

Joint Use of Track by Electric Railways and Railroads: Historic View

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Transit agencies are considering operating light rail or commuter railroad service on existing freight railroad tracks because of the high capital costs to construct new exclusive trackage for passenger service. A number of institutional, regulatory, and technical barriers, among them the buff strength of passenger carrying cars, must be overcome to allow joint use of railroad track. Case studies are examined: San Diego Trolley, Baltimore Central Light Rail Line, South Shore Line, and others. Historic cases will be examined to illustrate how joint operation was handled from 1900 to the 1950s. Also noted are examples of rulings as to what is a railroad. A number of Interstate Commerce Commission decisions turned on whether an electric railway was an interurban railway or a railroad that was "part of the general steam railroad system of the United States." In general, the proportion of railroad interchange freight revenue to passenger revenue was the deciding factor. The nature of freight service has been crucial to joint use. Whether it is line haul, local, slow, or fast governs how much time it will occupy the joint track. Axle loading may be important for design, construction, and maintenance of joint track. Frequency, the time of day, and the time sensitivity of the freight are important. Careful analysis of a railroad's needs has to be done and the plan developed to meet those needs; otherwise, the railroad company does not allow joint use. Only one vestige of joint use remains: the South Brooklyn Railway. Two new-start LRT lines, San Diego and Baltimore, have joint operation, separated temporally. Their example can provide guidance

for present LRT planners. Can the several barriers to joint use in the United States be overcome to make LRT and other forms of rail transit more affordable, yet safe? History and current overseas experience indicate that they can.

There is substantial and increasing interest worldwide in operating electric railway services on the same track with railroad service. The reality of high capital costs to construct new exclusive trackage for electric railway transit service in a time when capital funding is severely restricted has forced agencies to consider, study, and in some cases use existing railroad track. In the most recent cases, the track itself has been replaced with new track of continuously welded rails.

Several recent light rail transit lines share track with railroad freight service. These will be examined. Some persons may believe that these few cases are innovative; in fact, there are numerous rail precedents, most of them abandoned years ago. Others fear that sharing a track with a freight railroad will bring burdensome railroad regulations upon a transit agency. Several instances will be cited from the present and the past showing electric railway transit services sharing track with a railroad without the transit operators falling under regulation as a railroad by the Interstate Commerce Commission (ICC).

Two examples of heavy rail transit sharing track with railroad carload freight service will be offered. The tran-

sit operators retain or retained their status as local transit systems that were not regulated as railroads.

In other cases, two operators of rapid transit-type service were classified as railroads. The reasons for this situation will be examined with the view of avoiding being classified as a railroad.

Even though there are successful examples, barriers of several kinds remain: institutional, regulatory, and technical; they will be described.

WHAT IS A RAILROAD?

First it is important to define a railroad. The Interstate Commerce Act of 1887 (United States Code, Title 49, Subtitle IV) defines it as "part of the general steam railroad system of the United States." Every subsequent case has been adjudicated on its own merits, yet all have a common thread. If the rail line in question is part of the "general railroad system" ("steam" is no longer used), the company engages predominantly in interstate railroad freight or passenger traffic. Several measures have been applied. If a given company is not itself an interstate carrier, it can still be adjudged as engaging in interstate commerce, and under federal regulation, if it handles freight cars and/or passengers in interstate commerce. An intrastate short line railroad is engaged in interstate commerce if it handles a freight car (or passenger) traveling on an interstate waybill (or ticket).

There is a substantial body of case law in which the ICC classified companies as railroads or interurban electric railways on the basis of whether the freight traffic they handled was "predominant" or "incidental." There was no hard and fast rule. Each case was decided on its own merits. The measure was always whether the company was a railroad or not. Decisions did not revolve around the track itself. That is an important distinction.

EX PARTE 179 AND BUFF STRENGTH

During 1953 and 1954 the ICC held hearings under a proceeding designated Ex Parte 179 and promulgated new regulations in CFR 49 Part 229.141 (D). This designated railroad multiple unit (MU) passenger carrying cars as locomotives, because they are self-propelled and subjected them to inspection standards and safety appliances that apply to locomotives. More importantly, buff strength standards for MU cars were also established. For trains weighing 600,000 lb tare (empty), buff strength per car of 400,000 lb was required. For a train of over 600,000 lb, buff strength of 800,000 lb was, and is, required. The regulation applies only to railroad MU cars.

A similar requirement had been previously imposed by contracts with the Post Office on any Railway Post Office (RPO) cars to protect the mail and railway mail clerks. In practice it established 800,000 lb for all railroad passenger trains cars. In most cases it is not possible for a railroad to predict train weights, hence they are designed to the higher standard.

At least two MU car fleets were designed to 400,000 lb. One was Port Authority Trans-Hudson (PATH), which was designated a railroad under another proceeding. Its K cars of 1958 and later PA cars were designed to 400,000 lb because an eight-car train of those 60,000-lb cars weighs less than 600,000 lb. Another example is the Staten Island Rapid Transit Railroad Operating Authority (SIRTOA), which acquired a small fleet of NYCTA R-44 subway-type cars in the early 1970s designed to the 400,000-lb standard. Its short trains were not supposed to exceed 600,000 lb tare.

