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PASSENGER RAIL SHARING FREIGHT INFRASTRUCTURE PRIMER



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Background

Introduction

Given the projected growth in the Texas population in the next decade—about 30,000 new residents per month—combined with increasing miles of interurban travel per capita, and forecasted increases in freight movements, especially once Mexican trucking companies are allowed to operate in the U.S., it is clear that substantial demands will be placed on the already heavily used transportation infrastructure of the state. Increasingly key elements of the Texas highway system are overwhelmed by traffic increases, resulting in congestion, longer travel times, safety issues, and air quality concerns.

Railroads are thus often perceived as a key element of a greater intermodal solution to reduce roadway congestion and are associated with societal and environmental benefits. It is widely hypothesized that rail service (particularly commuter rail on existing tracks) can be less costly than highway expansions. However, as the highway system becomes more congested, more demand is being placed on the railroad network. With increasing freight traffic, freight railroads have lost flexibility and have become less inclined to accommodate passenger services along their corridors. In many cases, using freight railroad corridors appears to be the only financially viable option available to public agencies considering passenger rail services.

It is foreseen that the Texas Department of Transportation (TxDOT) will face many challenges—and in some cases opposition—when the agency proposes to accommodate both passenger and freight trains on the same track or the same right-of-way (e.g., commuter or intercity passenger rail service on existing freight rail infrastructure or passenger and freight rail operating in the Trans-Texas Corridor). The objectives of this rail sharing primer are to delineate and explain many of the potential issues and concerns that TxDOT and other public sector agencies should consider and understand when contemplating various rail sharing arrangements.

Transit Agency Perspective

The first railroads in Britain and the U.S. were conceived as public highways. Anyone who owned a wagon with wheels that could fit into the track gauge could use the railroad track as a mode of transportation. This quickly proved impractical due both to dispatching and equipment issues. Since the beginning of the nineteenth century, railroads in most parts of the world have thus generally controlled both infrastructure and operationsⁱ, although U.S. freight railroads have shared track in certain circumstances.

Around the turn of the twentieth century, railroads jointly constructed and operated passenger terminals (union stations) in many cities and jointly owned terminal railroads. However, in the 1960s, the declining health of the heavily regulated railroad industry began to threaten the continuation of rail passenger services. Several states organized agencies to fund (and later to actually operate) commuter rail service over trackage that in many cases remained in the hands of private railroads. In 1971, the National Railroad Passenger Corporation, more commonly known as Amtrak, was formed to ensure continued operation of intercity passenger trains on a similar basis. These commuter and Amtrak trains used trackage owned and dispatched by freight railroads for part or all of their routes, which required the negotiation of access fees.

Currently, passenger rail systems are generally planned and operated by public entities. These entities differ significantly from freight railroads in the way they are structured and in the objectives they wish to achieve. Because passenger rail is generally planned and operated by public agencies, the agencies seek to serve the public's need for mobility. The agencies depend on public funding and usually require subsidies, because revenues, in most cases, fail to meet operating costs.

Serving the public's need for mobility has proven to be particularly challenging in Texas, as population increased 23 percent from 1990 to 2000, and continued growth of 74 percent is projected between 2000

ⁱ The European Union has been moving back toward this “open access” model for railroads, in which track ownership and related functions such as train dispatching are separated from train operations.

and 2025 (Texas State Data Center, available at <http://tsds.tamu.edu>). Given the projected growth in the Texas population in the next decade combined with increasing miles of interurban travel per capita and the expected increases in forecasted freight movements, it is obvious that substantial demands will be placed on the already heavily-used transportation infrastructure in the state. Transportation planners and public passenger rail operators support the development of passenger rail services to encourage a modal shift away from the private automobile, thereby improving mobility, congestion, safety, and air quality. Because commuter rail is relatively efficient (i.e., lower operating costs per passenger mile) at moving passengers over relatively short and medium distances and has proven to attract choice riders (i.e., higher income, suburban, single-occupant vehicle users unlikely to ride the bus) (American Public Transportation Association, 2001), it is often seen as a means to manage congestion without constructing additional highway capacity. With costs of highway construction rising, developing a rail service can be very cost effective, especially when using existing right of way (ROW) or track.

