Alabama Department of Transportation

Bureau of Multimodal Transportation

Rail Section

Year 2001 Alabama Rail Update

Produced by

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The *2001 Alabama Rail Plan Update* has been produced in accordance with and as a component of the *Alabama Statewide Transportation Plan*, as required by Section 135 of Title 23 of the United States Code. Statewide transportation planning is required by federal law under guidelines established by the Intermodal Surface Transportation Enhancement Act of 1991 (ISTEA). The state's eligibility for federal transportation funding is dependent on compliance with this statewide transportation planning requirement. The State Rail Plan Update, as required by 49 CFR Part 266, fulfills Federal Railroad Administration (FRA) requirements that the state establish, update, and revise a State Rail Plan in order to receive Local Freight Rail Assistance funds should funding become available.

The *Alabama Rail Plan Update 2001* has been produced for the Bureau of Multimodal Transportation of the Alabama Department of Transportation by Burk-Kleinpeter, Inc., in association with the Parsons Transportation Group. The previous Update was published in 1992. Also, for the first time, an *Alabama Rail Directory* has been published as a companion to the *Rail Plan Update*. Copies of both documents are available from the Rail Section of the Alabama Department of Transportation.

Findings of the 2001 Rail Plan Update

The rail industry continues to evolve as it enters its third century. Changes in the rail industry are a reaction to changing market dynamics, innovative technology, and societal expectations. Several trends in the freight industry are affecting, and will continue to affect, the Alabama Rail system. Among these trends are significant corporate mergers and acquisitions, line abandonments and the subsequent revitalization of such lines by smaller railroads, and the increasing emphasis on intermodalism. Changes in rail facilities, equipment, and methods of operation can have far reaching impacts on the nation and the State of Alabama as well.

Rail Inventory

The State of Alabama is crisscrossed by some 4,728 miles rail lines hauling 93.5 million tons of cargo annually. Most of this activity is conducted by Class I railroads which have base gross operating revenues in excess of $261 million per year. There are five Class I railroads that operate in Alabama: Burlington Northern Santa Fe, Canadian National/Illinois Central, CSX Transportation, Kansas City Southern, and Norfolk Southern. The Class I railroads operate over 4,100 miles of track in Alabama, about 87% of the total miles in the state.

In addition to the Class I railroads, there are twenty-three Class III, or shortline, railroads operating some 620 miles of track in Alabama. This is an increase of four shortline railroads since 1992. Class III railroads have annual operating revenues of less than $20 million.

The total mileage of track in Alabama is down some 484 miles from the 5,212 miles reported in the *1992 Rail Plan Update*. Abandonments and out-of-service lines account for most of the lost miles. Overall, the rail system in the state is more efficient and productive than it was ten years ago.

Rail Traffic Density

In 1999, a total of 93.6 million net tons of rail traffic either originated or terminated, or both, in Alabama. Coal dominates the railroad traffic base in Alabama, accounting for about 35% of total tonnage and 50% of tons terminated in the state. In 1999, 4.2 million less tons of coal originated in Alabama than in 1998 when 13.9 million tons of coal originated in the State. Originated coal has declined in recent years as Alabama Power Company has increased purchases of low-sulfur coal from sources in the Powder River Basin in Wyoming, which has also greatly increased the gross ton-miles on the BNSF Birmingham Subdivision.

Among other commodities in 1999, chemicals, farm products, pulp and paper, and nonmetallic minerals increased over 1998, while lumber products and metallic ores decreased. Alabama-origin coal, however, is the least stable commodity in the rail traffic base.

The north central part of the state, centered around Birmingham, has the highest density of rail traffic. Coal originations and terminations are significant proportions of traffic throughout the state, excluding north Alabama. In north-central Alabama, coal accounts for nearly two-thirds of the total, since both coal origins and major coal-burning utility plants are within this area at Alabama City and West Jefferson (Palos).

Light Density Rail Lines

During the past fifteen years, the Class I railroads both in Alabama and nationally either sold or leased most of their light density line segments to shortline operators. Most of the 450 miles of shortlines in Alabama, excluding 187 miles of traditional switching and terminal companies, were established during this period. Nevertheless, there remains in Alabama some Class I railroad line segments with less than one million gross ton-miles per route-miles (GTM/M). The future of such line segments depend upon many variables. These include future traffic prospects for the line, the profit margin on the existing traffic (e.g. chemicals versus wood chips), and the perceived strategic value of the asset, as well as the line segment's utility for shortline operation.

Abandonments

Over the ten-year period since 1992, a total of 296.46 miles of trackage has been abandoned in Alabama, an average of 29.64 miles a year. Some two-thirds of this total amount occurred at the beginning of the period, in 1992 and 1993. The annual rate of abandonment in the last eight years is less than 11.5 miles of track per year, and even this number is skewed because

of the litigation surrounding the Cheney Railroad. In fact, if Cheney Railroad is excluded, there has been only one abandonment - of 0.56 miles - in the last four years.

These numbers compare very favorably with the previous rate of abandonment in the 1980's and early 1990's, when nearly sixty miles of track were abandoned each year. At this time, it appears that a relative state of equilibrium in track mileage has been attained in the rail industry in Alabama.

Intermodal Facilities

The majority of intermodal facilities in Alabama are associated with the State Port of Mobile. Four of the five Class I carriers that do business in Alabama operate rail service with access to the State Port. These railroad companies are CSX Transportation, Canadian National/Illinois Central, Norfolk Southern, and Burlington Northern Santa Fe. Each of these railroad companies has facilities in the vicinity of the Alabama State Docks that can handle TOFCs and COFCs, except Norfolk Southern.

Other intermodal services in Alabama are located in Huntsville and Birmingham. In Huntsville, Norfolk Southern provides service to the International Intermodal Center (IIC). The IIC is owned and operated by the Huntsville-Madison County Airport Authority and is capable of handling TOFC and COFC shipments by truck, rail or air. The IIC is located in Foreign Trade Zone #83 and has U.S. Custom and Brokers on site. In Birmingham, Burlington Northern Santa Fe operates an intermodal facility in close proximity to the intersection of U.S. Interstate Highways 20, 59, and 65. This facility handles both TOFC and COFC shipments.

Passenger Rail

Alabama currently has two inter-city passenger rail services operated by Amtrak, the *Crescent* and the *Sunset Limited*. The *Crescent* makes one trip daily each way between New Orleans and New York via Hattiesburg, Meridian, Tuscaloosa, Birmingham, Anniston, Atlanta, and Washington. The *Sunset Limited* makes three round-trips a week between Los Angeles and Jacksonville via Houston, Lafayette, New Orleans, Bay St. Louis, Gulfport, Biloxi, Pascagoula, Mobile, Atmore, and Pensacola. The table on the following page presents the Total Station Boardings and Alightings for the five Amtrak stations in Alabama for the past two fiscal years, 2000 and 2001.

In recent years, the nation has become increasingly interested in furthering the development of high-speed ground transportation. Buoyed by the success of the Northeast Corridor, other sections of the country have been promoting high-speed rail corridors and other technologies in their regions

Table ES.1
Amtrak Boardings and Alightings in Alabama, 2000-2001

City	Train Route	FY 2000	FY 2001	% Change
Anniston	Crescent	5,655	5,885	+ 4.1%
Birmingham	Crescent	30,139	31,397	+ 4.2%
Tuscaloosa	Crescent	11,225	11,547	+ 2.9%
Atmore	Sunset Limited	344	331	- 3.8%
Mobile	Sunset Limited	3,695	2,561	- 30.7%

Source: Amtrak, November 2001.

Included in the 1998 Federal Transportation Bill (TEA-21) was the official designation of the Gulf Coast High Speed Rail Corridor. The first phase of the corridor will span the Gulf Coast states from Houston, Texas through New Orleans and Mobile to Pensacola, Florida. Planned expansions will extend service from New Orleans to Atlanta and from Pensacola to Jacksonville.

While the alignments of these corridors are not finalized, the Gulf Coast Corridor primarily utilizes the CSXT track between Mobile and New Orleans and the Norfolk Southern track between New Orleans and Atlanta. These corridors are among the highest density freight routes in Alabama for both CSXT and NS, respectively. The CSXT line segment between Mobile and Pascagoula, MS, is primarily single track with a Traffic Control System. The NS line segment between Austell, GA and Meridian, MS, via Birmingham and Tuscaloosa is also primarily single track with a Traffic Control System. At Birmingham, the NS line segment has about eight miles of line with approximately 75 million GTM/M, as well as interlockings with other railroads crossing the NS at grade.

As one of the eleven officially designated high speed rail corridors in the United States, the TEA-21 legislation now makes available to the Gulf Coast certain dedicated federal funds over the next six years for corridor analysis.

Future Outlook for Alabama Railroads

The general state of the railroads in Alabama in 2001 is stable and profitable and is expected to continue that way into the foreseeable future. Mergers and acquisitions among the Class I railroads - particularly the merger of the Illinois Central into the Canadian National Railroad and the acquisition of Conrail by Norfolk Southern and CSX Transportation - have given Alabama industries and consumers unprecedented access to domestic and foreign markets. The rise of shortline railroads has stabilized the rash of abandonments experienced in recent decades and portends a reliable alternative to over-the-road truck hauling.

The State of Alabama does not directly fund rail improvements for private railroads; however, it has historically participated in the process of evaluating projects and allocating federal funds for rail projects in the state. The two federal funding programs now in place, the Transportation Infrastructure Finance and Improvement Act (TIFIA) and the Railroad Rehabilitation and Improvement Financing Program (RRIF), rely principally on loans and loan guarantees. To date, no budget submitted by the administration has included funding to support loans under these programs and, consequently, no loans have been approved.

The pending Railroad Track Modernization Act of 2001 (H.R. 1020) would establish a program of direct grants to smaller (Class II and Class III) railroads for rehabilitation and improvement of tracks and related structures, including bridges. This would bring the infrastructure up to a level permitting safe and efficient operation, including traffic containing the new heavier 286,000-pound rail cars being adopted as an industry standard by the large railroads. This legislation would repeal Chapter 221 of Title 49, United States Code (Local Freight Rail Assistance).

Continued federal funding for the planning of high speed rail corridors for the next six years is included in the TEA-21 legislation; however, congressional hearings on the future of Amtrak, inter-city service in general, and high-speed rail, scheduled for March of 2002, could impact these funds. Indeed, the future of Amtrak service in Alabama - the *Crescent* and the *Sunset Limited* - is clouded. Nevertheless, regardless of what direction rail passenger service takes, the railroads of Alabama - and the people running them - will continue to provide a valuable resource to the industries and citizens of Alabama.

Chapter 1. Introduction

The *Alabama Rail Plan Update 2001* has been produced for the Bureau of Multimodal Transportation of the Alabama Department of Transportation by Burk-Kleinpeter, Inc., in association with the Parsons Transportation Group. The previous Update was published in 1992. Also, for the first time, an *Alabama Rail Directory* has been published as a companion to the Rail Plan. Copies of both documents are available from the Rail Section of the Alabama Department of Transportation.

Purpose and Authority

The *2001 Alabama Rail Plan Update* has been produced by the Bureau of Multimodal Transportation of the Alabama Department of Transportation (ALDOT) in accordance with and as a component of the *Alabama Statewide Transportation Plan*, as required by Section 135 of Title 23 of the United States Code. Statewide transportation planning is required by federal law under guidelines established by the Intermodal Surface Transportation Enhancement Act of 1991 (ISTEA). The state's eligibility for federal transportation funding is dependent on compliance with this statewide transportation planning requirement. The State Rail Plan Update, as required by 49 CFR Part 266, fulfills Federal Railroad Administration (FRA) requirements that the state establish, update, and revise a State Rail Plan in order to receive Local Freight Rail Assistance funds should funding become available.

Of equal importance is the successor to ISTEA, the Transportation Equity Act for the 21st Century (TEA-21), which refines the guidance of ISTEA and includes seven broad areas of concern that must be considered in the statewide planning process. These areas, listed below, were identified in the *Alabama Statewide Transportation Plan* to ensure that programs and projects:

- Support the economic vitality of the United States and metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety and security of the transportation system for motorized and non-motorized users;
- Increase the accessibility and mobility options availability to people and for freight;
- Protect and enhance the environment, promote energy conservation, and improve quality of life;

- Enhance the integration and connectivity of the transportation system, across and between modes throughout the United States, for people and freight;

- Promote efficient system management and operations; and

- Emphasize the preservation of the existing transportation system.

The purpose of state rail planning is to examine rail carriers and shippers, communities, and other elements comprising the transportation network so that each element can perform its proper role in an efficient and equitable manner. The state's priority is to concentrate on preserving branch lines that are vital to continued rail service to rural communities around Alabama. The state continuously works with local communities and the railroad companies to define projects intended to yield benefits attractive enough to ensure that key branches remain in operation.

Given this philosophy, a series of goals were adopted and published in the *Alabama Statewide Transportation Plan* to govern development of the Alabama Rail Plan:

1. Maintain a viable rail freight and passenger transportation system that is essential to the economic viability and continued prosperity of all the regions of Alabama.

2. Ensure the maintenance of efficient rail service by promoting and relying on privately owned and operated rail common carriers.

3. Participate in the planning and coordination of all modes of freight and passenger transportation in Alabama.

4. Utilize public funds, made available by the federal government, to the extent that such use is justified, will lead to a long term solution that does not require further public funds, is of assistance to the economic well being of the state, its localities and its residents, and only when all other solutions have been declared impractical.

5. Continued promotion and enforcement of safe railroad practices so as to ensure the safety and operating values, the safe carriage of hazardous materials and the maintenance of rail rolling stock and trackage.

6. Solicit input from relevant railroads, rail users, governmental agencies, other organizations and the general public in performing rail transportation planning functions.

7. Recognize the importance of the rail mode to the economic development of Alabama, including development of its energy resources, in the transportation planning process.

8. Promote the viability of the private railroad mode via the analysis and possible modification of certain rail system components.

9. Maintain a continuing and cooperative rail planning process.

Because Alabama's freight railroads are privately owned and operated, the primary mission of ALDOT is to support the state's railroads by ensuring safe and efficient operations. This is achieved, in part, through the development of the statewide rail plan. As part of this plan, ALDOT works with local communities and the railroad companies in defining projects that will ensure key railroad branches remain in operation. ALDOT also works with railroads to identify safety needs. The State's diagnostic teams recommend improvements and the railroads install and maintain these improvements.

General Trends in the Rail Industry

The rail industry continues to evolve as it enters its third century. Changes in the rail industry are a reaction to changing market dynamics, innovative technology, and societal expectations. Several trends in the freight industry are affecting, and will continue to affect, the Alabama Rail system. Among these trends are significant corporate mergers and acquisitions, line abandonments and the subsequent revitalization of such lines by smaller railroads, and the increasing emphasis on intermodalism. Changes in rail facilities, equipment, and methods of operation can have far reaching impacts on the nation and the State of Alabama as well.

Mergers and Acquisitions

The economic deregulation of the railroad industry in the U.S. in 1980 provided the principal impetus for entrepreneurs to acquire railroad line segments that were deemed either uneconomic or marginally profitable for Class I railroads to operate. Using its new authority to exempt certain “minor” transactions from full regulatory review, the U.S. Interstate Commerce Commission granted exemptions to non-carrier acquisitions. This authority was deemed beneficial to the national rail system by preserving line segments that would most likely have been abandoned by the Class I railroads which could not justify continued investment. The lower cost structure of a shortline could both generate a profit and service improvement, particularly frequency and consistency of service.

Of significant interest to the State of Alabama are some of the mergers and acquisitions involving Class I railroads, including the consolidation of the Burlington Northern Railroad with the Atchison Topeka and Santa Fe to form the Burlington Northern Santa Fe Railroad, and the merger of the Illinois Central Gulf Railroad into the Canadian National Railroad, and the break-up and subsequent acquisition/lease of Conrail by CSX Transportation and Norfolk Southern.

The establishment of shortline railroad companies in Alabama has stabilized the number of route miles in the state's network. Shortline railroad companies established in Alabama since deregulation constitute about 12 percent of the State's rail network. Most of the new shortline miles were formerly CSXT or Burlington Northern and Santa Fe (ex-Frisco system) lines, and, to a lesser extent, Norfolk Southern.

Abandonments

As a result of the Staggers Rail Act of 1980, hundreds of new, smaller (Class II and III) railroads were able to acquire or lease from larger (Class I) railroads lines that were abandoned (or to be abandoned) because of infrastructure deterioration and unprofitable operations. Many of these smaller railroads have been successful, but many also struggle to earn enough capital to maintain and upgrade their rail infrastructure. Exacerbating the problem is a recent trend toward much heavier cars used by Class I railroads, increasing the wear on the overburdened tracks and roadbeds. A recent study concluded that the nation's smaller rail network would require about $6.8 billion in infrastructure upgrades to deal with the heavier rail cars.

Railway mileage abandonments in Alabama have not been significant in recent years, as the new shortlines have sought to rebuild their traffic base. This stability of both traffic and mileage has also benefited shortlines' Class I connections which, in many respects, now function as wholesalers, and shortlines as retailers of freight transportation service.

Increasing the Weight of the Standard 100-Ton Rail Car

A major issue confronts some shortlines. For years the railroad industry's standard weight limit has been 263,000 lbs., the nominal weight for the 100-ton capacity car. Now, in an efficiency move, the industry is raising the limit to 286,000 lbs. Many of the same concerns over bridge and track capability to handle the increased weights that accompanied introduction of the 100-ton car have surfaced again.

Railroad mainlines have been cleared or are being improved to handle the new cars, which are currently being produced. The problem lies with the light density line system, comprised principally of short line rail carriers. Maintenance on many of these lines was deferred by the previous Class I owners before they were spun off to short line operators, and with marginal traffic levels, infusion of the significant amounts of capital to upgrade them has not occurred.

As former branch and secondary mainlines of Class I railroads, some shortlines have infrastructure in need of upgrading to accommodate the increasing fleet of high capacity railcars favored by both shippers and carriers, particularly those cars used for dry bulk commodities such as coal, grain, and cement. These cars, fully loaded, have a gross weight

on rail of approximately 286,000 pounds. Some mileage is restricted to weights of between 220,000 and 263,000 pounds on account of bridge weight restrictions.

A study of U.S. shortline and regional railroads prepared in 1999 by the Standing Committee on Rail Transportation of the American Association of State Highway and Transportation Officials indicated that for Alabama shortlines, there was a need for $2.5 million for bridge rehabilitation and $3.1 million for track rehabilitation, for a total of $5.6 million. The unspecified lines in question have an annual traffic volume totaling 41,000 carloads.

Federal Rail Assistance Programs

In prior years, public funds to assist railroads in making infrastructure improvements came primarily from two sources, the Railroad Revitalization and Regulatory Reform Act (4R Act) of 1976 and the Local Rail Service Assistance Act (LRSA). The Local Rail Service Assistance Act (LRSA) of 1978 expanded the eligibility for federal assistance programs to rail lines which had been excluded under preceding Acts. Authorization for the LRSA expired in 1988 and Congress adjourned without reauthorizing it. Thus, no funds were appropriated for Federal Fiscal Year 1989. In 1989, however, Congress reauthorized a new program, the Local Rail Freight Assistance Program, beginning with Fiscal Year 1991.

In 1998 the Transportation Equity Act for the 21st Century (TEA-21) created two new Federal credit programs: the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) and the Railroad Rehabilitation and Improvement Financing Program (RRIF). Section 7203 of TEA-21 amended Title V of the Railroad Revitalization and Regulatory Reform Act by replacing the railroad financing programs with new loan and loan guarantee programs. To date, no budget submitted by the administration has included funding to support loans under these programs and no loans have been approved. These new programs are discussed below.

Transportation Infrastructure Finance and Improvement Act (TIFIA)

TIFIA establishes a new Federal credit program for large-scale transportation projects. Credit assistance programs such as TIFIA are designed to help financial markets develop the capability to supplement the role of the Federal Government in helping finance the costs of large projects of national significance.

Three types of credit instruments are permitted under TIFIA: secured (direct) loans, loan guarantees, and lines of credit. To be eligible, projects must cost at least $100 million or an amount equal to 50% of Federal-aid highway funds apportioned to the State for the most recently completed fiscal year. (Projects mainly involved in the installation of an intelligent transportation system (ITS) must cost at least $30 million.) Projects must also be classified within the following categories:

- Surface transportation projects;
- International bridge or tunnel projects;
- Intercity passenger bus or rail facilities and vehicles, including those owned by Amtrak and components of magnetic levitation transportation systems; or
- Publicly-owned intermodal surface freight transfer facilities, provided that the facilities are (a) located on or adjacent to the National Highway System and (b) are not seaports or airports.

Railroad Rehabilitation and Improvement Financing Program (RRIF)

Under this program, the Secretary of the Department of Transportation may provide direct loans and loan guarantees to State and local governments, government sponsored authorities and corporations, railroads, and joint ventures that include at least one railroad. The program has a funding limit of $3.5 billion in aggregate unpaid balance and $1.0 billion reserved for non-Class I railroads. In order to be eligible, the proceeds from direct loans or loan guarantees must be used to:

- acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings, and shops;
- refinance outstanding debt incurred for the purposes described above; or
- develop or establish new intermodal or railroad facilities.

Direct loans and loan guarantees under this program cannot be used for railroad operating expenses. In granting applications for loans or loan guarantees, priority will be given to projects that:

- enhance public safety;
- enhance the environment;
- promote economic development;
- enable United States companies to be more competitive in international markets;
- are endorsed by the plans prepared under Section135 of Title 23, United States Code, the State or States in which they are located; or
- preserve or enhance rail or intermodal service to small communities or rural areas.

Light Density Line Pilot Program

The Light Density Line Pilot Program is a demonstration program funded by the Department of Transportation to determine the public interest benefits associated with the light density railroad networks and their contribution to a multimodal transportation system. By March 31, 2003, the Secretary of DOT will report to Congress any recommendations the Secretary considers appropriate regarding the eligibility of light density rail networks for Federal infrastructure financing.

Grants can be made to states that have state rail plans, but only for projects involving capital improvements to publicly or privately-owned rail line structures. Grants may not be used for railroad operating expenses. Grants for projects on privately-owned rail line structures must include a contribution by the owner, based on the benefit to those structures as determined by the Secretary. Appropriations for this program total $17, 500,000 for each fiscal year from 1998 through 2003.

Railroad Track Modernization Act of 2001

In the 1st Session of the present Congress, legislation was introduced as the Railroad Track Modernization Act of 2001 (H.R. 1020). This legislation would establish a program of direct grants to smaller (Class II and Class III) railroads for rehabilitation and improvement of tracks and related structures, including bridges, to bring the infrastructure up to a level permitting safe and efficient operation, including traffic containing the new heavier 286,000-pound rail cars being adopted as an industry standard by the large railroads. This legislation would repeal Chapter 221 of Title 49, United States Code (Local Freight Rail Assistance).

For projects to be eligible the track must have been operated by a class II or class III railroad as of the date of the enactment of the Railroad Track Modernization Act of 2001 and the ratio of benefits-to-costs must be more than 1.0, as calculated by a methodology to be established by the Secretary DOT. Grants provided under this program are to implement track capital projects as soon as possible.

The maximum federal share would be 80 percent of the project costs. The non-Federal share can be provided by any non-Federal source in cash, equipment, supplies or other in-kind contributions approved by the Secretary DOT.

Implications for the State of Alabama

What are the implications for the State of Alabama of the general trends in the rail industry discussed above? The decade of the nineties saw a gradual reduction in the amount of Class I railroad trackage taken out of service or abandoned and a subsequent increase in the number of shortline railroads. Consequently, the abandonment of light density lines is less of an issue today than it was a decade ago. The result is a more or less stable statewide rail system focused on building up its traffic base.

On the other hand, the move by the Class I railroads to increase the weight of the 100-ton rail car will have a ripple effect throughout the industry, especially in the regional and shortline railroads. Whereas most of the Class I railroads have the wherewithal to make the necessary upgrades to their systems, this is not the case with the Class III railroads, which will be looking for outside financial means - especially to the federal government - to upgrade their systems.

The new generation of federal funding programs feature loans and loan guarantees for larger projects. Alabama may see some application of these programs in the future. TIFIA, for example, may be useful in the implementation of high-speed rail corridors. The RRIF (loans and loan guarantees), on the other hand, will likely be eschewed by the shortline railroads in favor of grants in the upcoming Railroad Track Modernization Act of 2001.

In an interesting twist on the federal support for railroads over the past twenty-five years, there has been a change in the overall approach. Whereas for years there has been an emphasis on saving light density lines ripe for abandonment (i.e., unprofitable branch lines), the new emphasis will be on upgrading the higher density shortlines to meet the new standard for the 100-ton car. This could possibly lead to another round of abandonments of unprofitable, or marginally profitable, shortlines in the future if federal and private investment flows to preserve the more profitable parts of the system to the detriment of the less profitable lines. This could have significant implications for Alabama as it could shift a considerable amount of rail traffic to the highways.

Chapter 2. Alabama Railroad Inventory

Railroad operations in Alabama have historically been oriented to the movement of goods between major population centers and the Gulf coast port cities. Through the years, those routes radiating out from the ports have been integrated into a much more comprehensive rail network. In Alabama, Birmingham is the center of gravity as far as rail traffic is concerned.

General Overview

Figure 2-1 on the following page depicts the statewide rail network in the Year 2001. As can be seen on the map, the state is crisscrossed by rail lines totaling over 4,728 miles. This is down some 484 miles from the 5,212 miles reported in the *1992 Rail Plan Update*. Abandonments and out-of-service lines account for most of the lost miles.

There are five Class I railroads that operate in Alabama: Burlington Northern Santa Fe, Canadian National/Illinois Central, CSX Transportation, Kansas City Southern, and Norfolk Southern. Class I railroads have base gross operating revenues in excess of $261 million per year. The Class I railroads operate over 4,100 miles of track in Alabama, about 87% of the total miles in the state.

There are twenty-three Class III, or shortline, railroads operating some 620 miles of track in Alabama. This is an increase of four shortline railroads since 1992. Class III railroads have annual operating revenues of less than $20 million.

Brief profiles of all railroads operating in Alabama are provided in the following pages, commencing with the Class I railroads.

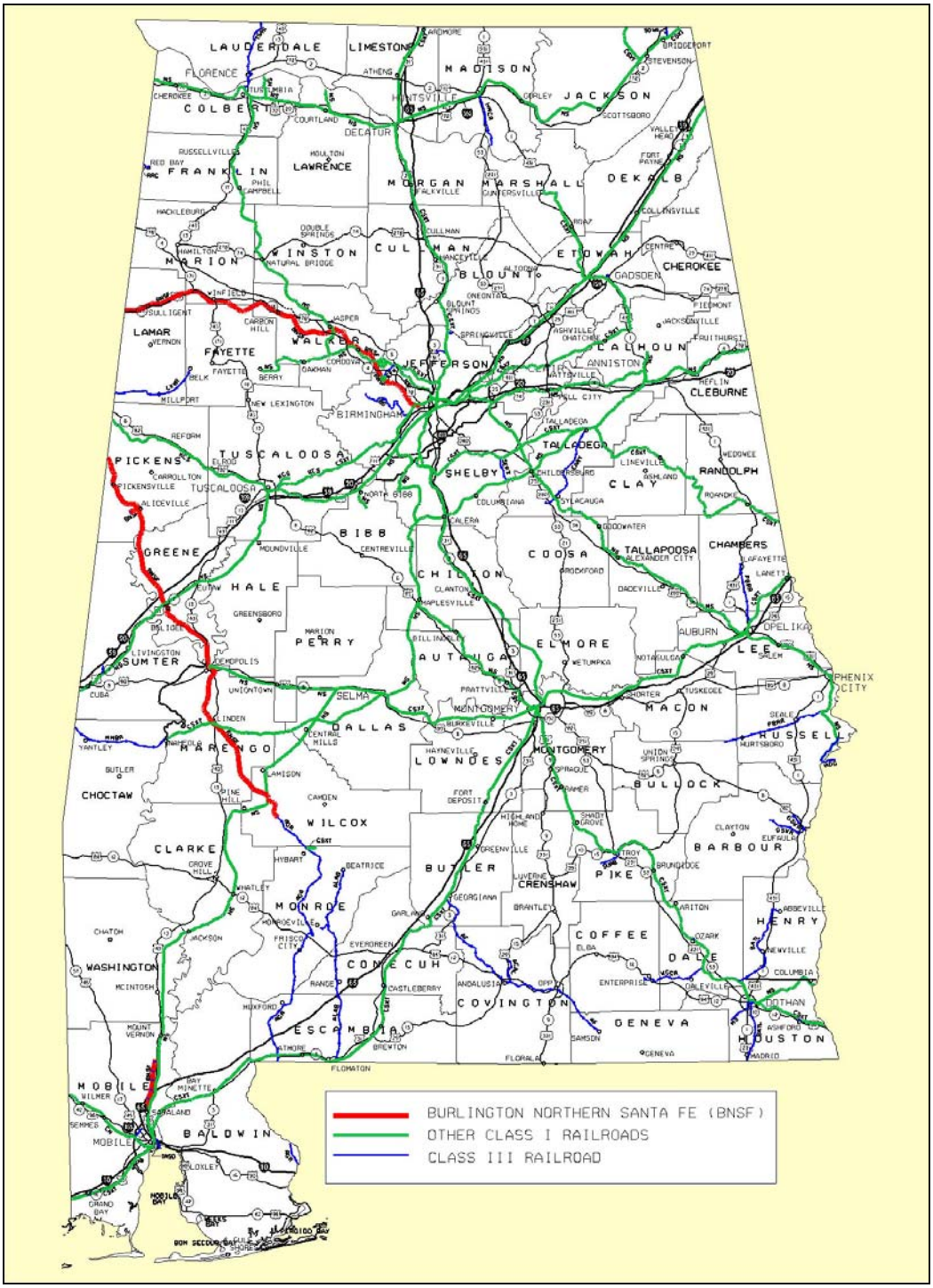
Class I Railroads

Burlington Northern Santa Fe Railroad (BNSF)

The BNSF was created in September 1995 from the merger of Burlington Northern, Inc. (parent company of Burlington Northern Railroad) and Santa Fe Pacific Corporation (parent company of the Atchison, Topeka and Santa Fe Railway). The BNSF has a combined system of 33,500 route miles, mainly in the west, covering 28 states and two Canadian provinces. The company operates 510 miles of track within Alabama, accessing Birmingham and the Port of Mobile (through track rights with Norfolk Southern). Refer to Figure 2-2. Major commodities transported include forest products and chemicals.

Figure 2-1
Alabama Rail Lines

Figure 2-2
Burlington Northern Santa Fe Rail Line in Alabama



Source: 1998 Alabama Rail Map as modified by BKI, 2001.