The key point is that the buff strength regulation applies only to railroads. The ICC's safety and technical regulatory responsibilities are now carried out by the Federal Railroad Administration (FRA).

Rail transit is under the jurisdiction of the Federal Transit Administration, which has no regulatory authority. It is established transit industry practice to design heavy rail cars (i.e., high platform) to 200,000-lb buff. Light rail vehicles (LRVs) have been designed to about twice the weight of the car, but this is variable.

Significant to the transit industry is that Ex Parte 179 and CFR 49 part 229.141 (D) apply only to railroads.

RAILROAD RAPID TRANSIT LINE: THE HUDSON AND MANHATTAN

A unique case is that of PATH Corporation, which earned the status of being a railroad in 1936, in its then status as the Hudson and Manhattan Railroad Company. The case was brought about by employees who wished to be under the Railroad Retirement Act. At that time there were few pension programs, and that of the railroads was deemed the most favorable to employees. In the days of the New Deal, with its strong support by organized labor, the employees were given due consideration.

The case was reported in an abstract from the *George Washington University Law Review* 1938-1939 and is reproduced below because it is unique and has been cause for concern for certain present day interstate rail transit lines.

In the Hudson and Manhattan proceeding, however, the Commission, on an apparently new principle, held that this subway railway was not an electric interurban within the meaning of section 1 of the Railway Labor

Act as amended. The following is a brief description of the Hudson and Manhattan: it is 20.3 miles long including sidings and yards but not including the 5.71 miles owned by the Pennsylvania Railroad and over which both operate joint trains. It has two branches, one from upper and one from lower New York City, running under the Hudson River through a tunnel and connecting on the New Jersey side of the Hudson River where there are railroad stations and bus and trolley terminals at Journal Square and Park Place, in Newark. Its tracks are similar to those used in New York subways, and there are numerous curves and no level straight sections on its line. The passenger cars are narrow. The revenues of the Hudson & Manhattan are derived 26.08% from non-railway operations and 8.13% from non-operating sources. Of the remainder of its income, local fares account for 77.03% and the interline business 22.97%.

The jointly operated section consists of 3.2 miles of Hudson and Manhattan track and 5.71 miles of track owned by the Pennsylvania. Expenses are borne in the ratio of 40-60%, about the same ratio as the track contributed. About 10% of the Hudson's employees are engaged in this joint service and when on the Pennsylvania section are subject to Pennsylvania rules and regulations. The Pennsylvania has a ticket office in the Hudson Terminal of the Hudson and Manhattan in New York where tickets to all Pennsylvania Railroad lines may be purchased. . . .

The Commission said: "In our opinion a carrier which participates in joint fares *and joint operations* with trunk line railroads to the extent this carrier does is not a mere interurban." Now the Hudson carries no freight, and outside of this joint operation with the Pennsylvania it engages in no operations similar to those of a steam railroad, and, as a matter of fact, because of its physical characteristics it cannot do so. Its operation, both in character and in extent, are interurban, that is, the carriage of passengers only for the short distance from New York under the Hudson River to Newark, the latter part of the line being that operated jointly. Therefore, in construing this railway to be more than an electric interurban the Commission proceeded on a principle not found in its previous decisions, for none of the operating characteristics found in those other cases are present here. There is nothing inconsistent with the nature of an interurban railway in the joint operations here conducted, that is, it is still engaging in operations germane to its character. If any explanation is needed it seems that it is the Pennsylvania which steps out of character, as it were, by engaging in a purely local movement of passengers. The principle of all the other determinations has been that if the interurban engages to a considerable extent in operations similar to those of a steam carrier it is not an interurban within these

provisions. No case is found where the Commission has ruled in effect that if a steam railroad engages to some extent in local operations of a given interurban, then that interurban is no longer an interurban within the various sections of the Interstate Commerce Act or related acts. [216 ICC 745 (1936)]

The key item in the above Hudson and Manhattan case is that it was "a carrier which participates in joint fares *and joint operations*"; it is the joint operation that made the Hudson and Manhattan unique. Pennsylvania Railroad (PRR) employees and trains operated on the Hudson and Manhattan. Hudson and Manhattan trains operated on the PRR under PRR's control. That is what made the Hudson and Manhattan a "railroad," subject to railroad regulation.

A joint fare, by itself, does not affect the status of a carrier. There are numerous examples in history of railroad-steamship, railroad-bus, and even interurban-airline (Cleveland Southwestern Railway and Light Co./Stout Airlines, Cleveland-Detroit in the 1920s), none of which affected the status of a carrier.

The small conjunction *and* was the key to the Hudson and Manhattan decision: "joint fares *and* joint operation."

