near-real-time evaluation of individual system or multi-modal performance. Each mode has, of course, its own measurement characteristics and data base which are either required by federal regulatory agencies or motivated by carrier internal accounting and performance measurement procedures. Frequently, the data reported to federal regulatory agencies are at a very high aggregation level, which precludes meaningful corridor or route and city-pair performance evaluation. On the other hand, because of competitive concerns, internal carrier data are not readily available to the public. Often, too, measures of performance or the economic conditions of each mode will vary because of differences in, for example, the regulatory environment, capitalization characteristics, revenue and cost accounting procedures, and internal management priorities. The Transportation System Center (TSC) has been faced with continuing demands for visibility into Northeast Corridor rail system development programs, changes in Amtrak funding allocations, and so forth. TSC, in conjunction with the Federal Railroad Administration (FRA), thus sponsored this study to recommend rail system measures of performance in the Northeast Corridor for the following purposes:

- a. To provide for near-real-time rail system performance monitoring at the management level
- b. To compare rail system performance with those of air and bus modes in the corridor

1.2 STUDY APPROACH

The study was sponsored by TSC and the FRA, and was conducted by The Aerospace Corporation, El Segundo, California. Study activities included the following:

- a. Identification of publicly available configuration, performance, and economic data for the air, bus, and rail modes
- b. Determination of desired system performance measures to facilitate management evaluation and intermodal comparisons
- c. Evaluation of desired performance measures in view of the available data
- d. Appropriate recommendations for the collection of additional data where required to assess performance and causal relationships on a relatively near-term basis

In identifying the publicly available data, primary concentration was on literature surveys and interviews with the Interstate Commerce Commission (ICC), Civil Aeronautics Board (CAB), FRA, National Association of Motor Bus Owners (NAMBO), Air Transport Association of America (ATA), and Amtrak. These activities resulted in a review of available data as reported by the carriers to the various regulatory agencies, and the appropriate aggregations and publications distributed by these agencies. Interviews with Amtrak and the FRA concentrated upon the individual railroad company data that was reported to Amtrak, the FRA's Data Tag Program, and Amtrak's own internal reporting and processing of performance and economic data.

Designated system performance measures to facilitate management evaluation of the Northeast Corridor rail system (as well as comparison with other modes) were then identified. Performance and economics measures were selected in view of (1) the availability of constituent data, (2) modal compatibility, (3) current measures in use, (4) correlation to past congressional and government requests for comparative information, and (5) traditional measures used for evaluating any transportation system.

The designated performance measures were related, in both performance and economic categories, to the available data. Appropriate recommendations were then made regarding the most promising available data elements to construct the suggested performance measures at the desired level of aggregation. Additional data needs were also recommended where sufficient information was not currently available.

1.3 STUDY RESULTS

Results and related recommendations are as follows:

a. Fourteen measures of performance are recommended for use in Northeast Corridor rail system evaluations and multimodal comparisons. These include performance measures in the categories of system configuration (e.g., daily available-seat miles by vehicle and segment), system performance (e.g., load factor by vehicle and segment), and system economics (e.g., cost per revenue-passenger mile by vehicle and segment).

b. Although current data reported by certificated air carriers and participating passenger railroads are not entirely consistent, sufficient data exist to permit effective intra- and inter-modal evaluation and comparison. Certain disaggregation or allocation algorithms are recommended in some cases, however, to obtain segment data at the suggested level of aggregation and frequency. Whereas configuration and performance data can be obtained on a monthly basis (currency of 60 to 90 days). Rail economic data are somewhat more readily available based upon monthly reportings, although currency is again 60 to 90 days after the month in question.

c. Current publicly available data for intercity motor carriers are insufficient for effective evaluation of Northeast Corridor performance. Data reported to the ICC are published only at an aggregated carrier level and are limited to selected economic data and overall performance measures. Obtaining the Northeast Corridor segment-peculiar data necessary to calculate the desired performance measures would require accessing private data from the individual carriers and would perhaps require special collection or processing techniques not currently used. Because of the highly competitive attitude of these carriers, such data may be difficult to obtain.

d. The study identifies 27 specific comments oriented to obtaining recommended data to permit intra- and inter-modal comparisons of the air and passenger rail modes. These comments also include recommendations of techniques for adjusting the published data to obtain the desired level of aggregation for proper evaluation purposes. Additional comments are also identified that pertain to correction of current deficiencies in the data, although additional research with private carriers would be required before specific recommendations could be made.

2. STUDY OBJECTIVES

The objectives of this study are as follows:

a. Evaluation of available public transportation system data and measures of performance related to an assessment of passenger rail system performance in the Northeast Corridor.

b. Recommendations for rail system measures of performance and data collection needs for the following purposes:

1). To provide for near-real-time rail system performance monitoring at the management level

2). To compare rail system performance with those of air and bus modes in the Corridor

3. CURRENT DATA SYSTEMS

An initial step in the study was the determination of current modal reporting procedures and data readily available from public sources. The following sections discuss these procedures and data as related to certificated air service, intercity motor service, and passenger rail service.

3.1 CERTIFICATED AIR CARRIER DATA

Under Section 407 of the Federal Aviation Act of 1958 (as amended) as implemented by Part 241 of the Civil Aeronautics Board (CAB) Economic Regulations, all certificated air carriers are required to periodically compile and report various economic, performance, and management data. Certificated air carriers also participate in a joint CAB/ATA ticket sampling survey designed to provide statistical data on the origins and destinations of airline passenger traffic.

3.1.1 Economic Regulation 241 Reporting

Reporting pertinent to the Northeast Corridor under Economic Regulation (ER) 241 is best described in two categories: the first is related to CAB Form 41 reporting, which consists of different schedules covering carrier financial, performance, and management data; and the second is related to Segment Data, which includes performance statistics on a city-pair or segment basis. These latter data are required by ER 586, an amendment to ER 241.

3.1.1.1 CAB Form 41 Reporting

The CAB Form 41 report consists of 48 different schedules that must be submitted to the CAB by each certificated air carrier at various frequencies. These schedules consist of basic certification validation data (Schedule A); financial data including a balance sheet and profit and loss statement (Schedules B and P); statistical performance data related to traffic handled and available capacity (Schedule T); corporate management data including stockholder identification, management compensation, and securities information (Schedule G); and, as appropriate, national defense-related data (Schedule D). These schedules are quite detailed and have led to most air carriers automating much of the process required to compile and file the forms.

The CAB periodically compiles and summarizes the submitted performance data by carrier and by various aggregated carrier categories on a monthly as well as semiannual basis. These compilations include revenue-passenger miles, available-seat miles, and revenue-passenger load factors by class (first class or coach); revenue enplanements; revenue-ton miles (passenger and cargo); aircraft revenue miles and hours (by class and including cargo); overall performance factors and departures; and various averages related to aircraft utilization and trip lengths (Ref. 3-1).

Economic data are similarly compiled monthly to identify aircraft direct operating cost and performance data by equipment type, and groups by carrier and carrier groups. Data reported include breakdowns of aircraft operating expenses and comparisons per airborne hour, aircraft mile, and revenue-ton mile, as well as aircraft utilization data, capacity data, speed, productivity, fuel consumption and cost, and traffic statistics (Ref. 3-2). Economic data are also compiled on a quarterly and yearly basis by the CAB to identify and compare unit direct and indirect costs by aircraft, carrier, and carrier groups (Refs. 3-3 through 3-5). The CAB also publishes an annual analysis of airline productivity and cost of employment. This summary includes, for each carrier and carrier group, such productivity and cost measurements as labor cost per revenue-ton mile, revenue-ton miles per employee, labor costs per employee, and operating revenues and expenses per employee (Ref. 3-6). These compilations and other documents published by the CAB are summarized in Table 3-1.

Form 41 data is required to be submitted to the CAB by the airlines 30 to 40 days after the reporting period for most monthly and quarterly inputs with 90 days allowed for most annual inputs. Aggregations from the CAB are normally available approximately 60 to 90 days later.

There is, however, a computer time-sharing system that is commercially available to obtain Form 41 data on a more timely basis. This data system was developed jointly by APL Services, Inc., and American Airlines, with the ATA providing certain data and technical assistance.¹ Known as An Analytical Information Management System (AAIMS), it provides remote computer access to practically all of the Form 41 Schedule T and P data parameters reported by the airlines in almost any desired combination or level of aggregation. The data are normally edited and available two weeks after the submittal of the Form 41 data to the CAB (i. e., 44 days after each quarter for traffic information and 54 days after each quarter for financial data). The system uses an IBM 360 computer with time-sharing rates of 30 to 50¢ per CPU second, depending upon the desired volume. Nominal connection and storage fees are also charged. Microfiche data are also available through the ATA.

3.1.1.2 Segment Data

Whereas the Form 41 schedules provide carrier and industry-wide performance data by aircraft and aircraft group, they do not specifically address individual domestic market or city-pair segment information. Section 19 of ER 241 (enabled by ER 586) thus requires each certificated air carrier to provide, on a monthly basis, certain traffic statistics for each segment of each flight. Data required include revenue passengers enplaned and on-board (by class), revenue cargo enplaned and transported, capacity data, and load factors. These data are compiled on magnetic tape, but, to protect the competitive positions of the carriers, the data are considered restricted for a period of one year as far as public use is concerned. Federal agencies, however, can submit a written request to the CAB for the Service Segment Data. The CAB will then review and usually grant the

¹ This system is currently being utilized by TSC.

request. The federal agency will then contact the Federal Archives directly to obtain the data tapes. Data processing at the CAB requires 60 days from the close of the month for which the data are submitted, and another 30 days are required before the Federal Archives is normally able to provide tape copies.

3.1.2 Origin and Destination Survey²

This survey is a cooperative effort by the U.S. certificated route carriers, the ATA, and the CAB.

All U.S. certificated route air carriers, except helicopter and intra-Alaska carriers, participate in the survey on a uniform basis. The survey covers revenue passenger trips moving in whole or in part in the scheduled services of these carriers as reflected in the first ticket coupon lifted by any participating carrier. The data collected encompass the complete itinerary from initial origin to ultimate destination as shown on the ticket, including carriage by nonparticipating carriers.

A single survey is conducted continuously on the basis of a ten-percent sample. Flight coupons surrendered by passengers upon boarding flights are the source for the survey data collected. Single-passenger tickets are selected using flight coupons with ticket serial numbers ending in zero. Group tickets, i. e., tickets each valid for the transportation of more than one passenger, are sampled in two ways. Those with from two to ten passengers are sampled on a ten-percent basis by selecting flight coupons with serial numbers ending in zero. The actual number of passengers on each such group-ticket coupon is included in the sample. Group tickets of 11 or more passengers and tickets issued for Eastern Airlines' air shuttle services are sampled at a 100-percent rate. These 100-percent amounts are summarized by each reporting carrier by unique routing and then divided by ten for integration with the ten-percent sample data.

Each flight coupon drawn in the sample is examined to determine whether or not it is a reportable flight coupon, i. e., a coupon from which data are to be recorded in the sample. A flight coupon qualifies as a reportable flight coupon when it is the first coupon in the itinerary to be lifted by a carrier participating in the survey. If it is not, it is ignored. Reissued and conjunction tickets are sampled according to the same general rules as for other tickets. The information recorded from a reportable flight coupon shows the data as known from the ticket at that time and does not reflect changes in carrier, routing, or other items which may be made in the ticket after the reporting flight coupon has been used. Long itineraries-in-conjunction tickets may not, in some cases, include all of the points in the passenger's itinerary, and may include points which are for fare construction purposes only but which are not points in the passenger's itinerary.

²The following description of the survey is principally a verbatim extraction from Reference 3-7.

TABLE 3-1. SELECTED CAB PUBLICATIONS AS OF JANUARY 1975

| Publication Title | Frequency of Issue | Description |
|---|------------------------|--|
| Air Carrier Traffic Statistics | Monthly | Based on CAB Form 41 reports, current-month and 12-month traffic data are compared with same periods of prior year. |
| Air Carrier Financial Statistics | Quarterly | Based on CAB Form 41 reports, current-quarter and 12-month financial data are compared with same periods of prior year. |
| Local Service Air Carriers' Unit Costs | Twice yearly | Contains prescribed unit costs for determining expense in local service air carrier route cases. |
| Local Service Carrier Passenger Enplanements | On calendar-year basis | |
| Local Service Carrier Passenger Enplanements | On fiscal-year basis | |
| Trunkline Carrier Domestic Enplanements | On calendar-year basis | |
| Trunkline Carrier Domestic Passenger Enplanements | On fiscal-year basis | |
| Domestic Jet Trends | At 18-month intervals | |
| Productivity and Cost of Employment - Local Service Carriers - Calendar Years 1972 and 1973 | Annually | |
| Productivity and Cost of Employment - System Trunks - Calendar Years 1972 and 1973 | Annually | |
| Trends in Airline Cost Elements | Annually | |
| Trends in All-Cargo Service | At 18-month intervals | |
| Trends in Unit Costs | Annually | |
| Wide-Bodied Jet Aircraft Cost and Performance Report | Quarterly | |
| Quarterly Airline Industry Economic Report | Quarterly | Provides timely highlights of traffic and financial economic trend data for various air carrier groups. |
| Quarterly Interim Financial Report | Quarterly | Provides timely quarterly and year-to-date financial data for individual carriers and major carrier groups (Supplement to Quarterly Airline Industry Economic Report). |

TABLE 3-1. CONCLUDED

| Publication Title | Frequency of Issue | Description |
|--|--|---|
| Seasonally Adjusted Capacity and Traffic - Scheduled Domestic Operations - Domestic Trunks | Monthly | <p>Board report shows tabulations of subsidy accruing for individual carriers, carrier groups, and the industry for each fiscal year since the formal separation of subsidy and service mail pay (1954) through the current fiscal year plus one projected year. Includes a summary of the purpose of the subsidy and the process for determination of subsidy, and details the bases employed in preparing all information in the report.</p> <p>Summarizes for designated markets statistics reported by certificated air carriers. Includes total flights scheduled by each carrier, number and percentage of flights actually performed, and number and percentage of performed flights which arrived on schedule or within 15 minutes of the scheduled time.</p> <p>Provides basic statistics relating to passenger, freight, express, and mail traffic at each airport served by U.S. certificated route air carriers. Published jointly by CAB and FAA, it is a combination of former Air Commerce Traffic Pattern by FAA and Airport Activity Statistics of Certificated Route Air Carriers of CAB.</p> <p>Contains direct aircraft operating costs per block hour and on several other unit bases, as well as a variety of measures of aircraft performance relating to utilization, capacity, speed, productivity, fuel consumption, and traffic carried.</p> <p>Provides data for individual carriers, 1964-72, and for carrier groups, 1926-72.</p> |
| Seasonally Adjusted Capacity and Traffic - Scheduled Operations - Local Service Carriers | Monthly | |
| Quarterly Cargo Review | Quarterly | |
| Subsidy for United States Certificated Carriers | Annually | |
| Schedule Arrival Performance in the Top 100 Markets by Carrier | Monthly | |
| Airport Activity Statistics of Certificated Route Air Carriers | 12-month periods ending June 30 and December 31 of each year | |
| Aircraft Operating Cost and Performance Report | | |
| Handbook of Airline Statistics | Reissued and updated every two years | |
| Source: CAB List of Publications, January 1975 | | |

The participating carriers conduct the selection and recording of sample data in accordance with instructions issued by the CAB. Under these procedures, the participating carriers examine all lifted flight coupons continually, select the reportable coupons, record the detail for each reportable journey, consolidate data, and report quarterly to the CAB.

The items of data drawn from the reportable flight coupons are as follows:

- a. All cities in the sequence of the complete trip itinerary, from initial origin to ultimate destination, including each point if there are intraline and interline transfers or stopovers,
- b. Carrier on each flight-coupon stage in the itinerary to the extent shown on the ticket,
- c. Fare basis for each flight-coupon stage to the extent it appears on the ticket, and
- d. Number of passengers.

Various tables are used by the CAB to aggregate and publish the survey results (Ref. 3-7). Some of these tables also contain the nonstop air mileage (great circle distance) between cities. Processed quarterly data are typically available 90 to 120 days after the quarter of reporting interest. It is understood from ATA representatives that APL Services, Inc., is currently developing a computer program for processing the origin and destination data developed from the ten-percent survey, which could then be available on a time-sharing basis.

In addition to the above, ER 234 requires certificated carriers to report (on a monthly basis), certain on-time performance through Form 438. Only data pertaining to the top 100 markets of distances greater than 200 miles, however, are reported and published by the CAB.

3.1.3 Summary Data Flow

Table 3-2 identifies the data elements of interest in this study and the flow within the CAB reporting system.

3.1.4 Other Certificated Air Carrier Data

In addition to the above-mentioned data, there are other CAB and industry publications of use in evaluating air service. One of these is the Official Airline Guide, published semimonthly by Reuben H. Donnelley. This publication identifies the specific flight schedules between each city in the domestic airline system for both through-plane and connecting service. It further identifies the carrier, type of equipment, and specific routes and fares for all classes of service. Another publication of use in evaluating the airline system

is the CAB's Book of Official CAB Airline Route Maps and Airport-to-Airport Mileage. This publication identifies each carrier's specific routes as well as intercity great circle mileages for each served segment.