Canadian National/Illinois Central Railroad (CNIC)

The Canadian National/Illinois Central Railroad crosses North America east-west in Canada and north-south down the Mississippi River Valley, serving ports on the Atlantic, Pacific and Gulf coasts. This massive system was formed when Canadian National (which was privatized in 1995) and Illinois Central Railroad merged in 1999. Canadian National services 15,532 route miles in Canada and the United States. CNIC operates 78 miles of track in Alabama, entering the state in the southwest corner and serving the Port of Mobile. Refer to Figure 2-3. Major commodities transported include petroleum and chemicals, grain, fertilizers, coal, metals and minerals, forest products, and automotive products.

CSX Transportation (CSXT)

CSX Transportation, a unit of CSX Corporation, is comprised of hundreds of predecessor railroads, the oldest of which dates back more than 170 years. Some of the old railroads that make up CSX Transportation (formed in 1986) are Louisville and Nashville Railroad Company, Seaboard Coast Line Railroad Company, Seaboard System Railroad, Inc., Chessie System, and Western Railway of Alabama. Most recently, CSXT jointly received permission to operate the routes and assets of Conrail (along with NS) and began operation of Conrail Territory in 1999. CSXT is a major eastern railroad that provides rail transportation and distribution services over a 22,700 route-mile network in 23 states, the District of Columbia and two Canadian provinces. The company operates approximately 1,300 miles of main track within Alabama. Refer to Figure 2-4. Major commodities transported include paper, minerals, and agricultural products.

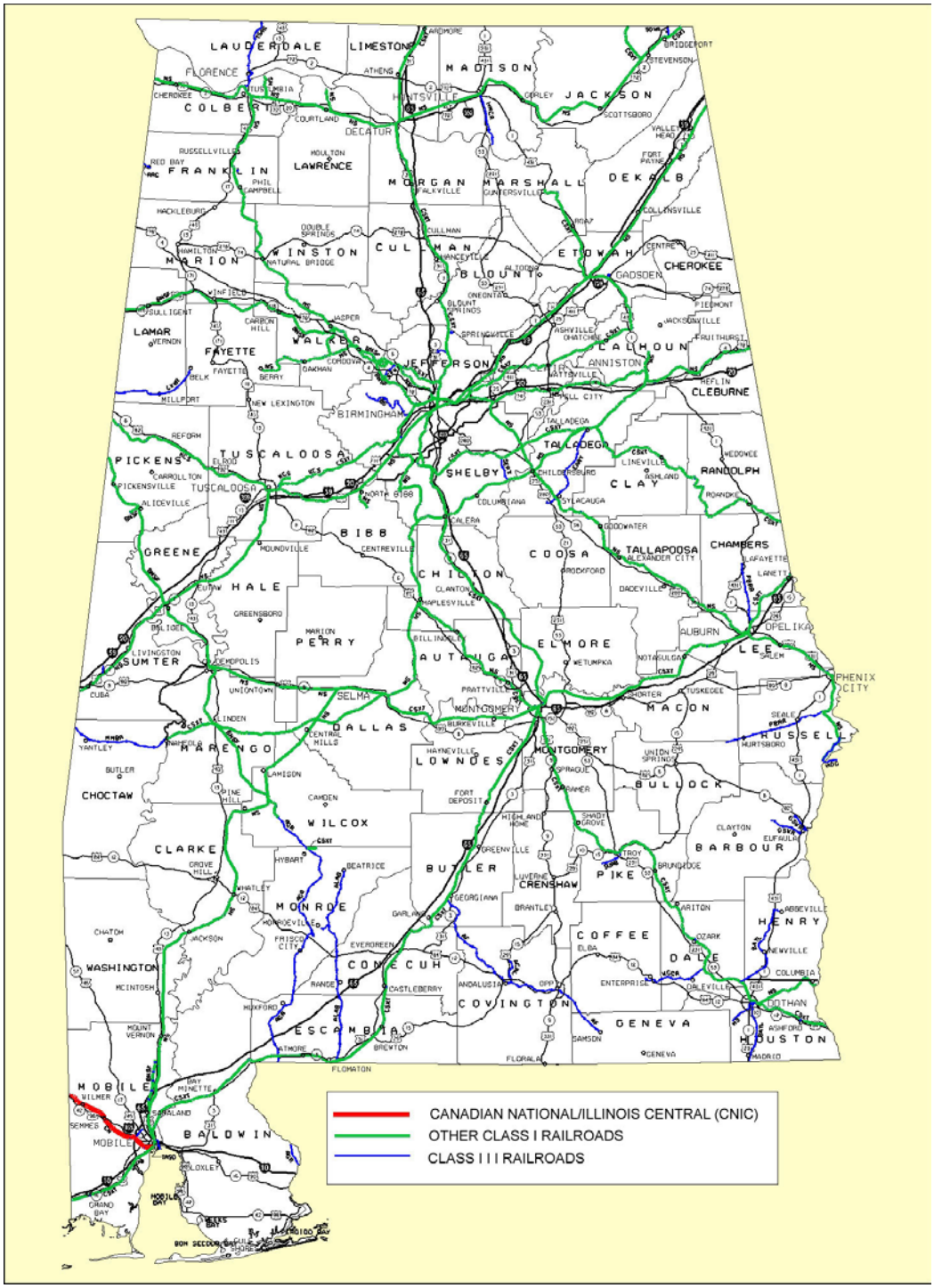
Kansas City Southern Railroad (KCS)

The KCS was built in the late 19th Century to provide rail service from the U.S. heartland directly south to the Gulf of Mexico. It remains today the shortest route between Kansas City and the Gulf of Mexico. In 1993, KCS acquired MidSouth Railroad, the railway company's first east-west route; it provided service from Dallas to Meridian, MS. The company made other acquisitions, investments and marketing alliances during the 1990's in reaction to the North American Free Trade Agreement which was signed in the mid-1990's. KCS is now the flagship carrier for an extensive North American rail network now referred to as the NAFTA railway. KCS operates over 2,728 track miles in eleven central and southeastern states, including 79 miles in Alabama. Refer to Figure 2-5. Major commodities transported include coke, scrap iron, synthetic rubber, pulpboard, soybean products, sheet steel, and fuel oil.

Norfolk Southern Railway (NS)

Norfolk Southern was formed in June 1982 with the consolidation of Norfolk and Western Railway and Southern Railway. Norfolk and Western Railway is a product of more than 200 railroad mergers dating back to the 1880s. Southern Railway is the product of nearly 150

Figure 2-3
Canadian National/Illinois Central Rail Line in Alabama

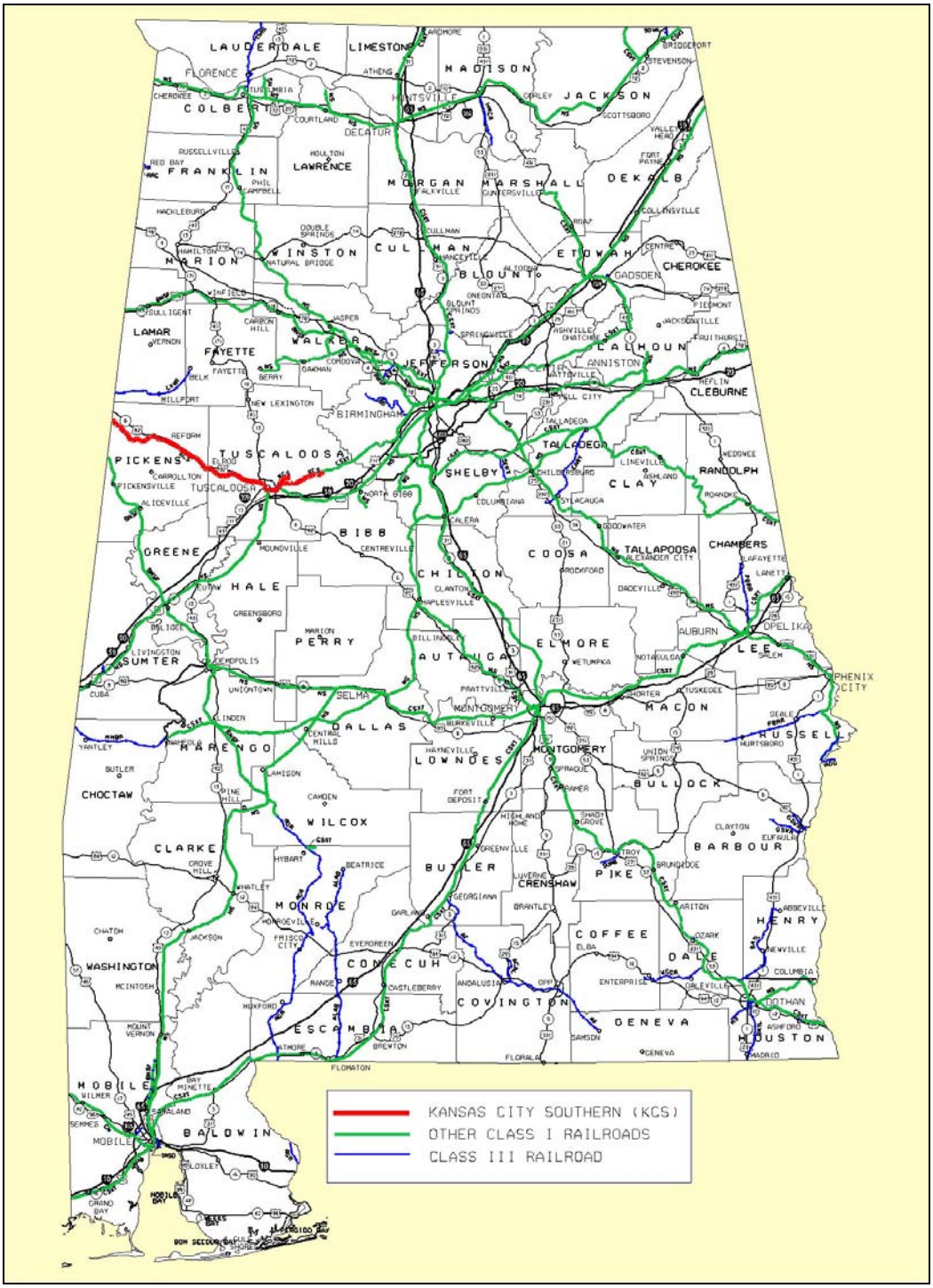


Source: 1998 Alabama Rail Map as modified by BKI, 2001.

Figure 2-4
CSX Transportation Rail Line in Alabama

Source: 1998 Alabama Rail Map as modified by BKI, 2001.

Figure 2-5
Kansas City Southern Rail Line in Alabama



Source: 1998 Alabama Rail Map as modified by BKI, 2001.

Figure 2-6
Norfolk Southern Rail Line in Alabama

Source: 1998 Alabama Rail Map as modified by BKI, 2001.

predecessor lines that were combined, reorganized and recombined since the 1830s. In 1998, NS received permission to operate a large portion of the assets and routes of Conrail (along with CSX), which expanded the railroad's reach into the Northeast. Norfolk Southern's railroad operations form a single system of some 21,800 miles of road in 22 states located in the East, the District of Columbia and the Province of Ontario, Canada. NS operates 2,141 miles of track in Alabama. Refer to Figure 2-6. Major commodities transported include agricultural products, automotive products, chemicals, coal, and paper.

Class II Railroads

Class II railroads are railroads with annual operating revenues between $20 million and $261 million. There are presently no Class II railroads operating in Alabama.

Class III Railroads

Alabama and Florida Railroad Company (AF)

Alabama and Florida Railroad Company, a wholly owned subsidiary of Pioneer Railcorp, is a Class III railroad company that currently owns 44 miles of track in southern Alabama. The line provides service to the cities of Andalusia, Opp, Samson, and Geneva. AF formerly operated 32 miles of track between Georgiana and Andalusia; however, in June 2001, the newly formed Three Notch Railroad (TNHR) assumed AF's lease and service obligation between Georgiana and Andalusia. This transaction included service on the 2-mile Andalusia and Conecuh (ACRC), a non-operating carrier owned by the Alabama Electric Cooperative, Inc.

Alabama & Gulf Coast Railroad (AGR)

The Alabama and Gulfcoast Railroad is a Class III railroad company operating a 91-mile line in southern Alabama from Kimbrough to Atmore (and continuing to Pensacola, Florida). The rail company is owned by StatesRail, Inc. and primarily traffics raw and finished forest products. The AGR interchanges with the BNSF at Magnolia via trackage rights from Kimbrough and the CSX interchanges on a daily basis in Hybart via trackage rights from Atmore.

Alabama Railroad Co. (ALAB)

The Alabama Railroad is a Class III railroad company operating on 55 miles of track in southern Alabama. The line runs from Beatrice to Flomaton where it interchanges with CSX. Alabama Railroad is a wholly owned subsidiary of Pioneer Railcorp and primarily transports forest products.

Andalusia & Conecuh Railroad Company (ACRC)

The Andalusia and Conecuh Railroad Company is a Class III railroad company that owns two miles of track in the City of Andalusia. Approximately eight miles of the company's

formerly configured rail line have been abandoned since 1992. The company is owned by Alabama Electric Cooperative. Inc. and service on the line is provided by the Alabama and Florida Railroad Company.

The Bay Line Railroad, LLC (BAYL)

The Bay Line Railroad, LLC is a Class III railroad company operating 43.5 miles of track in southeast Alabama. The rail line runs from Abbeville, through Dothan, and continues on to Madrid (at the Florida state line). The extension into Florida services a deepwater port and other businesses in Panama City. Dothan is an interchange location with Class I operators CSXT and NS. The Bay Line Railroad from Dothan to Panama City has been designated by the military as part of the Strategic Rail Corridor Network; therefore it is significant in terms of national defense.

Birmingham Southern Railroad Company (BS)

The Birmingham Southern Railroad Company is a Class III railroad company owned by Transtar, Inc. The company operates a rail network of 82 miles primarily in the Birmingham metropolitan area. The main line of the network connects from East Thomas, through Ensley, Fairfield and Woodward, and continues to Bessemer. Interchanges with Class I carriers are as follows: the East Thomas terminal interchanges with BNSF and both the terminals in Ensley and Bessemer interchange with NS and CSXT. The network also includes a rail line to Port Birmingham, which connects to the main line at a point between Ensley and Fairfield. The Birmingham Southern performs a general terminal service, having connections with all trunk lines entering the district from either Birmingham, East Thomas, Ensley, or Bessemer. Its present operations consist chiefly of transporting raw materials to and from Port Birmingham, as well as from local mineral fields and connecting trunk lines to the various industries served.

Eastern Alabama Railway (EARY)

The Eastern Alabama Railroad is a Class III railroad company and a wholly owned subsidiary of StatesRail, Inc. The company operates a 25-mile railroad branch line in central Alabama from Talladega to Sylacauga, Gantt's Junction, and Gantt's Quarry. The railroad interchanges with CSXT in Talladega and with NS in Sylacauga.

Georgia Southwestern Railroad, Inc. (GSWR)

Georgia Southwestern Railroad, Inc. is a Class III railroad company operating over 200 miles of rail line in Georgia, but also owns 16 miles of track in southeast Alabama. The company is a wholly owned subsidiary of RailAmerica. The rail line runs from White Oak to Eufaula (at the Georgia state line). The main commodities carried in Alabama are ceramic pellets and fertilizer.

H & S Railroad Company (HS)

The Hartford and Slocomb Railroad, a Class III railroad company, operates 4 miles of rail line in southeast Alabama. H.P. Claussen owns the railroad company; he was given the contract for switching the GE Railcar plant in Dothan from Gulf and Ohio Railways. The four-mile railroad runs through downtown Dothan to the southwest, ending near Taylor. Class I interchanges with CSXT and NS are located in Dothan. The H & S Railroad does not handle carload traffic. It's only revenue is earned by a switching service to the repair shop of GE Railcar.

Heart of Georgia Railroad, Inc. (HOG)

The Heart of Georgia is a Class III railroad company that leases 1.2 miles out-of-service rail line in eastern Alabama from the Georgia Department of Transportation. The rail line offers service in Alabama to the Mead Paper Mill in the vicinity of Cottonton, Alabama. The line is currently out of service and has had no traffic since 1994. Although the rail remains intact, there is a total of 42 miles out of service from the Mead Paper Mill in Alabama eastwards to Preston, Georgia.

Huntsville and Madison County Railroad Authority (HMCR)

The Huntsville and Madison County Railroad Authority is a Class III railroad company that owns 13.25 miles of track in northeast Alabama. The railroad extends from Huntsville southwards to Norton Company and serves all shippers on the line.

Jefferson Warrior Railroad Company (JEFW)

The Jefferson Warrior Railroad Company is a Class III railroad company that owns 44 miles of track in Jefferson County, Alabama. The company connects the Millers Ferry Steam Plant with the city of Birmingham. Walters Industries is the owner of the railroad. Currently, the seven miles of track at the Millers Ferry Steam Plant is leased to CSX Transportation.

Luxapalila Valley Railroad Company (LXVR)

The Luxapalila Valley Railroad Company is a Class III railroad company that owns 24.5 miles of track in western Alabama. The rail line is 34 miles long and connects from Belk to Columbus, Mississippi. The main commodities moved on the Luxapalila Valley line are wood products and gravel.

M&B Railroad, LLC (MNBR)

The M & B Railroad is a Class III railroad company that operates 31 miles of track in western Alabama and provides service from Myrtlewood to Meridian, Mississippi. The primary customer, a paper mill in Naheola, owned the railroad until August 1997 when the railroad was sold to Rail Partner's, LP and the name was changed to M&B Railroad, LLC.

Pine Belt Southern Railroad Company (PBRR)

The Pine Belt Southern Railroad is a Class III railroad company that operates 18 miles of track in the eastern part of central Alabama. The rail line operates from Lafayette to Opelika and primarily transports wood products; however, this segment of line is presently out of service. The Pine Belt Southern line segment between Nuckols and Hurtsboro is, also, presently out-of-service.

Redmont Railroad Company (RRC)

The Redmont is a Class III railroad company with 37.6 miles of track providing north to south service between Corinth, Mississippi and Red Bay, Alabama. The section of the rail line in Alabama is 1.75 miles long and provides service for a pet food manufacturer.

Sequatchie Valley Railroad (SQVR)

The Sequatchie Valley Railroad is a Class III railroad company owned by the Tennessee Corporation. The railroad company operates 2.75 miles of track in northeast Alabama from Bridgeport to Patti Rich (at the state line) and continues on to Kimball, Tennessee. The rail line interchanges with Class I operator CSXT in Bridgeport.

Conecuh Valley Railroad (COEH)

Formerly called the Southern Alabama Railroad, the Conecuh Valley Railroad is a Class III railroad company owned by Gulf & Ohio Railroads. The company operates a 15 mile rail line from Troy to Goshen. The major commodities transported on the Southern Alabama line are corn, soybeans, cooking oil, peanuts, and plastic resin. An interchange with Class I operator CSXT is located in Troy.

Southern Electric Railroad Company, Inc. (SERX)

The Southern Electric Railroad Company, Inc. (SERX) is a wholly owned subsidiary of the Southern Company, an electric utility holding company. The 13 miles of track owned by SERX provides rail access to the Alabama Power Company's generating plants in central Alabama near Wilsonville (E. C. Gaston Plant) and West Jefferson (James H. Miller Plant). SERX has no employees and owns no equipment.

Tennessee Southern Railroad Company (TSRR)

The Tennessee Southern Railroad is a Class III railroad company operating over 18 miles of track in northwest Alabama from Florence into Tennessee. An interchange with Class I operator CSXT is located in Natco, Tennessee.

Terminal Railway Alabama State Docks (TASD)

Terminal Railways Alabama State Docks owns 75 miles of track in the city of Mobile and is primarily operated to provide terminal and switching services. The railroad interchanges with four Class I railroads.

Three Notch Railroad Company, Inc. (TNHR)

Three Notch Railroad, a subsidiary of Gulf and Ohio Railways, is a Class III railroad company that owns 32 miles of track in southern Alabama. The line provides service from Georgiana to Andalusia. An interchange with Class I carriers exists in Georgiana. The customers on line are Dynea-Sunstates and Shaw Industries Plant #65; the company is in the process of recruiting new customers such as Covington Metals and Paris Packaging.

Wiregrass Central Railroad (WGCR)

Wiregrass Central Railroad, a subsidiary of Gulf and Ohio Railways, is a Class III railroad company that owns 20 miles of track in southeast Alabama. The line provides service from Enterprise to Waterford. An interchange with Class I carriers exists in Waterford. The primary products transported are agricultural.

Chapter 3. Line Density and Usage

The purpose of this section is to examine the level of utility for rail line segments in Alabama, including shortline railroads. The level of utility, or traffic density, determines the operating cost structure of the line segment in terms of number of main tracks, train control system, and operating speeds, as well as capital program spending.

Rail Traffic Originated and Terminated in Alabama

Based on Rail Waybill Data sample compiled by the U.S. Surface Transportation Board and published by the Association of American Railroads, a total of 93.6 million net tons of traffic either originated or terminated, or both, in Alabama in 1999. Alabama rail tonnage is summarized in Table 3.1, below.

Table 3.1
Rail Traffic in Alabama – 1999
(millions of net tons)

Originated Tons			**Terminated Tons**		
Coal	9.7	23%	Coal	24.3	47%
Nonmetallic Minerals	5.4	13%	Metallic Ores	4.1	8%
Pulp and Paper	5.1	12%	Chemicals	4.0	8%
Glass and Stone	4.1	10%	Farm Products	3.5	7%
Chemicals	4.0	10%	Lumber, Wood Products	3.0	6%
All other	13.3	32%	All other	12.9	25%
Total	41.6	100%		51.9	100%

Source: Parsons Transportation Group, 2001

Coal dominates the railroad traffic base in Alabama, accounting for about 35 percent of total tonnage and accounting for nearly fifty percent of tons terminated in Alabama. In 1999, 4.2 million less tons of coal originated in Alabama than in 1998 when 13.9 million tons of coal originated in the State. Originated coal has declined in recent years as Alabama Power Company has increased purchases of low-sulfur coal from sources in the Powder River Basin in Wyoming, which has also greatly increased the gross ton-miles on the BNSF Birmingham Subdivision.

Among other commodities in 1999, chemicals, farm products, pulp and paper, and nonmetallic minerals increased over 1998, while lumber products and metallic ores

decreased. Alabama-origin coal, however, is the least stable commodity in the rail traffic base.

Intrastate Rail Traffic

Based on the 1999 U.S. Surface Transportation Board's Rail Waybill Sample, approximately ten percent of the 161 million net tons of rail traffic in Alabama both originates and terminates in Alabama. Coal, metallic ores, primary forest products, and petroleum are the principal commodities. Coal accounts for 50 percent of intrastate rail tonnage. Collectively, these four commodity groups account for 80 percent of intrastate rail traffic. Table 3.2 summarizes Alabama intrastate rail traffic.

Table 3.2
Alabama Intrastate Rail Traffic - 1999
(Net Tons)

Commodity	Net Tons	Percent of Total
Coal	8,341,383	50%
Metallic ores	2,134,419	13%
Primary forest products	1,720,592	10%
Petroleum	1,122,100	7%
Crushed Stone	807,560	5%
Chemicals	571,440	4%
Waste and scrap	569,848	3%
Metals & metal products	449,568	3%
Other	829,716	5%
Total	16,546,626	100%

Source: Parsons Transportation Group, 2001

Primary intrastate coal traffic flows were basically between NS and CSXT-served mines near Birmingham and electric utility plants, as well as McDuffie Terminal at the Port of Mobile. Virtually all chemical traffic requires compliance with the U.S. DOT's Code of Federal Regulations (49 CFR) for the transportation of hazardous materials.

There was no rail intermodal container or trailer traffic which both originated and terminated in Alabama in 1999.

Traffic Volume by Geographical Area

Table 3.3 presents railroad tonnage by region. In order to provide this geographical context of rail traffic, 22 principal stations on Norfolk Southern, CSXT, Burlington Northern Santa Fe, and Canadian National/Illinois Central were grouped into four areas of the state, north, north central, south central, and Gulf Coast. For each area, the net tons originated and terminated on the four Class I railroads are indicated, including the principal stations in the respective areas. In the case of NS and CSXT, principal stations are the dozen largest volume stations for each carrier in Alabama.

Table 3.3
Traffic Volume by Geographical Area - 1999

Area / Stations	Total Net Tons	Originated Tons	Terminated Tons
North Alabama	4,023,995	2,426,956	1,597,039
Decatur			
Stevenson			
North Central Alabama	27,170,765	9,576,560	17,594,205
Alabama City			
Berry			
Birmingham			
N. Birmingham			
Blue Creek			
Palos			
South Central Alabama	9,283,352	5,244,358	4,038,994
Wilsonville			
Roberta			
Selma			
Autauga Creek			
Varnons			
Shorter			
Waugh			
Montgomery			
Mahrt			
Gulf Coast Alabama	15,835,616	6,239,317	9,596,299
Mobile			
Theodore			
Brewton			
McIntosh			
Jackson			

Source: Parsons Transportation Group, 2001.

Coal originations and terminations are significant proportions of traffic in three of the four areas, excluding north Alabama. In north-central Alabama, coal accounts for nearly two-thirds of the 27 million total tons in Table 3.3, above, since both coal origins, and major coal-burning utility plants are within this area at Alabama City and West Jefferson (Palos).

Traffic Neither Originating nor Terminating within the State but only Passing Through the State

The 1999 Rail Waybill Sample indicates that approximately 65 million net tons moved on trains through Alabama as overhead (bridge) traffic, neither originating nor terminating in the State. This traffic included approximately 756,000 intermodal containers and trailers, and 1.3 million carloads. Coal, again, is a major commodity, constituting 17 percent of overhead traffic through Alabama. The primary destinations for this coal are Georgia, Mississippi, and Florida from origins in Illinois, Tennessee, and Kentucky.

Approximately one-third of the overhead bridge traffic through Alabama moves on CSXT's 10-mile line segment in northeast Alabama, part of CSXT's corridor between Nashville and Atlanta. Other major overhead traffic routes are NS between Atlanta and New Orleans via Birmingham, and between Memphis and Chattanooga via Huntsville. CSXT routes include Nashville/Atlanta and New Orleans via Montgomery, AL, and New Orleans and Jacksonville via Flomaton. The traffic density on these line segments is included in Table 3.4.

Principal rail traffic flows, constituting nearly ninety percent of overhead traffic through Alabama, are indicated in Table 3.4, below.

Table 3.4
Principal Overhead Traffic Flows through Alabama – 1999
(All commodities, tons in millions)

Between/and	Net Tons
LA, TX and FL, GA, SC, NC, VA	20.5
OH, IN, MI, IL, WI, MO, IA, MN and LA, TX, MS, TN, GA, FL	19.2
KY, TN and GA, FL	13.4
CA, OR, WA and FL, GA, SC, NC, VA	3.1

Source: Parsons Transportation group, 2001.

The analysis of rail traffic flows in Alabama indicates that only forty percent of the 161 million net tons is overhead traffic passing through the State. Nearly fifty percent of the tonnage has either an origin or destination (but not both) in Alabama, with terminations exceeding originations by a margin of 41 to 34 million tons. Overhead traffic flows are predominantly eastward or southward through Alabama. Of the 20.5 million net tons between Louisiana and Texas, on the one hand, and Florida, Georgia, South Carolina, North Carolina and Virginia, on the other hand, 78 percent is eastbound traffic. Of this eastbound traffic, 16 million tons, approximately 58 percent is chemical traffic. An implication of this analysis of bridge traffic is that there are substantial empty rail car movements westward and northward through Alabama.

Further analysis confirms that chemical traffic originating in Louisiana and Texas destined to New England and the Mid-Atlantic states utilize railroad interchange points that bypass Alabama rail routes, such as Memphis, TN, St. Louis, MO, Effingham, Salem and Tolono, IL.

Traffic Density on Major Line Segments

Traffic density is normally measured in gross ton-miles per route-mile (GTM/M). Gross tons include rail cars, contents (revenue tons of freight), and locomotives. Ton-miles are a function of gross weight and distance moved, including both loaded and empty cars. Nationally, approximately forty percent of rail car miles are empty car miles, since a back-haul commodity is frequently not available, or is available only with significant mileage diversion to a back-haul loading location. As a general rule, in order for a rail line to have a traffic density of one million GTM/M, the line would handle about 6,500 carloads per year.

Fifty percent of Class I railroad route miles in Alabama handle more than 20 million GTM/M. Twenty million GTM/M, and higher, is a common, informal standard by which to define a system's core network, or by which to focus capital improvement programs to achieve the greatest economies of scale. The line segment having the highest GTM/M lies between NS's Norris Yard and 50th Street (8 miles) in Birmingham. This line has a density of 75 million GTM/M reflecting the funnel effect of NS lines converging on Birmingham. The line segment between Stevenson and Bridgeport (10 miles), on which Norfolk Southern has trackage rights on CSXT, handles 68 million GTM/M and has the second highest GTM/M in the state. This line segment is part of CSXT's Nashville – Atlanta line, and Norfolk Southern's Memphis/Birmingham – Knoxville line. Both of these line segments, however, are short distance and not typical of main line traffic density in Alabama.

Diseconomies of scale can occur where heavy traffic density regularly impedes efficient train movements, such as holding trains longer than necessary in departure yard tracks, or on the mainline tracks for lack of yard capacity to begin classification switching of the train. The inefficient utilization of train crews, locomotives and cars can result in poorer financial performance than the identical rail infrastructure handling a lower density of traffic.

Table 3.5 summarizes the principal Class I line segments, with GTM/M above twenty million.

Table 3.5
Traffic Density of
Principal Line Segments in Alabama - 1999
(Tons in millions)

Line Segment	Railroad	Miles in AL	Avg. GTM/M
Mobile – Flomaton	CSXT	59	48
Ardmore – Decatur – Birmingham – Parkwood	CSXT	138	46
Sheffield – Corinth, MS	NS	34	43
Austell, GA – Birmingham – Meridian, MS	NS	249	42
Mobile – Pascagoula, MS	CSXT	37	40
Montgomery – Flomaton	CSXT	110	36
Sheffield – Stevenson	NS	122	30
Amory, MS – Jasper – Palos (Alabama Power Co.)	BNSF	87	30
Parkwood – Montgomery	CSXT	87	29
Montgomery – West Point, GA	CSXT	89	22
Parkwood –Talladega – LaGrange, GA	CSXT	134	21
Birmingham (Norris Yard)– Wauhatchie, TN	NS	104	21
Birmingham (27th Street) – Sheffield	NS	141	20

Source: Parsons Transportation Group, 2001.

Compared with the BNSF line segment between Amory, MS and Palos, AL, the line segments in Table 3.5, above, have diverse traffic bases in terms of commodities handled. The BNSF line segment is predominantly coal to the James H. Miller Generating Station of Alabama Power Company, at West Jefferson. This low-sulfur coal originates in the Powder River Basin in Wyoming and is the longest single line rail haul of coal in the U.S. There are twenty 135-car trains used in the cycle between Alabama and Wyoming. The increasing use of Powder River Basin coal has contributed to the decline in Alabama-origin coal in recent years. East of Palos, the BNSF traffic density is 12 million GTM/M, which includes westbound metallurgical coal originating at the USX Oak Grove Mine, destined to the USX Gary Works in Indiana. This coal is interchanged from Birmingham Southern Railroad to BNSF.