During the 1960s, the Port Authority of New York and New Jersey (PANYNJ) took over the property of the Hudson and Manhattan Railroad Company and the segment of railroad between Journal Square, Jersey City, and Newark formerly owned by the PRR and operated under the joint service agreement. A new entity, Port Authority Trans-Hudson Corp., was created to operate the transit service and the PANYNJ began a major capital rehabilitation and modernization of its newly acquired property. The process continues.

Railroad trains were removed from what had been the joint track, except for an occasionally used cross-over. Joint fares were abolished. PATH collects its own flat fare. The conditions that led to the ICC's classifying the Hudson and Manhattan as a railroad no longer exist, yet the PANYNJ has not applied to reclassify the transit line operated by PATH. They have given certain reasons why they believe there are certain advantages in remaining a railroad. Yet, PATH has applied for and has been granted waivers by the ICC and FRA from certain specific regulations.

This curious situation causes concern to certain other interstate rail transit lines that are not classified as a railroad. Their managements fear that their transit lines might be classified as railroads and become subject to the Hours of Service Law, the Locomotive Safety Appliance Act, the Locomotive Inspection Act and, most importantly, the Federal Employees Liability Act (FELA), whereby railroad employees sue their employ-

ers for injuries resulting from on-the-job injuries. Railroads are not subject to Workmen's Compensation.

STATEN ISLAND RAPID TRANSIT RAILROAD OPERATING AUTHORITY

The only other rapid transit line that today is classified as a railroad is Staten Island Rapid Transit Railroad Operating Authority (SIRTOA). Its status is well founded in its history.

The Staten Island Railway was completed in 1860 to fill the needs of local passenger and minor freight traffic within Richmond Borough of New York City on Staten Island. Its connections to the outside world were by ferries. In 1880 the Staten Island Rapid Transit (SIRT) was formed to acquire by lease and extend the railway. In 1885 the Baltimore and Ohio (B&O) Railroad Co. acquired the SIRT and constructed a drawbridge across the Arthur Kill to New Jersey to create a connection with mainland railroads (1). The connection was completed in 1888. B&O developed SIRT as its freight terminal in New York, where car float terminals and piers were built. The SIRT was owned and operated as part of the B&O Railroad system. In the 1920s the B&O electrified the SIRT using technology based on that used by the Brooklyn-Manhattan Transit Corporation (BMT), looking forward to a connecting tunnel under The Narrows to allow through service to Manhattan over the BMT. The tunnel was not built. The SIRT remained an isolated passenger carrier yet fully integrated into the railroad freight network.

The B&O Railroad Co. losses on operating the service became untenable, and replacement of the 1925 vintage BMT-type rolling stock became necessary. Forced to deal with cessation of rail service, the city of New York acquired the SIRT from the B&O. SIRTOA was then incorporated as a railroad to operate freight and passenger service. In 1971 the city acquired the St. George-Tottenville mainline. Carload traffic declined and in due course was suspended. Nonetheless, SIRTOA remains a railroad.

In the 1970s new rolling stock of the NYCTA R-44 type was obtained for use by SIRTOA. These cars are designed to 400,000 lb buff strength required for railroad cars rather than the 200,000 lb customarily used for rapid transit cars.

In 1995 the conditions that caused SIRTOA to be deemed a railroad no longer exist, but its status is unchanged.

PORT AUTHORITY TRANSIT CORPORATION

Port Authority Transit Corporation (PATCO) is not a railroad, and purposely attained this status through

carefully prepared plans by owner Delaware River Port Authority (DRPA) as follows.

The PRSL thereupon applied to abandon all service into Camden, but would retain service to 30th Street Station in Philadelphia via the Delair Bridge. Hearings were held in 1964 and 1965, and permission was received in November 1965. The final passenger train ran on January 15, 1966 over the Camden-Haddonfield segment of the route, ending railroad train service that had begun in 1854.

DRPA's legal counsel, in applying to the Interstate Commerce Commission for a "certificate of convenience and necessity" to construct the new rapid transit line, had carefully described the type of service that would be operated. It would be a frequent passenger service, not a part of the general railroad system of the United States; no interline train operation would be undertaken; no railroad freight cars would be handled in interchange service; no interline fares with railroads would be published. The presentation by DRPA was influenced by the fact that the Port Authority Trans-Hudson Corporation of the Port Authority of New York and New Jersey was in fact a "railroad" subject to ICC rules and regulations for railroads. Its predecessor, the Hudson & Manhattan Railroad, had been ruled a "railroad" in the mid-1930's on the basis of its interline operation with the Pennsylvania Railroad on that portion of the PRR between Journal Square, Jersey City, and Newark, N.J. The DRPA wanted no part of "railroad" regulation, and put its house in order before it made its presentation. It had applied for permission to build the new line and simultaneously submitted a motion to dismiss the case because the line to be built would not be a "railroad." They did the job well for under a service date of August 25, 1965 under Finance Docket No. 23694, the ICC stated:

We find, That the railroad properties of applicant and the proposed extension constitute an interurban electric railway within the meaning of that term as used in section 1 (22) of the Interstate Commerce Act; that such properties are not and will not be operated as a part of a general steam railroad system of transportation; and that, accordingly, the Commission is without jurisdiction in the premises . . . and

It is ordered, That applicant's petition to dismiss be, and it is hereby granted, and that the application and protestants' motions for consolidation with other proceedings be, and they are hereby, dismissed for lack of jurisdiction.