However, achieving a modal shift to rail requires, among other factors, that commuter rail serve those areas where potential riders live and work, offer short headways during peak hours, and maintain a reliable schedule. Commuters must be able to depend on a regular and dependable schedule if they are to shift from automotive travel. In most cases, passenger rail will thus want to have priority during peak travel hours. This can be problematic in a busy freight corridor.

Freight Industry Perspective

Freight railroads are private business organizations. Since profits drive their decision makers, they therefore seek to serve shippers who provide their revenues. Unlike public agencies, the public interest is not their primary motivation. Freight railroads often move goods over long distances across the country and sometimes beyond the nation's borders. Therefore, the industry is concerned with the rail network at large, compared to passenger rail agencies, which focus on relatively short stretches of track in specific metropolitan areas.

Following deregulation of the industry in 1980, freight railroads entered a period of growth in tonnage but a retrenchment of physical plant. In an attempt to raise return on investment, railroads abandoned many miles of lightly used branch lines and removed second main tracks from service. In some cases, railroads decided to sell excess capacity to gain capital dollars.

Since the 1990s, the freight industry has changed in several respects:

- The rail freight industry has seen a dramatic increase in freight volumes, resulting in capacity constraints on many key corridors.
- The products being shipped by rail have changed. The fastest growing segment of rail freight is intermodal traffic (i.e., high-value goods in ocean containers or truck trailers). This traffic is very service-sensitive and requires "on demand" shipping, which alters the scheduling and prioritization of freight trains along the nationwide rail network. Significant late delivery penalties exist for contracted "hot" freight trains if delayed (Allen, 2000).
- Railroad pricing schemes have changed. Currently, under high traffic conditions, freight railroads no longer seek to move as much tonnage as possible. Demand is managed through pricing schemes that seek to maximize profits by focusing on yield management. In other words, the railroads are focused on efficient operations and optimized scheduling rather than maximizing freight volume.
- The industry has changed through consolidation into fewer, larger railroads. The five Class 1 freight railroads are: Burlington Northern Santa Fe (BNSF), CSX Transportation (CSX), Kansas City Southern (KCS), Norfolk Southern (NS), and Union Pacific Railroad Company (UP). These five railroads own about two-thirds of the track in the U.S. and carry more than 90 percent of the freight ton-miles. This consolidation has increased profits by improving efficiency and gaining market control.

Under these circumstances, freight railroads are very hesitant to accommodate passenger rail on their

infrastructure. The revenues from a passenger rail agency typically comprise a very small percentage of their overall revenue. Freight railroads have also learned from past experiences that although selling off excess capacity may provide valuable capital, it greatly reduces flexibility in future operations. Traffic patterns change over time, and freight railroads now understand the value of flexibility. Loss of ROW limits future growth and the ability to control operations. Freight operations have also been constrained by high-speed rail operations in the northeast corridor. Finally, freight railroads understand that capacity expansions in many urban areas will face hard constraints in the form of dense urban development or geographic limitations (e.g., coastline) that do not allow for expansion.

Having said that, freight railroads generally continue to earn less than the cost of capital. As a result, they experience difficulty borrowing to finance large capital improvements. Funding is usually required to interest a freight railroad in a shared use agreement—funding that the freight railroad might not otherwise be able to access. On busy corridors, public agencies will have to make capital available for capacity expansions. On less busy corridors, it may be possible to purchase the track outright, with the freight carrier retaining an easement to serve remaining shippers.

Types of Shared Use Arrangements

The Federal Railroad Administration (FRA) has been designated by Congress to have regulatory responsibility for the general rail network in the U.S. The FRA establishes standards for track, equipment, crossings, and operating practices. All vehicles operating on this general rail network, including local passenger service, must meet the rail car strength and safety requirements specified by the FRA. If vehicles do not meet FRA standards, an application for a waiver from the FRA on applicable safety regulations Title 49 (Transportation), Part 211 must be approved. [As described by the FRA, there are three general scenarios in which passenger rail and freight railroads can share rail infrastructure:](#)¹

- shared track
- shared right-of-way (ROW)
- shared corridor

Shared track operation requires adherence to FRA safety regulations governing maintenance and inspection of the track and also governing the strength of the passenger equipment. Passenger trains can operate simultaneously with freight traffic only if the vehicles are FRA compliant. Vehicles that do not comply with FRA standards require strict temporal separation.