Neither Canadian National/Illinois Central, nor Kansas City Southern, the other Class I railroads serving Alabama, have line segments with traffic densities greater than 20 million GTM/M.

There are important line segments within the state having less than 20 GTM/M. The CSXT line segment between Montgomery / Dothan, handles 13 million GTM/M. NS line segments with less than 20 million GTM/M include Leeds/Columbus, GA, and Birmingham (Burstall)/Mobile. NS traffic density to and from the Mobile area is approximately 8 million GTM/M. Of the four Class I railroads interchanging at Mobile with the Terminal Railway (TASD), CSXT handled fifty-one percent of the 111,000 carloads interchanged in the year 2000, according to TASD.

A traffic density map of Alabama is included as Figure 3-1 on the following page.

Terminal Railway Alabama State Docks

In the year 2000, the Terminal Railway (TASD), a subsidiary of the State Docks Commission, handled 111,260 carloads, most of which were interchanged with the four Class I railroads (CSXT, NS, CN and BNSF) serving the 75-mile line at Mobile. The principal rail-hauled export commodities are coal, woodpulp, linerboard, paper and lumber. Imported commodities include iron ore, aluminum, and steel. TASD does not provide rail intermodal container service, although the planned Alabama State Docks container facility at Choctaw Point will have a rail intermodal facility. CN and CSXT Intermodal share a proprietary intermodal container facility. Neither NS nor BNSF offer intermodal container service at Mobile. Carload interchange between TASD and the Class I railroads are summarized in Table 3.6 below.

Table 3.6
Terminal Railway Alabama State Docks Interchange - 2000
(Carloads)

Railroad	Inbound	Outbound	Total	Percent Share
BNSF	10,609	1,588	12,197	12
CN	20,024	911	20,935	21
CSX	44,053	8,163	52,216	51
NS	5,657	10,629	16,286	16
Total	80,343	21,291	101,634	100

Source: Parsons Transportation Group, 2001.

Figure 3-1
Line Density Map

In terms of gross tons density, CSXT is the principal rail carrier in the Mobile area with about 8 million gross tons, closely followed by NS and CNIC with about 7 million gross tons each. Only CSXT at Mobile is both an east-west and north-south rail carrier, contributing to its dominant rail market share with TASD.

Chapter 4. Light Density Lines

Class I Railroad Line Segments with Less than One Million Gross Ton-Miles per Route-Mile (GTM/M)

During the past fifteen years, the Class I railroads both in Alabama and nationally either sold or leased most of their light density line segments to shortline operators. Most of the 450 miles of shortlines in Alabama, excluding 187 miles of traditional switching and terminal companies, were established during this period. Nevertheless, there remains in Alabama some Class I railroad line segments with less than one million GTM/M. The future of such line segments depend upon many variables. These include future traffic prospects for the line, the profit margin on the existing traffic (e.g. chemicals versus wood chips), and the perceived strategic value of the asset, as well as the line segment's utility for shortline operation.

Table 4.1 is a list of selected line segments on Norfolk Southern (NS) and CSX Transportation (CSXT) with a traffic density of less than one million GTM/M.

Table 4.1
Class I Railroad Line Segments with Less than One MGTM/M - 1999

Line Segment	RR	Miles	GTM/M
Dothan – Hilton, GA	NS	23.2	888,000
Woodstock – Vulco	NS	3.0	100,000
Alabama City – Gadsden	NS	3.1	174
Anniston – Ft. McClellan	NS	6.0	- 0 -
Guntersville – Moragne	CSXT	29.1	800,000
Black Creek – Chetopa	CSXT	13.6	80,000
Boyles Yard (Birmingham) – Greens	CSXT	7.5	185,560

Source: Parsons Transportation Group, 2001.

Norfolk Southern

Of the line segments included in Table 4.1 above, only the Dothan – Hilton, GA, line segment constitutes a through route. This line segment is part of the NS route between Dothan and its classification yard at Macon, GA, via Albany, GA. At Dothan, NS connects with CSXT and the Bay Line Railroad, NS's only interchange with the Bay Line. These interchanges are substantial portions of the traffic handled on the NS line segment. Traffic originating or terminating between Dothan and Hilton, GA, include construction materials, grain, paper, and chemicals. Construction material is the dominant commodity, a substantial portion of which is Alabama intrastate traffic.

The only commodity handled by NS at Vulco is inbound construction materials, originating outside Alabama.

The Alabama City – Gadsden line segment is an extension of the line serving Alabama Power Company's Gadsden Plant to which NS delivered approximately 11,000 carloads of coal in 2000. The extension to Gadsden is without highway crossings at grade and can provide storage and switching capacity, if needed. Gulf States Steel, Inc., at Alabama City entered bankruptcy proceedings in July 1999 and ceased operations in August 2000. Thus rail traffic at Alabama City for the year 2000 will show a significant decline.

Fort McClellan (along with Fort Rucker, near Dothan, AL) is one of the 36 Department of Defense's U.S. installations designated for rail access and also served by a low density branch line connector. The NS line segment between Birmingham and Atlanta via Anniston, and the Anniston Army Depot, is part of the DOD Strategic Rail Corridor Network (STRACNET). Part of Fort McClellan is contiguous with the Anniston Army Depot.

CSX Transportation

Grain and agricultural products is the principal commodity group handled by CSXT on the line segment between Guntersville and Moragne. Industries include Cargill, Inc., Southern States Cooperative, and Tysons Foods, Inc. This 29-mile line segment is close to handling one million GTM/M. Much of the line segment received tie and surfacing program maintenance in 2000, with the remainder performed in recent earlier years. The maximum authorized speed is 25 MPH.

The Black Creek – Chetopa line segment has experienced greatly reduced traffic since the Alabama Power Company's Miller Plant began utilizing BNSF-origin (Powder River) coal under a contract in effect through 2005. Until 1994, CSXT provided Appalachian coal to the Miller Plant. Since that time NS has also gained physical access but is not presently delivering coal to the Plant. In the future, the NS route structure may favor a Union Pacific-NS competing bid, rather than Union Pacific-CSXT, for Powder River Basin coal traffic to the Miller Plant.

Boyles Yard (Birmingham) – Greens line segment is principally chemicals and pulp and paper traffic, along with waste and scrap material. The dominant commodity is chemicals which provide above-average unit revenue, which justifies a higher level of capital program spending.

Traffic Density on Shortline Segments

Fourteen active shortline carriers originated or terminated approximately five million revenue tons on their line segments in Alabama. These active line segments total 448 miles. This network constitutes about fifteen percent of the Alabama railroad route-miles and handles about six percent of total rail tons originated or terminated in Alabama. These data exclude the switching and terminal railroad companies – Birmingham Southern, Jefferson Warrior, and Terminal Railway Alabama State Docks

Approximately one-fourth of the short line mileage has a traffic volume that generates more than one million GTM/M. The two shortlines in this category are the Alabama & Gulf Coast Railway (AGR) and the Eastern Alabama Railway (EARY). The AGR operates over 91 route miles in Alabama and major commodities include lumber, plywood, pulp, paper linerboard, construction aggregates, and chemicals. The average GTM/M for the AGR was 2.1 million in the year 2000. This tonnage includes trackage rights operations by CSXT between Atmore and Hybart (70 miles) to reach CSXT's isolated track segment at Vredenburgh. The AGR operates the BNSF's former line segment between Pensacola, FL, and Kimbrough, AL. AGR operations commenced in September 1997. The AGR interchanges traffic with three Class I railroads, BNSF, NS, and CSXT.

The EARY operates 25 route-miles in Talladega County, interchanging traffic with both Norfolk Southern and CSXT, at Sylacauga and Bemiston, respectively. In 2000, EARY handled 12,000 carloads of limestone, calcium, newsprint and paper. The average GTM/M for EARY was nearly 1.0 million, with the greater traffic density on the EARY being in the Gantts Quarry – Sylacauga area.

The revenue tons originated or terminated in Alabama by the AGR and EARY constitute approximately 60 percent of shortline revenue tons in Alabama, excluding the three switching and terminal companies noted earlier. Thus, approximately 25 percent of the Alabama shortline mileage handles about sixty percent of the revenue tons originated or terminated. The great majority of shortline railroad mileage handles considerably less than one-half million GTM/M. Table 4.2, below, summarizes revenue tonnage for the Alabama shortlines.

Table 4.2
Revenue Tons for Alabama Shortlines - 2000

Railroad	Alabama Route Miles	Alabama Revenue Tons	Major Commodities
Alabama & Gulf Coast (AGR)	91	2,049,735	Forest products, paper
Eastern Alabama (EARY)	25	960,000	Limestone, calcium
M & B Railroad (MNBR)	31	400,000	Paper
Wiregrass Central (WGCR)	20	336,000	Grain, peanut products
Southern Alabama (SUAB)	15	253,000	Corn, soybeans, plastic
The Bay Line (BAYL)	45	227,000	Forest products, paper
Alabama Railroad (ALAB)	60	127,190	Forest products
Sequatchie Valley (SQVR)	3	118,500	Gypsum board, plastic
Alabama & Florida (AF)	80	96,500	Chemicals, pulpwood
Georgia SouthWestern (GSWR)	6	77,000	Ceramics, fertilizer
Luxapalila Valley (LXVR)	24	68,500	Wood products
Tennessee Southern (TSRR)	17	62,043	Phosphates, chemicals
Pine Belt Southern (PBRR)	18	58,750	Wood chips, pulpwood
Huntsville & Madison County (HMCR)	13	31,400	Sand, brick
Redmont Railway (RRC)	2	N/A	Grain, Soybean meal

Source: Parsons Transportation Group, 2001.

Chapter 5. Abandonments

The turmoil that seemed to engulf the rail industry in the 1980's and 1990's due to mergers, acquisitions, spin-offs, and abandonments, appears to have abated at the beginning of this new century. As documented in this chapter, the rate of planned abandonments tapered off during the middle of the past decade to the point that there has been only one official filing since 1997.

Abandonments Between 1971 and 1992

The abandonment of trackage in the United States is not a new thing. Railroad mileage peaked in this country in 1916 and has been declining ever since. Alabama is no exception. Between 1971 and 1992 some eighty lines and 1,254 miles of track were abandoned (refer to the list of abandonments between 1971 and 1992 found in the Appendix to this report.)

Abandonments Since the 1992 Rail Plan Update

The detailed list below indicates all rail lines known to have been abandoned through the end of the year 2001.

Kansas City Southern

AB 301 8 X filed 7/92.
- 74.8 miles granted.
- Trackage rights on Illinois Central line between MP 4.7 and MP 79.5 at Mobile, AL.
- This track from 4.7 to 79.5 was abandoned in 1990.
- Contact: John S. Jacobsen, V.P. Engineering, (816) 983-1278.

Norfolk Southern

AB 290 123 X filed 12/92.
- 33.0 miles granted
- MP IC-571.0 to MP IC-604.0 in Franklin, Marion, and Winston counties
- Track has been abandoned.
- Track has been removed
- Parcels are being sold.

AB 290 144 X filed 8/94.
- 2.20 miles granted
- Between NS MP 35.0-R at Burstall and MP 37.2, Rat Valley Creek Junction in Jefferson County
- Track has been abandoned and removed.
- Parcels are being sold.

AB 290 190 X filed 9/97.
- 22.10 miles granted between MP 862.8 at Berry, AL and MP 884.9 at Belk, AL
- It is abandoned and track has been removed.
- Right of way is still in one piece.
- There are one or two parcels that a real estate company is handling.

AB 290 171 X filed 8/95.
- 7.10 miles granted between MP 48.0-N at Jacksonville and MP 55.1-N at Fort McClellan, AL.
- Track has been abandoned and removed.
- N. S. Contact: S. D. Eisenach, Director Corporate, (804) 629-2678

Burlington Northern Santa Fe

AB 6 359 X filed 11/93.
- 3.08 miles granted.
- Between ES 0.00N to ES 58+98N and ES 0+00 STO to ES 103+53S
- This line was abandoned but the track is still in place.
- It has not been sold yet, but the Alabama State Docks is trying to buy it.
- No one is operating it now.
- Contact: Roger W. Howard, Executive Director, (417) 864-2302.

Filed Aug. 25, 1993.
- l51.72 total miles granted
- Boligee to York, MP 240.90 to MP 268.22 - 27.32 miles of track.
- York to Bucks, MP 728.00 to MP 851.40 - 123.40 miles of track.

CSX Transportation

AB 55 532 X filed 7/96.
- 0.90 miles granted between MP ANJ-968.3 and MP ANJ-967.4 in Parkwood, Jefferson County.
- Part of track has been abandoned, from MP 967.38 to 968.3 this part of the track has been removed.
- From MP 967.36 to 967.38 track is discontinued and is straight rail; switch is gone.
- Railroad still owns it.
- Contact: James T. Derwin, Asst. Vice President, (904) 245-1057

AB-55 (Sub No 602x) filed 11/30/01
- 0.56 miles near Athens, Limestone County, AL

Alabama Railroad

AB 463 0 X filed 11/95.

- 3.68 miles granted between MP 662.62 at Beatrice and MP 666.3 at Corduroy.
- It has been abandoned.
- It was sold to property owners and planted in trees.
- Track has been taken up in this section.
- Trackage rights are not being served by RR.
- Contact: Guy H. Brinkman, President, (309) 697-1400

Birmingham Southern

AB 192 1 filed 12/97.

- 3.84 miles granted between MP 146+97.22 to end of line
- Track was abandoned.
- Tracks are to be removed and land sold.
- Contact: E. M. Hughes, III, General Superintendent, (205) 783-2821

Eastern Alabama Railway (EARY)

AB 374 1 X filed July of 1992.

- 15.06 miles granted between Anniston (MP LAM 507.73) and Wellington (MP 522.79) in Calhoun County.
- Abandoned and bought by Ronnie Carr and sold back to original owner.
- Track is left in place, but service discontinued.
- Contact: Larry Nordquist, General Manager - (256) 249-1196

Wiregrass Central

AB 372 0 X filed 5/92.

- 2.00 miles granted from MP 821 to end of line in Coffee County
- These 2 miles have been abandoned.
- It was sold to different landowners, people whose property connects.
- (Track has been taken up).
- Contact: H. P. Claussen, President (423) 525-9400 or (423) 347-6070

Cheney Railroad Company

The Cheney Railroad Company was a Class III railroad company that owned approximately 50 miles of track in central Alabama, from Pinson in Jefferson County through Remlap and Oneonta in Blount County to near Altoona in Etowah County. The railroad went out of business on June 5, 1997.

Rate of Abandonments

Table 5.1 on the, below, shows the miles of rail line abandoned in each year since 1992. Over this ten year period a total of 296.46 miles of trackage have been abandoned, an average of 29.64 miles a year. Further, as can be seen in the table, some two-thirds of the total amount occurred at the beginning of the period, in 1992 and 1993. The annual rate of abandonment in the last eight years is less than 11.5 miles of track per year, and even this number is skewed because of the litigation surrounding the Cheney Railroad. In fact, if Cheney Railroad is excluded, there has been only one abandonment - of .056 miles - in the last four years.

These numbers compare very favorably with the rate of abandonment in the 1980's and early 1990's, when nearly sixty miles of track were abandoned each year. It appears that the shaking out process has slowed down and that a state of equilibrium is setting in.

Table 5.1
Miles of Rail Line Abandonments, 1992-2001

Year	Class I Railroads	Class III Railroads	Total
1992	37.70	17.06	54.76
1993	154.80	0.00	154.8
1994	2.20	0.00	2.20
1995	7.30	0.00	7.30
1996	0.90	0.00	0.90
1997	22.10	53.84	75.94
1998	0.00	0.00	0.00
1999	0.00	0.00	0.00
2000	0.00	0.00	0.00
2001	0.56	0.00	0.00
	225.56	70.90	296.46

Source: Bureau of Multimodal Transportation, 2001.

At the present time, a state of equilibrium more or less exists in the Alabama rail network, with both the Class I and shortline railroads working to consolidate the revenue bases.

Filing for an Abandonment

Applications for Abandonments are filed with the Surface Transportation Board. The complete abandonment process can be found on the STB's web site under "Abandonments and Alternatives to Abandonment." This publication is also provided in the Appendix. This document explains the standards and procedures governing abandonments and alternative means of preserving service, including the subsidy and purchase of line that might otherwise be abandoned.

Chapter 6. Intermodal Facilities

In the shipping industry, the word "intermodal" means the "rapid transfer of goods from one mode to another during a single journey." An intermodal system involves the use of several modes of transportation to move goods from place to place in what is considered a continuous trip. The key to "intermodalism" is in the speed and ease of transfer from one mode to another, such as truck trailers being loaded directly onto a train instead of having the cargo off-loaded, stored, and then re-loaded into a boxcar. Intermodalism became the fastest-growing transportation system in the United States in the 1980's and continues to expand today.

The term "intermodal facilities" refers to a wide array of fixed and movable equipment used in the transportation industry to assist in the ease of movement - i.e., a "seamless transition" - between transportation modes. The past thirty years have witnessed a revolution in transportation strategies and equipment. Starting with the introduction of the standardized container, intermodalism has spread to influence the design of ships, cranes, marine terminals, trucks, and railroad facilities.

In order to efficiently serve its customers and at the same time cope with the trend of industry moving to suburban and rural locations, often removed from existing rail facilities, the railroads are placing increasing importance on intermodal facilities. Development of containerization by railroads is consistent with the trend toward more diverse points of origin and destination, shipment of smaller units, and the need for more rapid service. Both trailers on flat cars (TOFC) and containers on flat cars (COFC) provide the rail industry with a tool to incorporate the cost-effective long distance advantage of rail transportation with the more mobile motor vehicle mode at the points of pick-up and delivery.

In general, intermodal transfer costs in conventional rail service have required a trip length of 500 miles to make the three-to-one fuel consumption saving of rail movement and the labor savings of trains competitive with road haulage. On the other hand, concentrating traffic at large-scale, well located points served by quick-turnaround, reduced-crew, cabooseless trains, operating at low enough cost to permit frequent (several departures per day) service, has proved sufficient to capture traffic in some short-haul markets.

Types of Intermodal Facilities

The following sections describe railroad intermodal facilities commonly in use throughout the industry.

COFC/TOFC

The basic rail component of intermodalism is called piggybacking, or TOFC/COFC. The unique feature of intermodal traffic is transfer from one mode - rail, sea, or highway - to another. Where rail is involved, there are three principal methods in use.[1]

Circus Loading

Named for its use for over a hundred years in getting the wagons of traveling shows on and off the flatcars taking them from town to town, circus loading requires only an end-of-track ramp. Fold-down bridge plates on the ends of the flatcars form a temporary bridge over which the trailers (or containers on chassis) are backed, first ramp-to-car and then car-to-car when loading a string of flatcars. Ramp loading is the only suitable method for use at locations where only a few transfers a day are made. This method has become virtually obsolete with the concentration of transfers at a small number of high-volume terminals, where the delay and cost of loading trailers in series would be non-competitive.

Gantry Loading

Suitable for either containers or trailers, gantry loading uses a traveling overhead crane straddling both roadway and track to make the transfer or "lift." Gantries have become bigger, faster, more versatile, and more expensive as the business has developed. Since loaded containers must be lifted by the top corners while trailers must be supported from below during the lift, a crane handling both must be equipped with two types of adapter slings.

Side Loading

The side loading of containers involves sliding the box from road chassis to flatcar. The dominant equipment used in side loading, adaptable to both TOFC and COFC, is the mobile side loader. Essentially a gigantic, high-speed forklift, it simply picks a container or trailer up bodily, drives to the appointed spot and sets it down on flatcar, chassis, roadway, or storage area stack.

Intermodal Terminals

Most early intermodal transfer points were simple ramps, which now have been mechanized with gantries or mobile lift units. Typically, a rail intermodal yard's tracks connect directly with the main line so that incoming and outgoing TOFC/COFC trains, the hottest on the railroad, do not have to work their way through the yards. Since its gantries can place the trailers and containers directly on flatcars designated to go to their destination, there is no

[1] John H. Armstrong, The Railroad: What It Is, What It Does (Omaha, NE : Simmons-Boardman Books, Inc., 1999), p. 226.

further "classification" of the railcars necessary after loading. Within the metropolitan area it serves, the terminal is usually located for easy highway access.

International Services

The shift of foreign cargo to containerships and the accompanying saving of time in transit has led to the establishment of the "land bridge," where a portion of the journey is made by rail. Cargo moves on water-carrier tariffs on single bills of lading based on passage through the Panama Canal. The steamship line pays for the transfers and the railhaul from the money it saves by reducing the turnaround time for its vessels. The containers travel across the United States in "unit trains" on reliable and relatively fast schedules. It was the establishment of "land bridges" that led to unit trains and the "double-stack" revolution of the late 1980s.[2]

Third Generation Intermodal Technology

The increase in fuel costs affecting all modes of transportation in the late 1970's increased interest in rail intermodal transportation. Further, the increase in allowable trailer lengths from first 40, then to 45, then to 48, then to 53 feet, caused the reconfiguration of the intermodal car fleet to reduce or eliminate the railcar tare weight and accommodate a variety of longer (and sometimes, heavier) vehicles and containers. As a result of these innovations, the boxes and their contents enjoy a vastly smoother ride.

The Double-Stack "Revolution"

The biggest shift in intermodal transportation resulted from the development of the double-stack container car. Entering land-bridge service in the late 1980's, these trains could fit within existing passing tracks and yet give as many as 260 forty-foot containers a smooth, fuel-efficient ride across the United States. Since fully balanced traffic could only be achieved with a loaded backhaul, tariffs and service patterns evolved which popularized previously lightly patronized domestic containerized freight traffic.

Railroad and trucking line participation in soliciting and handling this water-related COFC traffic created the "critical mass" necessary to get purely domestic containerization - much of it not containership compatible - off the ground. As a result, most domestic intermodal traffic has shifted from trailers to containers. Overall, container loadings have exceeded those of trailers since 1992.[3]

Recognition of the importance to industrial localities, and especially seaports, of access to double-stack traffic is illustrated by governmentally assisted projects to help railroads

[2] Ibid., 230.
[3] Ibid., 233.

eliminate tunnel and bridge bottlenecks. An example is Pennsylvania's state program to allow unrestricted (stacked 9 ft 6 in. high boxes) entry to the Philadelphia area.[4]

Intermodal Equipment Utilization

Because intermodal railcars are loaded and unloaded quickly, travel in expedited trains, and achieve a high back-haul rate (typically over 90% of car-miles loaded), the fleetwide average of 48 revenue loads per platform per year is more than three times that achieved by freight cars in general.[5]

Intermodal Facilities in Alabama

The majority of intermodal facilities in Alabama are associated with the State Port of Mobile. Four of the five Class I carriers that do business in Alabama operate rail service with access to the State Port. These railroad companies are CSX Transportation, Canadian National/Illinois Central, Norfolk Southern, and Burlington Northern Santa Fe. Each of these railroad companies has facilities in the vicinity of the Alabama State Docks that can handle TOFCs and COFCs, except Norfolk Southern.

Other intermodal services in Alabama are located in Huntsville and Birmingham. In Huntsville, Norfolk Southern provides service to the International Intermodal Center (IIC). The IIC is owned and operated by the Huntsville-Madison County Airport Authority and is capable of handling TOFC and COFC shipments by truck, rail or air. The IIC is located in Foreign Trade Zone #83 and has U.S. Custom and Brokers on site. In Birmingham, Burlington Northern Santa Fe operates an intermodal facility in close proximity to the intersection of U.S. Interstate Highways 20, 59, and 65. This facility handles both TOFC and COFC shipments.

Another type of intermodal facility is called a transfer facility. These facilities primarily operate along Class III rail lines and are classified as intermodal only because they transfer goods from one transportation mode to another. They are simple by comparison to intermodal facilities that handle trailers and containers. Those facilities are more-so part of a network of main lines and intermodal centers that systematically move goods through North America in a highly efficient manner. Transfer facilities are basically an area of land with a rail siding where bulk and pneumatic transfer can occur. They usually have storage space available and sometimes a truck scale. The following Class III railroads reported operating transfer facilities when asked about intermodal capabilities: Alabama & Florida Railway, Alabama Railroad, and the Three Notch Railroad. An inventory of intermodal facilities located in Alabama is displayed in Table 6.1 on page 6.5.

[4] Ibid., 234.
[5] Ibid.

Table 6.1
Alabama Intermodal Facilities

	Facility Location	*Facility Types*	*Description of Facilities*
CLASS I	**Norfolk Southern (NS)**		
	Huntsville	TOFC, COFC	The facility is located at the Huntsville International Airport Intermodal Center. Terminal capabilities: TOFC, COFC, Stack cars, bottom and top lift.
	CSX Transportation (CSX)		
	Mobile	Port, TOFC, COFC	Handles TOFC and COFC; in vicinity of Alabama State Docks
	Canadian National/Illinois Central (CN/IC)		
	Mobile	Port, TOFC, COFC	Handles TOFC and COFC, owned by CN, rail partners with BNSF; in vicinity of Alabama State Docks
	Burlington Northern Santa Fe (BNSF)		
	Birmingham	TOFC, COFC	Handles TOFC and COFC
	Mobile	Port, TOFC, COFC	Owned by CN, BNSF is a rail partner, handles TOFC and COFC; in vicinity of Alabama State Docks
CLASS III	**Alabama & Florida Railway (AF)**		
	Opp	Transfer	Reload Center- The facility is located in between a large railroad wye track facility and is very suitable for bulk and pneumatic transfer. Storage is available. Freight House- Cross dock activities can be performed at this facility which has available space for loading and unloading 2 box cars and 3 trucks. Storage space is available (approx. 15,000 sq. ft.).
	Sanford	Transfer	A two-acre tract of land with a small siding.
	Babbie	Transfer	A six-plus acre site with two rail sidings. Good access and foundation for truck scale.
	Alabama Railroad (ALAB)		
	Monroeville	Transfer	A large area for for bulk or pneumatic transfer with space available for storage.
	Birmingham Southern Railroad (BS)		
	Port Birmingham	Port	BS provides rail service to Port Birmingham, a rail-to-barge and barge-to-rail transfer facility, operated by the Warrior and Gulf Navigation Company, strategically located on the Warrior-Tombigbee Waterway System.
	Tennessee Southern Railroad (TSRR)		
	Florence	Port	TSRR is capable of providing exchange between river barge and railroad or truck transportation by utilizing a 40 ton overhead crane to unload commodities such as steel coils and aluminum. Bulk commodities such a sand, potash, and sulphate can also be handled barge to rail/truck and rail/truck to barge.
	Terminal Railway Alabama State Docks (TASD)		
	Mobile	Port, TOFC, COFC	There is one intermodal container crane on the docks at Pier 2. A new crane, a Gottwald harbor crane with a 110-ton lift capacity and a 75-foot reach, has recently arrived for use at Piers 2 and 5. The new crane will be used to increase container movements at the main docks complex while planning and preparation is being made for a major intermodal/ container terminal at Choctaw Point.
	Three Notch Railroad (TNHR)		
	Georgiana	Transfer	A 15-car track for bulk and pneumatic transfer. Storage space is available.

Chapter 7. Passenger Rail

In the history of passenger service in North America, railroads have played a relatively minor role in the business. Currently, less than five percent of U.S. railroad revenue is from passenger services. In recent years, however, there has been increasing interest in various forms of rail service - from light rail mass transit lines to high-speed inter-city service - throughout the country. This chapter reviews the range of rail services generally available in the United States, the current rail passenger service available in Alabama, and the possibility for improved passenger service (i.e., high-speed rail) in Alabama.

Overview of Passenger Rail Service in the U. S.

There is a wide spectrum of rail passenger systems currently in service in the United States, ranging from short light rail lines (trolleys) through intercontinental passenger train service (Amtrak). The U. S. Department of Transportation separates railroad passenger service into two basic categories:

- Primary service, where the line exists because of the passenger service provided; and
- Ancillary service, where other traffic predominates, at least on a revenue basis.

In the following tabular pages, typical characteristics of seven different passenger systems are summarized in order to help to define and explain the different systems. Further, brief narrative discussions of the different passenger rail systems are provided below.

Light Rail Systems

Light rail is the fastest growing segment of rail transit, with passenger-miles increasing some 78% between 1978 and 1994.[1] Light rail has been able to gain adherents and riders through the use of high-capacity articulated cars in trains carrying up to 1,500 to 6,000 passengers per hour at peak periods with proven reliability, and by utilizing existing rail freight corridors to the suburbs.

Light rail passenger service has specifically become an increasingly popular alternative to bus transit. As of 1995, there were some sixteen light rail systems either in service or under construction that were not in existence in 1978. Judged by ridership, environmental impacts, and farebox cost-coverage ratios, light rail is an increasingly attractive and significant alternative to bus transit, including dedicated busways.

[1] John H. Armstrong, The Railroad: What It Is, What It Does (Omaha, NE: Simmons-Boardman Books, Inc., 1999), p. 243.

Mass Transit - Light Rail

Typical Train Consist:	Single or Two-Car Articulated "Light Rail Vehicles"
Typical Passenger Accommodations:	Single-Deck Limited Seating + Standees
Fare Structure, Sale & Collection:	Flat-Fare, Single-Trip Farebox or Machine Ticket + Random Inspections

Schedules:

Trips/Day (each way per line):	50-150
Min. Headway (rush hr. per track):	5 minutes
Hours of Service:	Day, Evening, Limited Weekends
Miles Between Stops:	0.2
Typical Length of Route (mi.)	10
Average Speed (incl. stops):	15
Maximum Speed:	50

Right-of-Way

Principal Locations, Exclusivity:	Surface Street or Private R-O-W (With Grade Crossings)
Other Non-Passenger Rail:	None, or Limited Freight
Number of Tracks:	2
Signaling/Control:	ABS (on Private R-O-W)
Station Platforms:	Low

Train Characteristics

Propulsion/Power Distribution/ Voltage:	Electric, Overhead Trolley Wire, Low Voltage DC
Cars per Train	1-4
Train Weight/Passenger (lb.)	300 (With Standees)
Acceleration, mph/sec @ med spd:	4.5
Acceleration Control:	Operator
Braking:	Dynamic/Air/Magnetic

Notes:

Limited seating + Standees = 125-200 psgrs/car. Low Density = 40 psgrs/car. Medium Density = 70 psgrs/car. Single-Deck Commuter = 100 psgrs/car. Double-Deck = 160 psgrs/car.

ABS = Automatic Block Signals. ATC = Automatic Train Control. CTC = Centralized Traffic Control.

Low Voltage = 600-750 volts. High Voltage = 11-25 kilovolts

Source: John H. Armstrong, The Railroad: What It Is, What It Does, 1999.