Section 1 (22) of the Interstate Commerce Act, as amended, provided:

The authority of the Commission conferred by paragraphs (18) and (22), both inclusive, shall not extend to the construction of street, suburban or interurban electric railways, which are not operated as a part or parts of a general steam railroad system of transportation.

On November 23, 1965, the ICC further ruled that the new line would not be subject to the Safety Appliance Acts or the Locomotive Inspection Act (2).

The DRPA had clearly demonstrated how an interstate rail transit line could be ruled to be a nonrailroad. Because it engages in interstate commerce, PATCO was required to file its tariffs with the ICC, and did so. This caused some confusion within the ICC tariff bureau because of PATCO's unique status as an interurban electric railway. On several occasions, ICC file clerks phoned PATCO and asked what PATCO's motor carrier certificate was, judging that "transit" equated with "bus." It took some lengthy explanation to them that an interurban electric railway was neither a railroad nor a bus line.

Several other nonrailroads are engaged in interstate transportation of passengers: Washington Metropolitan Area Transportation Authority (WMATA), connecting Maryland and Virginia with the District of Columbia, and Bi-State Metro Link, connecting East St. Louis, Illinois, with St. Louis, Missouri. The latter crosses a freight railroad at-grade but shares no track. Both WMATA and Bi-State share right-of-way with a freight railroad, a fairly common practice.

In early plans, some gauntlet and/or joint operation with railroad freight was proposed. In preliminary engineering, that was eliminated in favor of separate track to remove complications to operations and to ensure that Bi-State Metro Link had no legal link to railroad freight. An interlocked diamond grade crossing provides access to a railroad industrial track on the opposite side of Metro Link's right-of-way.

INTERURBAN ELECTRIC RAILWAY INDUSTRY IN THE MIDWEST

Between 1895 and 1938 the interurban electric railway industry was created, developed, flourished, declined, and disappeared. During its classic period, 1910 to 1930, thousands of miles of interurban railways and street railways connected hundreds of municipalities and the intervening countryside in Ohio, Michigan, Illinois, and Indiana. Other states had extensive systems, but none were interconnected or so large. Interurbans began as mere extensions of street railway lines into the country or to the next town. They quickly grew to intercity lines competing to an extent with steam railroads

for through city-to-city business, but they largely concentrated on local traffic. Steam railroad technology was ill suited to handling it, whereas single-car trains or short multiple-unit trains (two or three cars) were ideal.

In the period before widespread use of automobiles, they flourished. Most offered express service for parcels carried in passenger cars. Many offered less-than-carload (LCL) freight service in freight motors, which sometimes hauled freight trailers. Private sidings were rare. Nearly all freight was carried to and from freight houses by wagon (drays). Service was more frequent and direct than that offered by steam railroads. Electric interurban railways often dominated selected market segments. Freight was not a major factor in revenue before the 1920s (3).

During World War I steam railroad congestion became great, and this generated opportunities for interurbans to siphon LCL from railroads, often with the latter's silent blessing. Interurban freight grew rapidly in the 1920s, and its revenue offset declining passenger revenue as passengers became motorists.

Some interurbans interchanged LCL with railroads, but interurban rolling stock was not interchanged. It was designed for light track with sharp curves, and while standard gauge with knuckle couplers, it was not acceptable for railroad interchange because it was too lightly built. Most interurban freight trains had two trailers, with some having five or eight. Long trains were not possible. Most municipalities regulated train length by ordinance. In Cleveland streets, trains could not exceed three cars, including the motor car.

The entire interurban railway system was separate from "the general steam railroad system of the United States." It evolved its own work rules and technology, which were generally lighter and cheaper than railroads. Wages were generally much less and there were few employee benefits other than a pass.

A few interurbans were designed and built to handle "steam railroad" freight cars and did so from inception. Small trolley freight locomotives were used. They participated in joint rates and division of revenues with mainline railroads. When it became necessary to classify them as interurban or railroads, a body of case law evolved in which it was found that if railroad freight was "incidental," the railway was considered an interurban. If freight was significant, it became a railroad. A 50 percent of revenue rule came to be accepted as a measure of significance of freight (4).

During the 1920s and 30s as passenger and interurban freight declined in the face of improved highways, some interurbans that were able to do so began to handle railroad interchange freight. With the onset of new railroad regulation, more cases developed that furthered precedents already established, as described above. No less than 42 factors were considered in evaluating a

case, but the primary measure was the percentage of revenue from railroad interchange freight.