3.2 INTERCITY PASSENGER MOTOR CARRIER DATA

Sections 220 and 222 of the Interstate Commerce Act require motor carriers to report various financial and performance data to the ICC. The ICC has identified the specific reporting requirements (Ref. 3-8). The more comprehensive reporting requirements are imposed on Class 1 motor carriers, which are those with average annual gross operating revenues (over a three-year period) of one million dollars or more. Whereas the ICC requires such carriers to maintain in-house accounts on a monthly basis, formal reporting to the Commission is limited to quarterly reports (Form QPA) and an annual report (Form MP-1). The smaller Class 2 carriers are required to file a simplified annual report (Form MP-2) and do not report quarterly.

3.2.1 Form QPA

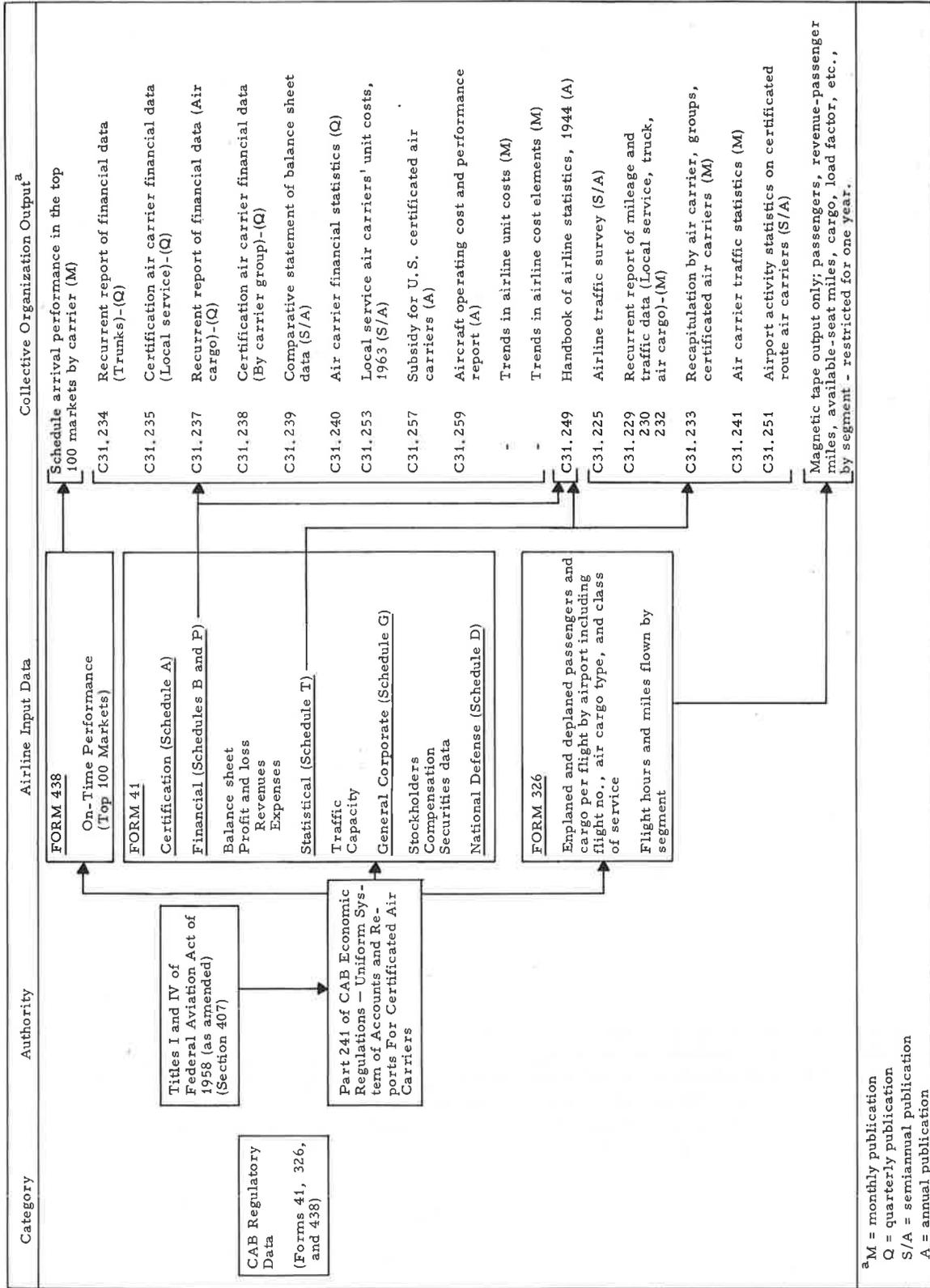
On a quarterly basis, each Class 1 motor carrier must report its operating revenues, expenses, other income, and various operating statistics for its system to the ICC using Form QPA (Ref. 3-9). Operating statistics include system-wide vehicle miles, numbers of revenue passengers, and fuel consumption. Financial statistics include system-wide revenues, direct and indirect expenses, and net income. These forms must be submitted by the carrier no later than thirty days after the quarter of reporting interest.

3.2.2 Form MP-1

On an annual basis, carriers are required to provide detailed system configuration and financial data. The ICC has identified the specific schedules required to be submitted (Ref. 3-10). These data must be submitted no later than 90 days after the year of interest.

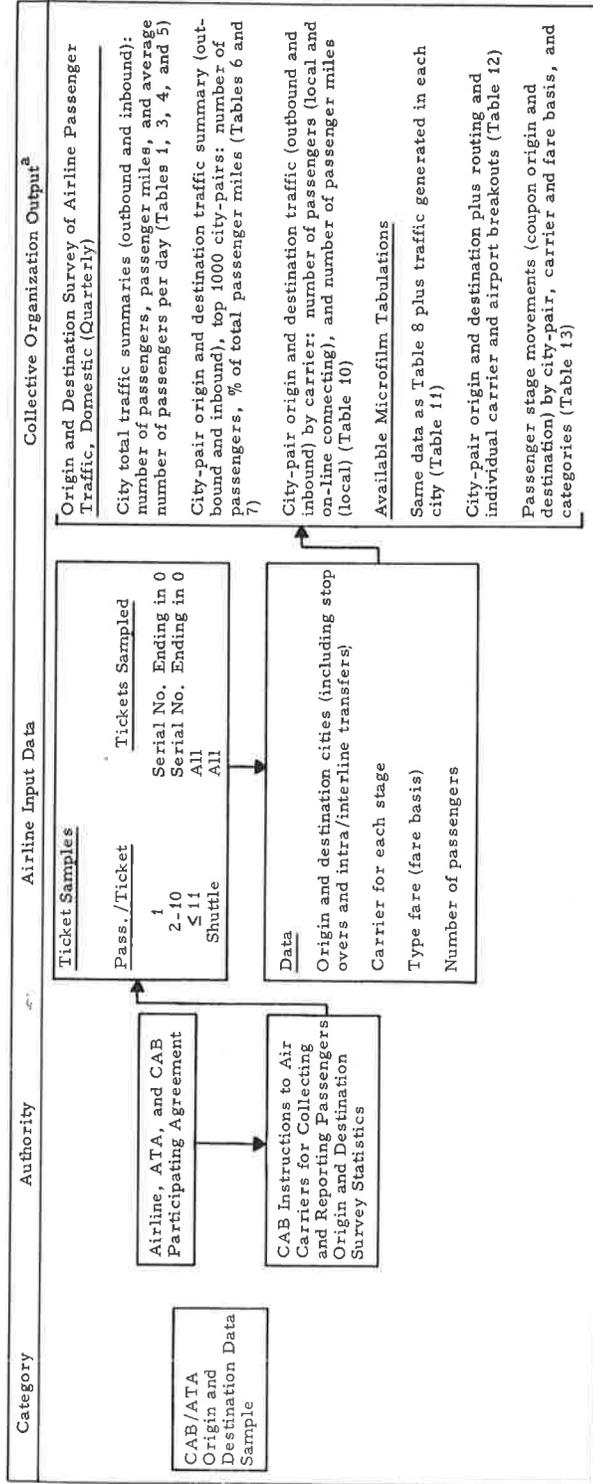
The ICC provides various aggregations of the intercity passenger motor carrier financial and operating statistics on semiannual and annual bases. Parameters published semiannually are largely limited to the selected financial data and operating statistics of the Class 1 carriers (ICC Statement No. 750). These include operating revenues, expenses, net income data, bus miles operated, and number of revenue passengers carried. Except for Greyhound Lines, Inc., which is only aggregated at the national level, these data are published by carrier, at the district, regional, and national levels. See Figure 3-1 (from Ref. 3-11) for identification of the districts and regions. Annual aggregations of Class 1 carrier data include various summaries of detailed financial and operating data by carrier, district, and region including assets, liabilities, income, equipment, numbers of employees and compensation, and various operating statistics. The ICC annually publishes the operating and economic statistics for intercity Class 1 carriers (Ref. 3-11).

TABLE 3-2. CERTIFICATED AIR CARRIER REPORTED DATA



^aM = monthly publication
 Q = quarterly publication
 S/A = semiannual publication
 A = annual publication

TABLE 3-2. CONCLUDED





NOTE:
 Carriers are assigned to the region in which their operations are principally conducted; carriers with operations in numerous territories, such as household goods carriers, are assigned on the basis of headquarters office.

| | | |
|--|--|---|
| <p>EASTERN DISTRICT</p> <p><u>New England Region:</u> Connecticut Maine Massachusetts New Hampshire Rhode Island Vermont</p> <p><u>Middle Atlantic Region:</u> Delaware District of Columbia Maryland New Jersey New York Pennsylvania West Virginia</p> <p><u>Central Region:</u> Illinois Indiana Michigan (Lower Peninsula) Ohio</p> | <p>SOUTHERN REGION</p> <p><u>Southern Region:</u> Alabama Florida Georgia Kentucky Mississippi North Carolina South Carolina Tennessee Virginia</p> <p>WESTERN DISTRICT</p> <p><u>Northwestern Region:</u> Michigan (Upper Peninsula) Minnesota North Dakota South Dakota Wisconsin</p> <p><u>Mid-Western Region:</u> Iowa Kansas Missouri Nebraska</p> | <p>WESTERN DISTRICT--Cont.</p> <p><u>Southwestern Region:</u> Arkansas Louisiana Oklahoma Texas</p> <p><u>Rocky Mountain Region:</u> Colorado Idaho Montana New Mexico Utah Wyoming</p> <p><u>Pacific Region:</u> Alaska Arizona California Hawaii Nevada Oregon Washington</p> |
|--|--|---|

Source: ICC

FIGURE 3-1. MOTOR CARRIER REGIONS

3.3 PASSENGER RAIL SYSTEM DATA³

Passenger rail system data defining system configuration, performance, and economics are available from three primary agencies. These are (1) the participating railroad daily train reports and their monthly revenue and expense statements provided to Amtrak, (2) the Data Tag Program operated by the FRA using patronage data provided on a daily basis for each train, (3) Amtrak economic and performance summary reports, and (4) required Amtrak reports to the ICC (Ref. 3-12). Each of these data sources is discussed in more detail below.

3.3.1 Participating Railroad Reports

The system configuration data related to each train's makeup or consist can be determined from the Amtrak planned consist for each route. This consist is determined in advance and is based on prior patronage histories and current published schedules. The consist will vary to account for diurnal, weekly, or even monthly seasonal variations which may require an added car or deletion of current cars. Further exceptions to this planned consist may occur as a result of mechanical difficulties with equipment. A train consist exception report is thus provided, as necessary, on a daily basis for each train by the participating railroad. This exception report is submitted daily by teletype to Amtrak and, for the Metroliners and Turbo Trains, is summarized monthly by Amtrak for the FRA. Additionally, the conductor on each train performs on-board counts at each stop and collects passenger tickets which are used by Amtrak to aggregate revenue by class and train. Station personnel identify appropriate departing and arrival times, which are transmitted to Amtrak for use in evaluating train on-time performance.

Revenue, expense, and certain performance data are provided monthly by the participating railroads by submitting National Railroad Passenger Corporation (NRPC) Forms 640-655 to Amtrak. These forms represent, in effect, the monthly performance reports and billings from the operating railroads for services performed. Blank forms are included in Appendix B for information and include such data elements as revenue and expenses by train, activity, and source; number of engines and cars used; labor costs and manhours; and engine, car, and train miles.

3.3.2 Amtrak Data Elements and Aggregations

Amtrak summarizes the participating railroad data in a number of aggregated forms. Patronage data in terms of passengers and passenger-revenue miles are aggregated by train, and route and load factors calculated based on train consist information and available-seat miles. On-time performance data are aggregated for each train on each route; appropriate passenger, mail,

³As this study is principally concerned with intercity passenger data in the Northeast Corridor, non-Amtrak commuter service was not addressed.

express, and on-board service revenues are reported. Amtrak is currently implementing an Automated Reservation and Ticketing System (ARTS), which is planned to be fully operational by June 1976. This system issues machine-readable tickets which are later processed by Amtrak (along with hand-counted non-ARTS tickets) to identify route segment origin and destination, and on-board counts. These data will later be automated to provide for daily load factor calculations by train. Sample aggregations currently processed by Amtrak are shown in Tables 3-3 and 3-4.

As expenses are also incurred in the system operation by Amtrak-employed personnel and Amtrak-owned equipment, a revenue and expense departmental report is prepared for each route by Amtrak on a monthly basis (see Table 3-5). This report includes computerized allocations of both Amtrak and railroad expenses by train and activity as well as labor costs associated with the operation of a train. An aggregate train report is then prepared by Amtrak on a monthly basis using these internal data as well as the operating railroad inputs. This report includes, for each train and route, the revenues and expenses by activity and purpose; profit or loss; revenue-passenger miles and train miles; revenue per passenger, train, and seat mile; revenue-passenger miles per track mile; and load factors.

3.3.3 ICC Data

As a Class 1 railroad, Amtrak also provides quarterly and yearly configuration, performance, and financial data to the ICC including revenue and expenses by route, passengers carried, facilities and services, and equipment used. These data are in turn aggregated and published quarterly, semiannually, and annually by the ICC. Quarterly publications pertaining to railroads are limited to selected earnings data such as operating revenues, operating income, ordinary income, net income, and rate of return (Ref. 3-13). Semiannual data include financial and operating statistics and wage statistics of Class 1 railroads. These data include revenue and income data, selected traffic service and equipment statistics, and various wage statistics for railroad employees (Refs. 3-14 and 3-15). Annually reported data include detailed information on traffic, operations, equipment, finances, and employment (Ref. 3-11). In addition, Amtrak has also, in the past, provided special system summary reports to the Congress, the public, and other appropriate federal agencies.

3.3.4 FRA Data (Data Tag Program)

In addition to the above, FRA is currently processing machine-readable data tags issued and collected by each conductor on Northeast Corridor trains to provide appropriate computerized aggregations of various performance parameters in the Corridor. Processed data include appropriate aggregations by route segment including origins and destinations, on-board passengers, passengers boarding or deboarding at each stop, appropriate passenger miles, and, for the Metroliners and Turbo Trains, load factors based on planned consist and appropriate consist exception reports.