Mass Transit - Heavy Rail Transit - Urban

Typical Train Consist:	Self-Propelled, Mulitple Unit Passenger Cars
Typical Passenger Accommodations:	Single-Deck Limited Seating + Standees
Fare Structure, Sale & Collection:	Flat or Zone, Single Trip Fare, Machine Issued, Turnstile, Collection

Schedules:

Trips/Day (each way per line):	100-200
Min. Headway (rush hr. per track):	1.5 minutes
Hours of Service:	Day, Evening, Weekends
Miles Between Stops:	0.5 Local, 1.5 Express
Typical Length of Route (mi.)	15
Average Speed (incl. stops):	25
Maximum Speed:	55

Right-of-Way

Principal Locations, Exclusivity:	Tunnel, Elevated Surface (No Grade Crossings)
Other Non-Passenger Rail:	None
Number of Tracks:	2 to 4
Signaling/Control:	ABS/ATC
Station Platforms:	High

Train Characteristics

Propulsion/Power Distribution/ Voltage:	Electric-Third Rail, Low Voltage DC
Cars per Train	2-12
Train Weight/Passenger (lb.)	450 (with Standees)
Acceleration, mph/sec @ med spd:	3.5
Acceleration Control:	Automatic
Braking:	Electro-Pneumatic

Notes:

Limited seating + Standees = 125-200 psgrs/car. Low Density = 40 psgrs/car. Medium Density = 70 psgrs/car. Single-Deck Commuter = 100 psgrs/car. Double-Deck = 160 psgrs/car.

ABS = Automatic Block Signals. ATC = Automatic Train Control. CTC = Centralized Traffic Control.

Low Voltage = 600-750 volts. High Voltage = 11-25 kilovolts

Source: John H. Armstrong, The Railroad: What It Is, What It Does, 1999.

Mass Transit - Heavy Rail Transit - Commuter

Typical Train Consist:	Self-Propelled Multiple Unit Passenger Cars
Typical Passenger Accommodations:	Single-Deck, Full Seating + Limited Standees
Fare Structure, Sale & Collection:	Graduated Single Trip Fare Machine-Issued, Fare Gate Collection

Schedules:

Trips/Day (each way per line):	25-150
Min. Headway (rush hr. per track):	3 minutes
Hours of Service:	Weekday, Evening, Weekend, Limited Night Owl
Miles Between Stops:	1.5
Typical Length of Route (mi.)	25
Average Speed (incl. stops):	35
Maximum Speed:	75

Right-of-Way

Principal Locations, Exclusivity:	Elevated Tunnel, Surface (No Grade Crossings)
Other Non-Passenger Rail:	None
Number of Tracks:	2
Signaling/Control:	ABS/ATC
Station Platforms:	High

Train Characteristics

Propulsion/Power Distribution/ Voltage:	Electric-Third Rail, Low Voltage DC
Cars per Train	4-12
Train Weight/Passenger (lb.)	700
Acceleration, mph/sec @ med spd:	3.0
Acceleration Control:	Computer
Braking:	Dynamic/Electro-Pneumatic

Notes:

Limited seating + Standees = 125-200 psgrs/car. Low Density = 40 psgrs/car. Medium Density = 70 psgrs/car. Single-Deck Commuter = 100 psgrs/car. Double-Deck = 160 psgrs/car.

ABS = Automatic Block Signals. ATC = Automatic Train Control. CTC = Centralized Traffic Control.

Low Voltage = 600-750 volts. High Voltage = 11-25 kilovolts

Source: John H. Armstrong, The Railroad: What It Is, What It Does, 1999.

Railroad - Commuter - Primary

Typical Train Consist:	Self-Propelled Multiple-Unit Passenger Cars
Typical Passenger Accommodations:	Single- or Double-Deck + Limited Standees
Fare Structure, Sale & Collection:	Multi-Ride, Zone-Fare, Agent-Sold, Flash Ticket

Schedules:

Trips/Day (each way per line):	25-75
Min. Headway (rush hr. per track):	3 minutes
Hours of Service:	Rush Hour, Limited Off-Peak, Evening
Miles Between Stops:	2.5 Local; Up to 20 Express
Typical Length of Route (mi.)	35
Average Speed (incl. stops):	30 Local; 45 Express
Maximum Speed:	79 (ABS); 100 (Cab Signals)

Right-of-Way

Principal Locations, Exclusivity:	Surface, Tunnel (No Grade Crossings)
Other Non-Passenger Rail:	Limited Freight
Number of Tracks:	2 to 6
Signaling/Control:	ABS/ATC
Station Platforms:	High

Train Characteristics

Propulsion/Power Distribution/ Voltage:	Electric-Overhead Catenary/High Voltage AC; Third-Rail/Low Voltage DC
Cars per Train	2-12
Train Weight/Passenger (lb.)	800
Acceleration, mph/sec @ med spd:	3.0
Acceleration Control:	Automatic
Braking:	Electro-Pneumatic

Notes:

Limited seating + Standees = 125-200 psgrs/car. Low Density = 40 psgrs/car. Medium Density = 70 psgrs/car. Single-Deck Commuter = 100 psgrs/car. Double-Deck = 160 psgrs/car.

ABS = Automatic Block Signals. ATC = Automatic Train Control. CTC = Centralized Traffic Control.

Low Voltage = 600-750 volts. High Voltage = 11-25 kilovolts

Source: John H. Armstrong, The Railroad: What It Is, What It Does, 1999.

Railroad - Commuter - Ancillary

Typical Train Consist:	Locomotive-Hauled or Self-Propelled (Multiple Unit or Fixed-Consist) Passenger and Snack Cars
Typical Passenger Accommodations:	Single- or Double-Deck + Limited Standees
Fare Structure, Sale & Collection:	Multi-Ride Zone Fare, Agent-Sold, On-Train Ticket Collection

Schedules:

Trips/Day (each way per line):	1-25
Min. Headway (rush hr. per track):	10 minutes
Hours of Service:	Rush Hour Weekday
Miles Between Stops:	3.0
Typical Length of Route (mi.)	50
Average Speed (incl. stops):	35
Maximum Speed:	79

Right-of-Way

Principal Locations, Exclusivity:	Surface (Some Grade Crossings)
Other Non-Passenger Rail:	Freight
Number of Tracks:	2
Signaling/Control:	ABS
Station Platforms:	Low

Train Characteristics

Propulsion/Power Distribution/ Voltage:	Diesel-Electric and Diesel-Hydraulic
Cars per Train	3-18
Train Weight/Passenger (lb.)	1,000
Acceleration, mph/sec @ med spd:	1.0
Acceleration Control:	Operator
Braking:	Automatic Air

Notes:

Limited seating + Standees = 125-200 psgrs/car. Low Density = 40 psgrs/car. Medium Density = 70 psgrs/car. Single-Deck Commuter = 100 psgrs/car. Double-Deck = 160 psgrs/car.

ABS = Automatic Block Signals. ATC = Automatic Train Control. CTC = Centralized Traffic Control.

Low Voltage = 600-750 volts. High Voltage = 11-25 kilovolts

Source: John H. Armstrong, The Railroad: What It Is, What It Does, 1999.

Railroad - Intercity - Corridor

Typical Train Consist:	Locomotive-Hauled or Self-Propelled (Multiple-Unit or Fixed Consist) Passenger and Snack Cars
Typical Passenger Accommodations:	Medium Density Coach/Snack + Limited 1st Class (Low Density)
Fare Structure, Sale & Collection:	Single-Trip, Agent-Sold, Unreserved Accommodations, On-Train collection

Schedules:

Trips/Day (each way per line):	4-40
Min. Headway (rush hr. per track):	12 minutes
Hours of Service:	Daily, Day & Evening
Miles Between Stops:	35, 200 (Express)
Typical Length of Route (mi.)	85-300
Average Speed (incl. stops):	75
Maximum Speed:	79 (ABS); 110-125 (Cab Signal/ATC)

Right-of-Way

Principal Locations, Exclusivity:	Surface (Few Grade Crossings)
Other Non-Passenger Rail:	Freight
Number of Tracks:	1 to 4
Signaling/Control:	ABS/ATC
Station Platforms:	High & Low

Train Characteristics

Propulsion/Power Distribution/ Voltage:	Electric Overhead Catenary, High Voltage AC; Gas Turbine, Diesel-Electric
Cars per Train	4-12
Train Weight/Passenger (lb.)	2000
Acceleration, mph/sec @ med spd:	1.5
Acceleration Control:	Operator
Braking:	Dynamic/Electric Pneumatic

Notes:

Limited seating + Standees = 125-200 psgrs/car. Low Density = 40 psgrs/car. Medium Density = 70 psgrs/car. Single-Deck Commuter = 100 psgrs/car. Double-Deck = 160 psgrs/car.

ABS = Automatic Block Signals. ATC = Automatic Train Control. CTC = Centralized Traffic Control.

Low Voltage = 600-750 volts. High Voltage = 11-25 kilovolts

Source: John H. Armstrong, The Railroad: What It Is, What It Does, 1999.

Railroad - Intercity - Long-Haul

Typical Train Consist:	Locomotive-Hauled Baggage, Passenger & Non-Revenue Cars
Typical Passenger Accommodations:	Single- or Double-Deck Low-Density Coach, Lounge, Sleeping, Dining
Fare Structure, Sale & Collection:	Single-Trip, Agent-Sold, Reserved Accommodations, On-Train Collection

Schedules:

Trips/Day (each way per line):	1 or 2 - 4
Min. Headway (rush hr. per track):	N. A.
Hours of Service:	Daily (or Tri-Weekly) Overnight(s)
Miles Between Stops:	80
Typical Length of Route (mi.)	300-2,500
Average Speed (incl. stops):	50
Maximum Speed:	79 (ABS); 90 (ATS Cab Signals)

Right-of-Way

Principal Locations, Exclusivity:	Surface (Many Grade Crossings)
Other Non-Passenger Rail:	Freight
Number of Tracks:	1 to 2
Signaling/Control:	CTC/ABS
Station Platforms:	Low

Train Characteristics

Propulsion/Power Distribution/ Voltage:	Diesel-Electric
Cars per Train	4-18
Train Weight/Passenger (lb.)	5,500
Acceleration, mph/sec @ med spd:	0.3
Acceleration Control:	Operator
Braking:	Automatic Air

Notes:

Limited seating + Standees = 125-200 psgrs/car. Low Density = 40 psgrs/car. Medium Density = 70 psgrs/car. Single-Deck Commuter = 100 psgrs/car. Double-Deck = 160 psgrs/car.

ABS = Automatic Block Signals. ATC = Automatic Train Control. CTC = Centralized Traffic Control.

Low Voltage = 600-750 volts. High Voltage = 11-25 kilovolts

Source: John H. Armstrong, The Railroad: What It Is, What It Does, 1999.

Heavy Rail Transit

"Heavy rail" rapid transit systems are characterized by an exclusive right-of-way, usually to accommodate the use of electric third rails. North American steel rail systems have typically been designed for 70 to 75 mph speeds with computerized train control (CTC) in which the operator serves primarily a monitoring and emergency manual-control function. Their traffic patterns approach those of commuter railroads.

Ultimate heavy rail transit line capacity is primarily a matter of the number of doors per train. The governing factor is the rate at which passengers can get off and on. With a train consist of eight 75-foot cars and 90-second headways, a rush-hour line capacity of 40,000 riders per hour can be achieved. That means that within the 12-foot width of a single track, capacities can be reached that exceed that of a typical 20-lane expressway dominated by single-occupant vehicles.[2]

Railroad Commuter Service

Commuter services run by freight railroads had been an unprofitable and dwindling enterprise for decades after World War II. After bottoming out in the early 1970s, ridership has tended to increase, to a 30-year high in 1995. Passenger-miles increased 22% to a record 8.0 billion between 1987 and 1994.[3] Although only 16 urban areas in the United States and Canada currently have some commuter rail service, traffic amounts to 700,000 round trips per workday. On average, commuter rail fares cover about 50% of operating costs.

The National Railroad Passenger Corporation (AMTRAK)

Nationwide inter-city train service is provided by Amtrak. The National Railroad Passenger Corp. (Amtrak) was created by act of Congress effective May 1, 1971 to operate a nationwide passenger service over a skeleton network of routes designated by the Secretary of Transportation. In return for contributions of rolling stock, facilities, and cash related to the amount of the deficits they had been incurring in operating intercity passenger service, railroads joining Amtrak were allowed to terminate operation of their existing passenger runs. In 1983, the last of three non-Amtrak inter-city services was taken into the system.

Amtrak Routes and Traffic

Amtrak serves more than five hundred stations in forty-five states. (Those not included are Alaska, Hawaii, Maine, South Dakota, and Wyoming.) Amtrak operates over more than 22,000 route miles. It owns 730 route miles - about 3% of the total nationwide - primarily in the Northeast Corridor between Boston and Washington, D.C. and operates on track owned by freight railroads in other parts of the country, including Alabama. Refer to Figure 7-1, on the following page.

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[2] Ibid.
[3] Ibid., p. 244.

Source: Federal Railroad Administration, 2002.

Figure 7-1
Nationwide Amtrak Service

On weekdays, Amtrak operates up to 265 trains per day, not counting commuter trains. In 1999 Amtrak served some 21.5 million riders. In 2000 they served more than 22.5 million. On any given day, approximately 61,000 riders travel on Amtrak.

While federal Amtrak appropriations have declined steadily, the proportion of passenger-operation expenses paid by fares has risen from less than 50% to 80% in the early 1990s.[4] Fares more than cover all the "above the rail" train operating costs. Despite this, operations remain dependent on the establishment of a continuing program of capital expenditures, primarily for rolling stock (especially sleeping cars), in order to expand service in profitable markets.

Passenger Rail Service in Alabama

Alabama currently has two inter-city passenger rail services operated by Amtrak, the *Crescent* and the *Sunset Limited*, described below and shown in Figure 7-2 on the following page.

The Crescent

The Crescent makes one trip daily each way between New Orleans and New York via Hattiesburg, Meridian, Tuscaloosa, Birmingham, Anniston, Atlanta, and Washington. The Crescent stops at the following stations in Alabama:

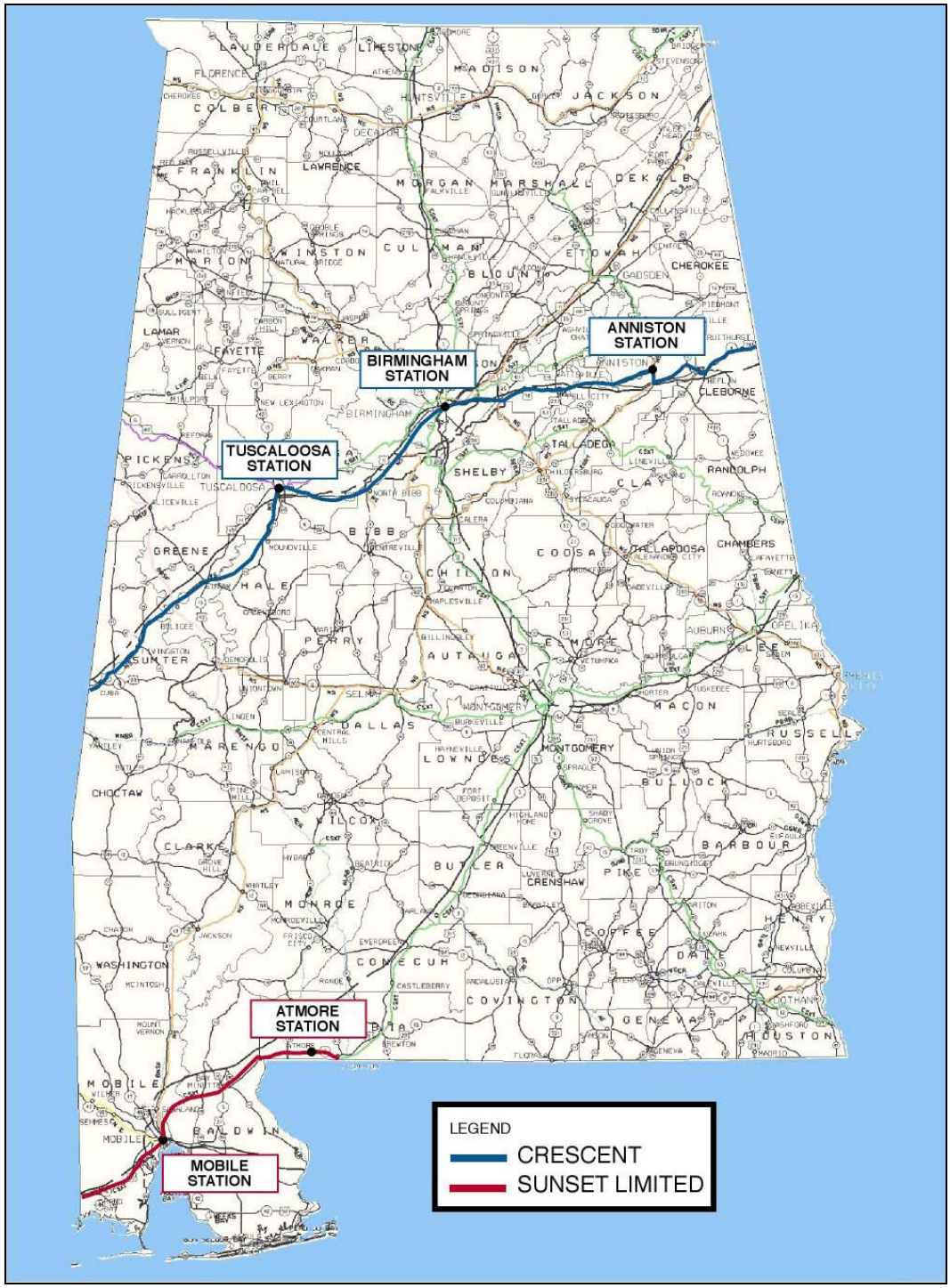
- Anniston (ATN) 126 4th Street

  Services
  - This is an unstaffed station
  - Enclosed waiting area
  - Restrooms
  - Payphones
  - Free short and long term parking
  - Local transportation: taxis on call

- Birmingham (BHM) 1829 Morris Ave.

  Services
  - Staffed station
  - Checked baggage service
  - Help with baggage
  - Enclosed waiting area
  - Restrooms (continued)

[4] Ibid., p. 245.



Source: 1998 Alabama Rail map as modified by BKI, 2001.

Figure 7-2
Current Amtrak Service in Alabama

- Payphones
  - Paid short and long term parking
  - Local transportation: taxis on call

- Tuscaloosa (TCL) 2105 Greensboro Ave.

  Services
  - Staffed station
  - Checked baggage service
  - Enclosed waiting area
  - Restrooms
  - Payphones
  - Free short and long term parking
  - Vending
  - Accessibility: partially accessible to persons using wheelchairs
  - Local transportation: taxis on call

The Sunset Limited

The Sunset Limited makes three round-trips a week between Los Angeles and Jacksonville via Houston, Lafayette, New Orleans, Bay St. Louis, Gulfport, Biloxi, Pascagoula, Mobile, Atmore, and Pensacola. Refer to Figure 7-2. The Sunset Limited stops at the following stations in Alabama:

- Atmore (ATR) 107 E. Louisville St.

  Services
  - This is an unstaffed station
  - Enclosed waiting area
  - Payphones
  - Free short and long term parking
  - Accessibility: partially accessible to persons using wheelchairs

- Mobile (MOE) 11 Government St.

  Services
  - Staffed location
  - Checked baggage service
  - Enclosed waiting area
  - Restrooms
  - Payphones
  - Paid short term parking
  - Accessibility: fully accessible to people using wheelchairs
  - Local transportation: taxis on call and transit service available

Ridership

The following table presents the Total Station Boardings and Alightings for the five Amtrak stations in Alabama for the past two fiscal years, 2000 and 2001.

Table 7.1
Amtrak Boardings and Alightings in Alabama, 2000-2001

City	Train Route	FY 2000	FY 2001	% Change
Anniston	Crescent	5,655	5,885	+ 4.1%
Birmingham	Crescent	30,139	31,397	+ 4.2%
Tuscaloosa	Crescent	11,225	11,547	+ 2.9%
Atmore	Sunset Limited	344	331	- 3.8%
Mobile	Sunset Limited	3,695	2,561	- 30.7%

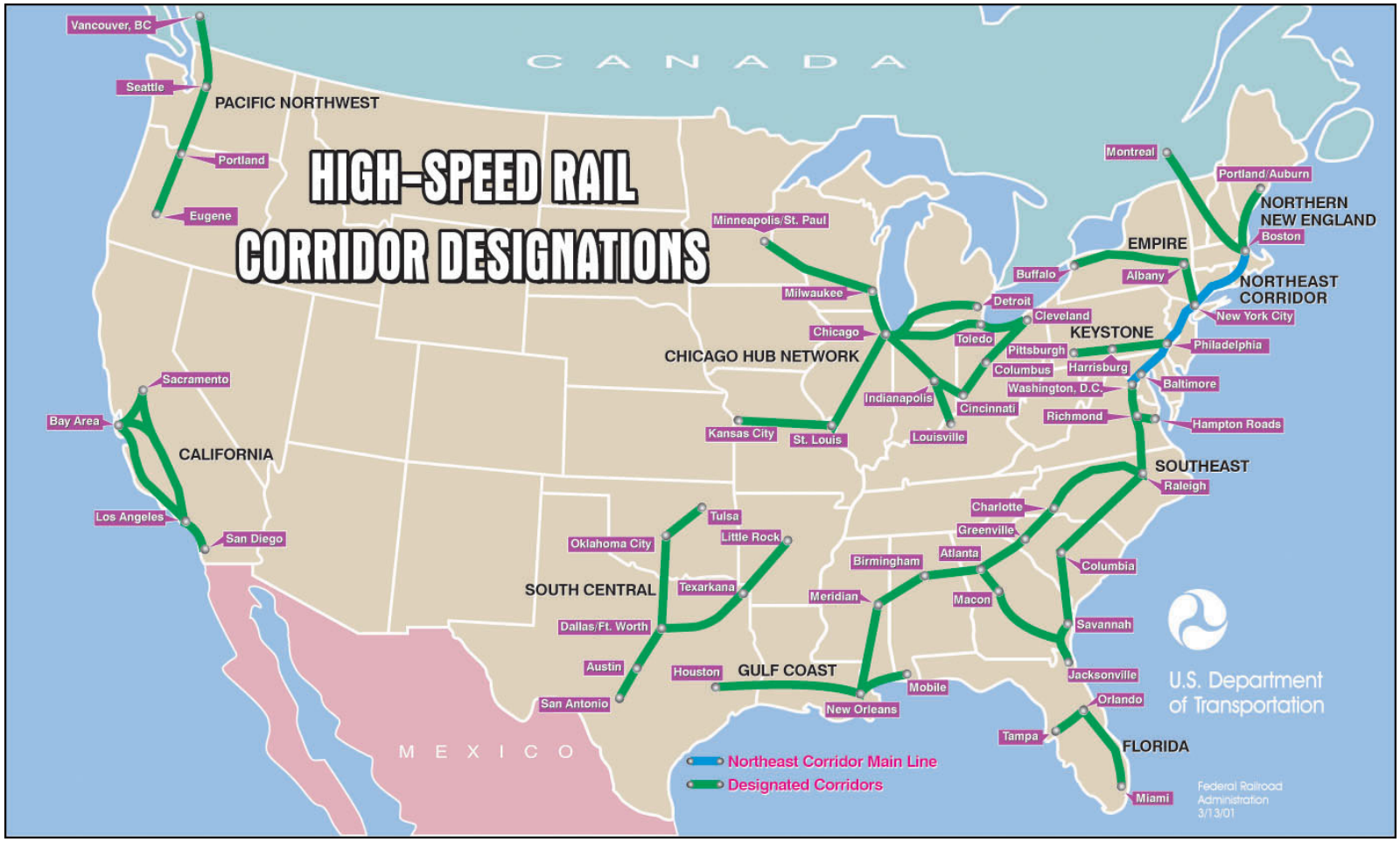
Source: Amtrak, November 2001.

High Speed Passenger Rail Corridors

In recent years, the nation has become increasingly interested in furthering the development of high-speed ground transportation. Buoyed by the success of the Northeast Corridor, other sections of the country have been promoting high-speed rail corridors and other technologies in their regions. The federally designated high-speed rail corridors in the U. S. are shown in Figure 7-3 on the following page.

High-speed rail is generally meant to encompass passenger service operating at a "cruising" speed of 125 mph (200 kmph) or higher between station-pairs, where resulting downtown-to-downtown journey times are competitive with airplanes for business travelers. Within this concept, the rail technology employed ranges from the conventional to the experimental.[5] (The Federal Railroad Administration is currently sponsoring a competition to deploy a demonstration of "magnetic levitation" transit between two cities on the east coast.) Examples of high-speed rail service are the Japanese 1958 "Bullet Train;" the British Rail HST-125 ("High-Speed Train - 125 mph"); and the French TGV ("Tren a Grande Vitesse") Sud-est.

[5] Ibid., p. 248.



Source: Federal Railroad Administration, 2002.

Figure 7-3
U. S. Designated High Speed Rail Corridors

Typically, high-speed trains are sleek-looking and operate on exclusive, relatively straight track alignments. In contrast to this image, the New York-to-Washington *Metroliner*, a blunt-ended, conventional passenger train, achieves 125 mph over track it shares with heavy freight haulers.

High-speed rail technology in the l990's has taken three distinctive routes: (1) Magnetic Levitation, (2) Steel Wheels, and (3) Tilting Trains. These three technologies are discussed briefly below.

Magnetic Levitation

Magnetic Levitation is divided between those systems using the attraction properties of magnetism and those using the repulsion properties. Both have serious trade-offs. The attraction system requires an extremely precise guideway while and the repulsion-based alternative is less demanding geometrically but has formidable power and control challenges. Both systems can push trains to speeds approaching 300 mph. As of 2001, no "maglev" system is in commercial operation or under construction.

Steel Wheel Technology

While steel wheel technology was initially thought to have its limits at around 100 mph, continued experimentation in the field has produced results that have expanded this technology's horizons. Using a combination of light axle loads, intensive smoothing of the track, and modern suspension design, trains in service have reached speeds 185 mph and more.

Given a scenario where a relatively "straight" route can be followed, this technology can be very economical. In fact, this technology has been selected as appropriate for the essentially curve-free, high-speed rail system link Miami, Orlando, and Tampa.

Tilting Trains

This is an old technology that has been dusted off in order to increase speeds on high-speed corridors without having to make major investments in upgrading the track. Tilting the car body keeps the passenger firmly in his seat but does not alter the direction or magnitude of the wheel rail forces down below, which must remain within the limits of track and car suspension stability. Tilting trains are now in routine service at top speeds above 125 mph in several European countries. Amtrak is introducing tilt train service in its New York to Boston corridor.

High Speed Rail in Alabama

Included in the 1998 Federal Transportation Bill (TEA-21) was the official designation of the Gulf Coast High Speed Rail Corridor. The first phase of the corridor will span the Gulf coast states from Houston, Texas through New Orleans and Mobile to Pensacola, Florida. Planned

expansions will extend service from New Orleans to Atlanta and from Pensacola to Jacksonville. Refer to Figure 7-4 on the following page.

While the alignments of these corridors are not finalized, the Gulf Coast Corridor primarily utilizes the CSXT track between Mobile and New Orleans and the Norfolk Southern track between New Orleans and Atlanta. These corridors are among the highest density freight routes in Alabama for both CSXT and NS, respectively. The CSXT line segment between Mobile and Pascagoula, MS, is primarily single track with a Traffic Control System. The NS line segment between Austell, GA and Meridian, MS, via Birmingham and Tuscaloosa is also primarily single track with a Traffic Control System. At Birmingham, the NS line segment has about eight miles of line with approximately 75 million GTM/M, as well as interlockings with other railroads crossing the NS at grade.

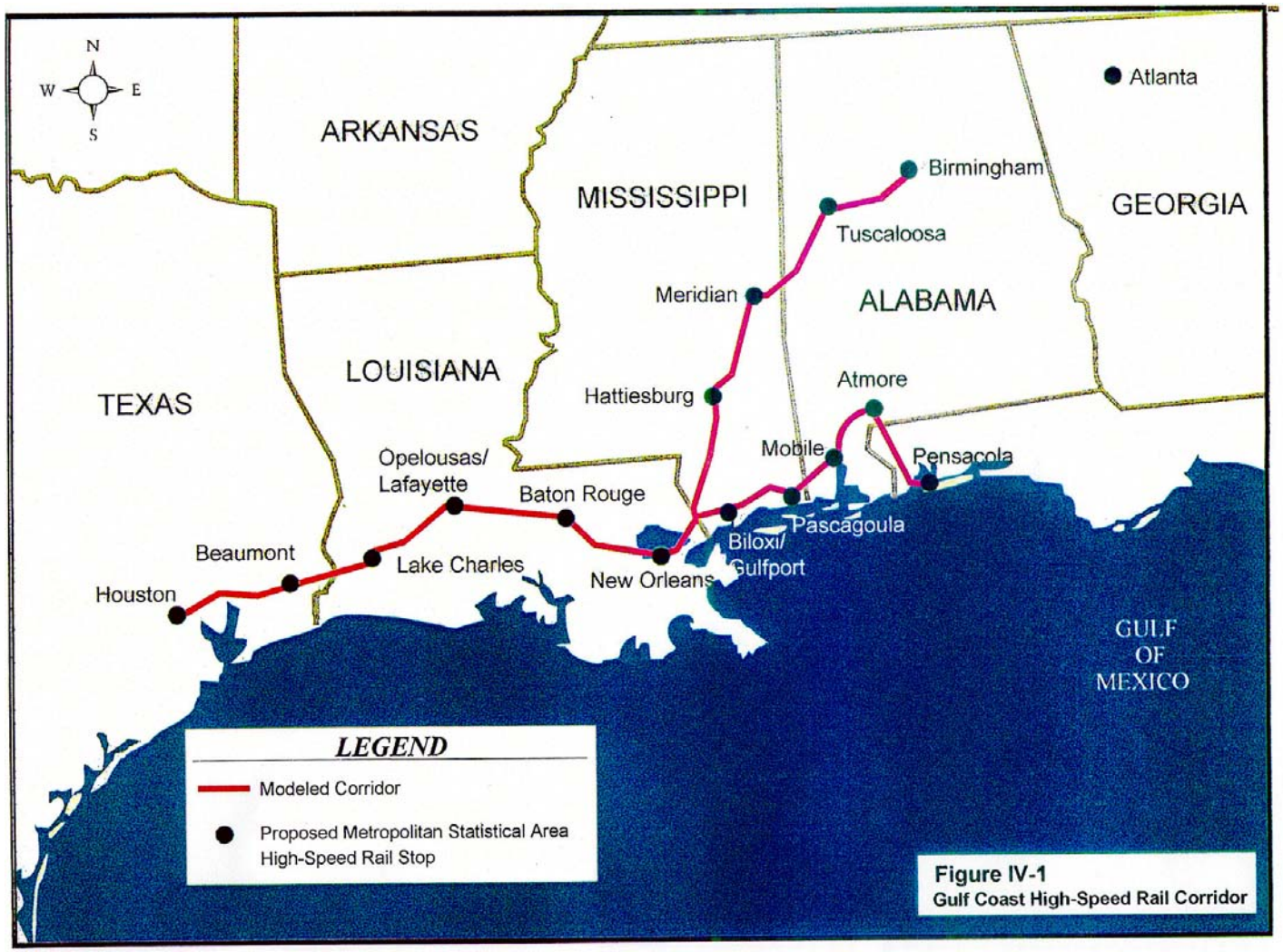
As one of the eleven officially designated high speed rail corridors in the United States, the TEA-21 legislation now makes available to the Gulf Coast certain dedicated federal funds over the next six years for corridor analysis.