Under the Railway Labor Act as amended June 21, 1934, the status of 15 electric railways was determined. Only one was found exempt, the Chicago North Shore and Milwaukee, but it was later found to be a railroad even though its railroad interline freight revenues were relatively small. The 14 electric railways that were found to be railroads in the 1930s are as follows: Texas Electric Railway, 208 ICC 193 (1935); Sacramento Northern Railway, 208 ICC 203 (1935); Waterloo, Cedar Falls & Northern Railway, 208 ICC 211 (1935); Piedmont & Northern Railway, 211 ICC 4 (1935); Ft. Dodge, Des Moines & Southern Railroad, 211 ICC 9 (1935); Chicago Tunnel Co. and Chicago Warehouse & Terminal Co., 214 ICC 81 (1936); Chicago, South Shore & South Bend Railroad, 214 ICC 167 (1936); Des Moines & Central Iowa Railroad, 214 ICC 353 (1936); Utah, Idaho Central Railroad, 214 ICC 707 (1936); Salt Lake & Utah Railroad, 214 ICC 717 (1936); Pacific Electric Railway, 215 ICC 414 (1936); Hudson & Manhattan Railroad, 216 ICC 745 (1936); Oklahoma Railway, 218 ICC 123 (1936); and New York, Westchester & Boston Railway, 218 ICC 253 (1936).

All but the Westchester had been built as interurban railways. The Westchester was built as an electrified railroad to haul commuters. It had a minuscule freight business but was wholly owned by the New York, New Haven and Hartford Railroad and was found to be a railroad for that and other reasons.

The context of these decisions must be kept in mind: it was during the 1930s when the Roosevelt administration strongly supported organized labor.

From the point of view of joint use of track, the principal asset of an interurban railway, examples can be found of a company providing local suburban passenger service, local and express interurban passenger service (i.e., between cities), local and interline interurban LCL package freight service, and railroad LCL and carload interchange freight. The three Chicago interurbans were perhaps the best examples: Chicago, Aurora & Elgin (CA&E); Chicago, North Shore & Milwaukee (CNS&M); and Chicago, South Shore & South Bend Railroad (CSS&SB).

Only the third remains in operation. It is a full fledged railroad, with heavy carload freight service. Track is shared with the Northern Indiana Commuter District, which operates electric commuter railroad service. South Shore's substantial freight business allowed it to survive as a company. Its two neighboring lines depended largely on passenger revenue, even though having been classified as railroads in the 1930s, and were abandoned in the late 1950s (CA&E) and 1963 (CNS&M). North Shore and South Shore were pioneer

piggyback freight operators but their haul was too short (90 mi) to survive.

The inner segment of CA&E was shared with Chicago Rapid Transit Co. trains, which required high platforms for their cars that were 8 ft. 8 in. wide. To clear 10-ft.-wide railroad freight cars, the lip of the wooden platforms was hinged. It was folded up when a freight train passed. A trainman riding the deck of the locomotive reached ahead with a boat hook and flipped up the platform lip segments as the train slowly proceeded; another trainman in the caboose flipped them back.

The CNS&M used gauntlet track to allow 10-ft-wide freight trains to pass platforms sized for North Shore's passenger cars (8 ft. 8 in. wide) designed to operate on the Chicago Elevated (the L). Each had its own way. Both worked.

CSS&SB was built to railroad dimensions with 10-ft-wide passenger cars.

CARLOAD FREIGHT ON URBAN RAPID TRANSIT LINES

There are two examples of successful operation of railroad carload freight on rapid transit tracks that did not cause the rapid transit line to be classified as a railroad.

Chicago Rapid Transit Company

Carload freight service was provided on the North Side Howard Street line of the Chicago Rapid Transit Company (CRT), later becoming the Chicago Transit Authority (CTA).

The Chicago L was built on structure ending at Wilson Avenue, about half way to the city limits at Howard Street. The Milwaukee Railroad owned a right-of-way from Wilson Avenue to Howard Street and leased the use of it to CRT Co. As part of the agreement, CRT provided delivery of carloads of freight to private sidings on the west side of the right-of-way. This was a four-tracked CRT line with the two center tracks local, and the two outside tracks express, used also by CNS&M trains. A lengthy gauntlet track provided clearance past rapid transit platforms.

The CRT did the switching during midnight hours for the Milwaukee Road and received a flat fee per car. The freight customer was billed by the railroad and paid the railroad; CRT was merely a contractor. When CTA took over CRT and assumed ownership of the railroad right-of-way, the process continued using the same two electric locomotives. Traffic was largely coal for home heating, with some refrigerator cars of foodstuffs. The market for home heating coal disappeared and other traffic took to trucks or to intermodal piggyback. Traffic declined to the point where CTA abandoned it. There was never a legal

case on the status of CRT/CTA. It simply happened. (Conversation with George Krambles, CTA).

South Brooklyn Railway Co.