TABLE 3-3. NRPC MONTHLY TRAIN REPORT FOR JANUARY 1976

REPORT RM27902
 NATIONAL RAILROAD PASSENGER CORPORATION
 MONTHLY TRAIN REPORT O/D PASSENGER COUNT ON/OFF/ABOARD
 FOR MONTH OF JANUARY

TRAIN ROUTE 024

| ORIGIN | DESTINATION | | | | DESTINATION | | | | DESTINATION | | | | |
|--------|-------------|-----|-----|-----|-------------|-----|-----|-----|-------------|-----|----|-----|-----|
| | LCM | COT | DOM | PAO | ARD | PHL | PMS | ON | OFF | ABO | ON | OFF | ABO |
| EC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 210 | | 210 | | | |
| CH | 26 | 8 | 5 | 15 | 0 | 23 | 133 | 15 | | 15 | | | 15 |
| PS | 0 | 0 | 0 | 1 | 1 | 0 | 5 | 225 | | 225 | | | 225 |
| TT | 26 | 8 | 5 | 16 | 1 | 31 | 138 | | | | | | |
| ELT | PHL | | | | | | | ON | OFF | ABO | | | |
| FC | 0 | | | | | | | | | | 1 | | 211 |
| CH | 1 | | | | | | | | | | | | 15 |
| PS | 0 | | | | | | | | | | 1 | | 228 |
| TT | 1 | | | | | | | | | | | | |
| LMC | PHL | PMS | | | | | | ON | OFF | ABO | | | |
| FC | 0 | | | | | | | | | | 2 | 26 | 187 |
| CH | 1 | | | | | | | | | | 1 | | 16 |
| PS | 1 | | | | | | | | | | 3 | 26 | 283 |
| TT | 2 | | | | | | | | | | | | |
| COT | PHL | | | | | | | ON | OFF | ABO | | | |
| FC | 0 | | | | | | | | | | 2 | 8 | 181 |
| CH | 2 | | | | | | | | | | | | 16 |
| PS | 0 | | | | | | | | | | 2 | 8 | 197 |
| TT | 2 | | | | | | | | | | | | |
| DOM | PHL | | | | | | | ON | OFF | ABO | | | |
| FC | 0 | | | | | | | | | | 1 | 5 | 177 |
| CH | 1 | | | | | | | | | | | | 16 |
| PS | 0 | | | | | | | | | | 1 | 5 | 193 |
| TT | 1 | | | | | | | | | | | | |
| PAD | PHL | PMS | | | | | | ON | OFF | ABO | | | |
| FC | 0 | | | | | | | | | | 2 | 15 | 182 |
| CH | 0 | | | | | | | | | | 2 | 1 | 17 |
| PS | 1 | | | | | | | | | | 2 | 16 | 179 |
| TT | 1 | | | | | | | | | | | | |
| ARD | | | | | | | | ON | OFF | ABO | | | |
| FC | | | | | | | | | | | | | 152 |
| CH | | | | | | | | | | | 1 | | 16 |
| PS | | | | | | | | | | | 1 | | 178 |
| TT | | | | | | | | | | | | | |

Source: Amtrak

TABLE 3-4. NRPC PASSENGER COUNT FOR MONTHS OF MARCH 1975 AND 1976

| ITEM # | ROUTE | DAILY FREQUENCY (Weekday/SA/SU)* | | TOTAL PASSENGERS CARRIED | | Percent Change | COMMENTS |
|--------|--------------------------|-------------------------------------|---------------|-----------------------------|---------|-------------------|---|
| | | 1975 | 1976 | 1975 | 1976 | | |
| 17 | New York/Albany-Montreal | 2 | 2 | 3,316 | 7,118 | 115% | Effective 4/27/75, service includes passengers formerly carried on #71 and #76. |
| | | | | 3,316 | 7,118 | 115% | |
| 18 | New York/Boston-Chicago | 0 | 2 | -- | 2,078 | -- | Service began 10/31/75. |
| | | | | -- | 17,371 | -- | |
| | | | | -- | 19,449 | -- | |
| | LONG DISTANCE TOTAL | | | 39,350 | 34,199 | (13%) | |
| | | | | 272,224 | 276,425 | 1% | |
| | | | Long Distance | 311,574 | 308,624 | (1%) | |
| | SHORT DISTANCE | | | | | | |
| 19 | NYC-Washington | 81/58/71* | 75/53/66* | Total 618,037 | 590,882 | (4%) | Percent change not calculated due to operational changes since 1975. |
| 20 | NYC-Springfield | 2 | 2 | Total 11,486 | 8,464 | N/A | |
| 21 | Boston-NYC | 24/21/25* | 20/18/18* | Total 138,979 | 129,240 | (7%) | Bay State service terminated 3/1/75. Now operates SPFD-NH. |
| 22 | Boston/Worcester-N.Haven | 0 | 0 | Total -- | -- | -- | |
| 23 | Philadelphia-Harrisburg | 20/10/10* | 20/10/10* | Total 65,377 | 69,589 | 6% | |
| 24 | Springfield-New Haven | 16/ 8/12* | 14/ 9/12* | Total 17,339 | 21,282 | 23% | Market Research Department 4/21/76 |

*Includes NYC-Philadelphia service and passengers boarding or debarking north of North Philadelphia on Trains #42 and #43.

Source: Amtrak

TABLE 3-5. NRPC TRAIN PROFIT AND LOSS FOR MONTH OF JANUARY 1975

| ROUTE-NO. 01 | | NATIONAL RAILROAD PASSENGER CORPORATION | | TRAIN NUMBER 112000 | |
|---------------------------|---------|---|---------|--------------------------------|---------|
| TYPE | | TRAIN PROFIT/ LOSS STATEMENT | | FOR THE MONTH OF JANUARY, 1975 | |
| REVENUE | NRPC | CURRENT MONTH RAILROAD | NRPC | YEAR TO DATE RAILROAD | TOTAL |
| PASSENGER TRANSPORTATION | 99,160 | | 407,070 | | 407,070 |
| DINING AND BUFFET | 3,166 | | 13,835 | | 13,445 |
| BAGGAGE AND EXPRESS | 178 | | 723 | 2 | 725 |
| MAIL | | | | | |
| OTHER REV - INCLUDES 4024 | | 916 | | 2,399 | 2,399 |
| TOTAL | 102,504 | 916 | 421,228 | 2,401 | 423,629 |
| DIRECT EXPENSES | | | | | |
| TRAIN COSTS | 3,714 | 85,024 | 33,623 | 302,075 | 335,694 |
| FACILITY COSTS | 5,001 | 4,495 | 15,549 | 14,264 | 29,833 |
| TOTAL COSTS | 9,315 | 89,919 | 49,172 | 316,339 | 365,531 |
| GROSS PROFIT/LOSS | 93,189 | 89,003 | 372,056 | 313,956 | 58,898 |
| ALLOCATED EXPENSES | | | | | |
| TRAIN COSTS | 612 | | 15,407 | | 15,407 |
| FACILITY COSTS | 243 | | 2,136 | | 2,136 |
| TRAFFIC AND OTHER COSTS | 18,342 | 7,516 | 72,281 | 19,062 | 91,343 |
| TOTAL COSTS | 17,467 | 7,516 | 89,824 | 19,062 | 108,866 |
| NET PROFIT/LOSS | 75,722 | 96,519 | 282,232 | 333,020 | 50,788 |
| REVENUE PASSENGER MILES | | | | | |
| TRAIN MILES | | | | | |
| AVAILABLE SEAT MILES | | | | | |
| REVENUE PER RPM | | | | | |
| REVENUE PER TM | | | | | |
| REVENUE PER ASM | | | | | |
| COST PER RPM | | | | | |
| COST PER TM | | | | | |
| COST PER ASM | | | | | |
| REV. PASS. MI. PER TR. MI | | | | | |
| LOAD FACTOR | | | | | |

Source: Amtrak

As the Data Tag Program is currently structured, however, through passengers between points north of New York and points south of New York are issued separate tags for the north of New York and south of New York trip segments. This is due to the change of conductors in New York as each conductor issues a separate data tag. The ARTS ticketing system will partially correct this problem in that passengers on through trains between Boston and Washington will be issued a single ticket indicating their true origin and destination. However, a passenger that will be changing trains in New York will still, per Amtrak representatives, be issued two tickets – one for each segment.

Samples of the data printouts are included as Tables 3-6 through 3-10. This program is intended to be discontinued once Amtrak has fully implemented their machine-readable ARTS ticket program.

3.3.5 Data Flow Summary

Figure 3-2 identifies the current passenger rail data flow and summarizes the data elements, reporting agencies, and frequencies.

3.3.6 Other Railroad Data

As was the case with the Official Airline Guide, the Official Railroad Guide (Ref. 3-16) is published monthly (bimonthly for January/February and July/August) by the National Railway Publication Corporation. This railroad guide identifies specific train numbers, routes, frequency of operation, types of service, segment mileage, and sample fare data. It provides a useful reference for compiling specific route and service characteristic data. Detailed fares for train service in the Northeast Corridor are available from the tariff, which can be obtained from Amtrak.

TABLE 3-6. DOT/FRA PASSENGER LOAD FOR MONTH OF MARCH 1975

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
INFORMATION AND ANALYSIS DIVISION
PASSENGER LOAD FACTOR

| TRAIN NO | NO. SEATS | WASH/BALT | BALT/WILM | PHIL/PHIL | PHIL/TREN | TREN/NMK | NMK/N.Y. | SEAT MILES | P SGR MILES |
|----------|-----------|-----------|-----------|-----------|-----------|----------|----------|------------|-------------|
| 750300 | 424 | 28 | 89 | 149 | 255 | 255 | 225 | 94,976 | 34,896 |
| 750304 | 408 | 41 | 84 | 148 | 293 | 293 | 275 | 91,392 | 37,390 |
| 750305 | 424 | 26 | 58 | 124 | 256 | 256 | 244 | 94,976 | 31,128 |
| 750306 | 440 | 37 | 67 | 137 | 296 | 296 | 279 | 98,560 | 36,068 |
| 750307 | 440 | 35 | 66 | 101 | 197 | 197 | 183 | 98,560 | 26,264 |
| 750310 | 440 | 00 | 117 | 172 | 322 | 322 | 307 | 91,392 | 43,658 |
| 750311 | 440 | 30 | 03 | 138 | 322 | 322 | 295 | 98,560 | 37,782 |
| 750312 | 424 | 32 | 06 | 103 | 263 | 263 | 234 | 94,976 | 31,826 |
| 750313 | 436 | 47 | 83 | 151 | 350 | 350 | 337 | 91,392 | 42,820 |
| 750314 | 424 | 52 | 94 | 75 | 214 | 214 | 200 | 94,976 | 26,022 |
| 750317 | 424 | 62 | 104 | 149 | 248 | 248 | 230 | 94,976 | 35,566 |
| 750318 | 424 | 35 | 88 | 139 | 323 | 323 | 304 | 94,976 | 39,918 |
| 750319 | 424 | 32 | 03 | 124 | 274 | 274 | 253 | 94,976 | 33,238 |
| 750320 | 424 | 44 | 84 | 134 | 307 | 307 | 283 | 94,976 | 38,346 |
| 750321 | 424 | 28 | 45 | 72 | 201 | 201 | 184 | 94,976 | 23,972 |
| 750324 | 408 | 65 | 112 | 164 | 285 | 285 | 265 | 91,392 | 39,930 |
| 750325 | 408 | 43 | 76 | 135 | 306 | 306 | 285 | 91,392 | 37,728 |
| 750326 | 424 | 50 | 72 | 141 | 306 | 306 | 275 | 91,392 | 37,232 |
| 750327 | 424 | 140 | 244 | 251 | 365 | 365 | 311 | 94,976 | 63,668 |
| 750328 | 408 | 29 | 35 | 94 | 90 | 90 | 86 | 91,392 | 13,004 |
| 750331 | 440 | 65 | 112 | 154 | 285 | 285 | 265 | 98,560 | 39,930 |
| TOT | 81000 | 982 | 1,782 | 2,005 | 5,776 | 5,776 | 5,320 | 1,983,744 | 750,386 |
| TRAIN | 81000 | 982 | 1,782 | 2,005 | 5,776 | 5,776 | 5,320 | 1,983,744 | 750,386 |

Source: Amtrak

TABLE 3-7. DOT/FRA PCRR DAILY O/D PASSENGER COUNT

FEDERAL RAILROAD ADMINISTRATION
 PENN CENTRAL RR SYSTEM
 DAILY ORIGIN/DESTINATION PASSENGER COUNT

| ORIG DEST | PHL TRF | PHL NYP | PHL NWK | TRE NYP | TRE NWK | TRE NYP | FC | CH | TOT | *DATE | *SUBST DATA |
|--------------|------------|------------|------------|------------|------------|------------|----------|----------|----------|----------|----------------------------|
| ++TRAIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07-01-75 | |
| | 13 | 1 | 1 | 30 | 124 | | 00000000 | 00000169 | 00000169 | --- | WASHINGTON/NEW YORK/BOSTON |
| ++TRAIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07-02-75 | |
| | 13 | 1 | 3 | 34 | 147 | | 00000000 | 00000198 | 00000198 | --- | WASHINGTON/NEW YORK/BOSTON |
| ++TRAIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07-03-75 | |
| | 24 | 2 | 11 | 53 | | | 00000000 | 00000090 | 00000090 | --- | WASHINGTON/NEW YORK/BOSTON |
| ++TRAIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07-04-75 | |
| | 14 | 7 | 56 | 9 | 48 | | 00000000 | 00000134 | 00000134 | --- | WASHINGTON/NEW YORK/BOSTON |
| ++TRAIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 07-07-75 | |
| | 30 | 5 | 17 | 59 | | | 00000000 | 00000111 | 00000111 | --- | WASHINGTON/NEW YORK/BOSTON |

Source: Amtrak

TABLE 3-8. DOT/FRA PCRR MONTHLY O/D PASSENGER COUNT FOR MARCH 1975

| FEDERAL RAILROAD ADMINISTRATION | | | | | | | | | |
|--|---------|-----|----------|-----|----------|-----|----------|-------------------------------|-----|
| PENR CENTRAL RA SYSTEM | | | | | | | | | |
| TRAIN ORIGIN/DESTINATION PASSENGER COUNT | | | | | | | | | |
| 07-01-75 THRU 07-31-75 | | | | | | | | | |
| ORIG | PHL | PHL | PHL | TRE | TRE | TRE | TRE | TRE | TRE |
| DEST | TRE | NWK | NYP | NWK | NYP | NWK | NYP | NWK | NYP |
| PC | 0 | 0 | 5 | 0 | 0 | | | | |
| CH | 532 | 103 | 923 | 684 | 2223 | | | | |
| ++TRAIN | CH | | | | | | | | |
| 002 | 00TOTAL | PC | 00000005 | CH | 00000985 | TOT | 00000970 | ---WASHINGTON/NEW YORK/BOSTON | |
| | | | | | | | | AMB DAY3-04 | |

Source: Amtrak

TABLE 3-10. DOT/FRA NHRR MONTHLY ON-OFF-ABOARD PASSENGER COUNT FOR JULY 1975

| FEDERAL RAILROAD ADMINISTRATION NEW HAVEN RR SYSTEM DAILY ON-OFF-ABOARD PASSENGER REPORT 07-01-75 THRU 07-31-75 | |
|--|--|
| +++TRAIN | CH 118 0 118 6 12 112 11 9 114 7 20 101 1 26 76 1 25 52 0 52 0 |
| 0% | *DATE 07-05-75 FC 00000000 CH 00000144 TOT 0000144 ---WASHINGTON/NEW YORK/BOSTON *SUBST DATA |
| +++TRAIN | CH 118 0 118 6 12 112 11 9 114 7 20 101 1 26 76 1 25 52 0 52 0 |
| 0% | *DATE 07-12-75 FC 00000000 CH 00000144 TOT 0000144 ---WASHINGTON/NEW YORK/BOSTON |
| +++TRAIN | CH 119 0 119 7 8 118 0 7 111 2 31 82 1 13 70 4 8 66 0 66 0 |
| 0% | *DATE 07-19-75 FC 00000000 CH 00000133 TOT 0000133 ---WASHINGTON/NEW YORK/BOSTON |
| +++TRAIN | CH 171 0 171 7 3 175 3 10 168 3 53 118 5 54 75 3 12 66 0 66 0 |
| 0% | *DATE 07-26-75 FC 00000000 CH 00000192 TOT 0000192 ---WASHINGTON/NEW YORK/BOSTON |
| 0% | *TOTAL FC 00000000 CH 00000613 TOT 00000613 ---WASHINGTON/NEW YORK/BOSTON SUB DAYS=01 |

Source: Amtrak

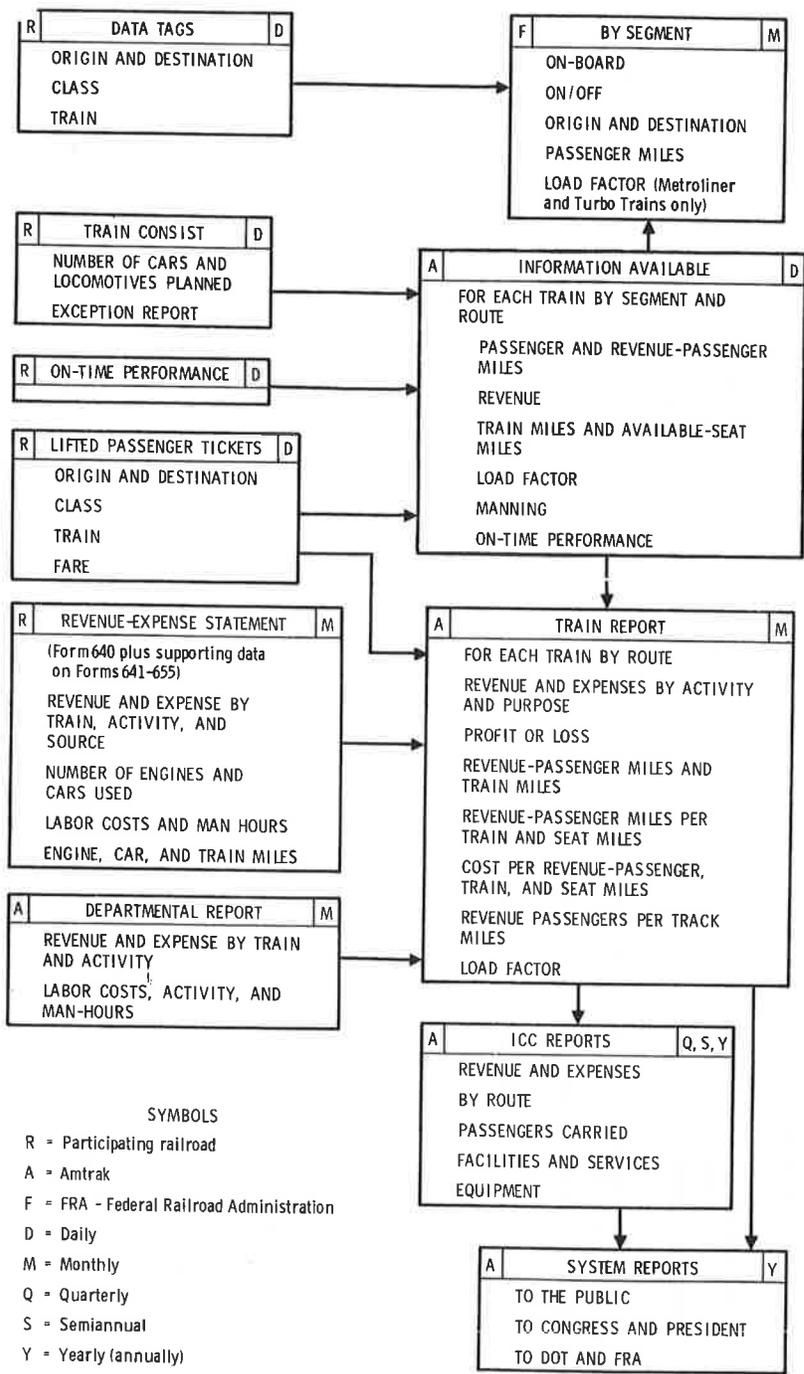


FIGURE 3-2. PASSENGER RAIL DATA FLOW -- NORTHEAST CORRIDOR

4. SYSTEM PERFORMANCE MEASURES

4.1 GENERAL

In parallel with identification of the available data elements for each public transportation mode, desired performance measures were independently identified. These measures were selected as characteristic of the traditional measures used by transportation companies, management analysts, and regulatory agencies in evaluating transportation mode performance and economics. The selected measures were categorized as primary (input) and secondary (calculated) measures that could be considered appropriate in evaluating mode performance (or in comparing modes) in intercity transportation. These data were purposely identified, starting at the lowest common denominator (e.g., information by route segment at appropriate frequencies), by defining elements that could ultimately be aggregated at any desired level and frequency. Although possibly not required, collection of daily data was still considered as a starting point for comparison purposes.