The Southern Rapid Rail Transit Commission (SRRTC), originally established in 1982, is a unique bipartisan coalition of state and local elected officials and public and private rail interests throughout the tri-state area of Louisiana, Mississippi, and Alabama. The SRRTC is the entity spearheading the efforts by the three states to bring high-speed rail to the Deep South.

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 had identified five emerging high-speed rail corridors in addition to the existing Northeast Corridor. In 1995 members of the SRRTC initiated efforts to secure designation of what was originally called the Deep South High Speed Rail Corridor. When federal transportation programs were reauthorized by TEA-21 in 1998, the legislation included language granting formal recognition to the Gulf Coast High Speed Rail Corridor.

The corridor had originally been conceived to include only the existing *Sunset Limited* route across Louisiana, Mississippi, and Alabama, with logical termini in Texas (Houston) and Florida (Pensacola). It was subsequently modified to include another essential link in the emerging national high-speed rail network, the route from New Orleans to Atlanta via Hattiesburg, Meridian, Tuscaloosa, and Birmingham.

In 1995 the SRRTC undertook a conceptual feasibility study for high-speed rail service, the *Deep South High Speed Rail Corridor Feasibility Study*, which focused on planning for the corridor extending from Atmore, AL to Lake Charles, LA. A 1999 study, the *Gulf Coast High Speed Rail Corridor Feasibility Study, Phase II*, examined six separate operating scenarios for three proposed routes: Houston to New Orleans, New Orleans to Birmingham, and New Orleans to Pensacola. The six scenarios postulated an increase in peak operating speed from 79 to 90 to 110 mph and service options based on either four or ten one-way trips



Source: Gulf Coast High Speed Rail Corridor Feasibility Study, Phase II, Morrison Knudsen Corporation, 1999.

Figure 7-4
High-Speed Rail Corridors in Alabama

per day. These scenarios were modeled in order to project potential ridership and revenue as well as equipment and facility requirements.

The *Gulf Coast High Speed Rail Corridor Feasibility Study* presented a number of important conclusions regarding the existing corridor, including the following:

- The Gulf Coast High Speed Rail Corridor is capacity-constrained. All of the freight railroad operators have expressed concern about how their operations would be affected by increasing the level of passenger service.

- The Southern Rapid Rail Transit Commission and the states of Alabama, Mississippi, and Louisiana will have to work together to provide incremental capacity improvements on existing freight railroad lines in order to accommodate proposed increases in passenger rail service.

- Increasing the frequency of service will actually contribute more to generating additional ridership than will increasing average operating speeds.

- Connecting the corridor to logical termini in Houston and Atlanta will be critical to its success.

Subsequently, the SRRTC undertook a more detailed study of the Norfolk Southern corridor between New Orleans and Atlanta in order to identify any projected capacity deficiencies on the line that might preclude expanded passenger service. This study, *Capacity and Performance Simulation: Norfolk Southern Alabama Division*, projected the probable impacts of (1) adding more and faster passenger trains, (2) adding more freight trains, and (3) investing in expanded infrastructure to provide the additional capacity required for increased service, to reduce congestion delays, and to improve the average operating speeds of trains traversing the study route.

During this current fiscal year, the SRRTC will be undertaking a detailed corridor study of the New Orleans to Mobile section of the Gulf Coast High Speed Rail Corridor. The study will determine the capacity of the route for additional freight and passenger rail operations, identify points of congestion and projected deficiencies, develop recommendations for needed improvements, and evaluate the anticipated costs and benefits of proposed capital projects.

The SRRTC proposed FY 2002 Gulf Coast High Speed Rail Corridor Development Program includes the following items in Alabama:

- Corridor Planning - It will probably be necessary to realign as much as 132 miles of the route between Birmingham and Atlanta in order to achieve reasonably competitive rates of travel.

- Corridor Development - Track realignment and other capital improvement needs between New Orleans and Atlanta - centralized traffic control (CTC) and train control systems (TCS), new and extended sidings, additional secondary trackage, improved interlocking and new mainline track totaled $357 million.

Appendix 1
History of Rail Abandonments in Alabama, 1971-1992

HISTORY OF RAIL ABANDONMENTS

YEAR/ RAILROAD	DATE OF DECISION	MILEAGE GRANTED	LOCATION	COUNTY
80 EARY	10/01/92	2.40	MP 508.1 to MP 511.7 Service only	Calhoun[1]
79 EARY	10/01/92	12.66	MP 507.73 to MP 508.1 & MP 511.7 to MP 522.79	Calhoun
78 WGRC	07/10/92	2.00	MP 821 to end of line	Coffee
77 SR	05/25/92	58.00	Whistler to Mississippi Line	Mobile & Washington
76 HS	04/29/92	16.00	Taylor to Hartford	Houston & Geneva
75 CHV	11/20/91	9.23	Entire line	Chambers
74 CSXT	05/24/90	13.96	Beatrice to Hybart	Monroe
73 NS	05/23/90	11.00	Piedmont to Georgia line	Calhoun & Cherokee
72 NS	12/31/89	5.10	Vulco to Blocton	Bibb
71 CofG	10/13/89	5.31	Central Junction to McCombs	Jefferson
70 BN	03/27/89	9.40	Dora to Debardeleben	Walker
69 CofG	06/25/89	35.70	Eufaula to Union Springs	Barbour, Bullock
68 CSXT	01/13/89	28.65	Maxwellborn to Georgia Line	Calhoun, Cleburne
67 SOU	01/16/89	3.02	Gurnee Jct to Boothton	Bibb
66 AF	01/24/89	1.70	Opp & Geneva	Covington, Geneva
65 CofG	01/28/89	18.18	Lafayette to Roanoke	Randolph, Chambers
64 SOU	02/19/89	14.00	Jacksonville to Piedmont	Calhoun
63 CofG	03/08/89	45.96	Hurtsboro to Troy	Russel, Bullock, Pike
62 CSXT	11/06/88	2.90	Birmingham	Jefferson
61 SOU	09/26 88	2.63	Isbell to Rockwood	Franklin
60 SOU	08/12/88	3.90	Sheffield to Florence	Colbert
59 CSXT	06/22/88	12.70	Wellington to Maxwellborn	Calhoun
58 CSXT	04/15/88	6.00	Parkwood to Bessemer	Jefferson
57 SOU	02/04/88	18.30	Gadsden to Ewing	Cherokee, Etowah
56 SOU	12/21/87	13.80	Marion Jct. to Marion	Dallas, Perry
55 CSXT	12/09/87	2.50	Lockart to Florida St. Line	Covington
54 A&C*	12/04/87	8.00	Andalusia to Gantt	Covington
53 CSXT	11/05/87	3.92	Chetopa to Vulcan	Jefferson
52 SOU	11/13/87	5.60	Ensley Jct. Valley Creek Jct.	Jefferson
51 SC	08/15/86	3.10	Lilita to Bellamy	Sumter
50 SBD	08/13/86	1.46	End of line at Monroeville	Monroe
49 SBD	04/20/86	71.95	Mahrt to Eastmont	Montg., Macon, Russell
48 SBD	04/12/86	10.20	Athens to Tennessee St. Line	Limestone
47 BN	03/20/86	5.15	Thomas Jct. to 18th Street	Jefferson
46 CofG	02/28/86	6.10	White Oak to Clayton	Barbour
45 ICG	12/09/85	50.00	Tuscaloosa to Maplesville	Tusc., Bibb, Chilton
44 ASR	10/28/85	10.30	York to Lilita	Sumter
43 SOU	09/15/85	17.14	Boothton to Blocton	Bibb
42 SBD	08/24/85	7.18	Anniston to Coldwater	Calhoun, Talladega
41 M&G	07/24/85	11.00	Brownsille to Buhl	Tuscaloosa
40 CofG	07/23/85	36.80	Union Springs to Montgomery	Bullock, Montgomery
39 SBD	06/01/85	50.00	Corduroy to Western Jct.	Monroe, Wilcox, Dallas
38 SBD	06/01/85	16.00	Camden to Camden Jct.	Wilcox

RAILROAD	DATE OF DECISION	MILEAGE GRANTED	LOCATION	COUNTY
37 SOU	11/11/84	39.00	Marion to Akron	Hale, Perry
36 SBD	08/13/84	16.10	Elba to Enterprise	Coffee
35 SBD	04/14/84	5.50	Fayetteville to Gantt	Talladega
34 SBD	04/13/84	36.50	Bay Minette to Foley	Baldwin
33 SBD	02/08/84	6.70	Monmouth to Kimberly	Jefferson
32 SBD	01/16/84	11.30	Geneva to Florida St. Line	Geneva
31 BN	12/09/83	8.46	Winfield to Brookside	Marion
30 SBD	12/07/83	22.03	Huntsville to Tennessee St. Line	Madison
29 SBD	11/27/83	6.38	Elmore to Wetumpka	Elmore
28 SBD	10/03/83	4.20	Boyles to Ruffner	Jefferson
27 BN	09/04/83	2.40	Birmingham Zone 500	Jefferson
26 BN	08/29/83	10.90	Pratt City to Bessemer	Jefferson
25 SBD	06/08/83	15.10	Chetopa to Maxine	Jefferson, Walker
24 LN	12/16/82	9.90	Tacoa to Gurnee Jct.	Shelby
23 SOU	09/13/82	30.80	Goshen to Gantt	Crenshaw, Covington
22 ICG	07/17/82	10.90	Pratt City to Bessemer	Jefferson
21 SOU	03/10/82	23.80	Ewing to Georgia St. Line	Cherokee
20 LN	12/16/81	2.00	Holt Junction	Tuscaloosa
19 LN	12/14/81	1.80	Readers Gap Branch	Jefferson
18 ICG	11/09/81	1.70	Navco Spur	Mobile
17 BS	07/26/81	2.50	Dolonah Branch	Jefferson
16 LN	03/11/80	16.30	Columbiana to Calera	SheIby
15 SOU	11/10/79	4.80	Parrish to Highlevel	Walker
14 SLSF	09/04/79	41.50	Cochrane to York	Pickens, Sumter
13 LN	02/22/78	5.80	Coosa River to Shelby	Shelby
12 LN	02/14/78	3.10	Fayetteville to Coosa River	Talladega
11 SLSF	12/21/77	20.35	Aliceville to Reform	Pickens
10 CofG	07/27/77	39.00	Clayton to Ozark	Dale, Barbour
9 SOU	11/16/76	14.10	Atlanta Jct., Ga. to Piedmont, Al.	Calhoun, Cherokee
8 LN	08/02/76	17.30	Talladega to Coldwater	Talladega
7 LN	01/15/76	17.70	Opp to Florala	Covington
6 ICG	12/15/75	60.90	Tuscaloosa to Boyles Yard	Jefferson, Tuscaloosa
5 SLSF	08/06/75	.10	Bridge spanning Tombigee River	Pickens
4 CofG	08/06/75	18.76	Lafayette to Roanoke	Chambers, Randolph
3 CHV	12/07/72	18.80	All of Lee & part of Chambers	Chambers, Lee
2 CofG	05/19/72	36.32	Eufaula to Union Springs	Barbour, Bullock
1 SOU/SBD	04/19/71	2.27	City of Birmingham	Jefferson
TOTAL		1,253.97		

* Track in place

1 Mile post do not agree with distance due to prior abandonment of passenger main track. Norfolk Southern obtained trackage to serve shippers.

MILEAGE APPROVED FOR ABANDONMENT BY YEAR

1971	2.27	1976	49.10	1981	8.00	1987	33.82
1972	55.12	1977	59.35	1982	75.40	1988	46.53
1973	0	1978	8.90	1983	69.47	1989	167.02
1974	0	1979	46.30	1984	115.10	1990	24.96
1975	79.76	1980	16.30	1985	198.42	1991	9.23
				1986	97.86	1992	91.06
						TOTAL	1,253.97

Appendix 2
Abandonments & Alternatives to Abandonment

OVERVIEW:

Abandonments
&
Alternatives to Abandonments

Office of Public Services
Surface Transportation Board
Washington, D.C. 20423
(202) 565-1592
April, 1997

- P R E F A C E -

This handout was prepared by the Surface Transportation Board's (STB) Office of Public Services (OPS). OPS was created to help the public participate meaningfully in STB proceedings. As part of that effort, this paper explains the standards and procedures governing abandonments. It also discusses alternative means of preserving service, including the subsidy and purchases of lines that might otherwise be abandoned.

This paper is not an agency statement approved by the STB, but OPS believes it provides a good overview of these subjects. For readers who want to explore these issues in more detail, OPS has also prepared an information bulletin entitled "So You Want to Start a Small Railroad, Surface Transportation Board Small Railroad Application Procedures"

If you want copies of these publications or have questions, please contact OPS at (202) 565-1592. One of our staff attorneys will be glad to help you.

TABLE OF CONTENTS

I. OVERVIEW

By the mid-1970's, our nation's rail transportation system was in dire financial condition. Rail carriers were faced with increased competition from other modes of transportation (especially trucking), rising labor, fuel and maintenance expenses, and pervasive regulation that made it difficult for rail carriers to get rid of unprofitable lines. These conditions had contributed to the bankruptcy of several prominent rail carriers.

Against this background, Congress enacted a series of new laws, most notably the Staggers Rail Act of 1980 (Staggers Act). Together with the implementing regulations issued by the Interstate Commerce Commission, the STB's predecessor, this legislation sought to increase the role of the marketplace, rather than government regulation, in shaping rail transportation. In essence, the Staggers Act gave railroads more flexibility to set prices and adjust service as the market requires and thus enabled them to act more competitively. At the same time, the necessity for some regulatory protection was recognized because rail carriers still have significant market power in particular situations and because rail transportation is sometimes vital to the public. The current regulatory scheme governing abandonments and acquisitions to preserve service seeks to balance these competing considerations.

Where the market has spoken clearly and regulation is found to be unnecessary, a rail carrier may usually abandon a line, subject to appropriate labor protection and environmental conditions. Indeed, lines over which no local traffic has moved for two years without any formal complaint have been exempted from traditional regulatory scrutiny and can be abandoned simply by filing a notice with the STB.

Under the more detailed abandonment application process for active lines, the Board balances the economic burden of continued operation against the public's need for the service. Permission usually will be given to abandon lines on which there are significant operating losses. On the other hand, the carrier's ability to earn more money by disinvesting from a line and reinvesting its assets elsewhere usually is not sufficient to allow abandonment in the face of a strong public need for service.

Although it may be easier for carriers to abandon unprofitable rail lines, it is also now much easier for States and private parties to preserve rail service. The Feeder Railroad Development Program enables any financially responsible person to force a rail carrier to sell a line that has been designated for possible abandonment, even though no abandonment application has been filed. Similarly, once an abandonment application is filed for a line, financially responsible parties can offer to subsidize the carrier's service or force the railroad to sell them the line for continued rail service. To encourage entrepreneurs and the States to operate these lines, the Board has frequently exempted them from many regulatory requirements. Also, they can often avoid expensive labor protective conditions.

With this general background, we will first set out the standards and procedures that govern formal applications to abandon a line (Part II). We will then discuss exemptions, a widely used alternative to the more detailed abandonment application process (Part III). Several alternative ways of preserving rail service will be reviewed (Part IV), including the purchase or subsidy of lines slated for abandonment. The role labor plays in these cases will be examined (Part V). Finally, we explore alternative means of preserving rail rights-of-way through rail banking (Part VI).

In 1995, Congress enacted the "ICC Termination Act" which abolished the Interstate Commerce Commission and established the Surface Transportation Board to handle rail abandonments, *inter alia.* The new statutory reference is 49 U.S.C. 10903. The new rules are codified at 49 CFR Parts 1105 and 1152. A quick summary of the changes to 49 CFR 1152, which became effective on January 23, 1997, is included at Appendix I. The full text of the new rule is at Appendix IV.

II. ABANDONMENTS

Under the ICC Termination Act of 1995 (Act), a railroad may abandon a line only with the STB's permission. The Board must determine whether the "present or future public convenience and necessity require or permit" the abandonment. In making this determination, the Board balances two competing factors. The first is the need of local communities and shippers for continued service. That need is balanced against the broader public interest in freeing railroads from financial burdens that are a drain on their overall financial health and lessen their ability to operate economically elsewhere.

The railroad first must show how continued operation of the line would be a burden to it. If it cannot establish this, the abandonment will be denied. However, the railroad does not have to show an actual operating loss. It may also calculate its "opportunity costs" for the line. These are the costs of tying up the railroad's assets in the line when those assets could earn more money elsewhere.

If the railroad does demonstrate a burden, then evidence of the public's need for continued service is examined. The effect on local businesses, surrounding communities, the local economy, and the environment may be considered. Parties opposing abandonment should present that evidence and should also challenge the railroad's financial data.

With this general introduction, we will now address in more detail the steps in the abandonment process and the kinds of factors and evidence the Board considers in deciding these cases.

A. Steps In The Abandonment Process

The Act establishes strict filing and procedural requirements for abandonment applications. (49 U.S.C. 10904). The STB has adopted regulations to implement these requirements. These regulations are found at 49 CFR 1152.

Once an abandonment application is filed, interested parties have only 45 days to file protests. Yet, an effective opposition to abandonment requires substantial preparation. The Act, therefore, also gives communities and shippers advance notice of a railroad's abandonment plans.

1. System Diagram Map

The earliest indication that a railroad intends to abandon a line comes from the carrier's system diagram map. The Act requires a rail carrier to maintain a map of all its rail lines. A Class III carrier may choose to prepare a narrative description of its lines instead of a map. On this system diagram map or in its narrative report, the carrier must identify separately (1) any line for which it expects to file an abandonment application within the next three years and (2) any line that it considers to be a potential candidate for abandonment. The Board will reject an abandonment application if any part includes a line that has not been identified as a category 1 line (abandonment application planned within 3 years) for at least 60 days before the carrier filed the abandonment application. A carrier must publish its system diagram map or narrative in a newspaper of general circulation in each county containing a rail line in category 1, and publish all subsequent changes to its system diagram map. (The system diagram map rules are found at 49 U.S.C. 10903(c)(2) and 49 CFR 1152.10-13.)

Thus, the first indication that a railroad intends to abandon a line comes at least 60 days before the carrier's application is filed. This time should not be wasted. It gives shippers, local and State governments, and interested citizens an opportunity to meet to weigh possible opposition to abandonment, and to consider alternative means of continuing rail operations by the current railroad or another operator. For example, rate and service changes which might permit the railroad to operate more efficiently or profitably may be negotiated.

A line need not have been listed in category 2 (potentially subject to abandonment) prior to abandonment, so no weight should be attached to the fact that a line was or was not listed in category 2.

2. Notice of Intent

In addition to the system diagram map requirement, the STB requires the railroad to file a "Notice of Intent" to abandon. The railroad must publish this notice once a week for three consecutive weeks in general circulation newspapers in each country where the line is located, send it to each of the significant shippers on the line, send it to the State agency responsible for rail transportation planning, and post it at each agency station and terminal on the line. All these notice requirements must be fulfilled 15-30 days before the application is filed at the STB.

The complete form and all the information this notice must contain are set out in Section 1152.21 of the regulations. The notice describes when and how to file a protest to the proposed abandonment. It also explains how to obtain information on possible subsidy or purchase of the line. Once the Notice of Intent to abandon is received, shippers, communities, and interested citizens should organize their activities concerning the abandonment and prepare to present their position to the STB and the railroad. For help in preparing a Notice of Intent or preparing an opposition to an abandonment, please contact OPS at (202) 565-1592.

3. Abandonment Application

The abandonment application must contain detailed information about the costs and revenues on the line to be abandoned and the overall financial condition of the carrier. (A complete recitation of what must be in the application is found at 49 CFR 1152.22.) Any interested person may request a copy of the application from the carrier, and persons planning to participate should obtain a copy as soon as the application is filed and immediately begin to examine the information carefully.

Abandonment applications may contain pages of figures, tables, charts, and graphs, some of which may be less important than other parts. Opponents should make an effort to verify and, if appropriate, recalculate and reconcile key figures and totals. Shippers and small communities often lack the expertise to sort out rail financial data or the money to hire experts to do it for them. State rail officials can help in this area and should be contacted for assistance.

A railroad may ask the Board to waive certain informational requirements. For example, a railroad is normally allowed to exclude data concerning overhead or bridge traffic (shipments not actually originated or terminated on the line sought to be abandoned) if it would retain that traffic by rerouting it over other routes. However, an opponent who believes relevant information has been left out, should appeal the waiver explaining why the information is necessary. If the Board agrees, it will rescind the waiver and require the information.

4. Protests or Comments To The Proposed Abandonment

Once an application is filed, protestants have only 45 days to submit protests.[(1)] Protests should attempt to quantify the harm to shippers and the community and explain each protestant's interest in continued service. If possible, they should also try to critically evaluate the railroad's financial evidence. Section 1151.25(a) of the regulations lists all the information that should be in the protest.

All larger shippers and every community on the line should submit statements describing in detail their use of the line and the impact a loss of rail service will have on their operations and area. Opposition from elected officials from both the local and national level is also very helpful.

Shippers should submit car loading data and estimates of future use -- the best are showings of projected increased traffic. They should also point out any defects in the

carrier's cost data. Communities and shippers should make every effort to quantify the harm from abandonment.

Protestants should describe their interest in the proceeding in as much detail as possible. For instance, if the line sought to be abandoned is used for grain shipments and the protestant is a grain producer, the statement should at least specify the number of years in farming, the farm's size, the amount of grain produced and shipped by rail, the number of people employed directly on the farm, the availability of alternative (whether rail, truck or barge) transportation, the cost of alternative transportation compared to the cost of using this line, and any other factors believed to be relevant. In addition, protestants should present any evidence they may have developed that contradicts the revenue and cost evidence the railroad has submitted. Always use specific numbers, facts and figures when possible, and explain where the information comes from or how it was developed. Cost and revenue information is usually critical. Remember: If it is shown that the line is not a financial burden to the railroad, abandonment will be denied.

Again, protests and comments to the proposed abandonment must be received at the STB within 45 days after the filing of the application. An original and 10 copies of each comment or protest must be filed with the Board. A copy must be mailed to the applicant railroad, and each copy must contain a "Certificate of Service" (a statement that the railroad was mailed a copy of the comment or protest). No set "form" exists for a protest and many letter protests are received. However, the more detailed a protest is, the more weight it will receive.

5. Modified Procedure And Oral Hearings

The Board will either set the proceeding for an oral hearing or, more often, what is called "modified procedure". (In the years 1990 and 1991, 8 of the 27 abandonment applications filed resulted in an oral hearing. During its first year in existence the STB held no oral hearings.) Modified procedure means that no oral hearing is held, and all evidence is filed in writing. Oral hearings are for the primary purpose of cross examining witnesses who have filed verified statements in the proceeding. See 49 CFR 1152.25(a). With this in mind, requests for oral hearing should specify any factual matters which are likely to be disputed and require cross-examination.

Regardless of whether modified procedure or oral hearing is used, the core of both the railroad's and protestant's case will come in the form of written evidence.

After receiving the protests and the carrier's reply, the Board must issue its decision within 110 days after the application is filed.

6. Appeals

If a party is dissatisfied with a Director's decision, it may ask the STB to reconsider the matter. Director's decisions are made during certain stages of the proceeding. For example, the Director of the Office of Proceedings makes the determination whether or

not an Offer of Financial Assistance is *bona fide.* See 49 CFR 1152.25(e) for other decisions made by the Director.

A party that is dissatisfied with a decision of the full Board may seek judicial review of the STB's decision by filing a petition for review in the appropriate United States Court of Appeals. In situations where the abandonment application was protested a dissatisfied party may ask the STB to reopen the case if it can show material error, new evidence, or substantially changed circumstances. In an unprotested case, the only recourse for a dissatisfied party is if it can show that the carrier's abandonment application was defective (for failure to provide the required notices, for example) in which case it can ask the Board to vacate the abandonment certificate.

B. Issues In Abandonments

We will now discuss the important issues in rail abandonments and the factors the Board weighs in deciding these cases.

As explained earlier, the standard used in deciding abandonment cases is whether the railroad's burden of continued service outweighs the public's current and future need for the service.

The railroad first must establish that it is indeed suffering a loss or burden from the line. If it fails to prove this, the abandonment will be denied. However, the railroad does not have to demonstrate an "operating" loss. The Board also considers the annual "opportunity costs" of owning and operating the line. This is the cost of tying up the railroad's assets in track, land, and materials on the line, rather than putting those assets to other, more profitable uses. It is calculated by multiplying the carrier's investment in the line (including the net liquidation value of the track and land) by an appropriate annual rate of return. Where there is evidence of public need, the Board may refuse to grant abandonment based only on opportunity cost losses. If the railroad does show a loss or burden, then the protestants' evidence of public need is examined.

The statute specifically directs the STB to consider whether the abandonment "will have a serious, adverse impact on rural and community development." 49 U.S.C. 10903(d). Protestants can address this factor through evidence showing the economic impact abandonment would have on the area. This can be done by computing (1) markets that would be lost without rail service, (2) the number of business failures or relocations and lost jobs that would result from abandonment, and (3) the number of current or future ventures (such as industrial parks) that depend upon continued rail service. Likely sponsors of this type of testimony would be shippers (using data from their own business, industry, or farm), development experts from local or state governments, elected or appointed officials, and Chamber of Commerce representatives. In sparsely populated areas, for example, discontinuance of rail service may cause a significant loss of jobs and reduce the tax base upon which the community depends to support its local school system and other important public services.

A critical factor in assessing the impact of abandonment on a rail shipper's farm or business is the possible transportation alternatives available after abandonment. If shippers have already switched to truck transportation for part of their traffic, then truck transportation may be a suitable alternative for all their traffic. Yet, truck rates may be higher than rail rates, bringing into question whether the business can survive with higher transportation costs. Also, sufficient trucks may not be available in the area to handle the increased traffic, or the local road system may not be capable of handling the increased wear and tear of truck transportation. These issues need to be fully explored and developed by protestants. This is another area where State transportation specialists can provide shippers and local communities with invaluable assistance.

Local shippers also should be able to present testimony concerning past and future use of the rail line. Reasons for the low levels of past rail shipments, such as sporadic business fluctuations, drought or other local disaster, should be explained. If shippers are expecting increased rail shipments, based on sound and defensible business forecasts, this should be documented.

Besides the economic impact of the proposed abandonment, protestants may also point out any effect that the abandonment would have on the environment. For example, increased use of alternative modes of transportation, such as trucks, might adversely affect noise levels in congested areas or pose safety problems. The environmental consequences of abandonment are assessed by the STB's Section of Energy and Environment (SEE). For more information about environmental issues you can contact SEE at (202) 565-1538. Also see the STB's regulations at 49 CFR 1105.

. The balancing test the Board employs to decide abandonments has factors on both sides of the equation. To be successful, protestants should not only present the harm that they will suffer from abandonment, but they should also attempt to discredit the railroad's evidence of losses or burden from operating the line.

C. Evaluating Railroad Financial Data

Nobody opposing an abandonment can afford to ignore the railroad's financial data. The railroad must show it is incurring a loss or a burden. The railroad will attempt to show that (1) it is not receiving, and cannot reasonably expect in the future to earn, sufficient revenues from the line; and/or (2) it expects to face significant costs on the line in the future that it will not be able to recover. Normally, the past revenue generated by the line can be determined fairly accurately based on carrier and shipper records. Other data are subject to interpretation by the parties, however. These include: (1) projecting the revenues for the line; (2) isolating the historical expenses of operating and maintaining the line, and projecting future operating, maintenance and rehabilitation expenses; and (3) calculating the opportunity costs of operating the line.

Protestants who can critically evaluate this data will have a better chance of success. The assistance of a CPA or rail cost analyst is useful and can be critical. Even if there is insufficient time or money to analyze the financial data thoroughly, there are a number of key issues that should be examined.

Railroads are required to include in their abandonment applications projections of their revenues and costs on the line for a "forecast year" --the 12-month period beginning the first day of the month the application is filed. To project future revenues and costs, the railroad must necessarily make assumptions. Those assumptions should be evaluated critically. Nobody can predict the future with certainty, and in many instances the protestants may be in as good or better position than the railroad to make accurate predictions. For example, a substantial component of revenues usually consists of the number of shipments originating or terminating on the line. Shippers on the line presumably know their own businesses and future transportation needs and may be able to dispute the railroad's projections of future traffic. Wherever possible, protestants should provide specific facts and figures to support their own projections.

Of course, projections as to the future usually are based upon prior experience. Thus, the railroad's historical data should also be examined. Again, there are some issues that can be explored even if a rail cost analyst or other expert is not available.

First, confirm that all the data are from the relevant periods. Historical cost and revenue data must be submitted for a so-called "base year." The base year is the most recent 12 month period for which data have been collected at the branch level, ending no earlier than 6 months prior to the filing of the application.

Second, be alert to circumstances that may make the historical data unrepresentative. For example, was the carrier's ability to meet requests for service impaired by a shortage of rail cars? Or was there a recession or drought that resulted in lower, unrepresentative traffic volumes and revenues?

Third, confirm that actual costs and revenues are used where required by the regulations. Maintenance-of-way expenses usually cannot be estimated by prorating expenses from a larger section of track; actual expenses incurred on the line sought to be abandoned are normally required. Similarly, depreciation of equipment, the return on investment for locomotives, and fuel costs must be based upon the type of locomotive and freight cars actually used on the line. The use of summary data based upon "Road" and "Yard" categories is generally unacceptable, because it tends to overstate costs when, as is often the case, a local or way train serves the branch line.

Fourth, if there are high rehabilitation or deferred maintenance costs, a qualified individual should examine the railroad's work papers and physically inspect the properties. It may be possible to further defer maintenance-of-way expenses for yet another year, taking those costs out of the forecast year. Usually only those rehabilitation costs necessary to meet Federal Railroad Administration minimum class I standards are allowed. As a rule of thumb, rehabilitation costs and maintenance-of-way expenses vary inversely. That is, if rehabilitation costs are high, then maintenance-of-way costs should be low.

Fifth, as with the actual and projected revenue and cost information, the railroad's claimed opportunity costs should also be examined thoroughly by an analyst. Even if this is not possible, several key components of opportunity costs can be examined.