Common carrier railroad interchange freight operates on a short segment of the Brooklyn-Manhattan Transit Division of the New York City Transit Authority. A brief description follows (5):

The South Brooklyn Railway (SBK) operates today as a common carrier whose president is, ex officio, the president of the NYCTA. The railroad has 1.5 mi. of track and two "road haul" locomotives. At one time the SBK was a much larger operation using electric freight motors. It served consignees along its own "mainline" between Coney Island and Bush Terminal and served sidings along other routes such as the Sea Beach Line. SBK trains operated on the surface beneath the Culver elevated from Coney Island to the Ninth Avenue Station of the Culver. From this point they operated through the lower (Culver) level of the station and then shared trackage with West End and Culver trains through the Culver Tunnel to Fourth Avenue, where they diverged and continued on their own route to Bush Terminal. Operation continues today, using diesel locomotives between Bush Terminal and Tenth Avenue. The NYCTA is the SBK's largest customer, however, some private consignees remain. The NYCTA maintains 24-hr passenger operation through the Culver Tunnel, hence movement of freight trains occurs over joint trackage in between passenger trains. Freight trains are short (less than six cars) and operate with a locomotive at each end when on joint trackage. The use of two locomotives provides protection against a loose car as well as improved tractive effort. Joint operation is currently being rediscovered ("Advance" 1971; Bergmann 1977) as a means of sharing the fixed plant costs of new transit services or as a necessary consequence of converting railroad rights-of-way to transit use; unfortunately, few contemporary studies on joint operation make note of the SBK operation.

The South Brooklyn Railway is a regulated common carrier by railroad. It is part of "the general railroad system of the United States." It happens to operate on the same track as NYCTA rapid transit subway trains. Separation is enforced by the absolute block rule, by which only a SBK train or an NYCTA train may be on the jointly used track at one time. This has been an ongoing, if low volume, operation for about 100 years. Legal separation is maintained.

TEXAS INTERURBAN RAILWAY CO.

The Texas Interurban Railway Co. created a new interurban railway between Dallas and Denton, Texas, in 1924, a very late date to have built a new line. It was the result of an agreement between the City of Dallas and General Electric Co., owner of the Dallas Railway & Terminal Co. The city wanted two new lines, apparently to further business and commerce in Dallas. Denton was small, population 7,628, and intermediate territory contained only 1,200 persons per mile.

To serve this sparse territory as cheaply as possible, it was decided to electrify the existing Missouri-Kansas-Texas Railroad (M-K-T). The new line used 3½ mi of streetcar track in Dallas and a short distance on McKinney Avenue in Denton. The rest of the 38.66 mi was on the M-K-T.

Construction began in January 1924, and the line opened for operation October 1, 1924, in 9 months. Little new construction was needed. Simple catenary was hung above M-K-T's single track.

There were hourly interurban cars and two electric express (LCL) cars, plus two steam passengers and one steam freight train daily. Lightweight one-man interurban cars were used, but a porter was carried who could act as a flagman on that single-track unsignaled railroad. This provided customary railroad-type protection. Passenger trains, steam or electric, were first class, electric express second class, and steam freight third class. At sidings steam passenger trains were superior and held the mainline.

M-K-T dispatchers controlled the line. The dispatcher was in Dallas where the interurbans left the M-K-T, and the switches were normally set for the frequent interurbans. The dispatcher would throw the switches for steam trains, then realign them after the train passed. The low-roofed lightweight cars had a trolley stool on the roof so the pole could reach the railroad height (23 ft) catenary. Six lightweight passenger cars and one lightweight freight car were bought from American Car Co., with four GE 265 motors of 35 hp each. This equipment was generally good for 44 mph.

The Denton line was never a financial success and was foreclosed under bankruptcy in 1932. The cars were sold for \$300 each to the Dallas Railway & Terminal Co., which modified them for city service by removing the lavatory, replacing the pilot (cowcatcher) with a wheelguard, and making other minor changes. They ran as city cars until 1953 (6).

The line was built quickly at low cost and evidently operated satisfactorily. It was never investigated by the ICC during the 1930s because it was abandoned. Its

cars weighed about 30,000 lb and could not come close to meeting railroad strength requirements.

Texas Interurban Railway handled no railroad interchange freight itself so was not a railroad, even though it operated on railroad track.

UTICA & MOHAWK VALLEY RAILWAY COMPANY

Another electric railway that operated on "steam railroad" track was the Utica & Mohawk Valley Railway Company, which connected Rome, Utica, and Little Falls, New York (7). It operated on 3.17 mi of the West Shore Railroad between Frankfort and Herkimer, New York, in 1903. Simple catenary with bracket arms on poles on the outside of the double-tracked route was used. Operation was protected by "block signals of the standard New York Central type." Operation was by signal indication, making it unnecessary for the railroad dispatcher to issue train orders to scheduled trolleys or railroad trains.

On the basis of the successful installation described above, the interurban company also electrified railroad track between Utica and Syracuse known as the Oneida Line. Wire was 24 ft above the top of rail in accordance with the owning railroad's requirement. Much of the joint line used under running third rail. The West Shore's owner, New York Central, appeared to be cooperative with these specific electric railways.