Table 4-1 identifies the primary input data parameters which must be collected to facilitate calculation of more meaningful performance measures of each mode. These primary data were divided into three categories: configuration data, which would describe the physical system; performance data, which would define the appropriate patronage, timing, and fuel consumption data; and economic data, which would define appropriate revenues, direct and indirect operating costs, and appropriate profit and loss parameters. Table 4-2 identifies, by similar categories, secondary or calculated performance measure data that can be determined from the primary data elements described above and can be of most use for mode evaluation or intermodal comparisons. These performance measures consist of appropriate calculated aggregations to identify specific measures of mode performance, productivity, and economic categories.

4.2 PERFORMANCE MEASURE DATA SOURCES

In order to relate the desired performance measures with the available data as discussed in the previous sections, the pertinent publicly available data by mode were first summarized as shown in Tables 4-3 through 4-5. These tables identify the data category and element related to evaluating the system configuration, performance, and economics. The tables further identify the source of the data, the periodicity of input from the originator to the appropriate data recipient, how current these inputs are when published by the receiving organization, and the identification of the published document. A discussion of these data elements by category is included in the following paragraphs.

TABLE 4-1. PRIMARY DATA

Configuration Data

System consist (number of vehicles, types, and capacities)

Frequencies and fares

Intercity distances, by route segment

Performance Data

Revenue patronage, by vehicle and route segment

 Origin and destination by class (first class, coach)

 On-board by class

Fuel consumed, by vehicle and segment

Departure and arrival times, by vehicle and route segment

Economic Data

Revenue, by vehicle and route segment

 Passengers (by class)

 On-board services (by class)

 Mail and cargo

Direct operating cost, by vehicle and route segment

 Operations

 Maintenance

 Depreciation

Indirect operating cost, by vehicle and route segment

 Servicing

 Sales

 General

 Facility amortization

TABLE 4-2. CALCULATED PERFORMANCE MEASURES

Configuration Data

Available-seat miles, by vehicle and route segment (by class)

Performance Data

Revenue-passenger miles, by vehicle and route segment

Load factor, by vehicle and route segment

On-time performance, by vehicle and route segment

Fuel consumption per revenue-passenger mile

Economic Data

Revenue per revenue-passenger mile, by vehicle and route segment

Direct and indirect cost per revenue-passenger mile, by vehicle and segment

Direct and indirect cost per available-seat mile

Labor cost per revenue-passenger mile

Labor cost per available-seat mile

Revenue-passenger miles per employee

Available-seat miles per employee

Operating ratio (operating cost/revenue)

Profit or loss

TABLE 4-3. PUBLIC NORTHEAST CORRIDOR TRANSPORTATION DATA - SYSTEM CONFIGURATION (PRIMARY INTERCITY INPUT DATA)

| Data Category (System Configuration) and Element | Data Source | Input Periodicity | Published Data Currency | Published Document |
|--|--|------------------------|-------------------------|--|
| Air ^a | | | | |
| System Consist (Number of vehicles, type, and capacities) | Official Airline Guide; CAB ER 586 Segment Data ^b | As required Monthly | Semimonthly 90 days | Same as source CAB Service Segment Data Printout ^b |
| Schedules and Fares | Official Airline Guide | As required | Monthly | Official Airline Guide |
| Intercity Mileages by Segment | Book of Official CAB Airline Route Maps and Airport-to-Airport Mileages; CAB ER 586 Segment Data | (Fixed) | (Fixed) | Same as source |
| Rail ^a | | | | |
| System Consist (Number of vehicles, type, and capacities) | Amtrak Planned Consist plus Railroad Teletype Exception Report, NRPC 654 | Daily Monthly | 60 days 60 days | Amtrak Train Profit or Loss Statement |
| Schedules and Fares | Official Railway Guide and Amtrak Tariffs | As required | As published | Same as source |
| Intercity Mileages by Segment | Official Railway Guide | (Fixed) | (Fixed) | Same as source |
| Bus ^a | | | | |
| System Consist (Number of vehicles, type, and capacities) | ICC Form MP-1 (Number of buses only) | Yearly | Approximately one year | ICC Transport Statistics in the United States |
| Schedules and Fares | Russell's Official Bus Guide (Schedules); ^c National Bus Traffic Association (Fares) | As required | Monthly | Same as source |
| Intercity Mileages by Segment | National Bus Traffic Association | (Fixed) | (Fixed) | NBTA National Mileage Guide |
| ^a Air service segment data distribution to public restricted for one year; it is, however, available to government agencies. Air and rail data by individual flight and train numbers. Bus data by system carriers. ^b Carrier inventories also available from CAB Form 41 (Schedule B) data submitted quarterly and annually. ^c Certain NEC intercity bus schedules are not published in Russell's Guide and would require direct carrier contact for specific schedules. | | | | |

TABLE 4-4. PUBLIC NORTHEAST CORRIDOR TRANSPORTATION DATA – SYSTEM PERFORMANCE (PRIMARY INTERCITY INPUT DATA)

| Data Category (System Performance) and Element | Data Source | Input Periodicity | Published Data Currency | Published Document |
|--|--|----------------------------------|-------------------------|--|
| Air ^{a, b} | | | | |
| Revenue Patronage | -- | -- | -- | -- |
| Origin and Destination | CAB Origin and Destination Survey | Quarterly | 90-120 days | CAB/ATA Origin and Destination Survey of Airline Passenger Traffic |
| On-Boards | CAB ER 586 Service Segment Data | Monthly | 90 days | CAB Service Segment Data Printout |
| Vehicle Utilization (Vehicle hours and miles) | CAB ER 586 Service Segment Data (Aircraft hours and miles) | Monthly | 90 days | CAB Service Segment Data Printout |
| | CAB Form 41 (Schedule T-1, T-3) (Aircraft hours and miles) | Monthly (T-1) Quarterly (T-3) | 90 days 90 days | CAB Air Carrier Traffic Statistics, CAB Aircraft Operating Cost and Performance Report |
| Fuel Consumed | Fuel consumption per hour for each aircraft type available from airlines and manufacturers; couple with utilization data | See Vehicle Utilization | -- | -- |
| On-Time Performance | CAB Form 438 (ER 234) (Top 100 markets only) | Monthly | 60 days | CAB Scheduled Arrival Performance in the Top 100 Markets by Carrier |
| Rail ^{a, b} | | | | |
| Revenue Patronage | -- | -- | -- | -- |
| Origin and Destination | Data Tag ARTS tickets (Being implemented) | Daily | 10 days (FRA) | Data Tag Reports |
| On-Boards | Data Tags and Conductor On-Board Counts | Daily | 10 days (FRA) | Data Tag Reports, Amtrak Train Profit or Loss Statement |
| Vehicle Utilization (Vehicle hours and miles) | NRPC 654 (Train and car miles by type) | Monthly | 60 days | Amtrak Train Profit or Loss Statement |
| Fuel Consumed | Average fuel consumption for different train configuration available from Amtrak; couple with utilization data | See Vehicle Utilization | -- | Special Reports only |
| On-Time Performance | Railroad dispatch data | Daily | -- | Special Reports only |
| Bus ^{a, b} | | | | |
| Revenue Patronage | ICC Form QPA (Total system patronage only) | Quarterly | Approximately one year | ICC Revenues, Expenses, Other Statistics of Class 1 Motor Carriers (Report No. 750) |
| On-Boards | None | None | None | None |
| Vehicle Utilization (Vehicle hours and miles) | ICC Form QPA (Total bus miles) | Quarterly | Approximately one year | ICC Revenues, Expenses, Other Statistics of Class 1 Motor Carriers (Report No. 750) |
| Fuel Consumed | ICC Form QPA | Quarterly | Not published | Not published |
| On-Time Performance | None | None | None | None |
| ^a Air origin and destination data by carrier and city-pair; on-board data by flight and segment. Rail data by train segment, except profit or loss data by train. Bus data by region and district, except Greyhound by system only. ^b Air segment data by vehicle and segment. CAB Form 41 data by carrier (monthly) and by type of aircraft by carrier (quarterly). Rail data by train. Bus data semiannually by district and region except Greyhound by system. | | | | |

TABLE 4-5. PUBLIC NORTHEAST CORRIDOR TRANSPORTATION DATA - ECONOMIC DATA (PRIMARY INTERCITY INPUT DATA)

| Data Category (Economic Data) and Element | Data Source | Input Periodicity | Published Data Currency | Published Document |
|---|--------------------------------|-------------------|-------------------------|---|
| Air | | | | |
| Transport Revenues ^a (Separately by passenger, cargo, charter, etc.) | CAB Form 41 (Schedule P) | Quarterly | 90 days | CAB Air Carrier Financial Statistics |
| Direct Operating Costs ^b | CAB Form 41 (Schedule P) | Quarterly | 90 days | CAB Air Carrier Financial Statistics |
| Indirect Operating Costs ^c | CAB Form 41 (Schedule P) | Quarterly | 90 days | CAB Air Carrier Financial Statistics |
| Capital Investment ^d | CAB Form 41 (Schedule B) | Quarterly | 90 days | CAB Air Carrier Financial Statistics |
| Rail | | | | |
| Transport Revenues ^a (Separately by passenger, cargo, charter, etc.) | NRPC Forms 641, 644 (Railroad) | Monthly | 60 days | Amtrak Train Profit or Loss Statement |
| Direct Operating Costs ^b | NRPC Forms 642, 643, 645-651 | Monthly | 60 days | Amtrak Train Profit or Loss Statement |
| Indirect Operating Costs ^c | NRPC Forms 642, 643, 645-651 | Monthly | 60 days | Amtrak Train Profit or Loss Statement |
| Capital Investment ^d | NRPC Form 653 | Monthly | 60 days | Not available |
| Bus | | | | |
| Transport Revenues ^a (Separately by passenger, cargo, charter, etc.) | ICC Form QPA | Quarterly | Approximately one year | ICC Revenues, Expenses, and Other Statistics of Class 1 Motor Carriers (Report No. 750) |
| Direct Operating Costs ^b | ICC Form QPA | Quarterly | Approximately one year | ICC Revenues, Expenses, and Other Statistics of Class 1 Motor Carriers (Report No. 750) |
| Indirect Operating Costs ^c | ICC Form QPA | Quarterly | Approximately one year | ICC Revenues, Expenses, and Other Statistics of Class 1 Motor Carriers (Report No. 750) |
| Capital Investment ^d | ICC Form QPA | Quarterly | Approximately one year | ICC Revenues, Expenses, and Other Statistics of Class 1 Motor Carriers (Report No. 750) |
| ^a Air revenues reported by carrier. Railroad revenues by train by appropriate category. Bus revenues semiannually by carrier and region or district except Greyhound by system only. ^b Air by carrier and aircraft type (operations, maintenance, and depreciation). Rail by train (ICC account numbers). Bus data by carrier and region or district except Greyhound by system only. ^c Air by carrier only (service, sales, G&A, advertising, etc.). Rail by train (direct and allocated expenses). Bus data by carrier and region or district except Greyhound by system only. ^d Air and rail by carrier. Bus data semiannually by carrier and region or district except Greyhound by system only. | | | | |

4.2.1 System Configuration Data

System configuration data considered necessary to properly evaluate and compare intercity travel include the various modes' system consists, schedules and fares, and intercity mileages by segment or route.

The system consist data are necessary to identify the appropriate capacities being operated in the different modes for later load factor calculations. Also, the variation in these capacities is an indicator of diurnal, weekly, monthly, and seasonal variations. In the case of air carriers, the most appropriate indicator of system capacities by segment is the CAB ER-586 segment data (reported monthly). These data identify the available capacity for each flight by travel class. In order to estimate capacity variations, a gross approximation can be obtained through use of the Official Airline Guide by assessing the type of aircraft flown and any scheduled frequency variations so noted in the guide. More specific variations at less than monthly frequencies would require data directly from the airlines involved.

In the case of rail, consist information by train is available either on a daily basis through the planned consist supplemented by the teletype exception report or as monthly summaries from the railroad in their NRPC-654 reports to Amtrak. These capacity data are further published by train and route or segment in the FRA Data Tag reports and the Amtrak Train Profit or Loss Statement (monthly). In the case of buses, available capacity can only be roughly approximated on a system or regional basis through the ICC total inventory data reported annually.

Schedule and fare data, which are needed to assess frequency of service, examine service variations, and compare fares between modes, are readily available. For air carriers, the Official Airline Guide provides significant detail in this area. The Official Railway Guide, along with Amtrak tariff data, provides similar data for the rail mode. Russell's Official Bus Guide and the NBTA tariffs provide this information for the bus mode. Intercity mileages by segment are readily obtained from appropriate CAB airline route maps, Official Railway Guide schedules, and the NBTA National Mileage Guide. These mileage data are required for calculation of such performance measures as revenue-passenger miles and available-seat miles.

4.2.2 System Performance Data

Key primary data parameters considered necessary to properly evaluate and compare modal performance include revenue patronage, vehicle utilization, fuel consumption characteristics, and on-time performance data.

Revenue patronage requires consideration of two different elements: origin and destination data and on-board passenger data. The former data are necessary to identify total intercity travel volumes, while the latter data are necessary to calculate efficiency measures such as vehicle load factors. Origin and destination data for city-pairs served by certificated air carriers are only available from the CAB/ATA ticket survey data, published on a quarterly basis. On-board air carrier data are readily available by city segment from the CAB ER-586 data, which are reported on a monthly basis.

Rail origin and destination data as well as on-board data are currently available from FRA Data Tag reports and from ARTS printouts (see Section 3.3). Bus data are not available on either a segment or route basis and are only reported on a total carrier system basis, which is further aggregated by region and district on a semiannual basis.

Vehicle utilization data, which are required for both economic assessments and fuel consumption analysis, are available for the air mode from the CAB ER-586 service segment data (monthly) as well as the CAB Form 41 data (also monthly). Train miles are aggregated on NRPC Form 654 by the railroads on a monthly basis and are reported by train in Amtrak's monthly profit or loss statements. Bus utilization data exist only in quarterly reports of total bus mileage included in the Form QPA submitted to the ICC for each carrier.

Fuel consumption as a primary input parameter must be calculated for each type of vehicle to determine vehicle-peculiar consumption characteristics. Total fuel consumed by carrier is available, however, for all three modes should only total consumption characteristics at that level be desired.

On-time performance data are available for the air carrier mode through a monthly publication by the CAB for on-time performance in the top 100 air markets more than 200 miles apart. On-time data for the rail mode are available from appropriate railroad dispatch data. None of these data is currently available for the bus mode.

4.2.3 Economic Data

Economic data parameters considered appropriate for mode evaluation and comparison include revenues, direct and indirect operating costs, and capital investment data. This latter parameter is considered necessary to determine appropriate return on investment information. Revenue data for air carriers, unlike the basic performance data, are only published quarterly using the Form 41 submitted each month by the certificated air carriers. Whereas these revenues are divided into appropriate subcategories, e.g., passenger, cargo, and charter, they are only published at the carrier level. Passenger rail revenues by train similarly broken down by appropriate subcategory are published monthly by Amtrak. Bus revenues are also reported quarterly by carrier and are appropriately aggregated by region and district.