One way to avoid FRA regulations is to share a transportation corridor but not the track itself. Shared ROW describes tracks that are separated by less than 25 feet between track centers. Shared corridor describes track centers that are more than 25 feet between track centers but less than 200 feet apart. The FRA believes that intrusion by derailed freight or passenger cars into parallel rail track is unlikely at more than 200 feet. The FRA also designates three types of shared minor facilities: rail or highway crossings where the transit line and general rail network share the same crossing protection, level crossings (diamonds) between the transit tracks and general rail network, and shared movable bridges.

Commuter rail operations almost always share track rather than ROW or a corridor, because the equipment is usually FRA-compliant and sharing track is a more efficient use of the track resource. Typically, a shared ROW or corridor is only utilized when rail equipment is not fully FRA compliant and are most common in heavy or “light” rail serviceⁱⁱ. Although the FRA has not historically regulated shared ROW or corridors, there is potential for FRA rules to apply in the future. Shared ROW may also be described as “adjacent” tracks by the FRA, in which case certain roadway protection rules and regulations would apply

Additionally, transit systems are not subject to federal regulations if they do not use the “general railroad network”. In this scenario no federal regulations or specific safety requirements apply, even when the transit

ii “Light rail transit” (LRT) is the name for modern trolley service.

operator and freight railroad are as close together as they are on a double-tracked rail road. However, in 1992, Congress directed states to designate agencies to provide safety oversight of “guided transit” operations, including heavy rail, light rail, funiculars, and monorails.

Concluding Remarks

There are a variety of issues that need to be addressed in any attempt to create a shared use arrangement. Some of the most common issues are: (1) proper compensation to the ROW owner, (2) condemnation of railroad property (generally impossible under existing federal law), (3) available capacity on the private railroad track, and (4) how to fund increased capacity necessitated by future growth (Spitulnik and Rennert, 1999). This document explores these and a number of related issues in more detail, including trackage rights, operations and dispatching, capital improvements, maintenance, safety, and liability. A discussion of each issue is based on an extensive review of the literature on shared use arrangements and interviews with passenger rail agency and freight railroad representatives involved in successful shared use arrangements in metropolitan areas around the U.S.

The “Best” Shared Use Agreement Structure

There is no single “best” shared use agreement structure that suits all situations.

Historically, private railroads provided both freight and passenger service on a single railroad that they owned, operated, and dispatched. In the 1960s, states in the northeast United States began providing subsidies to preserve local (commuter) rail service in cities such as Boston, New York, and Philadelphia. The Northeast Rail Services Act of 1981 (NERSA) required the Consolidated Rail Corporationⁱⁱⁱ to divest itself of commuter rail operations, which Congress viewed as diverting management resources from their focus on essential freight services.

In response to NERSA, states created new agencies or directed existing transit operating agencies to assume responsibility for commuter rail services. In many cases, this involved sharing rail facilities with Conrail or another private rail freight operator. These sharing arrangements took many different forms, but they are of three basic types:

- In the first model, the commuter operator owns the track, dispatches the trains, owns the equipment, and employs the workers. Freight service is generally provided under contract to the transit agency by a private freight railroad.
- In the second model, the commuter operator owns the equipment, employs the workers, and contracts with a freight railroad for dispatching and track usage.
- The third model is termed “purchase of service.” In this case, the commuter operator may or may not supply the equipment and contracts with the freight railroad to staff and operate commuter trains on freight railroad-owned tracks (Allen, 2000).

Most public agencies that operate passenger service on shared use ROW have one or two types of shared use arrangements. [Metra may be the only commuter agency that has all three types of operational agreements.](#)² The fact that Metra—an agency with significant experience running commuter trains^{iv} in a region that embraces passenger services—has so many different types of operating arrangements demonstrates that there is no single agreement that will serve all situations. No two situations are exactly alike because the quality of existing infrastructure and traffic density vary from region to region, the ability to expand varies, and views on rail sharing vary from one railroad to another.

ⁱⁱⁱ A government-owned freight operator that was created to continue rail service after the bankruptcies of several northeast railroads in the 1970s.