The West Shore electrified lines were abandoned in the early 1930s, so were never subjects of adjudication to determine whether they were railroads or not. Their abandonment made their status moot.

YOUNGSTOWN & SOUTHERN RAILWAY COMPANY

The Youngstown & Southern Railway (Y&S) was designed in 1903 as a third-rail electric railway to "steam road" standards to connect Youngstown with Columbiana, Ohio, 15 mi distant. It was built, not electrified, and operated by steam for 3 years. It was finally electrified with direct suspended overhead trolley in 1907 using two trolley wires, one for each direction, over single track. The wires simply spread at spring-switch-operated passing sidings. It operated large, heavy, single-end wooden interurban cars until the 1920s during which time six lightweight double-end trolley cars were obtained. Two weighed 28,520 lb, among the lightest ever built, and four weighed 33,000 lb, a more common weight. Business declined, and even though the lightweight cars lowered expenses, the Y&S faced abandonment.

In 1929 it was acquired by the Pittsburgh Coal Company (PCC), which had also bought the Pittsburgh Lis-

bon & Western (PL&W) to the south of Youngstown. Y&S built a line between Columbiana and Signal, Ohio, 6.45 mi (using PCC financial assistance) to connect Y&S with PL&W. The latter served some of the coal company's mines. PCC also built a private railroad from Negley, Ohio, to Smith's Ferry, Pennsylvania, with a barge/rail transfer terminal for its own coal traffic, thus providing a route from the Ohio River to Youngstown's steel mills. With its own rail route, PCC could charge itself less than the published railroad tariff rates then in force. Legal cases were brought by other railroads, primarily the Pennsylvania Railroad, but PCC prevailed because its coal was subject only to an intrastate railroad move, not to ICC regulation. The private railroad to Smith's Ferry, Pennsylvania, did not exist insofar as the ICC was concerned. This arrangement kept Y&S alive from the 1930s to the 1950s (8).

Steam locomotives would haul trains of standard railroad coal hoppers up to Signal, then on the electrified Y&S from Signal, to Columbiana, north to a long siding at North Lima, Ohio. There the steam train would meet a southbound train of empty hoppers hauled by two Y&S 40-ton box cab 400 hp Baldwin-Westinghouse electric locomotives. Locomotives and cabooses would be exchanged, and the Y&S electric locomotives would haul the coal train on to Youngstown to its interchange with the Lake Erie & Eastern, a switching line that was part of the NYC system. The steam train, with its empty hopper cars, would head back south to Negley. One round-trip a day was the usual freight train service. It always ran extra, not scheduled, carrying white flags. En route to Youngstown the electrically hauled freight train would meet one or two lightweight trolleys headed in the opposite direction.

The Y&S was an unsignaled single track railroad operating under timetable and train order rules. One-man trolley operators wrote out their own train orders, received by lineside telephone. There were no agent/operators in stations. All turnouts were hand thrown.

The Y&S, in various reorganizations the Youngstown & Suburban, was always a railroad and handled interchange freight. Yet until passenger service was abandoned in 1948, lightweight one-man-operated trolleys operated on the same track with electric- and steam-operated freight trains. Insofar as is known, there was no regulatory effort to cause such service to cease. Y&S's safety record was not perfect. A head-on collision of a trolley with a freight train occurred in the early 1930s, and two trolleys collided later causing one lightweight car to be scrapped. (It was not required for traffic anyway.) Regular peak service during World War II was provided by four of the five trolleys, with one spare. All-day base service required three trolleys.

The Y&S provided frequent (every 30 min) suburban service as a right-of-way very much like a modern light rail line. It operated on unsignaled single track at 44 mph on timetable and train order authority.

The Y&S still exists as a shortened switching line between Youngstown and Boardman, which was the end of frequent (30 min headway) suburban service. The line was converted to diesel power in the early 1950s and trolley wire was removed. The Y&S has remained when nearly all of its interurban contemporaries built in the first decade of the 20th century have been abandoned.

KEOKUK ELECTRIC RAILWAY

Another example of an electric railway electrifying and using a "steam" railroad was the Keokuk (Iowa) Electric Railway. It obtained trackage rights and electrified the bridge over the Mississippi River of the Keokuk-Hamilton Bridge Company, and thence to Warsaw, Illinois. These tracks were simultaneously used by the Toledo, Peoria & Western Railway and the Wabash Railway, which operated steam-powered freight trains. Scheduled passenger trolley operation was discontinued in 1928.

Here was an instance of an interstate trolley sharing an interstate railroad bridge with steam railroad trains. A tourist trolley operates across the bridge today.