Although each mode reports operating costs in categories related to both direct expenses and indirect expenses, the bus and rail data are reported by ICC account code and are not directly relatable to the air carrier reporting. However, should total operating costs for each mode be combined (excluding investment cost data), a generally relatable set of cost data can be generated. In order to allocate the air data appropriately to individual routes or city segments, it is necessary first to determine the type of aircraft used in that segment and the approximate hours actually operated. With the use of the reported aircraft hourly costs for the direct cost element and a carrier average of indirect cost per station served (or as a percentage of direct costs), a total route or segment cost can be approximated. Similarly, if both the

direct and allocated train, facility, and traffic costs as reported by Amtrak for each route are aggregated, a cost category roughly similar to the air carrier costs can be approximated. These cost data can then further be related to such parameters as revenue-passenger miles, labor costs, available-seat miles, and other measures of performance for comparison purposes.

Capital investment data are also available (1) quarterly from Form 41 data for air carriers, (2) monthly from NRPC Form 653 for the participating railroads, and (3) annually from ICC Form MP-1 for bus companies.

4.3 PERFORMANCE MEASURE DATA DISCUSSION

The following is a discussion of the adequacy of the published data in regard to final calculations of recommended performance measures.

4.3.1 System Configuration Data

The system consist, schedules, fares, and intercity mileages by segment are necessary for appropriate load factor and fuel consumption calculations. With the exception of the bus mode, available data appear generally adequate. If the Official Airline Guide, appropriate maps, and CAB service segment data are utilized, appropriate configuration data for the air mode are generally available on a monthly (90-day currency) basis. Also, for the rail mode, planned consist data plus railroad teletype exception reports provide daily consist information by train. These data can be obtained from the Data Tag reports and the Train Profit or Loss Statements published by Amtrak or eventually from the ARTS printouts. In the case of the bus, however, only the total number of buses are available from published data sources, and specific Northeast Corridor capacity data would have to be obtained directly from the appropriate motor carriers.

4.3.2 System Performance Data

System performance data for the airlines are generally available on a monthly basis from the CAB service segment data and on-time performance report. The published on-time performance report, however, only includes the top 100 markets greater than 200 miles apart; thus, published information is limited to the Boston-Philadelphia and New York-Washington city-pairs. Specific on-time performance data for other Northeast Corridor city-pairs served by air would require obtaining these data directly from the airlines rather than from CAB sources. Published air mode origin and destination data are only available from the CAB/ATA survey. These data are compiled from the ten-percent ticket sample and published quarterly. The data reflect a currency of 90 to 120 days after the quarter of interest. Daily and monthly patronage must, of necessity, be averaged, which is not considered a major deficiency as the principal comparative measures are based more upon on-board passengers and appropriate load factor calculations. These latter data

are available from the service segment data which are published on a monthly basis with a data currency of approximately 90 days after the month in question. Vehicle utilization data, important for both fuel consumption calculations and for the air mode economic calculations, are again available from the service segment data with vehicle fuel consumption requiring review of appropriate manufacturer and airline data.

In the case of rail data, the current Data Tag Program provides sufficient patronage data and appropriate reporting frequencies with the exception of load factor data being published for non-Metroliner trains. The basic data for these calculations exist from the system consist reports, related exception reports, and collected patronage data, but numerous variations in system consist have precluded the FRA from attempting to calculate actual load factors at this time. Patronage data for non-Metroliner trains are, however, collected. Amtrak estimates that ARTS will be fully operational on the entire system by June 1976. At this time, the majority of riders will be issued machine-readable tickets. From these tickets, appropriate daily patronage and revenue determination at the route segment level are readily obtainable. They are summarized by Amtrak by train and route on a monthly basis as discussed in Section 3.3. Non-ARTS tickets (e.g., tickets issued on-board or by travel agents) will continue to be counted manually although such non-machine-readable tickets are expected to be a small percentage of those issued. Vehicle utilization data are available on a monthly basis by train from the Amtrak Train Profit or Loss Statement, which is internally published on a monthly basis. Published data are available approximately 60 days after the month in question. On-time performance data are available from appropriate railroad dispatch data and conductor reports.

As in the case of configuration data, bus performance data are only available in the form of total system patronage and total bus miles from the ICC published data. Again, specific patronage and bus utilization data would require obtaining the data directly from the motor carriers.

4.3.3 Economic Data

Transport revenues, direct operating costs, indirect operating costs, and capital investment data are required for the determination of a number of economically related performance and efficiency measures. In the case of air carriers, transport revenues are only published by carrier and would require some form of allocation algorithm to apply to specific Northeast Corridor segments. Similarly, indirect operating costs are only reported by carrier and would also require an allocation algorithm (e.g., monthly indirect costs per station). Direct operating costs per hour, however, are published by type of aircraft, and, if the hours operated over a particular route or segment are known, an adequate segment-peculiar direct cost approximation can be made. All these data are, however, reported quarterly with data currency approximately 90 days after the quarter in question.

In the case of rail, Amtrak revenues by category are reported by train in the Amtrak Train Profit or Loss Statement, which is published monthly and

has a currency of 60 days after the month in question. As direct and indirect costs are reported by ICC category, they are not directly relatable to air carrier costs. However, if the direct and indirect operating costs are grouped and compared with similar grouped air carrier direct and indirect costs, a reasonably good comparison of route and segment costs is considered possible. The railroads are required to report appropriate capital expenditure data that can be used as a basis for investment costs on a monthly basis. Airlines similarly provide capital investment data on a quarterly basis on Schedule B of Form 41.

Bus economic data are only available by carrier, which is aggregated by regions and districts, except for Greyhound, which is reported on a system basis only.

5. CONCLUSIONS AND RECOMMENDATIONS

As a result of the study, there are a number of suggested recommendations and related comments.

Some judgment was necessary in arriving at these recommendations. These judgments were made in view of the following factors:

- a. Data elements, performance measures, and levels of data aggregation traditionally used by transportation companies, management analysts, and regulatory agencies at various levels of management.
- b. Guidance provided by TSC and FRA regarding their needs and ultimate use of the data.
- c. Data availability to the public and the amount of subsequent data processing effort required to obtain the desired performance measures at various aggregation levels.

Table 5-1 was prepared to summarize the specific recommendations and comments related to the aggregation of each appropriate performance measure. This table identifies the recommended performance measure, the required data elements to calculate the performance measure, the desired level of aggregation and frequency by mode, the currently available recommended data source that appears most efficient to use in obtaining the desired aggregation level and frequency, the current aggregation level and frequency existing in the recommended data source, and specific comment references. These comment numbers, which are elaborated upon in the following paragraphs, identify the comments related to (1) obtaining the recommended data, or (2) identifying methods considered suitable to obtain or adjust the appropriate data to provide a usable performance measure. Comment numbers are also listed on the table next to the appropriate data element or source for ready reference.

Comment No. 1 – CAB segment data are available on magnetic tape from the CAB or The National Archives. Although restricted from the public for one year to protect the carriers' competitive position, it can normally be made available to a government agency prior to this time.

Comment No. 2 – Bus capacity data for Northeast Corridor segments are not available in published form. Acquiring data would require obtaining specific information directly from the individual motor carriers. Much of the individual carrier data are, however, considered proprietary for competitive reasons and can be difficult to obtain. As individual carrier interviews and discussions were not part of this study, specific availability and acquisition methods cannot be recommended at this time.

Comment No. 3 – The Amtrak Train Profit or Loss Statement is published monthly by Amtrak for internal use. Distribution to TSC will require arrangements through Amtrak's Office of Financial Analysis and Planning.

Comment No. 4 – Although daily segment data may ultimately be desired for multimodal comparison purposes, it is expected that monthly data, disaggregated to average daily, are sufficient for most purposes. Further, additional disaggregation can be accomplished by comparing the data to specific Official Airline Guide schedules to account for increased or decreased frequencies of service on particular days of the week.

Comment No. 5 – The monthly Amtrak Profit or Loss Statement is recommended at the current time as the data source even though the current Data Tag Program would enable identification of available-seat miles for each Northeast Corridor segment by day for Metroliner and Turbo Trains. However, available-seat miles for conventional trains on the Corridor are not included in the Data Tag printouts, and the Program will most probably be discontinued in favor of the ARTS machine-processing system in the near future. Specific information on segment-peculiar printouts and reporting frequencies for ARTS are discussed in Section 3.3. It is expected that the Profit or Loss Statement monthly data, disaggregated to average daily through knowledge of the train operating frequencies, are sufficient for modal comparison purposes.

Comment No. 6 – As was the case with available-seat miles (see Comment No. 2), segment-peculiar or even route-peculiar revenue is not readily available for the bus mode. Although published in ICC documents on a system and region or district basis, the high level of aggregation does not readily permit significant disaggregation to identify meaningful segment or route data. Again, the motor carriers themselves would have to be accessed to obtain the appropriate data.

Comment No. 7 – Publication available from the CAB on a monthly basis.

Comment No. 8 – See Comment No. 6.

Comment No. 9 – On-time performance is currently an incentive for railroad payments. Appropriate internal aggregations are made by route within the Amtrak data system and can be obtained where on-time performance data may be required for particular studies.

Comment No. 10 – The CAB on-time performance publication only includes the top 100 air markets greater than 200 miles distant. It is, thus, limited to reporting only performance for the Boston-Philadelphia and New York-Washington markets in the Northeast Corridor. Access to specific air carrier dispatch data and related internal aggregations would be required to obtain these data for other segments of this Corridor.

Comment No. 11 – Data on fuel consumption per unit of time for different types of certificated air carrier aircraft are readily available from manufacturers' aircraft handbooks for a variety of configurations and performance

conditions. Actual usage data are also available directly from the air carriers. Similar data on various Amtrak train configurations are also obtainable from the railroads and manufacturers.

Comment No. 12 – See Comment No. 6.

Comment No. 13 – The CAB/ATA origin and destination survey data are readily available from the ATA.

Comment No. 14 – See Comment No. 6.

Comment No. 15 – Origin and destination data available for passenger rail are from the Data Tag origin and destination reports and Amtrak ARTS summaries. These reports enable disaggregation down to the daily level in their current form, if desired. The problem of origin and destination counts for passengers traveling through New York is discussed in Section 3.3.4.

Comment No. 16 – Currently, the air mode origin and destination data are only published on a quarterly basis. They include, however, quarterly aggregations of two-way daily person trips between city-pairs which can be disaggregated to approximate average daily patronage. Should more specific weekly variations be desired, appropriate adjustments can be made in view of Official Airline Guide scheduling or actual data from the carriers involved.

Comment No. 17 – This CAB document is published quarterly and is readily available on a subscription basis.

Comment No. 18 – See Comment No. 6.

Comment No. 19 – The quarterly revenue data are published on a total carrier basis. In order to allocate to Northeast Corridor segments, an appropriate disaggregating allocation algorithm will be required. Such an algorithm can appropriately be developed based upon revenue passengers carried as a function of class as identified in the CAB Segment Data. These data can then be coupled with the appropriate fare data and reasonable percentages determined. Additionally, weekly variations can be determined based upon the Official Airline Guide scheduling frequencies. For modal comparison purposes, such an approximation is considered adequate.

Comment No. 20 – Although revenue data are available on a daily basis for each train based upon the daily processing of tickets to Amtrak, the monthly summaries published in the Amtrak Train Profit or Loss Statement are considered sufficient for individual train and multimodal evaluation purposes. Disaggregations to average daily revenue by route can readily be accomplished as well as weekly variations determined by using the train schedule data.

Comment No. 21 – This document is available from the CAB and is published annually.

Comment No. 22 – Direct operating costs per block hour for each aircraft type and for each carrier are published. Although representing an annual cost composite, they are considered sufficient for comparison purposes for each segment flown in the Northeast Corridor. If the block time

between each segment is determined and this average hourly cost figure is applied, an acceptable approximation of segment peculiar direct operating costs can be made.

Comment No. 23 – Train costs are compiled monthly for each train in the Amtrak Train Profit or Loss Statement. These costs are further segregated as direct expenses (train and facility costs) and allocated expenses (train, facility, traffic, and other costs). Daily costs can be determined by disaggregating to the daily level based upon frequency of service determinable from the Amtrak train schedule. Although these direct and allocated expenses do not directly parallel the similar categories for air carriers, the combination of the two will result in a cost figure comparable to an arithmetic summation of air carrier segment direct and indirect cost (see Comments No. 22 and 24).

Comment No. 24 – Indirect costs for the various certificated air carriers are only compiled quarterly for each carrier by the CAB. However, appropriate averages can be determined based on the number of stations actually served by the carrier. These data can then be directly correlated to each of the served Northeast Corridor points. Another method of disaggregating indirect costs is by determining the system-wide percentage of direct costs represented by the carrier indirect costs. Each of these methods is considered suitable for modal comparison purposes.

Comment No. 25 – This document is readily available from the CAB and is published annually.

Comment No. 26 – Labor cost data by various labor categories are available for the rail mode from two sources. Amtrak employee data and associated costs are reported by crew base for each appropriate labor category, e.g., dining car, food and beverage, and sleeping car. Individual cost data by labor category are then published monthly on a computerized printout. Allocations to individual trains are then made. Railroad employee costs are reported on the appropriate Amtrak forms by ICC category on a monthly basis and are allocated to individual trains in the reporting process.

Comment No. 27 – The CAB annually extracts the number of employees and related costs for a number of reported categories from the carrier Form 41 data. These data are compared by developing certain productivity measures and summarized by carrier as well as the entire industry. Although not directly allocable to individual Northeast Corridor segments, these data represent an overall measure of labor productivity that is considered usable. It should be noted that productivity data are compared by the CAB on a revenue-ton mile basis. It is thus necessary to convert these data to revenue-passenger miles to compare directly with rail system data. Such a calculation will first require a determination of the reported revenue passengers and miles (Ref. 3-1) and then conversion to revenue-ton miles by assuming 200 pounds per passenger. This 200-pound factor is used by the carriers and the CAB in their calculations.

TABLE 5-1. NORTHEAST CORRIDOR PASSENGER RAIL TRANSPORTATION DATA STUDY - RECOMMENDATION SUMMARY

| Performance Measure | Required Data Input | Desired Aggregation Level and Frequency | | | Recommended Available Data Source | | | Resulting Aggregation Level and Frequency | | | Comment No. (See text) |
|--|---------------------------------------|---|-----|------|--|-----------------------------|---|---|------|-----------------------------|------------------------|
| | | Air | Bus | Rail | Air | Bus | Rail | Air | Bus | Rail | |
| A Available-Seat Miles | A1 - Capacity (Seats) | Segment (Daily) | | | | | Amtrak Train Profit or Loss Statement (3) | Segment (Monthly) (4) | None | Train (Route) (Monthly) (5) | 1, 2, 3, 4, 5 |
| | A2 - Intercity Mileage | Segment (Fixed) | | | CAB Segment Data (ER 586) (1) | NETA National Mileage Guide | Amtrak published | Segment (Fixed) (2) | | | |
| B Revenue-Passenger Miles | B1 - Revenue Passengers | Segment (Daily) | | | CAB Segment Data (ER 586) (1) | None | Amtrak Train Profit or Loss Statement (3) | Segment (Monthly) (4) | None | Train (Route) (Monthly) (5) | 6 |
| | B2 - Intercity Mileage | Segment (Daily) | | | | | See A2 Above | | | | |
| C Load Factor | C1 - Revenue-Passenger Miles | Segment (Daily) | | | | | See B Above | | | | |
| | C2 - Available-Seat Miles | Segment (Daily) | | | | | See A Above | | | | |
| D On-Time Performance | D1 - Scheduled Arrival Time | Segment (Daily) | | | CAB Scheduled Performance in the Top 100 Markets (7) | | RR Inputs (9) | Segment (Monthly) (10) | None | Train (Route) (Daily) (8) | 7, 8, 9, 10 |
| | D2 - Actual Arrival Time | Segment (Daily) | | | | | | | | | |
| E Fuel Consumption Per Revenue-Passenger Mile | E1 - Fuel Consumption by Vehicle Type | Gallons per hour or mile | | | Manufacturers' or Carriers Data (11) | | | | | | 11, 12 |
| | E2 - Vehicle Utilization | Segment hours or miles (Daily) | | | CAB Segment Data (Hours) (1) | None | Amtrak Train Profit or Loss Statement (3) | Segment (Monthly) (12) | None | Train (Route) (Monthly) (5) | |
| | B - Revenue-Passenger Miles | Segment (Daily) | | | | | See B Above | | | | |