For example, land values are usually an important factor in calculating opportunity costs. Protestants should check with the Register of Deeds to make sure the land included in the railroad's calculations is and would still be owned by the railroad in the event of an abandonment. In some cases, ownership of the land reverts automatically to adjoining landholders. In addition, local bankers and real estate agents can supply accurate information on land values that may contradict the railroad's estimate of the value of its land holdings. Protestants should also (1) verify the tons of track material that will result from salvaging the line; (2) obtain an estimate of the scrap value in dollars per ton, and (3) see whether the cost of dismantling the track was deducted from the railroad's estimated sales proceeds.

It should be noted that a carrier may either calculate its own (pre-tax) cost of capital or use the industry-wide (pre-tax) cost of capital figure that is determined annually by the STB. To obtain the Board's latest cost of capital determination call the STB's Section of Costing and Financial Information at (202)565-1533.

Finally, the railroad's projected gains or losses on its rail assets should be examined. Local real estate agents or brokers can check projections of changes in value for land, and the railroad's projections can also be compared to the index price series for historical sales of rail assets maintained by the Board. The railroad must justify departures from these trends.

III. EXCEPTIONS TO THE ABANDONMENT PROCESS

UNDER 49 CFR 1152.50

The STB's power to exempt rail lines from the normal abandonment procedures is found in the ICC Termination Act, 49 U.S.C. 10502. Section 10502 gives the Board a broad grant of authority to exempt carriers, services and transactions from almost any and all kinds of STB regulation. The Board must exempt a carrier, service or transaction from regulation if it finds (1) that continued regulation is unnecessary to carry out the national rail transportation policy of 49 U.S.C. 10101, and (2) that either the transaction or service is of limited scope or application of the regulatory scheme is unnecessary to protect shippers from an abuse of market power. Congress clearly contemplated that the STB would use this general exemption power broadly. The legislative history reflects Congress' desire that the Board actively exempt railroads from unnecessary regulation, particularly regulations restricting changes in rates and services. But Congress also provided the Board with authority to revoke exemptions that it has issued if and when the Board finds that its regulation is indeed necessary.

The STB and the ICC before it have both used broad exemption authority to facilitate the abandonment of lines where it believes that closer regulatory scrutiny is unnecessary, through both class exemptions and individual line exemptions. As a class, the Board has exempted the abandonment of lines over which no local traffic has moved for at least 2 years without formal complaint about a lack of service. Where a line has generated traffic within the last 2 years, the railroad may seek to persuade the STB that an exemption is nevertheless appropriate for that individual line.

These exemptions are widely used.

A. Class Exemption: Out-of-Service Lines

To invoke the class exemption for out-of-service lines, a carrier must file a notice at the Board certifying that (1) no local traffic has moved on the line for the past 2 years; (2) any overhead traffic that has moved over the line can be rerouted over other lines; and (3) no formal complaint about a lack of service is pending or has been decided in favor of the shipper.

Unlike the traditional application process, no Notice of Intent to abandon or system diagram map or narrative notice is required. However, 10 days before filing the exemption notice with the Board, the railroad must notify the affected State's Public Service Board or equivalent agency of its intention to do so. The railroad must also send an advance environmental notice to the State, in accordance with STB regulation 49 CFR 1105.11.

The STB will publish the exemption notice in the Federal Register within 20 days after it is filed. Thirty (30) days after the Federal Register notice, the railroad may abandon the line, unless the Board stays the exemption.

Stay requests that raise transportation concerns must be filed within 10 days after the exemption notice is published in the Federal Register. Stay requests based on environmental or historic preservation concerns may be filed at any time but must be file sufficiently in advance of the effective date for the Board to consider and act on the petition before the notice becomes effective. Offers to subsidize or purchase the line must be filed within 30 days after the Federal Register publication.

In addition, parties may ask the Board to reject the notice or reconsider the exemption as it applies to a particular line. Petitions to reject or reconsider may be filed within 20 days after the Federal Register notice. After the exemption takes effect, parties may ask the STB to revoke the exemption. Petitions to revoke may be filed at any time.

The STB will reject the notice if the information contained in the request is false or misleading. Therefore, if local traffic has moved on the line within the last 2 years, the exemption will be rejected.

Although environmental concerns, public need for continued service, and other issues can be raised in a petition to reconsider or revoke, the Board will disallow the exemption only in extraordinary cases.

If use of the class exemption is disallowed for a line, the railroad is still free to apply for abandonment of the line under the regular application procedures discussed above (or seek an individual exemption under the procedures discussed below). The complete regulations applying to this class exemption are found at 49 CFR 1152.50. Also see the

attached STB Timetable for class exemption proceedings at Appendix II..

B. Individual Exemptions under 49 CFR 1152.60

As with the out-of-service lines exemption, no Notice of Intent to abandon or system diagram map or narrative notice is required when a request for an individual exemption is filed. The only notice a railroad must give before filing an individual exemption request is an environmental notice to the designated State agency in each state where abandonment is proposed. To obtain the name and address of the designated agency in your State call the Board's Section of Energy and Environment at (202) 565-1538.

The Board must publish notice of the proposed exemption in the Federal Register 20 days after it is filed. No further public notice is given even if the petition is denied. Carriers frequently will serve a copy of their petition on any shippers on the line but are not required to give notice when the petition is granted or denied. Interested persons can be notified individually by the Board, if they ask that their names be placed on the Board's service list in a particular case. Parties of record (applicants and protestants) are placed on the service list automatically, but other interested persons should notify the Board's Office of the Secretary, 1925 K Street, N.W., Washington, D.C. 20423 of their desire to be served with copies of all decisions in a particular case.

A petition for an exemption generally will include only a brief description of the relevant facts. It need not be, and typically is not, accompanied by detailed financial or other information.

Persons opposing an exemption must file an opposition within 20 days after publication of the Federal Register notice. Offers to purchase or subsidize the line must be filed 120 days after the filing of the petition or exemption or 10 days after the service of the Board's decision granting the exemption, whichever occurs sooner. To receive a copy of that decision, you must have notified the Office of the Secretary of your interest in the case and have asked to be put on the service list as instructed, *supra.*

Petitions to stay the effective date of the decision may be filed in either "Petition" (Individual exemption) or "Notice" (class exemption cases). It should be noted that administrative agencies, like the Courts, have developed firm criteria for staying administrative action. To justify a stay, a petitioner must demonstrate that:

(1) there is a strong, and the emphasis is on strong, likelihood that it will prevail on the merits;

(2) it will suffer irreparable harm in the absence of a stay;

(3) other interested parties will not be substantially harmed by the issuance of a stay; and

(4) the public interest supports the granting of the stay.

The Board, as do the Courts, gives very careful consideration to each of the above criteria and has required a strong substantive showing on all of the four factors. While the showing of irreparable injury may vary from case to case, the key consideration is

irreparable, and injuries that can be corrected later (however substantial in terms of money, time and energy) may not be enough to justify a stay. Similarly, in determining the public interest factor, the interests of private litigants must give way to the realization of public purposes. The burden of making a strong showing on all four of the above factors rests with the petitioner to convince the Courts or the Board that such extraordinary relief is warranted.

Where possible, parties opposed to the exemption should file an opposition or a protest with the Board before it acts on the exemption request. Even in the absence of a formal notice requirement, community leaders and shippers often are aware of a railroad's plan to seek an exemption before the carrier files its petition.

Protests and petitions for reconsideration of individual exemptions should include essentially the same kind of facts that would be included in a regular abandonment case. For instance, shippers should explain their business operations, quantify their use of the involved rail line, discuss the availability and any additional cost of alternative transportation services, and explain the impact loss of the rail service would have on their businesses and the community. To the extent possible, protestants also should try to critically evaluate any financial information and traffic projections submitted by the railroad.

If the Board denies a carrier's request for an exemption, the carrier is free to file for authority to abandon under the regular application procedures discussed earlier.

IV. ALTERNATIVES TO ABANDONMENT

Users and interested parties should consider alternatives to abandonment at the first sign a carrier may be contemplating abandonment. The fact that the existing railroad believes the line is no longer economically viable does not necessarily mean the line cannot continue operations under other arrangements. There are many examples of small "short line" railroads operating on lines that the main line railroad sought to abandon. Congress and the STB have made it easier to preserve rail service by acquiring or subsidizing rail lines. These options will be briefly outlined below.

A. Forced Sales and Subsidies

To encourage continued service, Congress and the STB have adopted procedures that make it possible to force the sale or subsidy of lines slated for abandonment where the parties cannot agree on the price or terms of a subsidy.

1. Lines Approved For Abandonment

Under the offer of financial assistance (OFA) procedures, any financially responsible party seeking to continue service on a line approved for abandonment (or exempted) may compel the railroad to sell or conduct subsidized operations over the line. The statutory

requirements and STB regulations concerning offers of financial assistance are contained at 49 U.S.C. 10904 and 49 CFR 1152.27, respectively.

Parties may request data on subsidy and acquisition costs from applicants in abandonment proceedings as soon as the Notice of Intent to abandon is filed. This includes (1) an estimate of the minimum purchase price or annual subsidy needed to keep the line in operation, (2) reports on the physical condition of the line, and (3) traffic and other data necessary to determine the amount of annual financial assistance needed to continue service. Any one who believes subsidy or acquisition is a possibility should request this information immediately and begin a thorough feasibility study. Often the State will assist the railroad by providing substantial money for rehabilitation of the line.

In class exemption cases, where the railroad files a Notice of Exemption, Offers of Financial Assistance must be filed within 10 days of the publication of the Notice of Exemption in the Federal Register. In individual exemption cases where the carrier files a Petition for Exemption and in cases where the carrier files a full abandonment application and OFA must be filed within 10 days of the service date of the Board's order granting the exemption or abandonment application or within 120 days after the application or petition for exemption is filed, whichever is sooner. It is very important for a potential offeror to be aware of both the filing date and the date of the Board's decision. To do this, the potential offeror should ask to be placed on the Board's service list[(2)] for the relevant abandonment proceeding, so that the offeror will be advised as soon as any decision is in the case is served.

Each OFA is reviewed by the Board to determine whether the offeror is financially responsible and whether the offer itself is reasonable. A copy of the offeror's annual report or other financial statements should be submitted with the offer to show its financial responsibility. The STB assumes a State or local government entity to be financially responsible.

As to the reasonableness of the offer, a subsidy should cover the railroad's avoidable operating losses on the line, plus a reasonable return on the value of the line. An offer to purchase should equal the acquisition cost of the line (the net liquidation or going concern value of the line, whichever is higher). The offeror should explain how its offer was calculated and explain any disparity between its offer and the carrier's estimate.[(3)] If the Board finds that the offeror is financially responsible and the offer is reasonable, it will postpone the abandonment and give the parties an opportunity to negotiate.

If negotiations are successful and the parties voluntarily enter into a purchase (or subsidy) agreement which will result in continued rail service, the Board is required to approve the transaction and dismiss the abandonment application.

Should the parties fail to agree on the amount or terms of subsidy or purchase, either party may ask the STB (within 30 days after the offer is filed) to establish terms and conditions. The Board must issue a decision setting the terms and conditions, within 30 days after the request is made. The offeror then has 10 days to accept or reject the STB's terms and conditions. If the offeror chooses to accept them, then the railroad by law is forced to comply with them.

When a railroad receives more than one OFA, it can select the offeror with whom it wishes to transact business. Moreover, if the STB establishes terms and conditions at the request of an offeror who subsequently withdraws, then any other qualified offeror may take its place, forcing the railroad to go through with the subsidy or sale under those terms and conditions.

Certain conditions apply to sales under Section 10904(f)(4)(A). A purchaser may not transfer the line or discontinue service over the line for at least 2 years after consummation. After that time period, the purchaser may transfer the line back to the selling carrier, but it must wait at least 5 years before it can sell the line to others.

The financial assistance provisions of Section 10904 also apply where the Board exempts an abandonment from the formal application process. There are some differences however, particularly as to timing. For example, in exemption proceedings, persons interested in purchasing or subsidizing the line must first submit to the STB and the railroad a written expression of their intent to make such an offer. This expression of intent must be received within 10 days after notice of the exemption is published in the Federal Register. Once the expression of intent is received, the exemption will be automatically stayed for 40 days. The offer itself is due 30 days after the Federal Register notice. For more information on these procedures see the STB's regulations at 49 CFR 1152.27.

2. Purchase of Lines Potentially Subject to Abandonment

The feeder railroad development program was designed as an alternative to abandonment. Congress envisioned it as a method of allowing shippers, communities, or other interested parties to acquire rail lines before an abandonment application is filed. If a rail line has been listed on a carrier's system diagram map as potentially subject to abandonment, a financially responsible person can compel the Board to require a railroad to sell it the line[(4)]. The price for such a sale is either agreed to by the parties or set by the Board. The statutory procedures for this program are found at 49 U.S.C. 10907 and the STB's regulations are detailed at 49 CFR 1151.

In short, a proceeding commences upon the filing of a feeder line application with the Board. The applicant must show, among other things, that it can (1) pay the net liquidation value of the line or its going concern value, whichever is higher, and (2) provide adequate service for at least 3 years. The Board has 15 days to reject the application if it does not contain the prescribed information or to accept it by filing a Notice in the Federal Register no later than 30 days after the application is filed. Within 30 days after the application is accepted, any other interested party may file a competing application to acquire all or any portion of the same line. The owning railroad and other interested parties may submit verified statements containing their evidence and arguments within 60 days after the initial application is accepted. Within 80 days after the initial application is accepted, offerors may file verified replies. The STB must publish its decision in the Federal Register. Within 10 days of the service date of the decision, the offeror must file a notice with the STB and the owning railroad either accepting or rejecting the Board's terms. If two or more offerors accept the STB's terms, the owning railroad has 15 days from the service date of the Board's decision to select the offeror

with whom it wishes to transact business and to notify the STB and offerors. If the parties agree on a price then that price will be the final sale price.

In theory, this program has two major advantages. It allows the parties to save the time and expense involved in the abandonment process, and it allows the new owners to take over operation of a line before further downgrading occurs. The program however, has not lived up to its potential, in part because it places the railroad and new short line owner in an adversarial relationship from the outset. It forces the railroad to sell at a price it may not agree upon and requires the newly created shortline to then develop a relationship with the railroad (with whom it must interchange traffic to reach the main line) in order to function in its new venture.

B. Voluntary Sales and Operations

Parties interested in preserving rail service need not wait until abandonment is approved to negotiate a voluntary purchase of a line proposed for abandonment or for that matter any active rail line. To make purchases of lines that might otherwise be abandoned more attractive to potential buyers, the STB has exempted these purchases from regulation. Special provisions have also been adopted to encourage continued service on abandoned lines acquired by States.

1. Class Exemptions

The statutory standards for voluntary acquisitions are found in 49 U.S.C. 10901, 10902, and 11323. Section 10901 applies only when (1) a non-carrier acquires a rail line, and (2) an existing carrier acquires an inactive line (a line that is already lawfully abandoned). Acquisitions of active rail lines by existing carriers fall under Section 10902 or 11323. These formal application procedures are seldom used to preserve rail service on lines threatened with abandonment. Instead, voluntary purchases of lines subject to abandonment are almost always consummated under exemptions to the formal acquisition procedures. These exemptions are discussed below.

a. Section 10901 Acquisitions

Following the Staggers Act and deregulation of the railroads, large Class 1 carriers began to sell or abandon unprofitable or marginally profitable lines. Requests to acquire and continue service over these lines were usually unopposed and were almost always approved because they were in the public interest. This led the ICC to promulgate broad class exemption procedures in 1986.[(5)] The current rules are found in 49 CFR 1150 Subpart D. Most non-carrier acquisitions and operations are now exempt from formal regulation under Section 10901, as are all carrier acquisitions of abandoned lines. When a Class II or Class III carrier acquires a line, it is governed by 49 U.S.C. 10902.

To invoke the class exemption, the acquiring party must file a verified notice including general information about the transaction, and a caption summary which will be used to provide public notice of the transaction. The exemption procedures differ depending on the carrier's size (in terms of gross revenue). If the transaction will create a Class III (smallest size) railroad, the exemption will be effective 7 days after the notice is filed.

b. Section 11323 Transactions

Class exemptions have also been established for seven kinds of transactions that would otherwise require approval under 49 U.S.C. 11323 -- the statute applicable to carrier acquisitions of active rail lines. The most important for our discussion here are (1) acquisition of a line which has already been approved for abandonment and would not constitute a major market extension,

(2) acquisition of nonconnecting lines, and (3) acquisition of trackage rights. (The last two categories do have some qualifications not relevant here.) See 49 CFR 1180.2(d).

To invoke these exemptions, the carrier must file a verified notice, at least one week before the transaction is to be consummated, containing the information listed in the Board's regulations at 49 CFR 1180.4(g)(1). To qualify for an exemption for acquisition or renewal of trackage rights agreements, a caption summary must be filed as well. See 49 CFR 1180.4(g)(2)(i).

2. Individual Exemptions

Where no class exemption applies, an individual exemption may be sought for almost any small rail acquisition or operation, under the Board's general exemption authority at 49 U.S.C. 10502. Such requests for individual exemptions should be tailored to the particular situation involved.

The statute itself exempts some types of rail operations and transactions from STB regulation. The acquisition or use of spur, industrial, team, switching or side tracks is exempt under 49 U.S.C. 10906. These statutory exemptions are defined narrowly and the facts of each situation must be carefully examined to determine if the exemption applies.

V. LABOR ISSUES

No discussion of the acquisition and abandonment of rail lines would be complete without recognizing the increased importance rail labor plays in many of these cases. Labor witnesses often take an active role in opposing abandonment applications and other proceedings. In addition, the ICC Termination Act provides certain protection for employees of railroads engaging in some major changes in operations. It requires railroads to protect their employees from financial loss for a period of up to 6 years and to provide other protection relating to benefits and seniority.

Labor issues may arise in any rail transaction. The STB imposes labor protective conditions (LPC's) in most abandonments.

The conditions have been crafted differently for each situation. Generally there are the Oregon Short Line conditions imposed in abandonment cases, the Mendocino Coast conditions imposed in lease transactions, and the New York Dock conditions imposed in line sales to existing carriers[(6)]

. When imposed, these conditions obligate the selling or abandoning railroad and, in some cases, can also be imposed on the acquiring railroad. When the acquiring entity is an established railroad or is a wholly owned subsidiary that is not independent from its

rail parent, conditions may be imposed on both the acquiring and selling carriers. But where there is an acquisition of a line by a non-carrier or a Class III carrier, the employees are not entitled to any labor protection. Moreover, LPC's are not imposed for forced sales under the offer of financial assistance provisions of Section 10904 and are imposed only on the seller when there is a forced sale under the Feeder Railroad Development Program. [(7)]

The Board is not allowed to use its exemption powers under 49 U.S.C. 10502 to excuse carriers from providing employees with the LPC's they are due.

It is important at the beginning of any abandonment or acquisition proceeding to determine what position, if any, rail labor intends to take. There are some abandonments which will have minimal or no effect on rail jobs. In those cases, rail labor often decides not to participate. There are other situations in which labor witnesses play an active role, challenging railroad costing testimony and providing conflicting data in such areas as labor costs, track maintenance, and the current condition of the track and rolling stock.

VI. ALTERNATIVE USES FOR RAIL RIGHTS-OF-WAY

The ICC Termination Act and the National Rails to Trails Act, along with the STB's regulations give interested parties the opportunity to negotiate *voluntary* agreements to use a railroad right-of-way that otherwise would be abandoned for recreational or other public use, such as a commuter rail service or a highway. These methods of preserving a railroad corridor are known as "rail banking" meaning that the right-of-way is preserved for potential future use as a railroad. Many railroads do not own the land on which their tracks lie. Rather, they have easements over the land of adjoining property owners. Unless those easements are "rail-banked" by converting them to a trail or other public use, they are extinguished.[(8)] Some rights-of-way which were "banked" have been reactivated. The rules for filing a request for a public use condition are slightly different from those which apply to the filing of a trails use request. The sample request which appears in this bulletin as Appendix III is a request for both types of conditions. Proponents often ask for both conditions in the same request in order to take advantage of the benefits of each type of condition. This disadvantage of this approach is that the request for a trails use condition has a filing fee, while a request for public use condition does not.

Since filing fees for all types of cases change at least once a year, it is advisable to contact the Board's Office of Public Services at (202) 565-1592 to determine the current fee, if any, before filing any pleading.

A. Public Use Conditions

Under the terms of the ICC Termination Act at 49 U.S.C. 10905, when the Board approves or exempts an abandonment it must determine whether the rail line is suitable for alternative public use, such as highways, other forms of mass transit, conservation, energy production or transmission, or recreation. If it is, the Board may prohibit the railroad from selling or otherwise disposing of the rail corridor for up to 180 days after the effective date of the decision or notice authorizing abandonment. During the 180 day period, interested persons may negotiate with the railroad to acquire the property for public use. The railroad's consent is unnecessary for the imposition of this negotiating period. If the parties fail to reach an agreement within the 180 day period[(9)], the Board must allow the railroad to fully abandon the line and dispose of its property. It cannot *require* the railroad to sell its property for public use.

The Board will only impose a public use condition when it has received a request to do so pursuant to 49 CFR 1152.28. The request must:

1. state the condition sought;
2. explain the public importance of the condition;
3. state the period of time for the condition (which cannot exceed 180 days); and
4. provide justification for the requested period of time.

5. A "Certificate of Service" indicating that a copy of the public use request has been served on the carrier seeking abandonment at its address of record.

A sample request for Public Use Condition is provided in Appendix III. An original and 10 copies must be submitted to the Board.

Timing is important. In an application for abandonment, the public use proponent must file the request within 45 days of the filing of the application, i.e. 25 days after the notice of the application appears in the Federal Register. In exemption cases, whether the exemption is a class exemption (notice) or an individually sought exemption (petition), the public use condition request must be filed within 20 days after the Federal Register publication appears.

B. Request for Trail Use Conditions

To begin the trail use process, a trail proponent must file a trail use request in the proceeding initiated by the railroad to abandon the line. A trail use request has no effect on the Board's decision whether to give a railroad permission to abandon. It is considered only after the Board has decided to permit the abandonment.

Under 49 CFR 1152.29, the trail use request must include:

A map which clearly identifies the rail corridor (including mileposts) which is proposed for trail use,

2. A statement of willingness to accept financial responsibility which indicates the proponent's willingness to manage the trail, pay property taxes on the trail and accept responsibility for any liability arising from the use of the rail corridor as a trail, and.

3. An acknowledgment that trail use is subject to the user's continuing to meet the above obligations, and the possibility of future reactivation of rail service on the corridor.

A "Certificate of Service" indicating that a copy of the trails use request has been served on the carrier seeking abandonment at its address of record.

A sample public use condition/trails use request appears at Appendix III. An original and 10 copies of the request must be filed with the Board and a copy served on the railroad.

Unlike the public use condition, the trail use condition will only be imposed if the railroad consents. If the railroad does agree, then a condition is imposed which prohibits the rail carrier from otherwise disposing of the rail corridor for 180 days while the parties negotiate an agreement. The Board has granted an extension of that 180 day period in cases where the parties jointly request it indicating that they are close to agreement.

As with the public use condition request, timing in very important. In an abandonment application, trail use requests must be filed within 45 days of the filing of the application i.e., 25 days after the publication of the application in the Federal Register. The rail carrier seeking abandonment authority then has 15 days to notify the Board whether and with whom (if more than one proponent has submitted a request) it intends to negotiate a trail use agreement. In class exemption cases, a trails use request must be filed within *10* days of the appearance of the notice in the Federal Register. Note that this is 10 days earlier than a public use condition request is due. In an individual exemption case (petition), a trails use request must be filed with 20 days of the appearance of the Federal Register notice. In both types of exemption cases the carrier has 10 after the trails use request is received to notify the Board whether and with whom if intends to negotiate a trails use agreement.

Note: Appendices referred to in this booklet are only available by mail. To request the appendices call the Office Public Services at 202 565-1592 or write to: Office of Public Services, Surface Transportation Board, 1925 K Street, N.W., Washington D.C. 20423

1. NOTE: *Oral Hearing* requests must be filed within *10 days* of receipt of the application. The Board must act on those requests within *15 days* of the filing of the application. See time line in Appendix I.

2. Write to the Office of the Secretary, Surface Transportation Board, 1925 K Street, N.W., Washington, D.C. 20423 and identify the docket number of the proceeding .

3. Any carrier seeking abandonment authority from the Board must provide certain information to a party considering making an offer of financial assistance, including an

estimate of the annual subsidy and minimum purchase price required to keep the line or a portion of the line in operation. See 49 U.S.C. 10904(b)(1) and OPS's information bulletin entitled "So You Want to Start a Small Railroad" which provides a more detailed discussion of the OFA process.

4. Even if a line is not shown on the carrier's system diagram map as a candidate for potential abandonment, shippers and communities may seek to compel the Board to require a railroad to sell the line by proving that the "public convenience and necessity" requires or permits the sale. This test, however, is more difficult to satisfy.

5. The STB has modified these rules by decision served November 18, 1996 at Ex parte 529, Class Exemption for Acquisition or Operation of Rail Lines by Class III Rail Carriers under 49 U.S.C. 10902.

6. These conditions are set forth in Oregon Short Line R. Co.-- Abandonment -- Goshen, 360 ICC 91 (1979); Mendocino Coast Ry., Inc. -- Lease and Operate, 354 ICC 732 (1978) and 360 ICC 653 (1980), as clarified in Wilmington Terminal RR, Inc. -- Pur. and Lease -- CSX Transp., Inc., 6 ICC 2d 799 (1990), aff'd sub nom, Railway Labor Executives' Ass'n v. ICC, 930 F2d 511 (6th Cir. 1991) (Wilmington Terminal); and New York Dock Ry. -- Control -- Brooklyn Eastern Dist., 360 ICC 60 (1979), as clarified in Wilmington Terminal, supra. They are all variations of the original LPC agreement hammered out between labor and management in 1936, the Washington Job Protection Agreement.

7. Feeder line purchasers are required to use the existing employees on the line to the extent possible. See 49 U.S.C. 10910 (e) and (j).

8. Because real estate law and practice differs from state to state, we refer to landowners along the rail line as "adjoining" property owners. Sometimes adjoining property owners may have what is commonly called a "reversionary" interest in the land, meaning that upon the termination of the easement, the land is then available for the full, unencumbered use of the landowner or fee holder. In some states, when a rail use terminates, the land on which the rail line sits passes, as a matter of state law, to the adjoining landowners even when those landowners had no title to the land prior to its use as rail property. In some cases, railroads do own the land on which the track sits in fee simple and can dispose of it as they wish.

9. Unlike trails use conditions, public use conditions cannot be extended beyond the statutorily imposed 180 day limit, even if the parties' consent.

Appendix 3
Glossary of Terms

Glossary of Terms

A

3R Act Acronym for the Regional Rail Reorganization Act of 1973.

4R Act Acronym for the Railroad Revitalization and Regulatory Reform Act of 1976.

A-95 Review OMB Circular No. A-95 provides State and local agency evaluation, guidelines for review and coordination of federal assistance programs and projects. Replaced by Executive Order 12372 issued July 14, 1982.

AAR or A.A.R. (Association of American Railroads) An industry association whose responsibilities include safety standards (including design standards and approval), maintenance, operations, service and repair standards car service rules research, etc.

AAR Manual Of Standards And Recommended Practices (MSRP) Publication containing the technical specifications and quality assurance requirements for interchange freight cars and components. Considered mandatory when specifically referenced in MR Interchange Rules.

Abandoned Rail line or rail facility no longer being served by a common carrier railroad (tracks or other rail facilities may still be in place). The STB has granted the railroad authority to terminate service and remove the track.

Abandonment The relinquishment of interrest (public of private) in right-of-way or activity thereon with no intention to reclaim or use again for highway or rail purposes. Line or facility where termination of rail service is being considered. Also, the legal proceeding wherein railroads must formally apply to the STB, follow federal regulations, and receive authority to abandon service before it can do so.

ABS (Automatic Block Signals) On a specific section or length of track, an arrangement of automatic signals governing each block.

ACI Automatic Car Identification System used to provide for automated identification of cars in a train by owner, number and equipment classification, etc. when read by a wayside scanner. See *AEI*

ADO Acronym for the Alabama Development Office.

Adhesion A measure of the ability of locomotive driving wheels to generate tractive force, usually expressed as a percent of the total weight on the drivers.

AEI (Automatic Equipment Identification) An automatic car scanning system to assist railroads in tracking and tracing cars. The system requires a transponder mounted on

diagonally opposite corners of each railcar or other equipment to respond to radio frequency interrogation.

Air Brake The general term used to describe the braking system used on most railways operating in North America.

Alignment (or Alinement) The horizontal location of a railroad as described by curves and tangents.

Alternating Current An electric current that serves its direction at regular intervals.

Alternator A device that generates alternating current electricity, or, an electrical machine on a locomotive unit and driven by the diesel engine. When rotated, the alternator generates alternating electrical current subsequently adapted for use by the traction motors.

Ammeter An instrument for measuring electric current in a circuit.

Amperage A unit of measure of electrical current.

Amtrak The National Railroad Passenger Corporation (Amtrak) was created by act of Congress effective May 1, 1971, to operate a nationwide passenger service over a reduced network of routes.

Angle Cock Manually operated valve at ends of car or locomotive opening or closing air brake train line.

Anti Creeper See *RailAnchor.*

APB (Absolute Permissive Block) On a specific section or length of track, an arrangement of signals and circuits automatically providing absolute protection from control point to control point against opposing train movements while permitting following movements under block signal protection.

Approach Locking A time sensitive electrical locking system to prevent the movement of track switches in a given route after a train is committed to that route, while at the same time protecting that route from opposing or conflicting movements.

APSC Acronym for the Alabama Public Service Commission.

AREA (American Railway Engineering Association) Professional organization whose membership is comprised of Railroad maintenance-of-way officials. The AREA develops and establishes material specifications and track construction standards. See *AREMA.*

AREMA (American Railway Engineering and Maintenance-of-Way Association) Organization formed in 1998 encompassing the AREA, Roadmasters and Bridge and

Building Associations and the MR Communications & Signals Division in establishing and maintaining standards and recommended practices across the board.

Armature The rotating part of a direct current motor or generator. It consists of a laminated iron cylinder or core keyed to a shaft, in the slots of which are wound the armature coils of insulated copper wire or bars. In alternating current machinery the armature is frequently the stationary element.

Articulated Cars Two or more car bodies permanently coupled by slackless connections over shared trucks.

Automatic Block Signals (ABS) A means of protecting a section or block of track against conflicting usage. ABS utilizes automatic signals that are actuated by a train or other usage of the track.

Automatic Brake The air brake system used on a train. The automatic brake is controlled by a pressurized air pipe or brake pipe which runs the length of the train. A reduction or drop in the pressure in this train line, called a brake pipe reduction (BPR), causes air brakes to apply on each car.