OTHER INTERSTATE LINES

The Indiana Railroad (IR) and its predecessor, Interstate Public Service Co., operated across the New York Central System's Big Four (Cleveland, Cincinnati, Chicago, and St. Louis) bridge between Jeffersonville, Indiana, and Louisville, Kentucky, from the early 20th century to the IR's abandonment in the late 1930s. The Big Four bridge was single track and unsignaled. A railroad flagman protected the bridge at each end of the bridge. For an interurban train to gain entry to the bridge, the flagman would telephone for clearance. Only after permission was granted was the interurban allowed to proceed onto the railroad track and across the bridge. This reflects use of the absolute block rule: only one train (of any kind) was allowed on the bridge at a time. This joint use lasted until the IR was abandoned in the late 1930s.

The Louisville and New Albany (L&NA) Interurban Railway connected Louisville, Kentucky, with New Albany, Indiana, immediately across the Ohio River. It used the Kentucky & Indiana Terminal (K&IT) Railroad Co. bridge. This was double tracked and was owned jointly by the B&O, Southern Railway, and

Monon Railroad (Chicago, Indianapolis & Louisville). The L&NA used street railway type equipment: one-man-operated Peter Witt type motorcars supplemented in rush hours by a trailer with conductor. Approach to the K&IT bridge was controlled by railroad-type semaphore signals. A flagman boarded each L&NA train at the bridge approach with his railroad flagman's flag, lantern, fusees, and torpedoes. In case the L&NA train made an unscheduled stop, he would protect its rear under Railroad Rule 99 (flagging). L&NA cars carried full-sized railroad marker lamps at their rear (personal communication with Walter A. Zackon).

The L&NA was 5-ft-gauge, the same as Louisville Railway's streetcar system. Its rails were laid on the same ties as the standard (4 ft 8½ in.) gauge K&IT, but the four-rail gauntlet track gave each mode its own rails. The L&NA operated until shortly after World War II, at which time it was abandoned.

IR was an interurban; L&NA was a street railway. Neither was a railroad. Their rolling stock was built to interurban or street railway standards. None approached railroad standards. There is plenty of photographic evidence that the service existed.

Here again, interstate trolleys shared interstate railroad bridges with steam railroad trains successfully.

TWO CONTEMPORARY LIGHT RAIL LINES SHARING TRACK WITH RAILROAD FREIGHT TRAINS

San Diego Trolley Inc.

The first of the modern light rail lines in the United States was the San Diego Trolley, Inc., created by the San Diego Metropolitan Transit Development Board (MTDB).

The MTDB acquired the San Diego & Arizona Eastern (SD&AE) Railway, once a part of the Southern Pacific Railway. A major portion of the line in Mexico had been damaged by washouts and fires in its timber-lined tunnels. A short line operator provided freight service from points in Mexico, crossing the border at San Ysidro, to San Diego, where there was, and is, an interchange with the Santa Fe Railway. The freight service was important so had reason to be preserved.

The MTDB acquired the SD&AE railway and granted the railroad rights to operate over it. MTDB created subsidiary San Diego Trolley, Inc., to operate the trolley service and maintain the railway. San Diego Trolley is not "part of the general system of railroads of the United States." It provides only local passenger service.

SD&AE railroad provides international common carrier railroad carload freight service. Interline carload service via the Santa Fe to all rail points in North Amer-

ica is available. SD&AE is a railroad. San Diego Trolley is not. Both share the same track, largely owned by MTDB.

It was reported verbally that San Diego Trolley had explained to the FRA region in San Francisco that diesel-powered railroad freight trains would operate weeknights between midnight and 5:00 a.m. when there would be no trolley service. FRA did not object. There has been no formal hearing or decision.

Baltimore Central Light Rail Line

Baltimore's Central Light Rail Line of the Maryland Mass Transit Administration is the newest (1992) light rail line to share track with railroad freight service.

The MTA acquired a segment of the former Northern Central Railroad from Conrail under an agreement that granted Conrail trackage rights in perpetuity to provide common carrier railroad carload freight service. The Northern Central's remnant is identified as the Cockeysville Industrial Track of Conrail.

Hours and days of the week when freight trains may operate are stated. Generally it is midnight to 5:00 a.m., 3 days per week, according to Exhibit E of the Agreement of Sale, operating agreement between MTA and Conrail, March 29, 1990. A similar agreement with the Baltimore and Annapolis Railroad is in force on the southern end of the Baltimore Central Light Rail Line.

Both San Diego and Baltimore use low platforms that do not create a clearance problem for railroad freight trains. San Diego uses carborne lifts for ADA handicapped passengers, whereas Baltimore uses high block miniplatforms with bridge plates for ADA compliance. Both agreed to having freight trains operated by the former owners continue to provide carload

freight services but at specified hours, midnight to 5:00 a.m. Interstate carload freight service was preserved. New light rail local passenger service was created. The light rail operators do not provide carload freight service, so both have retained their status as non-railroads. Legal and physical separation have been maintained. The public has benefited, and a precedent has been established that others may find useful to follow.

It is well to note that historic examples generally accommodated one freight move per day. In no case is a busy mainline freight railroad used jointly. Only lightly used freight lines can tolerate frequent transit service.

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