TABLE 5-1. CONTINUED

| Performance Measure | Required Data Input | Desired Aggregation Level and Frequency | | | Recommended Available Data Source | | | Resulting Aggregation Level and Frequency | | | Comment No. (See text) |
|---|---|---|-----|-------------|---|-------------|--|--|------|------------------------------|------------------------------|
| | | Air | Bus | Rail | Air | Bus | Rail | Air | Bus | Rail | |
| Revenue Patronage F | B1 - Revenue Pass. (On-Board) | Segment (Daily) | | | | See B Above | | | | | (13), (14), (15), (16) |
| | F1 - Revenue Pass. (Origin and destination) | Segment (Daily) | | | CAB/ATA Origin and Destination Survey of Air-line Passenger Traffic (3) | None | Data Tag Origin and Destination Reports (To be replaced by ARTS reports) | Segment (Quarterly) | None | Segment (Daily) | |
| Revenue Per Revenue-Passenger Mile G | G1 - Revenue | Segment (Daily) | | | CAB Air Carrier Financial Statistics (Form 41, Schedule F Data) (17) | None | Amtrak Train Profit or Loss Statement (3) | Carrier (Quarterly) (16) | None | Train (Route) (Monthly) (20) | (16), (17), (18), (19), (20) |
| | B - Revenue-Passenger Miles | Segment (Daily) | | | | | See B Above | | | | |
| Cost Per Revenue-Passenger Mile H | H1 - Direct Operating Cost | Segment (Daily) | | | CAB Aircraft Operating Cost and Performance Report (Form 41, Schedule F) (21) | None | Amtrak Train Profit or Loss Statement (3) | Aircraft Type (Per block hour) and Carrier (Annually) (22) | None | Train (Route) (Monthly) (23) | (21), (22), (23), (24) |
| | H2 - Indirect Operating Cost | Segment (Daily) | | | CAB Air Carrier Financial Statistics (Form 41, Schedule F) (17) | None | Amtrak Train Profit or Loss Statement (3) | Carrier (Quarterly) (22) | None | Train (Route) (Monthly) (23) | |
| Cost Per Available-Seat Mile I | B - Revenue-Passenger Miles | Segment (Daily) | | | | | See B Above | | | | |
| | H1 - Direct Operating Cost | | | | See H Above | | | | | | |
| | H2 - Indirect Operating Cost | | | | See H Above | | | | | | |
| A - Available-Seat Miles | | | | See A Above | | | | | | | |

TABLE 5-1. CONTINUED

| Performance Measure | Required Data Input | Desired Aggregation Level and Frequency | | | Recommended Available Data Source | | | Resulting Aggregation Level and Frequency | | | Comment No. (See text) |
|---|-----------------------------|---|-----|------|---|------|---|---|------|---|------------------------|
| | | Air | Bus | Rail | Air | Bus | Rail | Air | Bus | Rail | |
| Labor Cost Per Available-Seat Mile J | J1 - Labor Cost | Segment (Daily) | | | CAB Productivity and Cost of Employment | None | NRPC Cost Management Report; Railroad Expense Reports (Forms 642, 643, 646-651) | Carrier (Annually) | None | Amtrak Crew Base (Monthly); Train (Route) (Monthly) | (25), (26), (27) |
| | B - Revenue-Passenger Miles | Segment (Daily) | | | (25) | (6) | (26) | (27) | (6) | (26) | |
| Labor Cost Per Available-Seat Mile K | J1 - Labor Cost | | | | See J Above | | See B Above | | | | |
| | A - Available-Seat Miles | | | | See A Above | | | | | | |
| Revenue-Passenger Miles Per Employee L | B - Revenue-Passenger Miles | | | | See B Above | | | | | | |
| | L1 - Number of Employees | Segment (Daily) | | | CAB Productivity and Cost of Employment | None | NRPC Cost Management Report; Railroad Expense Reports | Carrier (Annually) | None | Amtrak Crew Base (Monthly); Train (Route) (Monthly) | (25), (26), (27) |
| Available-Seat Miles Per Employee M | A - Available-Seat Miles | | | | See A Above | | | | | | |
| | L1 - Number of Employees | | | | See L1 Above | | | | | | |

TABLE 5-1. CONCLUDED

| Performance Measure | Required Data Input | Desired Aggregation Level and Frequency | | | Recommended Available Data Source | | | Resulting Aggregation Level and Frequency | | | Comment No. (See text) |
|---------------------|------------------------------|---|-----|------|-----------------------------------|-----|------|---|-----|------|------------------------|
| | | Air | Bus | Rail | Air | Bus | Rail | Air | Bus | Rail | |
| Operating Ratio | H1 - Direct Operating Cost | ↓ | | | See H1 Above | | | | | | |
| | H2 - Indirect Operating Cost | ↓ | | | See H2 Above | | | | | | |
| N | G1 - Revenue | ↓ | | | See G1 Above | | | | | | |
| | H1 - Direct Operating Cost | ↓ | | | See H1 Above | | | | | | |
| Profit or Loss | H2 - Indirect Operating Cost | ↓ | | | See H2 Above | | | | | | |
| | | | | | | | | | | | |

6. REFERENCES

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- 3-2. "Aircraft Operating Cost and Performance Report," Civil Aeronautics Board, Washington, D.C., August 1971.
- 3-3. "Air Carrier Financial Statistics," Civil Aeronautics Board, Washington, D.C., December 1973.
- 3-4. "Local Service Air Carriers' Unit Costs," Volume I, Civil Aeronautics Board, Washington, D.C., 30 September 1974.
- 3-5. "Trends in Airline Cost Elements," Civil Aeronautics Board, Washington, D.C., July 1973.
- 3-6. "Productivity and Cost of Employment System Trunks, Calendar Years 1973 and 1974," Civil Aeronautics Board, Washington, D.C., August 1975.
- 3-7. "Origin-Destination Survey of Airline Passenger Traffic - Domestic," Volume VII-4-1, Fourth Quarter, Civil Aeronautics Board, Washington, D.C., 1974.
- 3-8. "49 C.F.R. - Part 1206, Uniform System of Accounts for Common and Contract Motor Carriers of Passengers," Interstate Commerce Commission, Washington, D.C., 1 January 1968 (Updated as needed).
- 3-9. "Motor Carrier Quarterly Report (Form QPA)," Interstate Commerce Commission, Washington, D.C.
- 3-10. "Annual Report to the Interstate Commerce Commission for the Year Ended _____, MP-1 Class 1 Passenger," Interstate Commerce Commission, Washington, D.C. (annual).
- 3-11. "Transport Statistics in the United States for the Year Ended _____," Interstate Commerce Commission, Washington, D.C. (annual).
- 3-12. "49 C.F.R. - Part 1201, Uniform System of Accounts Railroad Companies," Interstate Commerce Commission, Washington, D.C., 1 October 1973 (rev).
- 3-13. "Class 1 Line Haul Railroads Selected Earnings Data," Interstate Commerce Commission, Washington, D.C. (quarterly)

- 3-14. "Financial and Operating Statistics of Class 1 Railroads in the United States," Interstate Commerce Commission, Washington, D. C. (semiannual).
- 3-15. "Wage Statistics of Class 1 Railroads in the United States," Interstate Commerce Commission, Washington, D. C. (semiannual).
- 3-16. "The Official Railway Guide," National Railway Publication Company, Washington, D. C. (monthly except February and August).

APPENDIX A
PERSONNEL CONTACTS

1. Federal Railroad Administration (FRA)
Robert B. Haden, Policy and Program Development

2. National Railroad Passenger Corporation (NRPC) or Amtrak
Robert Evanson, Financial Analysis and Planning
George Meredith, Financial Analysis and Planning
Robert Coffman, Operations Analysis
Robert Hagopian, Reservations and Ticket Planning
J. Baesch, Train Operations

3. Civil Aeronautics Board (CAB)
G. Tseronis, Bureau of Economics
Evans Wiley, Bureau of Economics
James Fitzgibbon, Bureau of Accounts and Statistics

4. Interstate Commerce Commission (ICC)
Ernest Olson, Bureau of Economics
Dr. Jack Ventura, Bureau of Economics
Gordon Parrish, Bureau of Economics
S. H. Bayne, Bureau of Accounts

5. National Association of Motor Bus Owners (NAMBO)
Frederick H. Mueller, Director of Research

6. Air Transport Association (ATA)
Lee Howard

APPENDIX B
RAILROAD REPORTING FORMS

The following forms are taken from the National Railroad Passenger Corporation Accounting Procedures Manual.

NATIONAL RAILROAD PASSENGER CORPORATION

ACCOUNTING PROCEDURES MANUAL

SECTION: 7.0

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

SUBJECT: RAILROAD REPORTING PROCEDURES

APPROVED BY: S. S. Sterns

All contracting railroads are requested to submit revenue, expense, and statistical data on NRPC greenbill forms 640 thru 655 within 60 days of a month end. Data is to be presented by ICC account and by train number. An allocation procedure is included in the greenbill preparation guideline to instruct each railroad to allocate indirect or station expense to a specific train number.

A greenbill preparation guideline provides the following information to each railroad:

1. a form preparation procedure for each greenbill (see Section 8.1).
2. a railroad code for identifying all data reported by each railroad on NRPC greenbills 641, 642, 654 and 655.
3. a station code table for identifying data by station or facility as reported on NRPC greenbills 644 and 655.
4. a train number table for identifying data by trains as reported on NRPC greenbills 641, 642, 654 and 655.
5. an ICC account allocation to train procedure for spreading the indirect train expense listed on NRPC greenbills 646, 648, and 652 to train.

Contracting railroads should retain but not forward all work-sheets needed to prepare greenbill reports. Any questions should be directed to the Supervisor of the Report Section of the General Accounting Department.

NATIONAL RAILROAD PASSENGER CORPORATION

ACCOUNTING PROCEDURES MANUAL

SECTION: 8.0

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D.J. Daly

APPROVED BY: S.S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

The forms section includes all source documents and corresponding preparation procedures that are used in the Route Profitability System. The section includes greenbills, keypunch documents and other forms used in the operations of the system.

NATIONAL RAILROAD PASSENGER CORPORATION

ACCOUNTING PROCEDURES MANUAL

SUBJECT: FORMS AND FORM PREPARATION

SECTION: 8.1

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

RAILROAD REVENUE - EXPENSE REPORTS

| <u>NRPC NUMBER</u> | <u>NAME</u> |
|--------------------|---------------------------------------|
| 640 | Revenue - Expense Statement |
| 641 | Revenue Summary |
| 642 | Expense Summary by Train |
| 643 | Expense Summary |
| 644 | Revenue Detail |
| 645 | Fixed Trip - Train Expense Detail |
| 646 | Appendix Expense Detail |
| 647 | Appendix Expense Summary |
| 648 | Authorization Notice Expense Detail |
| 649 | Mechanical Labor Expense Detail |
| 650 | Mechanical Labor Expense Distribution |
| 651 | Terminal Expense Detail |
| 652 | Revenue - Expense Adjustments |
| 653 | Capital Expenditure Detail |
| 654 | Mileage Statistical Data |
| 655 | Location Statistical Data |

NATIONAL RAILROAD PASSENGER CORPORATION

SECTION: 8.1.1

ACCOUNTING PROCEDURES MANUAL

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Dalv

APPROVED BY: S. S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Revenue - Expense Statement

REPORT NUMBER: NRPC 640

OBJECTIVE: To present a statement of the dollar amount due to or from a contracting railroad.

PREPARATION: Post the total revenue receipts from NRPC 641.
Post the total capital expenditures from NRPC 653.
Post the total ICC account expenses from NRPC 643 or NRPC 642, account 0020.

For railroad with old contracts only, add total capital expenditures to the ICC expenses, multiply by 0.05. Post the results.

Enter payment for assumption of liability from NRPC 642.

Total expenses and derive net expenses.

For railroads with amended contracts only, post net bonus and penalties.

Post budget deficit advance (when applicable).

Determine amount due Railroad.

NOTE: NRPC does not require revenues and expenses to be reported in less than one dollar increments. Round off all figures to the nearest dollar.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

Railroad: REVENUE-EXPENSE STATEMENT

For the Month of _____ 19__

**NATIONAL RAILROAD
PASSENGER CORPORATION**

| Account | Actual Amount |
|---|---------------|
| Total Revenues from Form 641 | |
| NRPC Capital Expenditures from Form 653 | |
| NRPC Expenses from Form 643 | |
| Enter 5% of Preceding 2 Lines (When Applicable) | |
| Payment for Assumption of Liability. Enter 0.367 Cents Per Train Mile. (When Applicable) | |
| Total Expenses | |
| Net Expenses | |
| Net Bonus and Penalties (When Applicable) | |
| Less Budget Deficit Advance (When Applicable) | |
| Due Railroad (Payable to NRPC) | |

The above named railroad hereby certifies to NRPC that this monthly report, consisting of NRPC forms 641, 642, 643, 644, 645, 646, 647 when applicable, 648, 649, 650, 651, 652, 653, 654, and 655, is complete and correct. Furthermore, all statistics shown herein are appropriately related to NRPC activities and all costs shown herein are properly chargeable to NRPC under the National Railroad Passenger Corporation agreement dated April 16, 1971 and subsequent amending agreements.

NRPC Operations Officer

Chief Accounting Officer

REPORT NAME: Revenue Summary

REPORT NUMBER: NRPC 641

OBJECTIVE: To present revenue data in a form readily available for keypunching.

DESCRIPTION: Revenue data is reported by ICC account number for each train.

PREPARATION: Enter all heading information including the two character RR code assigned to your railroad and the six character train numbers specified on the Train Number Table (see Section 10.2).

Transcribe from Report 644, parts B & C, all revenue data by ICC account number for each train number.

Sub-total all revenues for each train and ICC account.

Total and balance all sub-totals for each train and ICC account.

NOTE: Revenue adjustments itemized on Report 652 should be summarized by ICC account and placed in the adjustments column with the ØØØØØØ train heading.

Leave total column blank on all but the first page of NRPC Report 641.

Line 403B and the lower 106 and 131 lines should be left blank by your Railroad.

Revenue detail of special trains should be posted by ICC account. Enter 999999 in the train no. field and write a descriptive narrative above it; i.e. special name or origin - destination. Use a separate column for each special train.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

SECTION: 8.1.3

ACCOUNTING PROCEDURES MANUAL

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterne

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Expense Summary by Train

REPORT NUMBER: NRPC 642

OBJECTIVE: To present expense data in a form readily available for keypunching.

DESCRIPTION: Expense data is reported by ICC account number and by train number. Expense data is accumulated from NRPC Reports 645, 646, 648, 650, 651, and 652.

PREPARATION: Enter all heading information including the two character RR code assigned to your Railroad and the six character train numbers specified on the Train Number Table.

On separate worksheets, distribute the expense detail of NRPC Reports 652, 646, and 648 for each ICC account by train number (see Section 9.9).

Add all expense detail of NRPC Reports 650, 645, and 652 to that of the above worksheets for each train number by ICC account and post to NRPC Report 642.

Sub-total all expenses for each ICC account and train number.

Total and balance all sub-totals.

When applicable, compute and post avoidable train costs by multiplying the ICC account 002 expense for each train by 0.05.

Total all expenses for each train number.

NOTE: If a terminal's total expense is less than 5% of the total of all terminal expenses, distribute it to the trains that use the facility in a manner consistent with good judgement. It is not necessary to follow the normal allocation procedures in this case.

The Capital expenses of NRPC 653 are not included in this expense summary. They are posted directly to the statement page, NRPC 640.

NATIONAL RAILROAD PASSENGER CORPORATION

SECTION: 8.1.3

ACCOUNTING PROCEDURES MANUAL

PAGE: 2

EFFECTIVE DATE: 6/1/75

ISSUED BY: D.J. Daly

APPROVED BY: S.S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

Expense detail of NRPC 652 should be posted in the Adjustments column with the ~~000000~~ train heading.

Expense detail of special trains should be posted by ICC account. Enter 999999 in the train no. field and write a descriptive narrative above it; i.e. special name or origin - destination. Use a separate column for each special train.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following (3) pages.