^{iv} Metra operates 700 weekday commuter trains between 224 stations in downtown and communities in Chicago over 12 routes, totaling approximately 545 miles. All but one of these 12 routes are shared with approximately 500 freight trains per day. Metra serves nearly 150,000 passengers daily, totaling approximately 80 million annual riders. According to Metra, its on-time performance at 97 percent is the best in the U.S. (Claypool, 2004; Duffy, 2001).

That is to say, no “cookie-cutter” or “one-size fits all” solution exists that is appropriate for every situation. Circumstances may dictate a particular arrangement to be the only option for achieving shared use. It may not be ideal from either the freight railroad or the public agency’s perspective, but it may be the only means by which both services can be accommodated in a particular rail corridor.

Shared use agreements are complex and involve many issues, such as the funding of capital investments, compensation of the freight railroad, operational issues, and the process for service expansion. The negotiation of arrangements for sharing rail ROW will thus require creativity, railroad knowledge, patience, and significant funding.

Shared Use Agreement

The negotiated shared use agreement between the transit agency and the freight railroad documents how the ROW will be shared and addresses the following questions:

- Who is responsible for operations (i.e., maintenance, running the trains, dispatching rules)? Agreements could include incentives or penalties to ensure that commuter trains meet agreed on-time performance levels. Since freight railroads are responsible for dispatching trains over hundreds of miles of track, they are typically less concerned about the minute-by-minute progress of trains. This may require a dedicated dispatcher for commuter trains for which the minute-by-minute progress is critical to ensure on-time performance. Typically, transit agencies are responsible for the costs associated with ensuring on-time dispatching.
- Who pays for capital investments to add additional track capacity for commuter trains?
- How will maintenance costs be shared, and how they will be calculated? For example, payments are usually calculated by train-mile for commuter trains, as they are of a fixed length and light weight, while payments for freight are usually by car-mile. However, costs may also be based on share of gross/ton/miles. The maximum weights and speeds of freight and commuter trains, respectively, should be clearly stipulated.
- How will trackage fees be calculated? These may include maintenance, capacity replacement, and dispatching costs. Track fees typically vary from \$6 to \$7 per train mile (American Public Transportation Association, 2001).

Capital Investments

As mentioned, the revenues realized from passenger services on freight ROW typically represent a small percentage of the freight railroad business. From the freight railroad’s perspective, freight railroads are in the business of moving freight and cannot afford any degradation in service because of passenger services. In many cases, capital investments will be required to ensure that the freight railroads’ capacity or future ability to operate is not compromised. In most cases, freight railroads would not want to negotiate until a certain level of capital funding is in place. The transit agency would therefore be expected to secure adequate and flexible funding for capacity improvements and infrastructure. Flexibility is required because at times capital needs to be invested 100 miles outside the passenger service area to improve service in a downtown area (U. S. General

“The initial Trackage Rights Agreement with the Union Pacific for two round-trips was for a 24-month trial period and required ACE [Altamont Commuter Express in Alameda and Santa Clara counties, California] to pay \$15.1 million for capital improvements [track and signal] to UPRR facilities. UPRR later agreed to the third round-trip for an additional \$3 million in capital improvements. ACE will pay UPRR \$1.7 million for capital maintenance to operate this service in years, 3, 4, and 5. After year 5, with the commitment by ACE to fund \$10.6 million in further track improvements, ACE’s right to operate the initial 3 round-trips becomes permanent” (American Public Transportation Association, 2001).

Accounting Office, 2004). For the transit agency, these capital investments could total millions of dollars.

Operational Issues

In addition to capital investments, operational issues must also be considered during negotiations. Issues such as signal design and spacing, speed limits, and other operational limitations should be recognized. These issues can result in bottlenecks, which may need to be targeted for capital improvements. An experienced railroad expert can help identify where capital investments should be allocated and address potential issues for the mutual benefit of freight and passenger operations.

Service Expansion

It is essential that the shared use agreement allow for service expansion. Agreements should be flexible enough to allow additional trains without necessitating renegotiation of the entire agreement. Ideally, the commuter agency would like an agreement that allows the agency to add trains without adding costs. Alternately, service expansion should be tied to specific compensation or specific capital improvements. Metra suggested that agreements be structured based on percentage of costs incurred from usage rather than a flat fee for a set number of trains.