Automatic Coupler *See Coupler.*

Automatic Interlocking *See Interlocking Automatic.*

Automatic Train Control An electric or mechanically operated device attached to the locomotive and acting in conjunction with current in rail, magnets, ramps or trips attached to the tracks, which permits the control of, or the automatic stopping of trains in case of dangerous speeds or other unsafe operating conditions.

Automatic Train Control System (ATC) 1) A track-side system working in conjunction with equipment installed on the locomotive, so arranged that its operation will automatically result in the application of the air brakes to stop or control a train's speed at designated restrictions, should the engineman not respond.
2) When operating under a speed restriction, an application of the brakes when the speed of the train exceeds the predetermined rate and which will continue until the speed is reduced to that rate. ATC usually works in conjunction with cab signals.

Automatic Train Operation (ATO) A system by which speed and other control signals from the wayside are automatically received and translated into train response, with appropriate ATC supervision to assure operating safety.

Automatic Train Stop System (ATS) A track side system working in conjunction with equipment installed on the locomotive, so arranged that its operation will result in the automatic application of the air brakes should the engineman not acknowledge a restrictive signal within 20 seconds of passing the signal. If the restrictive signal is acknowledged, ATS will be suppressed.

Axle The steel shaft on which the car wheels are mounted. The axle holds the wheels to gauge and transmits the load from the journal bearing to the wheels.

B

"B" End of Car The end on which the hand brake is located. If the car has two hand brakes, the "B" end is the end toward which the body-mounted brake cylinder piston moves in the application of brakes or the end on which the retaining valve is located (if such a valve is used). If none of the above definitions are applicable, the car owner shall arbitrarily designate the "B" end.

"B" Unit A diesel unit without a cab and without complete operating controls. “B” units are usually equipped with hostler controls for independent operation at terminals and engine houses.

Back Haul A return trip.

Bad Order A car which is in need of mechanical attention.

Balance Speed A speed at which the tractive effort of the locomotive exactly balances or equals the sum of all the train, grade and curve drag forces. At balance speed, there is neither acceleration nor deceleration.

Ballast Heavy material such as slag or crushed stone used to support and hold crosaties in alignment and elevation after rails have been spiked to them. Should be a material which is stable, easily tamped, permeable, and resistant to plant growth.

Ballast Car A car for carrying and distributing ballast for repair and construction work, usually of either the flat, gondola, or hopper type.

Ballast Regulator A track-mounted machine for moving ballast to provide the desired cross-section, usually including brooms to clear ballast from the ties.

Ballast Undercutter Cleaner A production machine that removes the ballast from the track, cleans it, and returns it back to the track in one continuous operation.

Ball of the Rail This is the top of the rail on which the wheels roll.

Benefit/Cost Analysis (or Cost/Benefit Analysis) A form of economic evaluation in which input is measured in terms of dollar costs and output is measured in terms of economic benefit of a project as compared to the incurrred cost of the project. Calculation of this ratio is made by dividing all quantified benefits by the total cost of a project.

Benefit-Cost Ratio (B/C Ratio) The economic value of the reduction in fatalities, injuries, and property damage divided by the cost of the accident-reducing measure.

Bessemer Process A steelmaking process whereby liquid pig iron is converted to steel by forcing air at atmospheric temperature through the metallic bath in a converter in which no extraneous fuel is burned, resulting in the oxidation or reduction of the carbon, manganese and silicon to the extent desired and their removal in the form of slag.

Bill of Lading A carrier's contract and receipt for goods specifying that the carrier has received certain goods which it agrees to transport from one place to another, and to deliver to a designated person or assignee for such compensation and upon such conditions are specified therein.

Block 1) A length of track of defined limits, the use of which by trains is governed by signals. 2) A group of cars, assembled in the process of classification for movement to a specified common destination.

Block Signal A fixed signal at the entrance of a block to govern trains and engines entering and using that block. (Standard Code)

Block System A series of consecutive blocks within ABS, ATC, CTC and Interlocking.

Body Center Plate A circular cast or forged steel plate on body bolster at the car center line, the function of which is to mate with the truck center plate and transmit the body bolster load to the truck.

Body Side Bearing Flat steel bearing pads fastened to the body bolster, a standard distance outboard from the center pin hole, the function of which is to support the car or the mating truck side bearing when variations in track cross level or other train dynamics cause the car to rock transversely on the center plates.

Bolster *See Container Bolster, Truck Bolster.*

Bolster Anchor Rods One at each end of the bolster of passenger car trucks, the ends of which are mounted in rubber, one on an arm integral with the truck frame and the other on the end of the bolster so as to guide the lateral and vertical movement of the bolster and position that it is always free from contact with the truck transoms.

Bolster Gibs Small projections at each end of a truck bolster that engage the side frame column guides and provide vertical guidance for the bolster and lateral restraint to the side frames when assembled as a truck.

Bolster Pad In a tank car, a plate welded directly to the exterior of the tank at each body bolster location to which the remaining body bolster structure is attached.

Bolster Springing The secondary suspension element in a car truck, supporting the truck bolster, on which the weight of the car rests, on the truck frame or swing hangers.

Boxcar A closed car having a floor, sides, ends and a roof with doors in the sides, or sides and ends. Used for general service and especially for lading which must be protected from the weather, subsequent damage.

Brake Beam The immediate supporting structure for the two brake heads and two brake shoes acting upon any given pair of wheels. In freight service the virtually universal type is of truss construction consisting primarily of tension and compression members fastened at the ends and separated at the middle by a strut or fulcrum to which the truck brake lever is attached. Brake beams are said to be inside hung or outside hung, according to whether they are in the space between the axles or outside the axles.

Brakeman One who brakes a train, keeps a lookout for potential problems on moving trains, and uncouples cars that are to be dropped off between the train's termini.

Brake Pipe A term properly used, applied to describe the continuous line of brake pipe extending from the locomotive to the last car in a train, with all cars and air hoses coupled. It acts as a supply pipe for the reservoirs and also is usually the means by which the car brakes are controlled by the engineman. When a train is made up and all brake pipes on the cars are joined, the entire pipe line comprises what is commonly called the train line. The term is often used to refer to the brake pipe on a single car.

Brake Pipe Reduction (BPR) A reduction in air pressure in the train brake pipe. This pressure reduction causes air to flow from the air reservoir on each car to the brake cylinder, thus causing the brake to apply and produce a retarding force on the train.

Branch Line A secondary line of a railway, as distinguished from the main line sometimes defined as a line carrying from 1.0 to 5.0 million gross tons per year.

Bridge Plate A hinged device affixed to a TOFC flatcar at the BR and AL corners used to span the gap between coupled cars to enable circus loading of trailers. Flatcars with 15" end of car cushioning require auxiliary bridge plates at the BL and AR corners to provide the additional spanning length necessary when coupled to standard draft gear cars.

Broad Gauge A rail track gauge that is greater than 1.435 m (4 ft. 8.5 in.).

Buff A term used to describe compressive coupler forces.The opposite of draft.

C

Cab Car A passenger-train car equipped with train-line connected controls such that it can serve as the lead unit in a train being pushed by a locomotive at the rear of the consist.

Caboose A car usually placed at the rear of a train which provides an office and quarters for the conductor and/or trainmen while in transit, and for carrying the various supplies, tools, etc., used in freight train operations. From the caboose, the crew is also able to observe the condition of the train and initiate measures to stop the train if unfavorable conditions arise. Sometimes called "Cabin Car," "Way Car," or "Van."

Cab Signal A signal located in engineman's compartment or cab, indicating a condition affecting the movement of a train or engine and used in conjunction with interlocking signals and in conjunction with or in lieu of block signals.

Cant (of a Rail) A rail's inward inclination effected by using inclined surface tie plates, expressed as a height-to-width ratio: e.g.1:20.

Capacity Consists of two different types: line (or route) capacity and terminal capacity. Line capacity is a function of: number and condition of tracks; characteristics of grades and curves; and other restrictions. Terminal capacity is a function of: size of facility, (e.g., number and length of tracks); quantity and type of equipment; degree of automation; and other factors.

Car Body The main or principal part in or on which the load is placed.

Car Days An expression referring to the number of days a car owned by one railroad is on the line of another railroad.

Car Float A flat-bottomed craft without power and equipped with tracks upon which cars are run from the land by means of a float bridge, to be transported across water.

Car Mile An operating term defined as one car, moved over one mile of track.

Car Retarder A braking device built into a railway track to reduce the speed of cars being switched over a hump. Power activated shoes press against the lower portions of the wheels and slow the car to a safe coupling speed.

Car Service A term applicable to the general services of railroads with respect to car supply, distribution and handling; involving such matters as demurrage, interchange, per diem charges and settlements, private car line mileage statements and allowances.

Car Service Rules Rules established by agreement between railroads governing interchange of cars. *See Interchange Rules.*

Category I Lines Rail lines likely to be the subject of an ICC abandonment or discontinuance application within three years.

Category II Lines Rail lines which are under study and may be the subject of a future ICC abandonment or discontinuance application within 3 to 5 years.

Category III Lines Rail lines for which abandonment or discontinuance of service applications are pending before the ICC.

Category IV Lines Rail lines operated under rail service continuation assistance.

Category V Lines. All other rail lines, owned and operated.

Catenary On electric railroads, the term describing the overhead conductor that is contacted by the pantograph or trolley, and its support structure that supplies electricity to propel railroad trains.

Center Pin The large steel pin which passes through the center of both body and truck center plates and assists in keeping the two plates in proper alignment as the car is being placed on its trucks. In passenger train cars, also locks truck to car.

Center Plate *See Body Center Plate and Truck Center Plate.*

Center Sill The center longitudinal structural member of a car underframe, which forms the backbone of the underframe and transmits most of the buffing shocks from one end of the car to the other.

Centralized Traffic Control (CTC) A method of operation whereby the movement of trains over routes and through blocks on a designated section of track or tracks is directed by signals controlled from a designated point without requirement of train order authority and without regard to superiority of trains.

Centrifugal Force The force which seems to push a rotating object or its parts outward from a pivotal point.

CFR Acronym for Code of Federal Regulation. Contains federal laws and regulations.

Circus Loading A term used to describe an older method of loading highway trailers on TOFC (piggyback) flatcars, whereby a tractor backs the trailer up a ramp placed at one end of a cut of cars, and along the decks of the cars to the point of securement. Circus loading requires bridge plates at each end of all cars to enable the trailer and tractor to pass from car to car. *See Side Loading, Overhead Loading.*

Classification Yard A system of tracks used for storing cars, making up trains and other purposes.

Class I Railroad A railroad whose operating revenues are more than an annually designated amount - in 2001, $261 million.

Class II Railroad A railroad whose operating revenues are between $20.4 million and the Class I threshold.

Class III Railroads These have annual operating revenues of less than $20 million.

Class of Track FRA has established six categories of track based on specified criteria for maintaining track. *See FRA Track Safety Classification Table at end.*

Clearance Diagram An outline or cross section drawing representing the maximum limiting dimensions to which rail equipment can be built. Specific limiting dimensions have been established and are shown on standard clearance diagrams known as"plates."

Clearance Envelope The cross sectional shape required to provide specified horizontal and vertical clearances for rail vehicle in motion.

Clearance Point The point where the minimum distance between converging/diverging tracks is sufficient to meet clearance envelope reguirements when vehicles are on both tracks.

COFC An acronym for "Container On Flat Car." A type of rail-freight service involving the movement of closed containers on special flat cars equipped for rapid and positive securement of the containers using special pedestals or bolsters.

COG Acronym for Council of Governments. A consortium of local Government representatives from contiguous committees which make recommendations for solutions to regional problems. COGs may represent either a single county or several counties in a region.

Cog Railroad A tourist railroad climbing steep grades (e.g. 25+%) with the aid of a locomotive cog wheel engaging a rack rail.

Coil Spring A spring made by winding round wire or rods in a helical pattern around a circular core, used extensively in rail car suspension systems.

Coke Rack A slatted frame or box, applied above the sides and ends of gondola or hopper cars, to increase the cubic capacity for the purpose of carrying coke or other freight, the bulk of which is large relative to its weight.

Commodity A general term used to describe the contents of a car. Other terms such as "lading," or "product" mean the same thing and are often used interchangeably.

Common Carrier One who holds himself out to the general public to transport property and passengers in intrastate, interstate or in foreign commerce, for compensation. Common carriers must operate from one point to another over routes or in territory prescribed by the Surface Transportation Board (U.S. interstate) and by a Public Service or Public Utilities Commission (intrastate).

Compromise Joint (Bar) Joint bars designed to connect rails having a different height and cross-section, or rails of the same type but of different joint drilling.

Compromise Joint (Rail) A joint for uniting the abutting ends of contiguous rails of different section, or of rails of the same section but of different joint drillings.

Consist The makeup of a train, i.e., number and type or class of power units.

Container Bolster A container securement device generally used on raised center sill COFC cars. Container bolsters are arranged to mount transversely on a flatcar, and support the container at each end.

Continuous Action Tamper (CAT) A production machine equipped with a small internal tamper unit that starts and stops while the rest of the machine moves constantly.

Continuous Welded Rail (CWR) Sections of rail welded together to form a single rail which measures up to 1440 feet. It provides a much smoother ride, with less equipment and track damage, and rail wear.

Conventional Rail (CR) Track having bolted joints rather than welded rail joints (as in CWR).

Corridor A major tranaportation route through a populated area.

Coupler A device located at both ends of all cars and locomotives in a standard location to provide a means for connecting locomotive units together, for coupling to cars, and for coupling cars together to make up a train. The standard AAR coupler uses a pivoting knuckle and an internal mechanism that automatically locks when the knuckle is pushed closed, either manually or by a mating coupler. A manual operation is necessary to uncouple two cars whose couplers are locked together. *See E Coupler, and Sheif Coupler Interchange Rule.*

Coupler Shank That part of a coupler behind the head and containing either a slot or a pinhole at the rear portion for connection to the yoke and draft system.

Coupler Yoke A cast steel component of the draft system that functions as the connecting link between the coupler and the draft gear.

Covered Gondola A gondola car which has been equipped with some form of removable cover which can be placed over the lading to protect it from weather exposure in transit.

Covered Hopper Car A hopper car with a permanent roof, roof hatches and bottom openings for unloading. Used for carrying cement, grain or other bulk commodities requiring protection from weather.

Creep Lengthwise movement of the rail as a result of wheel friction and temperature expansion and contraction.

Creosote Used in wood preserving, creosote is a distillate of coal tar produced by high-temperature carbonization of bituminuous coal.

Crib The space between the ties.

Cropped Rail The cutting off of each end of a damaged rail, resulting in a reuseable rail with a minimum length of 27 feet.

Cross Bar A bar with locking devices at each end that fit and lock to belt rails in DF ("Damage Free") boxcars to provide longitudinal restraint for lading.

Crossing In trackwork, an arrangement of four frogs allowing one line to cross another.

Cross Level The distance one rail is above or below the intended level of the other - not to be confused with superelevation on curves.

Crossover A track connection between two adjacent tracks.

Crossover Platform A drop step located on the engine front and rear permitting movement of personnel between units.

Cross Tie Intermediate transverse structural members of a freight car underframe extending from the center sill to the side sill.

Cruise Velocity The forward speed that a vehicle normally maintains when it is not accelerating or decelerating.

CTC (Centralized Traffic Control) A term applied to a system of railroad operation by means of which the movement of trains over routes and through blocks on a designated section of track or tracks is directed by signals controlled from a designated central point. Also called TCS (Traffic Control System).

Curve (of a Railroad Line) In the United States, it is customary to express track curvature as the number of degrees of central angle suspended by a cord of 100 feet. The degree of curvature is equal to 5,730 divided by the radius in feet.

Cushioning A term referring to the energy-absorbing capabilities of a car underframe or draft system. Although standard draft gears do have energy-absorbing capabilities, the term "cushioning" or "hydraulic cushioning" is generally understood to mean systems with a minimum travel of ten inches.

Cushion Underframe A term generally used to describe a freight car designed so that a hydraulically cushioned inner sill, free to slide with respect to a rigid outer sill, isolates the car body from a major portion of the end impact loads experienced in switching. Not to be confused with end-of-car cushioning devices, which are independent longtravel units installed in the draft gear pockets behind each coupler.

D

Dampener Any material or device used to reduce vibration by absorbing energy.

Dead Head An operating term used to describe off-duty travel of a train crew member from some point back to his or her home terminal. Sometimes the term is used to identify any railroad employee traveling on a pass.

Deferred Maintenance The accrued expenses chargeable to current operations for the estimated cost of repairs which cannot be made during the year due to priorities for materials and supplies or shortage of labor.

Demurrage The detention of a freight car beyond the time allocated for loading or unloading. An added charge for the shipper (loader) or receiver (unloader).

Depot A railway station.

Depreciated Value The reproduction value of a freight car adjusted for depreciation up to the date of damage.

Depressed Center Flatcar A flatcar having that portion of the deck between the trucks lower or closer to the rail to accommodate loads with excessive vertical dimensions.

Derail A track safety device designed to guide a rail car off the rails at a selected spot in order to prevent collisions or other accidents; commonly used on spurs or sidings to prevent unattended rolling cars from fouling the main line. To run off the track.

DF A term used to describe an interior lading restraint system for boxcars, using transverse bars (cross bars) engaging special belt rails mounted to the car sides. The initials DF stand for "damage free." *See Cross Bar.*

Diesel An internal combustion engine invented by Dr. Rudolph Diesel differing from other internal combustion engines because its compression is high enough to cause combustion to be spontaneous.

Diesel-Electric Locomotive A locomotive in which power developed by one or more diesel engines is converted to electrical energy and delivered to the traction motors for propulsion.

Diesel-Hydraulic Locomotive A locomotive in which power developed by one or more diesel engines is delivered through a hydraulic transmission to the driving axles by means of shafts and gears. This type of drive is also used for self-propelled cars.

Dispatcher A person who directs the action of trains of a certain division by the use of radio and/or remote controlled switches, and cooperates with other dispatchers in train movements between divisions.

Ditch The part of the right-of-way that is lower than the ballast section which drains the water from the track into a stream or drainage facility.

Double-Slip Switch A combination of a shallow-angle crossing and two other tracks, located within the limits of the crossing, each connecting a right-hand switch from one crossing track and a left-hand switch from the other, to provide routes between the crossing tracks without additional frogs.

Double Track (DT) Two main tracks, on one of which the current traffic is in a specified direction and on the other in the opposite direction.

Draft A term used to describe forces resulting in tension in the coupler shank. The term "draft" means the opposite of the term "buff."

Draft Gear A term used to describe the energy-absorbing component of the draft system. The draft gear is installed in a yoke which is connected to the coupler shank and is fitted with follower blocks which contact the draft lugs on the car center sill. So-called "standard" draft gear use rubber and/or friction components to provide energy absorption, while "hydraulic" draft gear use a closed hydraulic system consisting of small ports and a piston to achieve a greater energy-absorbing capability. Hydraulic draft gear assemblies are generally called "cushioning units." *See Cushioning.*

Draft System The arrangement on a car for transmitting coupler forces to the center sill. On standard draft gear cars, the draft system includes the coupler, yoke, draft gear, follower, draft key, draft lugs and draft sill. On cushioned cars, either hydraulic end-of-car cushion units and their attachments replace the draft gear and yoke at each end; or a hydraulically controlled sliding center sill is installed as an integral part of the car underframe supplementing the draft gears.

Dragging Equipment Detector (DED) A sensor between and along side the rails to detect dragging equipment.

Drawbar Pull A tensile coupler force. Locomotive pulling power is sometimes expressed in terms of "pounds of drawbar pull."

Drawbridge Another term to describe a movable bridge.

Draw Head The head of an automatic coupler.

Dump Car A car from which the load is discharged either through doors or by tipping the carbody.

Dynamic Braking A means of braking a locomotive or car having electric motors by using the motors as generators and dissipating this power through resistors. It may be used to control train speed and to brake a train to a low speed after which air brakes bring it to a full stop.

Dynamic Track Stabilizer A track machine that consolidates ballast by subjecting the track to high vibratory forces. A compactor applies forces through the rails themselves, simulating the stabilizing effects of accumulated train traffic and thus reducing or eliminating post-trackwork slow orders.

Dynamometer A device for determining the power of an engine.

Dynamometer Car A car equipped with apparatus for measuring and recording drawbar pull, horsepower, brake pipe pressure, and other data connected with locomotive performance and train haul conditions.

E

"E" Coupler A standard AAR automatic coupler. Type "E" couplers are cast in several grades of steel, and have several shank configurations to meet varying service requirements.

Economic Analysis Determination of the cost-effectiveness of a project by comparing the benefits derived and costs incurred in a project.

Effective Velocity The speeds that a vehicle travels, including dwell times at stations and acceleration and deceleration. (Calculated by dividing trip distance by total elapsed time to complete trip).

Electronically-Controlled Freight Brake Braking system using the communication capability of digital electronics over a two-wire trainline to provide instantaneous control and monitoring of all air braking functions throughout trains of any length, initially applied in special service pending standardization in the late 1990's.

Electro-Pneumatic Combination of electrical and compressed air devices and equipment used in controlling and operating such devices as power track switches and car retarders.

Electro-Pneumatic Brake A braking system used on multiple-unit (MU) electric passenger trains. Brakes are applied and released on each car through the action of electro-pneumatic valves energized by current taken from contacts on the engineman's brake valve and continuous train wires. Brakes can be applied instantaneously and simultaneously, eliminating undesirable slack action and providing more positive control of train speed.

Elevation (or Superelevation) The vertical distance that the outer rail is above the inner rail in curves.

Elliptic Spring A spring whose shape resembles an ellipse. Made of two sets of parallel steel plates called "leaves," of constantly decreasing length. Because of the damping provided by friction between the leaves, such springs have been widely used for bolster springs for passenger cars.

Embargoed Interruption of rail service for a particular line. Usually a temporary action taken because of the physical condition of a line.

Empties Freight cars not carrying revenue--generating loads.

Empty-and-Load Brake A freight car air brake incorporating gear to increase braking power automatically when the car is loaded.

Empty Weight *See Light Weight*

E.M.U *See Multiple-Unit Cars*

End-of-Car Cushioning Device A unit installed at the ends of a car that develops energy-absorbing capacity through a hydraulic piston arrangement supplemented by springs to assure positive repositioning of the unit. These devices replace the standard draft gear, and provide up to 15 inches of travel.

End-of-Train Device Device that monitors air brake system and train integrity on trains being operated without a caboose. Includes flashing marker light (night) and rear-of-train emergency brake application capability.

Energy The ability to do work. *See Work.*

Engineer A person trained to operate a locomotive.

Equalizer In six-wheel and some four-wheel truck arrangements, a system of bars, rods, levers and springs that serves to equalize the loads on the axles and provide improved riding qualities for the truck.

Equilibrium Superelevation When the centrifugal (outward) force is totally resisted by the component of the weight of vehicle parallel to the plane of superelevation.

Exclusive Right of Way Land area or other space devoted to the exclusive use of a rail system or other transportation system where the right of way is not used by more than one mode.

Extra Train A train not represented on and authorized to move by the timetable.

F

Fail Safe A term used to designate a design principle of any system the objective of which is to eliminate the hazardous effects of a failure of the system by having the failure result in nonhazardous consequences.

False Proceed (Railway Signal Indication) A clear or green signal displayed because of a system failure when a more restrictive indication should be displayed. Sometimes called "False Clear."

Fare Box Recovery Ratio Measure of the proportion of operating expenses covered by passenger fares; found by dividing fare box revenue by total operating expenses for each mode and/or systemwide.

FAST An acronym for The Facility for Accelerated Service Testing located at the Transportation Technical Center near Pueblo, Colorado.

Fastenings Joint bars, bolts and spikes.

Feeder Lines Light-density lines, usually branch lines, that connect with and feed traffic onto a higher density or main line. Also, short line railroads that interchange freight with a major railroad.

Field Weld A weld joining two rails together after rails are installed in track.

Flag a Block. To go ahead or behind a train to signal a warning for other trains.

Flange Any projecting surface or area, generally small with respect to the main component of which it is a part, included to serve some special purpose.

Flange of a Wheel The vertical projection along the inner rim of a wheel that serves, in conjunction with the flange of the mating wheel, to keep the wheel set on the track, and provides the lateral guidance system for the mounted pair.

Flangeway The open way through a track structure which provides a passageway for wheel flanges.

Flatcar A freight car having a flat floor or deck laid on the underframe, with no sides, ends or roof, designed for handling commodities not requiring protection from weather.

Flat Spot Loss of roundness of the tread of a railroad wheel, caused by wheelsliding. This causes the wheel to bump and must be corrected when the flat spot exceeds a certain size.

Flat Switching Switching movements in a yard where cars are moved by a locomotive on relatively level tracks as opposed to over a hump.

Float Bridge A structure with an adjustable apron to connect tracks on land with those on a car float, thus permitting cars to be transferred between the land and the car float at varying water levels.

Foreign Car Any car not belonging to the particular railway on which it is running.

FRA (Federal Railroad Administration) An agency of the U.S. Department of Transportation with jurisdiction over matters of railroad safety and research.

Freight Car A general term used to designate all kinds of cars which carry goods, merchandise, produce, minerals, etc.

Frog A track structure used at the intersection of two running rails to provide support for wheels and passageways for their flanges, thus permitting wheels on either rail to cross the other.

Frog Number The length in units along the frog point at which it is one unit wide - a measure of the sharpness of its angle.

G

Gallery Car A passenger car normally employed in commuter service which contains a main seating level and an upper deck level with an open aisleway through the center which gives a "gallery" appearance to the car interior.

Gate Sometimes used to describe the bottom door assembly that serves as a discharge opening on covered hopper cars, usually called the "discharge gate."

Gauge (or Gage) The distance between the gauge line, measured at right angles thereto (standard gage is 4 ft., 8-1/2 in.).

Gauge Line 1) The spot on the side of the railhead 5/8 inch below the rail tread, where track gauge is established. Gauge lines other than 5/8 inch are found on light rail transit.
2) The side of the railhead of a third rail where the third rail gauge is measured.

Gibs The vertical ridges on each end of a truck bolster which engage the column guide surfaces of the side frame when the truck is assembled.

Girder Rail A special rail cross-section for use on light-rail trackage in paved streets incorporating an integral flangeway on the gauge side of the railhead.

Gondola Car A freight car with low sides and ends, a solid floor, and no roof. It is used mainly for transportation of coal, iron and steel products and other lading not requiring protection from the weather. Special types of gondola cars are built with high sides (for coal), removable covers, load-scouring devices, drop-ends (for long loads) etc., for specialized service.

Grade The rise or fall in elevation of railroad track. A rise of 1 foot in elevation in 100' of track is a 1% ascending grade. Similarly, a decrease of 0.75' or 9' in elevation in 100' of track is a 0.75% descending grade.

Grade Crossing An intersection of a highway with a railroad at the same level. Also, an intersection of two or more railroad tracks at the same elevation.

Grade Resistance The resistance to motion of a train on a gradient due to the pull of gravity. Grade resistance is always 20 pounds for each ton of train weight for each percent of grade. Thus, a train on a 0.75 per cent grade (.75 feet or nine inches change in elevation per 100 feet of length of track) would have 15 pounds grade resistance for each ton of train weight. If the track rises, the grade drag is positive; if the track decreases in elevation, the grade drag is negative.

Grain Door A temporary arrangement for sealing the openings around boxcar sliding doors so that the car may be used for bulk handling of grain. One common type consists of heavy reinforced paper nailed to strips of wood which are fastened to the door posts one either side of the car door opening.

Gravity Switch Move A switching maneuver whereby gravity causes a stationary car to roll when the handbrake is released rather than being propelled by an engine.

Gross Ton Combined weight of the rail vehicle (or train) and its contents expressed in tons (i.e., 2000 gross pounds equal one gross ton).

Gross Ton Mile A volume measure of rail traffic calculated by multiplying the weight in gross tons times the distance in miles.

Gross Weight The total combined weight of a rail car and its contents. Also, the total combined weight of a train (locomotives, revenue cars, empties and caboose).

Guard Rail 1) A short, heavily braced rail opposite a frog to prevent wheels from striking the frog point or taking the wrong route.
2) Auxiliary rails between the running rails on bridges, in tunnels or near other obstacles or hazards to keep derailed cars from leaving the road bed before exiting the danger area.

H

Hand Brake 1) A device mounted on railway cars and locomotives to provide a means for applying brakes manually without air pressure. Common types include vertical wheel, horizontal wheel and lever type, so named because of the configuration or orientation of their operating handles.
2) The brake apparatus used to manually apply or release the brakes on a car or locomotive.

Hazardous Material 1) When used with respect to lading in transportation vehicles, a term identifying the lading as subject to specific safety requirements set forth by the Department of Transportation and/or the Interstate Commerce Commission. Examples of hazardous materials are explosives, poisons, flammable liquids, corrosive substances, and oxidizing or radioactive materials.

2) A substance or material which is capable of posing an unreasonable risk to health, safety, and the environment.

Head-End Power (HEP) A system of furnishing electric power for a complete railway train from a single generating plant, located either on the locomotive or on a power car.

Headway Time required for successive vehicles traveling at the same speed and direction to pass the same point.

Heavy Rail Heavy-weight transit vehicle using an existing freight line or third rail power source and operating on exclusive right of way, usually having high-level platform stations.

Heavy Rail Transit An electric railway constructed on an exclusive right-of-way to transport passengers in an urban environment. Operations generally consist of trains with several passenger cars coupled together operating on a subway, elevated, or grade-separated surface right of way, usually with power via third rail.

Heavy Repairs As reported to the Association of American Railroads, repairs to revenue freight cars requiring over 20 man-hours.

Held for Orders Cars in repair facilities waiting on authorization to proceed with repairs.

Helper A manned locomotive, usually placed toward the rear of a train, to assist in the movement of the train. For instance, a helper may be used on a heavy ascending grade.

Helper Locomotive A locomotive usually placed towards the rear of a train, to assist in the movement of the train over heavy grades. Helper locomotives can be either manned, or remotely controlled from the lead unit in the train.

Highrailer A highway-type vehicle equipped with secondary flanged wheels for running on rails. Usually used as an inspection vehicle.

High Side Gondola Car A gondola car, with sides and ends over 36 inches high, for carrying coal or minerals.

High Speed Rail Passenger rail transportation system in densely-traveled corridor over exclusive right-of-way at speeds of 125 mph (200 Kmph) or greater.

High & Wide A term referring to outside dimensions of a car or open top load that exceed the normal clearances on the route to be traveled.

Horsepower A unit of power equivalent to 33,000 foot-pounds per minute or 746 watts.

Horsepower Limited Speed The maximum speed obtainable from the horsepower developed by the locomotive.

Hotbox An overheated journal caused by excessive friction between bearing and journal, due to lack of lubricant or foreign matter.