TRAIN EXPENSE SUMMARY

For the Month of _____, 19__

**NATIONAL RAILROAD
 PASSENGER CORPORATION**

| Account | CC ICC | Train No. 18 | | | | | Total | Train No. 18 | | | | | Adjustments |
|------------------------------------|-----------|--------------|----|----|----|----|-------|--------------|----|----|----|----|-------------|
| | | 13 | 13 | 13 | 13 | 13 | | 13 | 13 | 13 | 13 | | |
| NRPC COSTS: | 91112 | 28 | 36 | 19 | 27 | 19 | 27 | 19 | 27 | 19 | 27 | 19 | 27 |
| Maintenance of Way & Str | 201 0 | | | | | | | | | | | | |
| Superintendence | 202 0 | | | | | | | | | | | | |
| Roadway Maintenance | 206 0 | | | | | | | | | | | | |
| Tunnels and Subways | 208 0 | | | | | | | | | | | | |
| Bridges, Trestles and Culverts | 210 0 | | | | | | | | | | | | |
| Elevated Structures | 212 0 | | | | | | | | | | | | |
| Ties | 214 0 | | | | | | | | | | | | |
| Rails | 216 0 | | | | | | | | | | | | |
| Other Track Material | 218 0 | | | | | | | | | | | | |
| Ballast | 220 0 | | | | | | | | | | | | |
| Track Laying and Surfacing | 221 0 | | | | | | | | | | | | |
| Fences, Snowsheds and Signs | 227 0 | | | | | | | | | | | | |
| Station and Office Buildings | 233 0 | | | | | | | | | | | | |
| Ready Buildings | 231 0 | | | | | | | | | | | | |
| Water Stations | 233 0 | | | | | | | | | | | | |
| Fuel Stations | 235 0 | | | | | | | | | | | | |
| Shops and Enginehouses | 247 0 | | | | | | | | | | | | |
| Communication Systems | 249 0 | | | | | | | | | | | | |
| Signals and Interlockers | 251 0 | | | | | | | | | | | | |
| Power Plants | 257 0 | | | | | | | | | | | | |
| Power Transmission Systems | 265 0 | | | | | | | | | | | | |
| Refrigeration Structures | 269 0 | | | | | | | | | | | | |
| Roadway Machinery | 271 0 | | | | | | | | | | | | |
| Small Tools and Supplies | 272 0 | | | | | | | | | | | | |
| Removing Snow, Ice and Sand | 273 0 | | | | | | | | | | | | |
| Public Improvements, Man | 276 0 | | | | | | | | | | | | |
| Cableway and Printing | 277 0 | | | | | | | | | | | | |
| Emp. Health & Welfare Ben | 278 0 | | | | | | | | | | | | |
| Maintaining Joint Facilities - Cr. | 279 0 | | | | | | | | | | | | |
| Maintaining Joint Facilities - Cr. | 281 0 | | | | | | | | | | | | |
| Other Expenses | 227 0 | | | | | | | | | | | | |
| Sub Total | 300 0 | | | | | | | | | | | | |
| Maintenance of Equipment: | | | | | | | | | | | | | |
| Superintendence | 301 0 | | | | | | | | | | | | |
| Shop Machinery | 302 0 | | | | | | | | | | | | |
| Power Plant Machinery | 304 0 | | | | | | | | | | | | |
| Machinery Depreciation | 305 0 | | | | | | | | | | | | |
| Locomotives Repairs | 311 0 | | | | | | | | | | | | |
| Locomotives Equipment Repairs | 312 0 | | | | | | | | | | | | |
| Stock Equipment Repairs | 320 0 | | | | | | | | | | | | |
| Other Equipment Repairs | 328 0 | | | | | | | | | | | | |
| Locomotive Painting | 334 0 | | | | | | | | | | | | |
| Locomotive and Shop | 335 0 | | | | | | | | | | | | |
| Exp. Health & Welfare Ben | 336 0 | | | | | | | | | | | | |
| Maintaining Joint Facilities - Cr. | 337 0 | | | | | | | | | | | | |
| Maintaining Joint Facilities - Cr. | 338 0 | | | | | | | | | | | | |
| Other Expenses | 339 0 | | | | | | | | | | | | |
| Sub Total | 340 0 | | | | | | | | | | | | |

NATIONAL RAILROAD PASSENGER CORPORATION

ACCOUNTING PROCEDURES MANUAL

SECTION: 8.1.4

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Expense Summary

REPORT NUMBER: NRPC 643

OBJECTIVE: To present a summary of NRPC expense reports 645, 646, 648, 650, 651, and 652.

DESCRIPTION: Total expenses are reported by ICC account number and report number.

PREPARATION: On a separate worksheet, summarize all expense detail of NRPC Report 646 for each ICC account by major expense category.

On a separate worksheet, summarize all expense detail of NRPC Report 648 for each ICC account by major expense category.

Combine the above worksheets and post to NRPC Report 643 by ICC account and major expense category.

On a worksheet, summarize the expense detail for all expense types of NRPC Report 645 and post to NRPC Report 643 by ICC account number.

From NRPC Report 651, post all Mechanical Labor expenses by ICC account to NRPC Report 643.

From NRPC Report 650, post all Terminal expense detail by ICC account to NRPC Report 643.

From NRPC Report 652, post all adjustments by ICC account to NRPC Report 643.

Sub-total and post all expenses of NRPC Reports 645, 646, 648, 650, and 651 by ICC account.

Total and balance all expenses by ICC account and report number.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following (3) pages.

NATIONAL RAILROAD
PASSENGER CORPORATION

For the Month of

19

| Account | Actual Amount | | | | | | Form 652 Adjustments | |
|---|---------------|-------------------------|------------------------|-------|----------|-------|-------------------------|-------------------|
| | Total | Subtotal Col's 3 & 8 | Form 645 Fixed/Trip | Labor | Material | Other | | Form 650 Labor |
| NRPC COSTS | | | | | | | | |
| Maintenance of Way and Structures | | | | | | | | |
| 201 Superintendence | | | | | | | | |
| 202 Roadway Maintenance | | | | | | | | |
| 206 Tunnels and Subways | | | | | | | | |
| 208 Bridges, Trestles and Culverts | | | | | | | | |
| 210 Elevated Structures | | | | | | | | |
| 212 Ties | | | | | | | | |
| 214 Rails | | | | | | | | |
| 216 Other Track Material | | | | | | | | |
| 218 Ballast | | | | | | | | |
| 220 Track Laying and Surfacing | | | | | | | | |
| 221 Fences, Snow sheds and Signs | | | | | | | | |
| 227 Station and Office Buildings | | | | | | | | |
| 229 Roadway Buildings | | | | | | | | |
| 231 Water Supply | | | | | | | | |
| 233 Fuel Stations | | | | | | | | |
| 235 Shops and Engin-houses | | | | | | | | |
| 247 Communication Systems | | | | | | | | |
| 249 Signals and Inter-locks | | | | | | | | |
| 253 Power Plants | | | | | | | | |
| 257 Power Transmission Systems | | | | | | | | |
| 265 Miscellaneous Structures | | | | | | | | |
| 269 Roadway Markings | | | | | | | | |
| 271 Small Tools and Supplies | | | | | | | | |
| 272 Removing Snow, Ice and Sand | | | | | | | | |
| 273 Public Improvements, Maintenance | | | | | | | | |
| 276 Stationery and Printing | | | | | | | | |
| 277 Employees Health and Welfare Benefits | | | | | | | | |
| 278 Maintaining Joint Tracks, Yards and Other Facilities Dr | | | | | | | | |
| 279 Maintaining Joint Tracks, Yards and Other Facilities Cr | | | | | | | | |
| 281 Right of Way Expenses | | | | | | | | |
| 282 Other Expenses | | | | | | | | |
| Sub Total | | | | | | | | |
| Maintenance of Equipment | | | | | | | | |
| 301 Superintendence | | | | | | | | |
| 302 Shop Machinery | | | | | | | | |
| 304 Power plant Machinery | | | | | | | | |
| 306 Shop and Power plant Machinery, Depreciation | | | | | | | | |
| 311 Locomotives, Repairs | | | | | | | | |
| 317 Passenger train, Cars, Repairs | | | | | | | | |
| 326 Work Equipment, Repairs | | | | | | | | |
| 328 Miscellaneous Equipment | | | | | | | | |
| 331 Equipment, Depreciation | | | | | | | | |
| 334 Stationery and Printing | | | | | | | | |
| 335 Employees Health and Welfare Benefits from 650 | | | | | | | | |
| 335 Employees Health and Welfare Benefits from Other | | | | | | | | |
| 336 Joint Maintenance of Equipment Expenses, Dr | | | | | | | | |
| 337 Joint Maintenance of Equipment Expenses, Cr | | | | | | | | |
| 339 Other Expenses | | | | | | | | |
| Sub Total | | | | | | | | |

Railroad: _____ EXPENSE SUMMARY
For the Month of _____, 19____

NATIONAL RAILROAD PASSENGER CORPORATION

| Account | Actual Amount | | | | | Form E52 Adjustments |
|--|---------------|------------------------|------------------------|-------------------|----------------------|-------------------------|
| | Total | Subtotal Col. 3 & 4 | Form 645 Fares/Trip | Form 650 Labor | Form 651 Material | |
| Traffic | | | | | | |
| Supplies | | | | | | |
| Cutting Expenses | | | | | | |
| Freight Charge Discount Fee | | | | | | |
| Other Expenses | | | | | | |
| Sub Total | | | | | | |
| Transportation | | | | | | |
| Supplies | | | | | | |
| Operating Trains | | | | | | |
| Employees | | | | | | |
| Station Supplies and Expenses | | | | | | |
| Yard Masters and Yard Clerks | | | | | | |
| Yard Conductors and Firemen | | | | | | |
| Yard Switchmen and Signal Tenders | | | | | | |
| Yard Switching Fuel | | | | | | |
| Yard Switching Power Produced | | | | | | |
| Yard Switching Power Purchased | | | | | | |
| Switching Yard Locomotives | | | | | | |
| Yard Supplies and Expenses | | | | | | |
| Operating Joint Yards and Terminals Dr. | | | | | | |
| Operating Joint Yards and Terminals Cr. | | | | | | |
| Train Fuel | | | | | | |
| Train Power Produced | | | | | | |
| Train Power Purchased | | | | | | |
| Switching Train Locomotives | | | | | | |
| Trainmen | | | | | | |
| Train Supplies and Expenses | | | | | | |
| Operating Sleeping Cars | | | | | | |
| Signal and Interlocker Operation | | | | | | |
| Crossing Protection | | | | | | |
| Drawn in Operation | | | | | | |
| Communication System Operation | | | | | | |
| Employees Health and Welfare Benefits from 650 | | | | | | |
| Employees Health and Welfare Benefits from Other | | | | | | |
| Stationery and Printing | | | | | | |
| Other Expenses | | | | | | |
| Operating Joint Tracks and Facilities Dr. | | | | | | |
| Operating Joint Tracks and Facilities Cr. | | | | | | |
| Cleaning Yards | | | | | | |
| Sub Total | | | | | | |

EXPENSE SUMMARY

For the Month of _____, 19____

NATIONAL RAILROAD PASSENGER CORPORATION

| Account | Actual Amount | | | | | | | | |
|--|---------------|-----------------------|-----------------------|-------|----------|-------|-------------------|-----------------------|-------------------------|
| | Total | Subtotal Cols. 3-6 | Form 645 Fixed/Tip | Labor | Material | Other | Form 650 Labor | Form 651 Terminals | Form 652 Adjustments |
| Miscellaneous | | | | | | | | | |
| 441 Dining and Buffet Service | | | | | | | | | |
| 442 Operating Joint Miscellaneous Facilities-Dr | | | | | | | | | |
| 443 Operating Joint Miscellaneous Facilities-Cr | | | | | | | | | |
| 449 Employees Health and Welfare Benefits | | | | | | | | | |
| Sub Total | | | | | | | | | |
| General | | | | | | | | | |
| 451 Salaries and Expenses of General Officers | | | | | | | | | |
| 452 Salaries and Expenses of Clerks and Attendants | | | | | | | | | |
| 453 General Office Supplies and Expenses | | | | | | | | | |
| 454 Travel Expenses | | | | | | | | | |
| 456 Employees Health and Welfare Benefits | | | | | | | | | |
| 457 Printing | | | | | | | | | |
| 458 Stationery and Printing | | | | | | | | | |
| 460 Other Expenses | | | | | | | | | |
| 461 General Joint Facilities-Dr | | | | | | | | | |
| 462 General Joint Facilities-Cr | | | | | | | | | |
| Sub Total | | | | | | | | | |
| RAILWAY TAX ACCRUALS- ACCOUNT 632: | | | | | | | | | |
| Fixed to Retirement and Unemployment Insurance | | | | | | | | | |
| Fixed to Train Payrolls | | | | | | | | | |
| Fixed to Facility Payrolls | | | | | | | | | |
| Fixed to Traffic and General Payrolls | | | | | | | | | |
| Other (not including taxes on terminals) | | | | | | | | | |
| Sub Total | | | | | | | | | |
| RENTS- (INCOME) EXPENSE: | | | | | | | | | |
| 504 Rent from Locomotives | | | | | | | | | |
| 505 Rent from Passenger Train Cars | | | | | | | | | |
| 507 Rent from Work Equipment | | | | | | | | | |
| 508 Joint Facility Rent Income | | | | | | | | | |
| 537 Rent from Locomotives | | | | | | | | | |
| 538 Rent from Passenger Train Cars | | | | | | | | | |
| 541 Joint Facility Rents | | | | | | | | | |
| Sub Total | | | | | | | | | |
| Total ICC Expenses | | | | | | | | | |

NATIONAL RAILROAD PASSENGER CORPORATION

SECTION: 8.1.5

ACCOUNTING PROCEDURES MANUAL

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT: FORMS AND FORM PROCEDURES

REPORT NAME: Revenue Detail

REPORT NUMBER: NRPC 644

OBJECTIVE: To present revenue detail by source.

DESCRIPTION: Revenue is reported for each location and train.

PREPARATION: For each location, post in Part A revenue by ICC account that cannot be directly assigned to a specific train number.

Allocate all amounts in Part A to a train number using an approach consistent with good judgement. Enter the allocations on Part B.

Post all revenue that can be directly assigned to a specific train by ICC account and train number to Part C.

Sub-total all receipts by ICC account and train.

Total and balance all sub-totals.

NOTE: The revenue in Part B should be unique from the revenue in Part C.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

Railroad: NATIONAL RAILROAD PASSENGER CORPORATION **REVENUE DETAIL**

Set 19 of 19

For the Month of 19

| Part A | | Facility Identification and Location | | | | | | | | | |
|--|---------------------|--------------------------------------|--|--|--|--|--|--|--|--|--|
| Account (Location Revenue) | Total All Locations | | | | | | | | | | |
| ARRPC REVENUES | | | | | | | | | | | |
| 00 Selling | | | | | | | | | | | |
| 01 Dining and Buffet | | | | | | | | | | | |
| 02 Train and Boat Privileges | | | | | | | | | | | |
| 03 Rents of Buildings and Other Property | | | | | | | | | | | |
| 04 Miscellaneous | | | | | | | | | | | |
| 05 Joint Facility Cr | | | | | | | | | | | |
| 06 Joint Facility Dr | | | | | | | | | | | |
| Total | | | | | | | | | | | |
| Part B | | | | | | | | | | | |
| Account | Total All Trains | | | | | | | | | | |
| ARRPC REVENUES | | | | | | | | | | | |
| 00 Selling | | | | | | | | | | | |
| 01 Dining and Buffet | | | | | | | | | | | |
| 02 Train and Boat Privileges | | | | | | | | | | | |
| 03 Rents of Buildings and Other Property | | | | | | | | | | | |
| 04 Miscellaneous | | | | | | | | | | | |
| 05 Joint Facility Cr | | | | | | | | | | | |
| 06 Joint Facility Dr | | | | | | | | | | | |
| Total | | | | | | | | | | | |
| Part C | | | | | | | | | | | |
| Account (Direct Train Revenue) | Total All Trains | | | | | | | | | | |
| ARRPC REVENUES | | | | | | | | | | | |
| 00 Selling | | | | | | | | | | | |
| 01 Dining and Buffet | | | | | | | | | | | |
| 02 Train and Boat Privileges | | | | | | | | | | | |
| 03 Rents of Buildings and Other Property | | | | | | | | | | | |
| 04 Miscellaneous | | | | | | | | | | | |
| 05 Joint Facility Cr | | | | | | | | | | | |
| 06 Joint Facility Dr | | | | | | | | | | | |
| Total | | | | | | | | | | | |

NATIONAL RAILROAD PASSENGER CORPORATION

ACCOUNTING PROCEDURES MANUAL

SECTION: 8.1.6

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterne

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Fixed Train - Trip Expense Detail

REPORT NUMBER: NRPC 645

OBJECTIVE: To present a distribution of contracted costs fixed on a per train trip basis.

DESCRIPTION: Fixed cost detail data is reported by ICC account number and distributed to specific train numbers.

PREPARATION: For each type of fixed cost per train - trip appendix, post the variables used for each expense calculation, e.g. cost/trip, no. of trips, etc.

Calculate all train expenses by ICC account in accordance with the terms of the contract.

Sub-total all expenses by train and ICC account number. Total and balance all sub-totals.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

SECTION: 8.1.8

ACCOUNTING PROCEDURES MANUAL

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT FORMS AND FORM PREPARATION

REPORT NAME: Appendix Expense Summary

REPORT NUMBER: NRPC 647

OBJECTIVE: To present a summary of the detailed appendix expense of NRPC Report 646.

DESCRIPTION: Total appendix expenses are reported for each appendix and appendix part by item number.

PREPARATION: For each appendix and appendix part, transcribe the total expense for all item numbers of Report 647.

For each part number, sub-total all item expenses.

Sub-total all part number totals for each page.

Total all sub-totals for each appendix and post at the bottom of the last page of the appendix expense summary.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

ACCOUNTING PROCEDURES MANUAL

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PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Mechanical Labor Expense Detail

REPORT NUMBER: NRPC 649

OBJECTIVE: To present the time and expense of all mechanical labor at a specific location.

DESCRIPTION: Time and expense is reported for each location - position description by ICC account number.

PREPARATION: Post the total hours incurred by personnel performing mechanical activities for each ICC account number and location - position description.

Extend hourly totals as specified by the negotiated contract.

Post applicable vacation and holiday expenses.

Sub-total mechanical labor expenses for each ICC account number, location - position and expense category.

NOTE: Labor time used other than in the performance of mechanical activities and not included on Report 645 should be reported in a separate appendix expense category of NRPC Report 646.

All expense items must be allocated to ICC expense account numbers.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

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ACCOUNTING PROCEDURES MANUAL

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Mechanical Labor Expense Distribution

REPORT NUMBER: NRPC 650

OBJECTIVE: To present a distribution of the mechanical labor detail of NRPC Report 649.