When Virginia Railway Express (Washington D.C.) approached the freight railroad to add additional passenger trains two years after start up, VRE was faced with an increase in annual track access fees of \$2.6 million for the same level of service. This was the precondition for the freight railroad to even discuss the expansion of commuter services (American Public Transportation Association, 2001).

The freight railroads also pointed out that it is impossible to anticipate the requirements for service expansion at the time of agreement negotiations. This is attributable to the fact that the farther into the future services are anticipated, the more uncertainty enters into discussions and the riskier it becomes. Because the commuter agency is reluctant or unable to assume these risks, it is advised that the process for accommodating service expansion be established in the agreement. The shared use agreement should specify the criteria for capacity improvements and service expansion not only in terms of the number of trains that can be added per day but also the criteria that should be considered for adding trains, such as where, what time of day, and how many minutes between trains. [In some cases \(e.g., Metrolink and Sound Transit\), the addition of commuter trains on freight railroad track has been linked to specific capacity improvements.](#)³ Finally, both parties should agree as to how much potential growth can be accommodated in the long run (American Public Transportation Association, 2001).

Freight railroads are in the business of moving freight and will not accept any degradation in their service (e.g., reduced service flexibility) due to passenger services. In many cases, capital investments will be required to ensure that the freight railroads' capacity or future ability to expand is not compromised.

Freight Railroads' Business is Moving Freight

Freight railroads are large corporations that are in the business of moving freight. The freight railroads want to provide their customers with high quality and reliable service and want to make the most profitable use of the ROW and track they own. As profit-making private corporations, railroads will only allow use of their rail track for passenger rail services under the following conditions:

- The freight railroads are assured that it is safe.
- The freight railroads are not expected to cross-subsidize passenger rail services. In other words, freight railroads are fully reimbursed for all costs incurred, plus a profit.
- There is no negative impact on the quality of their freight service.
- Liability issues can be resolved in good faith and legal liability can be held to a manageable level.

Under no circumstances will a freight railroad accept a downgrade in the service it provides to customers.

Scheduled passenger trains may impact freight railroads in three ways:

1. If passenger trains travel at higher speeds than freight trains, they may overtake or meet the freight trains.
2. The rigid schedules of passenger trains can interfere with maintenance of way work blocks (unlike freight, passenger trains cannot be held and then moved in a fleet through maintenance locations).
3. Dispatcher knowledge of penalties for poor performance often results in excessive meet delays to freight, which may be held for hours awaiting the arrival of a scheduled passenger train. This can impose a substantial cost to the freight railroad.

BNSF's Guiding Principles for Commuter Rail Service:	UP's Guiding Principles for Commuter Rail Service:
<ul style="list-style-type: none"> • Passenger rail service cannot degrade freight service, customer service, or customers. • BNSF will be compensated for all costs, including any capacity improvements needed for passenger rail. • No liability will be incurred by BNSF. • Studies of impacts, including projected freight future growth, will be necessary. • There will be no increase in BNSF's tax burden. • BNSF must maintain control of rail operations. • Future expansions must undergo same analysis. • Improvements must include grade crossing warning and intertrack fencing. 	<p>Joint operations on noncore routes. In situations where sufficient capacity exists, or capacity can be constructed to make room for passenger service, passenger operations could be permitted for a fee. These fees include compensation for use of UP assets, reimbursement for UP operating and maintenance expenses (including capitalized and catastrophic expenses), and insurance against indemnity risk.</p> <p>Route sales. These are routes on which UP has excess ROW that can be sold to support stand-alone passenger operations. In these situations, UP would be compensated for the value of its assets and would require access to existing and future freight customers. Additionally, UP would ask to be indemnified from liability exposure and would expect the purchaser to pick up the cost of relocating utilities. UP would also be reimbursed for any needed relocation of its facilities.</p> <p>Relocation projects. These are instances in which UP lines are relocated, making the existing line available for a public purpose. The new lines must have the same or greater utility for current operations and future growth, affected facilities must be relocated, and UP must maintain adequate access to customers.</p> <p>Line sales. This is a situation in which UP would sell lines that are no longer needed for freight purposes. UP will sell this ROW for passenger operations but will ask that that the purchaser restrict access by other freight carriers. Additionally, UP would ask to be indemnified for the cost of any environmental clean up and would require the purchaser to arrange any utility and/or customer relocation.</p>

Fax from Jerry S. Wilmoth, Union Pacific Railroad Company, June 10, 2005.