Hot Box Detector A heat sensitive device installed along railroad mainline track at strategic locations for measuring the relative temperatures of passing journal bearings. Bearing temperatures may be transmitted to wayside stations and monitored by personnel who can act to stop a train if an overheated journal is discovered. Most detectors report any bearing temperatures above a threshold value by radio directly to the train crew for appropriate action.

Hump Yard A railroad classification yard in which the classification of cars is accomplished by pushing them over a summit, known as a "hump," beyond which they run by gravity into their assigned track.

I

I.C.C. Abbreviation for Interstate Commerce Commission, superseded by the Surface Transportation Board in 1996.

Idler Car Usually a flatcar used in the transportation of a long article or shipment, which extends beyond the limits of the car carrying the shipment; the "idler" being a car on which the shipment or article does not rest, but overhangs. Also, a car used to move cars into or out of trackage (e.g., car float) where locomotive may not go.

IDT Initials that stand for"ln-Date-Test," periodic test of the air brake equipment on every car to assure its continued proper operation. The month, day and year of the most recent IDT must be stenciled on every car.

Independent Brake The air brake control valve on a locomotive unit that controls the brakes on that locomotive (or multiple unit consist) independently from the train brakes.

Industry Track A track which services an industry, usually a spur.

Insulated Joint A rail joint designed to arrest the flow of electric current from rail to rail by means of insulation so placed as to separate rail ends and other metal parts connecting them.

Insulated Rail Joint A joint in which electrical insulation is provided between adjoining rails.

Interchange A process by which rolling stock is delivered or received between two separate railroads.

Interchange Rules Rules established and maintained by committees made up of representatives of railroad and car owners. If offered in interchange, a car complying with all interchange

requirements must be accepted by an operating railroad, to another at a common junction point.

Interface Transfer activity and the facilities required for transfers between transportation modes (e.g., bus to rail, etc.).

Interline Rail shipment involving at least two different railroads between its origin and destination.

Interlocking An arrangement of switch, lock, and signal devices that is located where rail routes cross and that is interconnected in such a way that their movements must succeed each other in a predetermined order, thereby preventing opposing or conflicting train movements.

Interlocking, Automatic An arrangement of signals, with or without other signal appliances, which functions automatically upon the approach of a train, as distinguished from those functions are controlled manually.

Intermodal Of or relating to the connection between rail service and other modes of transportation, including all parts of facilities at which such connection is made.

Intermodal Traffic Transportation of goods in containers or trailers involving more than one mode-rail, water, highway.

Intermodal Freight Goods or materials moving by more than one mode of transportation (e.g., TOFC, COFC).

Intermodal Freight Facilities Yard or terminal where freight is transferred from one mode to another using cranes, ramps and other means.

Intermodal Passenger Facilities Station or terminal where several modes meet, allowing direct transfers of passengers from one mode to another.

Invert The inverted arch in the lower portion of the cross-section of a tunnel supporting the track, walls and roof.

J

Joint The junction of members or the edges of members that are to be joined or have been joined.

Journal Bearing The general term used to describe the load bearing arrangement at the ends of each axle of a railcar truck. So called plain journal bearings are blocks of metal, usually brass or bronze, shaped to fit the curved surface of the axle journal, and resting directly upon it with lubrication provided by oil supplied by spring-loaded wick-fed lubricator pads beneath the axle in the journal box. Journal roller bearings are sealed assemblies of rollers,

races, cups and cones pressed onto axle journals and generally lubricated with grease. Vertical loads are transferred from the journal bearing to the truck side frame through the journal bearing wedge (in plain bearing designs), or through the roller bearing adapter in roller bearing trucks.

Journal Box The metal housing on a plain bearing truck which encloses the journal of a car axle, the journal bearing and wedge, and which holds the oil and lubricating device.

K

Kilowatt Hour A unit of energy measured equal to the continuous flow of one kilowatt (1000 watts) for one hour.

Knuckle 1) The pivoting casting that fits into the head of a coupler to engage a mating coupler. 2) The pivoting hook-like casting that fits into the head of a coupler and rotates about a vertical pin to either the open position (to engage a mating coupler) or to the closed position (when fully engaged). Coupler knuckles must conform to a standard dimensional contour specified by the Association of American Railroads.

L

LCL (Less-Than-Carload) A term applicable to a quantity of freight which is less than the amount necessary to constitute a carload.

Lead (or Ladder) A track which has numerous tracks branching off it.

Leased Line A rail line that is leased to another railroad which operates and maintains said line.

Light Engine A locomotive or locomotive consist running as a train without cars.

Light Rail An urban/suburban passenger system employing manned vehicles ("LRV's"-usually articulated) operating singly or in short trains over routes including some in-street running on overhead catenary or trolley wire power.

Light Weight Empty or tare weight of a railroad car, new or as determined by reweighing after any repairs, stenciled on car in conjunction with the load limit abbreviated LT.WT.

Line Haul The movement over the tracks of a carrier from one city to another, not including switching service.

Link and Pin Coupler An old type of connection between cars employing a single link attached to each drawhead by a vertical pin manually inserted when coupling.

Load Factor Ratio of total passengers to number of seats.

Local Service The service rendered by a train which stops to deliver and receive freight by setting out and picking up cars at intermediate points along its route.

Locomotive A self-propelled vehicle running on rails, and generating or converting energy into motion for the purpose of hauling cars. A locomotive has no space for a revenue load.

Locomotive Unit A single carbody with power and transmission equipment, but not necessarily with controls.

LRSA Act Acronym for the Local Rail Service Assistance Act of 1978.

LRV Abbreviation for "Light Rail Vehicle."

L/V Ratio The L/V ratio is defined as the ratio of the lateral force to the vertical force of a car or locomotive wheel on a rail. An important factor affecting the tendency of the wheel to overturn or climb the rail it is often a point of discussion in evaluating the cause of a train derailment.

M

Magnetic Field A term applied to the space occupied by electric or magnetic lines of force.

Mainlines The primary tracks of a railroad, those carrying more than 5 million gross tons per year.

Main Track A track extending through yards and between stations upon which trains are operated by timetable or train order, or both, or the use of which is governed by signal indication.

Manifest A document giving the description of a single shipment or the contents of a car.

Manual Train Control Train movement completely controlled by the operator.

Mechanical Designation An alphabetic code two - to four - letter assigned by the Association of American Railroads to every freight car to designate its general design characteristics and its intended purpose. E.g., XF = food-service boxcar.

Mechanical Refrigerator A term applied to refrigerator cars equipped with a self-contained power plant and mechanical refrigeration equipment including a compressor, condenser, evaporator, and fans for distribution of cold air around the lading.

Mile Post A post indicating the distance in miles from a given point.

Modal Split The division of trips made from the various alternative types of transportation available.

Motive Power A term relating to the self-propelling equipment of a railroad, usually taken to mean locomotives.

MPH Abbreviation for "Miles Per Hour."

Multiple Unit Operation Practice of coupling two or more locomotives or electric passenger cars together with provision made to control the traction motors on all units from a single controller. Sometimes referred to as "MU-ing".

Multiple Unit Train Two or more electrically-operated passenger cars coupled with provision made to control the operation of the cars from a single controller. Sometimes referred to as "EMU".

N

Network The configuration of routes and junctions which constitute the total system.

Nonoperating Income Net income from property or operation not associated with providing transportation or transit service.

Normally Aspirated (Internal Combustion Engine) An engine that uses are at atmospheric pressure for combustion.

O

Open-Top Car Any of a group of cars with or without sides and ends, and with no roof, all being intended for transportation of commodities not requiring protection from the weather, such as steel products, coal or rough forest products. Flat, gondola and hopper cars are all classed as open top cars.

Operating Ratio The ratio of operating costs to gross revenue.

Operating Revenue The gross income from operation of the rail system, including fares, charter income, concessions, advertising, and movement of goods in the case of freight operations. Does not include interest from securities, non-recurring income from sale of capital assets, etc.

Ore Car An open top gondola or hopper car designed specifically to carry iron or some other metallic ore. Because of the high density of most ores, cars for this service are built with relatively low cubic capacities, and some are equipped with empty-and-load brake equipment.

OSHA Occupational Safety and Health Administration.

Overhead Loading A method of loading highway trailers or containers on intermodal cars by the use of an overhead (usually a gantry type) crane.

Overpass (Railroad) Any grade-separated structure where the tracks pass over a street, highway, railroad, etc.

P-Q

Pantograph A device for collecting current from an over headed conductor (catenary) and consisting of a jointed frame operated by springs or compressed air, and having a suitable collector at the top.

Peak Hour That hour period during which the maximum amount of travel occurs. Generally there is a morning peak and an afternoon peak, especially for commuter operations.

Per Diem The amount or rate paid by one carrier to another or to a private car owner for each calendar day (or each hour) it uses a car belonging to the other.

Pickup A term descriptive of a car or cars added to a train enroute between dispatching and receiving yards: or added at dispatching yard to train operating over two or more divisions on a continuous wheel report.

Piggyback A term referring to the practice of transporting highway trailers on railroad flatcars. *See TOFC.*

Piggyback Car Flat cars designed and equipped for the transportation of highway vehicles or containers.

Pilot A qualified employee assigned to a train or other on-track equipment when the engineer, conductor or driver is not qualified on the physical characteristics or rules of the portion of the railroad over which movement is to be made.

Pitch Rise and fall "porpoising" motion about the transverse axis of the vehicle.

Plain Journal Bearings *See Journal Bearing*

Plate B, C, E, F and H An AAR clearance diagram for unlimited interchange. *See Clearance Diagram.*

Platform An intermodal freight car unit capable of carrying 40 ft. container or trailer - term used to clarify situation since platforms permanently connected (by articulation or drawbars) are given a single car number. Also called a"slot."

Plug Door 1) A type of side door used on insulated box and refrigerator cars that fits flush with the interior car side when closed. Plug doors provide a better seal and are, therefore, more desirable than the common sliding door for insulated car applications.
2) A freight car door designed to fit into the door opening rather than sliding across it.

Pneumatic Coupler An automatic connector which links pneumatic trainlines together between rail cars.

Power Work done by a force divided by the time required to do the work. A high power locomotive can do a relatively large amount of work in a short amount of time.

Preventative Maintenance Inspection to discover if something needs repairing before it fails and performing the necessary work in order to stop or slow that failure.

Push-Pull Train Operation Passenger service, typically over commuter or medium-haul routes, with locomotive-powered consists train-line connected for control from either end which shuttle between terminal stations without being turned.

Puzzle Switch *See Double Slip Switch.*

R

Rack Rail A notched rail mounted between the running rails that engages the gears of a locomotive so equipped, for traction ascending and braking descending on a cog railroad.

Rail As used in car construction, any horizontal member of a car superstructure. The term is usually used in combination with some additional identifying word such as "belt rail" or "hand rail." As used in track, a rolled steel shape, commonly at-section, designed to be laid end to end in two parallel lines on crossties or other suitable support to form the supporting guideway constituting a railroad.

Rail Anchor A device attached to the base of a rail bearing against a crosstie to prevent the rail from moving longitudinally under traffic.

Rail Classification Weight per yard of rail length (e.g., 90-lb. rail).

Rail Creep The occasional lengthwise movement of rails in track. Rail creep is caused by the movement of trains or temperature changes. It is common practice to stop the effect of creeping by the use of rail anchors of resilient fasteners.

Rail Detector Car A small car equipped to test rails for flaws. A less sophisticated track geometry car.

Rail, Head-Hardened A rail with only the railhead heat treated to a higher hardness for reduced wear, longer life on curves.

Rail Section The shape of the end of a rail cut at right angles to its length. The rail mills identify the different shapes and types of rails by code numbers, as for example, 131-28 for the 131 RE rail section.

Rail Tread The top portion of the railhead where rail/wheel tread contact occurs. Also called Running Surface.

Rail Web The vertical member of a rail connecting head and base to form a beam.

Raised-Wheel Seat Axle Current design of axle in which wheels are pressed onto enlarged, parallel section of axle eliminating failures caused by stress concentration at the wheel-axle interface.

Rapid Transit Heavy-rail systems for urban/suburban passenger service not directly connected to the lines of commuter or freight railroads.

Rate Bureau The tariff setting and publication agency for all carriers within a certain freight classification territory in the era prior to deregulation.

Rate of Return The ratio of net operating income (also called "net railway operating income" in railway accounting) to the value of the property in common carrier use, including allowance for working capital.

Real Estate Land, including all the natural resources and permanent buildings on it.

Receiving Yard A rail yard used for receiving trains from over-the-road movements in preparation for classification.

Regenerative Braking The retardation system on electric cars or locomotives which can return power developed by traction motors acting as generators to the third rail or catenary for use by other units.

Remote Control A term denoting the control of any apparatus from a location apart from the location of the apparatus.

Repair 1) Reconstruction of a car, or a part or parts of a car to its original design.
2) Physical work performed upon a railcar in order to restore original structure because of damage, decay, injury, deterioration or partial destruction. *See also Preventative Maintenance*.

Resilient Fastener Any of a variety of proprietary designs of rail fastener other than cut spikes that provide a more positive connection between the rail and tie or a track support slab.

Revenue Cars Income-producing rail cars, carrying passengers or freight.

Reverser The handle on a locomotive control stand that selects the direction in which the locomotive will move by reversing the traction motor field connections.

Ribbon Rail *See continuous welded rail (CWR).*

Right of Way The land occupied by a railroad, especially the land traversed by the track. Track, yards and terminals are within the operating right of way.

Riprap Heavy stones or other durable material used to protect the roadbed from water erosion.

Rip Track A small car repair facility, often simply a single track in a classification yard or terminal. In larger yards, the rip track may be quite extensive with several tracks and shop buildings. Larger car repair facilities are generally known as "car shops. "The name "rip track" is derived from the initials RIP which stands for "repair, inspect and paint."

Roadbed The rock or soil surface upon which the ties, rails, and ballast of the railroad track rest.

Rock-and-Roll A slang term for the excessive lateral rocking of cars, usually at low speeds and associated with jointed rail. The speed range through which this cyclic phenomenon occurs is determined by such factors as the wheel base, height of the center of gravity of each individual car, and the spring dampening associated with each vehicle's suspension system.

Roller Bearing The general term applied to journal bearings that employ hardened steel rollers to reduce rotational friction. Roller bearings are sealed assemblies that are mechanically pressed onto an axle, and transfer the wheel loads to the truck side frames through a device known as a roller bearing adapter that fits between the bearing outer ring and the side frame pedestal.

Rolling Stock The vehicles used in a transportation system.

Rotary-Dump Car Open-top car equipped with rotary coupler at one end allowing load to be dumped by overturning without need for uncoupling.

Rotating End-Cap Roller Bearing Modern type of journal roller bearing in which the outer grease seal is between the cartridge-type bearing assembly and a cap attached to the axle.

Roundhouse A storage or maintenance building for locomotives, usually equipped with a turntable.

RSPO Acronym for the Rail Service Planning Office.

Run The train to which an employee is assigned. It is his regular route usually from one division to another.

Running Rail The rails which rolling stock and on-track equipment runs directly on as opposed to guardrail, rack rail or third rail.

Running Surface *See RailTread.*

Running Time The elapsed travel time between points along a route.

R/W (or ROW) Abbreviation for right of way.

S

Schedule That part of a timetable which prescribes class, direction, number and movement for a regular train.

Schnabel Car A specially designed car used for transportation of extremely large and heavy machinery. The car is constructed with two separate units, capable of empty movement as a single car when bolted together. The load is placed between the two carrying units, and rigidly fastened to them, thus becoming literally part of the carbody.

SDM Acronym for the System Diagram Map. A listing submitted by the railroads indicating location and data for lines placed in category I, II, and III.

Shatter Cracks A rail defect in the form of minute cracks in the interior of rail heads, seldom closer than 1/2 in. from the surface, and visible only after deep etching or at high magnification. They are caused by rapid (air) cooling, and may be prevented from forming by control cooling the rail.

Shelf Coupler A special coupler, required on some cars designed for transporting hazardous commodities, having top and bottom "shelves" cast integral with the head to prevent vertical disengagement of mating couplers in the event of an excessive impact as in a derailment. Shelf couplers are fully compatible with other standard A.A.R. couplers.

Shoofly A temporary track (detour) built around an obstacle such as a wreck, construction sites, or a flooded-out place.

Shops Structures which shelter vehicle construction and repair activities.

Short Line Railroads These typically operate between cities, are shorter than major (Class I) railroads and consist of Class II and Class III railroads. They may be either independently owned or a subsidiary of another railroad.

Shoulder That portion of the ballast between the end of the tie and the toe of the ballast slope.

Side Bearing A load bearing component arranged to absorb vertical loads arising from the rocking motion of the car. There are various types of side bearings ranging from simple flat

pads to complex devices which maintain constant contact between the truck bolster and carbody. *See Body Side Bearing.*

Side Frame In the conventional three-piece truck, the heavy cast steel side member which is designed to transmit vertical loads from the wheels through either journal boxes or pedestals to the truck bolster springs.

Side Loading A method of loading or unloading containers or highway trailers on or off flat cars by physically lifting the unit over the side of the car with heavy duty mobile loading equipment.

Siding A track auxiliary to the main track for meeting or passing trains.

Signal Indication The information conveyed by the aspect of a signal relative to speed and conditions on the track ahead.

Single Track Main track on which trains are operated in both directions.

Skate A metal skid or chock (wedge) placed on rail to stop the movement of rolling stock.

Slack Unrestrained free movement between the cars in a train.

Sliding Sill A term used to describe a type of hydraulic cushioning for freight car underframes. In sliding sill designs, a single hydraulic unit is installed at the center of the car and acts to control longitudinal forces received at either end of an auxiliary center sill, which is free to travel longitudinally within a fixed center sill. *See Cushion Underframes.*

Slug A cabless locomotive which has traction motors, but no means of supplying power to them by itself. Power is provided by power cables from an adjacent unit. Slugs are used where low speeds and high tractive effort are needed, such as in hump yards.

Snubbers Hydraulic or friction damping devices used in suspension systems of cars to improve lateral stability. Some snubbers are designed to replace one spring in the truck spring group, some are incorporated as part of the truck side frame or bolster design, and others require special installation. Supplemental hydraulic snubbing is used most often on cars with high centers of gravity such as 100-ton coal hoppers or gondolas and tri-level automobile rack cars.

Solid-State Inverter A sophisticated, computer-driven device used to generate, modify, or alter electrical waveforms and frequencies, an essential component used to generate and regulate alternating-current for the AC induction traction motors of modern locomotives.

Spike Killing The damage and reduction of the holding power of a tie resulting from repetitive removal and installation of spikes in changing or transposing rail.

Spiral When used with respect to track: a form of easement curve in which the change of degree of curve is uniform throughout its length in going from tangent to curve.

Spring A general term referring to a large group of mechanical devices making use of the elastic properties of materials to cushion loads or control motion. *See Coil Spring, Elliptic Spring, and Truck Springs.*

Spring Group Any combination of standardized coil springs used in each truck side frame, and selected to match car capacities and obtain desired vertical suspension characteristics. Cars are often stenciled to show the number of specific springs of various designations, e.g., 5 D5 outer 3 D5 inner, that make up the spring group standard to the car.

Spur A section of track connected at one end only to a main track.

Staggers Rail Act of 1980 An act of Congress which fundamentally altered the regulatory environment of the railroad industry by reducing regulations including the elimination of antitrust immunity in certain areas of activity.

Stake Pocket A "U"-shaped collar attached to the side or end sill of a flat car to receive the lower end of a stake used for securing open top loads.

Standard Gauge The standard distance between rails of North American railroads, or 1735 mm, being 4' 8 1/2" measured between the inside faces of the rail heads 5/8" below the rail head.

Static Load The load or weight on the roadbed applied by track material or standing rolling stock.

Station A place designated in the timetable by name. An enclosed building or covered area that acts as a collection and distribution point for passengers.

STCC Acronym for Standard Transportation Commodity Code.

Subballast Any material which is spread on the finished subgrade of the roadbed below the top-ballast to provide better drainage, prevent upheaval by frost, and better distribute the load over the roadbed.

Subgrade (Track) The finished surface of the basement material below the ballast (or subballast if any).

Superelevation The vertical distance the outer rail is raised above the inner rail on curves to resist the centrifugal force of moving trains.

Surface Transportation Board (STB) Replaced the Interstate Commerce Commission.

Suspension The system of wheels and axles which supports the vehicle on the track and the springs and dampers which further isolate it from shocks and vibration.

Sway A side-to-side oscillation or fluctuation of a vehicle.

Swing Hanger Bars or links, attached at their upper ends to the frame of a swing motion truck, and carrying the spring plank at their lower ends. Also called "bolster hanger."

Swing-Nose Frogs A frog in a turnout with a movable frog point connected to a switch machine to match the switch position.

Switch A track structure with movable rails to divert rolling stock from one track to another in a turnout. By eliminating the gap across which wheels must pass, the swing nose eliminates impact and also allows the use of frogs longer than No. 24. (e.g., No. 32, allowing 80 mph operation through the diverging route of a turnout.)

Switch and Lock Movement A device, the complete operation of which performs the three functions of unlocking, operating, and locking a switch, movable point frog, or derail.

Switchback A zigzag railroad track built across a hill too steep for direct ascent.

Switching and Terminal Companies Are those that provide railroad switch service for certain towns or other facilities.

System Car A car owned by the subscriber railroad.

System Repair A repair performed by owner of the car.

T

Tangent Straight section of track.

Tariffs A set schedule of rates the railroads can (must) charge shippers, set by a regulatory agency.

Tariff Circulars (I.C.C.) Circulars issued by the Interstate Commerce Commission or its successor containing rules and regulations to be observed by the carriers in the publication, construction and filing of tariffs and other schedules.

Team Track A track which is owned by the railroad, and is used to spot cars for customers who do not have an industry track leading into their plant.

Tee Rail The typical rail shape used in track construction. The tee rail consists of a head, web and base, and is so called because of the inverted "T" shape it assumes.

Terminal An assemblage of facilities provided by a railway at a terminus or at an intermediate point for the handling of passengers or freight and the receiving, classifying, assembling and dispatching of trains.

Third-Rail A current distribution system for electric railroads consisting of an insulated rail laid parallel to one of the running rails and arranged to provide a continuous supply of power to electric locomotives.

Tie The portion of track structure generally placed perpendicular to the rail to hold track gauge, distribute the weight of the rails and rolling stock, and hold the track in surface and alignment. The majority of ties are made from wood. Other materials used in the manufacture of ties include concrete and steel. Also called Crosstie.

Tie Down Any device for securing a load to the deck of a car. Chain tie downs with ratchets are probably the most common type and are used to secure wheeled vehicles and lumber products on flat cars.

Tie Plate The metal plate which fits between the base of the rail and tie. Modern tie plates have an inside and outside shoulder, and an inclined surface (also see "Cant").

Timetable The authority governing movement of trains subject to the rules. It contains classified schedules of regular trains and special instructions.

Toe (of a Frog) End of a frog nearest the switch.

TOFC An acronym for "trailer on flatcar" intermodal service or equipment.

Track An assembly of fixed location extending over distances to guide rolling stock and accept the imposed dynamic and static loads. *See Track Structure.*

Trackage Lines of railway track. A right to use the tracks of another railroad.

Trackage Rights The privilege of using the tracks of another railroad, for which the owed railroad is duly compensated.

Track Circuit An electrical circuit of which the rails of the track form a part. (I.C.C)

Track Gauge (Measurement) Measured at right angles, the distance between running rails of a track at the gauge lines.

Track Geometry Car A passenger or self-propelled car equipped with necessary instrumentation to provide quantitative track evaluations.

Track Maintenance The process of repairing a track defect or track condition.

Track Modulus A quantitative measure of the vertical deflection of track under wheel loads (pounds per inch per inch of length) used to assess the suitability of track structure and subgrade for heavy axle-loading traffic.

Track Structure A term relating to the various components that comprise a track, such as tie plates, fasteners, ties, rail anchors, guardrails, etc. See *Track.*

Trackwork The rails, switches, frogs, crossings, fastenings, pads, ties, and ballast or track support slab over which rail cars are operated. Also, maintenance or repair of the above.

Traffic Control Systems A block signal system under which train movements are authorized by block signals whose indications supersede the superiority of trains for both opposing and following movements on the same track. See *CTC.*

Train For dispatching purposes, an engine or more than one engine coupled, with or without cars, displaying markers. (e.g., headlight and rear-end device).

Train Consist The composition of the complete train excluding the locomotive. The cars in a train.

Train Line A term properly applied to describe the continuous line of brake pipe extending from the locomotives to the last car in a train, with all cars and air hoses coupled. The term is often used to refer to the brake pipe on a single car.

Train Resistance A force which resists or opposes movement of a train. Resistance to motion along the track, attributed to bearings, wind and air resistance, flange contact with rail, grade, etc.

Transpose Rail To swap the rails of a track to extend their service life.

Tread The portion of the steel wheel that runs or bears upon the ball of the rail. Also the top surface of the head of a rail which contacts wheels.

Trestle A braced framework of short spans for carrying a train over a depression, chasm, or river.

Trimmer A signal located near the summit in a hump yard, which gives indication concerning movement from the classification tracks toward the summit.

Truck The general term covering the assembly of springs, axles, wheels, etc., comprising the structures which support a car body at each end (or in the case of articulated cars, the joint support of two, abutting rear ends).

Truck Bolster The main transverse member of a truck assembly that transmits car body loads to the side frames through the suspension system. The ends of the bolster fit loosely into the wide openings in the side frames and are retained by the gibs, which contact the side frame

column guides. Truck bolster contact with the car body is through the truck center plate, which mates with the body center plate and through the side bearings.

Truck Center Plate The circular area at the center of a truck bolster, designed to accept the protruding body center plate and provide the principal bearing surface, often fitted with a horizontal wear plate and a vertical wear ring to improve wearing characteristic and extend bolster life.

Truck Center Spacing On a single car, the distance between the truck center pins as measured along the center sill from the center line of one body bolster to the center line of the other.

Truck Hunting A lateral instability of a truck, generally occurring at high speed, and characterized by one or both wheelsets shifting from side to side with the flanges striking the rail. The resulting motion of the car causes excessive wear in car and truck components, and creates potentially unsafe operating conditions. For freight vehicles, the phenomenon occurs primarily with empty or lightly loaded cars with worn wheelsets.

Truck Side Bearing A plate, block, roller or elastic unit fastened to the top surface of a truck bolster on both sides of the center plate, and functioning in conjunction with the body side bearing to support the load of a moving car when variations in track cross level cause the car body to rock transversely on the center plates.

Truck Springs A general term used to describe any of the several types of springs used in the suspension of trucks to provide a degree of vertical cushioning to the car and its load.

Turbocharger A centrifugal blower driven by an exhaust gas turbine used to supercharge an engine.

Turn-Around Time The time required to complete the cycle of loading, movement, unloading and placement for reloading of a freight car.

Turnout An arrangement of a switch and a frog with closure rails by means of which rolling stock may be diverted from one track to another. Engineering term for "track switch."

Turntable A rotating platform with a track for redirecting or turning cars and locomotives.

U

UMLER Acronym for Universal Machine Language Equipment Register. A continuously updated computerized file maintained by the Association of American Railroads. UMLER contains specific details on internal and external dimensions capacity and other information affecting the loading and use of freight cars as of UMLER includes data on intermodal (piggyback) trailers and locomotives shown in The Official Railway Equipment Register.

Unbalanced Superelevation The amount (vertical distance) that the actual superelevation is less than that required for equilibrium superelevation for vehicles traveling at maximum authorized speed.

Underpass (railroad) Any structure, regardless of type, where the tracks pass under a street, highway, railroad, etc.

Unit (locomotive) The least number of wheel bases together with superstructures capable of independent propulsion, but not necessarily equipped with independent control. The term is used in connection with diesel and electric locomotives.

Unit(s) A car, multi-unit car, articulated car, or multi-level superstructure which is identified by a unique reporting mark and number.

Unit Train A train transporting a single commodity from one source (shipper) to one destination (consignee) in accordance with an applicable tariff and with assigned cars.

V

Variable Cost A cost that varies in relation to the level of operational activity.

Voltage A unit of electromotive force which causes electrical current to flow in a conductor. One volt will cause an electrical current of one ampere to flow through a resistance of one ohm.

W

Waybill The primary written documentation of every freight shipment that forms the basis for railroad freight revenue accounts.

Wayside Control A system of electronic or mechanical devices alongside the track for controlling rail vehicles.

Well Car A flatcar with a depression or opening in the center to allow the load to extend below the normal floor level when it could not otherwise come within the overhead clearance limits.

Wheel The specially designed cast or forged steel cylindrical element that rolls on the rail, carries the weight and provides guidance for rail vehicles. Railway wheels are semi-permanently mounted in pairs on steel axles, and are designed with flanges and a tapered tread to provide for operations on track of a specific gage. The wheel also serves as a brake drum on cars with on-tread brakes.

Wheel Flange The tapered projection extending completely around the inner rim of a railway wheel, the function of which, in conjunction with the flange of a mate wheel, is to keep the

wheel set on the track by limiting lateral movement of the assembly against the inside surface of either rail.

Wheel Plate The part of a railway wheel between the hub and the rim.

Wheel Report A listing of the cars in a train as it leaves a yard, made from waybills, on which the conductor posts set-offs and pickups.

Wheel Set The term used to describe a pair of wheels mounted on an axle.

Wheel Slip An operating condition where in there is driving wheel rotation on its axis with motion of the wheel at the point of contact with the rail. Wheel rotation speed during wheel slip is greater than it is during rolling, to the extent that tractive force is significantly reduced.

Wheel Tread The slightly tapered or sometimes cylindrical circumferential surface of a railway wheel that bears on the rail and serves as a brake drum on cars with conventional truck brake rigging.

Wide Gauge Track defect caused by failure of tie/rail fastening system to withstand lateral wheel forces, leading to derailment when wheel drops off railhead.

Window The time slot between scheduled trains.

Woodchip Hopper Open-top hopper or gondola car of high cubic capacity used to transport woodchips.

Work The force exerted on an object multiplied by the distance the object moved. The work a locomotive does is the tractive effort of the locomotive multiplied by the distance the train moves as a result of the tractive effort.

Wye Tracks forming the letter Y with a connector across the top, used for turning cars and engines where no turntable is available.

X-Y-Z

Yard A system of tracks defined by limits within which movements may be made without schedule, train order of other authority for the purpose of classification, etc.

Yard Engine An engine assigned to yard service and working wholly within yard limits.

Yard Plant Compressed air supply facility allowing charging of train air line and conduct of terminal air brake tests before arrival of road locomotive.

Yaw Veering motion as vehicle heading deviates from track alignment.

Yoke The component in a railroad car draft system that transmits longitudinal coupler forces to the draft gear. See *Coupler Yoke.*

FRA Track Safety Classification

Item	Criteria	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
Speed Limit	Freight	10	25	40	60	80	110

Other criteria included in determination of class of track include: gage, alignment, track surface, rail condition, rail end match, number of spikes.