DESCRIPTION: The distribution of mechanical labor detail is reported by ICC account number and train number. The ICC accounts are divided into direct and fringe benefit categories.

PREPARATION: For each location, distribute the mechanical labor detail of NRPC Report 649 by ICC account to train number (see Section 9.1).

Sub-total all direct and fringe benefit ICC account and train expenses.

Total and balance all sub-totals by ICC account and train number.

NOTE: A train may incur mechanical labor expense at several locations and against various ICC account categories.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

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PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Terminal Expense Detail

REPORT NUMBER: NRPC 651

OBJECTIVE: To present all terminal expenses on an individual basis incurred by Railroads from vendor terminal companies.

DESCRIPTION: Terminal expense is reported by ICC account number for each train serviced by the terminal.

PREPARATION: For each terminal invoice, post all expenses incurred by ICC account number in a separate column.

Sub-total all expenses by ICC account and terminal location. Total and balance all sub-totals.

NOTE: Only trains using a terminal facility should have terminal costs allocated to it.

If additional ICC accounts are required, insert them on any blank line.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

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ACCOUNTING PROCEDURES MANUAL

PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Revenue - Expense Period Adjustments

REPORT NUMBER: NRPC 652

OBJECTIVE: To list all adjustments that must be made to previous month's revenue - expense entries.

DESCRIPTION: Each adjustment is reported by ICC account number and train or facility name. In addition, an explanation is required for each adjustment. Adjustments must be identified for the period that the erroneous entry was made.

PREPARATION: For each adjustment, assign an adjustment number and post to the appropriate adjustment period page, e.g. an adjustment made to a June, 1974, entry should be posted on a separate page titled Adjustments Applying to the Month of June, 1974.

For each adjustment, post the ICC account number, the train or facility, railroad posting reference, an explanation and the amount of increase - decreased.

NOTE: NRPC Report 652 should not be prepared for the current period adjustments. Current month adjustments should be incorporated in the revenue - expense category it affects directly, e.g. an adjustment to a fixed expense per train - trip should appear on NRPC Report 645.

A separate adjustment page should be prepared for all entry adjustments of the same month.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

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PAGE: 1

EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT FORMS AND FORM PREPARATION

REPORT NAME: Capital Expendure Details

REPORT NUMBER: NRPC 653

OBJECTIVE: To list all capital expenditures incurred by railroads on behalf of the NRPC.

DESCRIPTION: Capital expenditures are reported by authorization reference received from NRPC.

PREPARATION: For each expenditure, post the NRPC Authorization Reference, expenditure description, ICC account number, estimated RR cost, estimated total hours, actual labor, material, and other expenses and actual labor hours.

Total and post all estimated and actual costs.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

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EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

APPROVED BY: S. S. Sterns

SUBJECT: FORMS AND FORM PREPARATION

REPORT NAME: Mileage Statistical Data

REPORT NUMBER: NRPC 654

OBJECTIVE: To present train operating data that is used to allocate ICC account expenses to train number.

DESCRIPTION: Operating data is reported by train number on a mileage, capacity, trip and units assigned basis.

PREPARATION: Enter all heading information including the two character RR code assigned to your Railroad and the six character train numbers specified on the Train Number Table (see Sections 10.2 and 14.0)

For each train, determine the seating capacity mileage by vehicle type.

For each train, determine the number of locomotive and car unit trips.

For each train, record the number of locomotive and units assigned.

For each statistical data line, total all data.

DISTRIBUTION: Should be forwarded to NRPC's General Accounting Department within 60 days of month end.

EXAMPLE: See following page.

NATIONAL RAILROAD PASSENGER CORPORATION

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EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

SUBJECT: ALLOCATION SCHEDULES AND PROCEDURES

APPROVED BY: S. S. Sterns

The tables in this section identify the techniques used in distributing railroad and NRPC expenses to trains. The ICC Account Allocation to Train Table (see Section 9.1) contains the allocation algorithms given to the railroads for distributing their costs to trains. This data enters the system from the greenbills which are prepared by each railroad. The Res/Loc to Trains Formulas Table (see Section 9.2) is a summary of the allocation equations developed to distribute NRPC costs to train. The allocations are performed internally by the system. The allocation techniques assigned to each res/loc can be altered by following the instructions in Section 5.6.

NATIONAL RAILROAD PASSENGER CORPORATION

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ACCOUNTING PROCEDURES MANUAL

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EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Daly

SUBJECT: ALLOCATION SCHEDULES & PROCEDURES

APPROVED BY: S. S. Stern

ICC ACCOUNT TO TRAIN ALLOCATION PROCEDURE

Railroad revenues and expenses are to be reported by ICC account number and within ICC account by train number. The following train allocation procedures are to be utilized by all contracting NRPC railroads in preparing NRPC Reports 641, 642, 644 and 650. They are designed to allocate the indirect expense of ICC accounts to specific train numbers.

To facilitate the process, an algorithm has been developed. It presents the criteria to be used for allocating all ICC accounts except 311 and 317.

Due to the significance of expenses charged to ICC accounts 311 and 317, a more precise allocation is necessary. Since it is more complex, a detailed allocation description has been separately developed for each account. An example of a 311 allocation is presented to facilitate a clear understanding of the methodology to be used.

GENERAL PROCEDURE

- Step 1 Prepare NRPC Reports 654 and 655, Statistical Data Sheets.
- Step 2 Identify the revenue or expense to be allocated to train by ICC account number on NRPC Reports 644, 646, 648, 650, and 652.
- Step 3 For each revenue/expense, reference the Railroad Algorithm to identify the appropriate allocation criteria for each ICC account and the expense category within account.
- Step 4 By using the statistical data of NRPC Report 654 and 655 allocate the revenue/expense to a train number on a percentage basis e.g. ICC account 350 has the allocation criteria of train trips for the labor expense category. To allocate Account 350 labor expenses to a train number, compute the percentage of the total of all train trips that each train made. Allocate as follows:

| | <u>TOTAL</u> | <u>TRAIN A</u> | <u>TRAIN B</u> |
|-------------|--------------|----------------|----------------|
| Train Trips | 50 | 30 | 20 |
| | 100 | 60 | 40 |
| Acc't 350 | \$15,000 | \$9,000 | \$6,000 |

NATIONAL RAILROAD PASSENGER CORPORATION

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ACCOUNTING PROCEDURES MANUAL

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ISSUED BY: D. J. Dal

SUBJECT: ALLOCATION SCHEDULES & PROCEDURES

APPROVED BY: S. S. Ste

311 PROCEDURE

Step 1 Separate ICC 311 labor expenses into trip, time and mileage related categories as dictated by the Railroad Algorithm, e.g.:

ICC 311, Total Expense = \$6,000
 ICC 311, Labor Expense = \$3,000
 Trip Related (8%) = \$ 240
 Time Related (28%) = \$ 840
 Mileage Related (64%) = \$1,920

Step 2 Divide the Trip Related Expense by the Locomotive Unit Trip Total posted on NRPC 654, Section III. Multiply the result by the locomotive unit trips for each train, e.g.:

$$\frac{\text{Trip Related Expense}}{\text{Locomotive Unit Trip Total}} = \frac{\$240}{120} = \$2$$

\$2 X Train 1 Trips = \$2 X 62 = \$124
 \$2 X Train 2 Trips = \$2 X 36 = \$ 72
 \$2 X Train 3 Trips = \$2 X 22 = \$ 44

Step 3 Divide the Time Related Expenses (expenses related to periodic inspection and maintenance of locomotive units assigned to your railroad) by the Total of Locomotive Units Assigned as posted on NRPC 654, Section IV. Multiply the result by the units assigned each train, e.g.:

$$\frac{\text{Time Related Expense}}{\text{Total Locomotive Units Assigned}} = \frac{\$840}{6} = \$140$$

\$140 X Train 1 Units Assigned = \$140 X 2 = \$280
 \$140 X Train 2 Units Assigned = \$140 X 3 = \$420
 \$140 X Train 3 Units Assigned = \$140 X 1 = \$140

Step 4 Determine Weighted Locomotive Unit Miles for each train.

- 1) If your railroad completely maintains and operates the locomotives on a train, Weighted Locomotive Unit Miles equal the Locomotive Unit Miles for that train as posted on NRPC 654, Section 1.
- 2) If your railroad performs only turnaround maintenance to a train, the Weighted Locomotive Unit Miles for that train equal 10% of that train's Total Locomotive Unit Mileage. Total Locomotive Unit Mileage is defined as the miles all units travel over various railroads while assigned to a train, including the mileage traveled on your railroad.

NATIONAL RAILROAD PASSENGER CORPORATION

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APPROVED BY: S. S. Ste

SUBJECT: ALLOCATION SCHEDULES & PROCEDURES

- 3) If your railroad performs only layover maintenance to a train, the Weighted Locomotive Unit Miles equal 90% of its Total Locomotive Unit Miles, e.g.:

| | <u>Train 1</u> | <u>Train 2</u> | <u>Train 3</u> |
|-------------------------------------|----------------|----------------|----------------|
| Locomotive Unit Miles (NRPC 654) | 2,000 | 999 | 144 |
| Maintenance Percentage | 10% | 90% | 90% |
| Weighted Locomotive Mileage | 200 | 899 | 130 |

- Step 5 Total the Weighted Locomotive Unit Miles, e.g.:

$$200 + 899 + 130 = 1,299 \text{ miles}$$

- Step 6 Add 311 material and other expense to the Mileage Related Labor Expense, e.g.:

| | |
|---------------------------------------|----------------|
| ICC 311 Material Expense | \$2,000 |
| ICC 311 Other Expense | 1,000 |
| ICC 311 Mileage Related Labor Expense | <u>1,920</u> |
| Total Mileage Related Expense | \$4,920 |

- Step 7 Divide the mileage related Expense by the Total Weighted Locomotive Unit Miles. Multiply the result by the weighted Locomotive Unit Miles for each train, e.g.:

$$\frac{\text{Mileage Related Expense}}{\text{Total Weighted Miles}} = \frac{\$4,920}{1,229} = \$4$$

$$\text{Train 1} = \$4 \times 200 = \$ 800$$

$$\text{Train 2} = \$4 \times 900 = \$3,600$$

$$\text{Train 3} = \$4 \times 130 = \$ 520$$

- Step 8 Summarize trip, time and mileage related allocations for each train, e.g.:

| | <u>Total</u> | <u>Train 1</u> | <u>Train 2</u> | <u>Train 3</u> |
|--------------|----------------|----------------|----------------|----------------|
| Trip | \$ 240 | \$ 124 | \$ 72 | \$ 44 |
| Time | \$ 840 | \$ 280 | \$ 420 | \$ 140 |
| Mileage | <u>\$4,920</u> | <u>\$ 800</u> | <u>\$3,600</u> | <u>\$ 520</u> |
| Total | \$6,000 | \$1,204 | \$4,092 | \$ 704 |

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EFFECTIVE DATE: 6/1/75

ISSUED BY: D. J. Dal

SUBJECT: ALLOCATION SCHEDULES & PROCEDURES

APPROVED BY: S. S. St

317 PROCEDURE

- Step 1 Separate ICC 317 expense into labor, material and other expense categories.
- Step 2 Distribute the labor expense into trip, time, and mileage related categories as dictated by the Railroad Algorithm; 32%, 24%, and 44% respectively.
- Step 3 Divide the trip related labor expense by the car unit trip total posted on NRPC 654, sec. III. Multiply the result by the car unit trips for each train.
- Step 4 Divide the time related labor expense by the total of all car units assigned as posted on NRPC 654, sec. IV. Multiply the result by the units assigned each train.
- Step 5 Determine weighted car unit miles for each train.
- 1) If a train is completely maintained and operated by your railroad, the weighted car miles are equal to the total car miles operated.
 - 2) If your railroad is the lavover maintenance point, then 75% of the train's total car miles are the weighted car miles. Total car miles operated include the car miles operated by your railroad and those of others.
 - 3) If your railroad is the turnaround maintenance point, then 25% of the trains total car miles are the weighted car miles.
- Step 6 Total the weighted car unit miles.
- Step 7 Divide the mileage related labor expense by the total weighted car unit miles. Multiply the result by the weighted car unit miles for each train.
- Step 8 Distribute the material and other expense into mileage and time related categories as dictated by the Railroad Algorithm; 90% and 10% respectively.
- Step 9 Divide the time related material and other expenses by the total of all car units assigned as posted on NRPC 654. Multiply the result by the car units assigned for each train.
- Step 10 Divide the mileage related material and other expenses by total car miles. Multiply the result by the car miles for each train.
- Step 11 Summarize time and mileage related allocations for each train number.

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ISSUED BY: D. J. Dal...

APPROVED BY: S. S. Ste...

SUBJECT: ALLOCATION SCHEDULES & PROCEDURES

Railroad Algorithms

| ICC Account | Description | Labor | Material | Other |
|-------------|--|--|---|--|
| 200 | Maintenance of Way & Structure - General | Train miles - if not done by train in contract | Train miles if not done by train in contract | Train miles if not done by train in contract |
| 300 | Maintenance of Equipment - all accounts except | Distribute based on allocation of accts. 311 & 317 | Distribute based on allocation of accts. 311 & 317 | Distribute based on allocation of accts. 311 & 317 |
| 311 | Locomotive Repairs | 8% loco unit trips/28% # of loco req to operate trains/64% - mileage loco unit miles | 100% loco unit miles | 100% loco unit miles |
| 317 | Passenger Car Repairs | 32%/car trips 46%/car miles 24%/# of cars required to operate train | 90%/car miles 10%/# of cars required to operate train | 90%/car miles 10%/# of cars required to operate trains |
| 331 | Depreciation | - | - | Cars - # cars assigned to train Locos - # locos assigned to train |
| 335 | Health & Welfare | Labor costs of 311 & 317 as shown on form 650 | Labor costs of 311 & 317 as shown on form 650 | Labor costs of 311 & 317 as shown on form 650 |
| 350 | Traffic | Train trips | Train trips | Train trips |
| 370 | Transportation all accounts except | Number of train trips | Number of train trips | Number of train trips |
| 373 | Station Employees | Car unit trips through facility | Car unit trips through facility | Car unit trips through facility |
| 376 | Station supplies & Expenses | Car unit trips through facility | Car unit trips through facility | Car unit trips through facility |
| 377 - 389 | Yard Switching | Car unit trips (# cars in consist times monthly trips) | Car unit trips | Car unit trips |

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SUBJECT: ALLOCATION SCHEDULES & PROCEDURES

APPROVED BY: S. S. Ste

| ICC Account | Description | Other | Material | Other |
|-------------|-------------------------------|--|--|--|
| 392 | Train Engines | Actual | | |
| 394 | Fuel | Actual or diesel loco unit miles | Actual or diesel loco unit miles | Actual or diesel loco unit miles |
| 395 | Train Power Produced | Electric loco unit miles | Electric loco unit miles | Electric loco unit miles |
| 396 | Train Power Purchased | Electric loco unit miles | Electric loco unit miles | Electric loco unit miles |
| 400 | Servicing Train Locomotives | Locomotive unit trips | Locomotive unit trips | Locomotive unit trips |
| 401 | Trainmen | Actual | Actual | Actual |
| 402 | Train Supplies & Expenses | Car unit trips | Car unit trips | Car unit trips |
| 403 | Operating Sleeping Cars | Sleeping car miles | Sleeping car miles | Sleeping car miles |
| 404 | Health & Welfare | Total transportation expense charged to trains less ICC 394, 395, and 396 (Fuel Expense) | Total transportation expense charged to trains less ICC 394, 395, and 396 (Fuel Expense) | Total transportation labor charged to trains less ICC 394, 395, and 396 (Fuel Expense) |
| 441 | Dining & Buffet Service | Dining car miles | Dining car miles | Dining car miles |
| 449 | Health & Welfare | Dining car miles | Dining car miles | Dining car miles |
| 450 | General - all accounts except | Total train cost except 468-469 & Gen. Taxes | Total train cost except 468 & 469 & Gen. Taxes | Total train cost except 468 & 469 & Gen. Taxes |
| 468 | Avoidable Cost | Total cost before 469 | Total cost before 469 | Total cost before 469 |
| 469 | Risk Liability | Train miles | Train miles | Train miles |
| 500 | Income Accounts | Train miles | Train miles | Train miles |

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APPROVED BY: S. S. Ste

SUBJECT: ALLOCATION SCHEDULES & PROCEDURES

| <u>ICC Account</u> | <u>Description</u> | <u>Labor</u> Train Miles | <u>Material</u> Train Miles | <u>Other</u> Train Miles |
|--------------------|---------------------------|-----------------------------|--------------------------------|-----------------------------|
| 532 | Retirement & Unemployment | | | |
| 537 | Rent for Locomotives | | | # of locomotives assigned |
| 538 | Rent for Passenger Cars | | | # of cars assigned |

APPENDIX C
REPORT OF INVENTIONS

During the course of this project no innovations, discoveries, or inventions were made. The study reviews current publicly available data related to Northeast Corridor transportation system performance and represents a compendium of existing data for measuring intercity transportation system performance and is therefore an improvement in this subject area.