The demands of passenger train schedules could impose a substantial financial burden on railroads. Freight railroads often find it difficult to estimate costs imposed by passenger trains. Commuter rail operations generally pose special difficulties because of their concentrated peak-period service. On many commuter lines, the track is simply not available to freight trains for six to eight hours per day. Temporal separation (passenger and freight rail operate on the same track at different times of the day) works well if the freight trains can operate during the nighttime. If not, temporal separation can impose significant costs to the freight railroad in terms of delays and lost business. Also, freight railroads are often concerned about successful commuter rail operations confining freight trains and work gangs to ever smaller windows on their ROW. It can thus be expected that freight railroads as the owners of the track would want to decide the priorities for track usage.

The freight railroads must be assured that they will be able to run as efficiently after allowing passenger services as they did before. In many cases, capital investments will be required to ensure that the freight railroads' capacity or future ability to operate is not compromised. Capacity investments usually come in

the form of capital spending on additional tracks. [In the case of Sounder Commuter Rail, the transit agency and the freight railroad agreed during negotiations on the prerequisite improvements \(project-by-project\) for access to be granted to passenger trains along a segment.](#)⁴ In other words, upon completion of the agreed capital improvement funded by Sound Transit, the commuter agency obtains the right to operate its passenger service on that segment of the ROW.

[Other areas where infrastructure can be improved include terminals and yards or improved safety and ROW conditions, better signals or control systems, and service.](#)⁵ A public agency should thus approach the freight railroads with enough funding in hand to address the likely impacts of passenger service on the freight franchise. Recognizing this from the beginning will instill confidence in the freight railroad that the public agency understands the freight railroad's perspective and is serious about reaching an agreement. In exchange for the capital improvements, the public agency earns the long-term rights to run commuter trains on the freight track.

Negotiating Power

In most cases, the freight railroads have tremendous leverage at the outset of negotiations, because it is their resources that the commuter agency wants to access.

Given the many concerns surrounding obtaining ROWs in densely populated areas and the high costs associated with constructing rail infrastructure, it is foreseen that the shared use of freight rail ROW and track will become increasingly attractive in the future. It is therefore important to recognize that the first important issue that a public agency inevitably faces when seeking to gain access to freight-owned track is how to best negotiate an agreement with the freight railroad. In most cases, rail corridors are private property owned by railroads.

Bargaining Position

Freight railroads typically start off in a position where they have tremendous leverage in negotiations because it is their resources that a public agency needs to access. In many cases, the public agency cannot realistically provide passenger rail services without using an existing ROW. Furthermore, local governments do not have the authority to seize, regulate, or assert control over rail facilities used in interstate commerce if doing so will unreasonably burden the ability of the railroad to fulfill its common carrier obligation in interstate commerce (Surface Transportation Board Finance Docket No. 33466, Sept. 10, 1999). In general, railroad property cannot be condemned by states using power of eminent domain. Federal courts have interpreted the interstate commerce clause of the U.S. Constitution to mean that only the federal government can regulate railroads. The Surface Transportation Board thus has exclusive jurisdiction over the use of rail lines associated with interstate commerce (Spitulnik and Rennert, 1999).

[It is thus critical that the public agency attempt to optimize its bargaining position and avoid a situation in which its bargaining position is diminished.](#)⁶ The latter can manifest itself in a number of different scenarios, including issues surrounding public expectations and available funding. Regarding the former it is very important that the transit agency does not create high public expectations that cannot be achieved. For example, "[the] public designation of high-speed corridors most frequently create expectations that cannot be satisfied because of [a] lack of capital" (Reistrup, 2002).

From a public agency's perspective, the ideal negotiation situation in terms of maintaining bargaining position would be to make the approval of further funding conditional upon reaching certain goals and objectives. The best case scenario would be for the agency to reach an agreement with the freight railroad before a set level of funding is determined and before the public has significant and specific expectations. However, the freight railroad may be unwilling to come to the negotiating table unless substantial funding is available. A potential solution may be for the agency to arrive at negotiations with enough funding to interest the railroad while concealing the total funding that will ultimately be available for the project.

Political Support

The Role of the Federal Government

- The Federal Railroad Administration (FRA) focuses on ensuring the safe operation of both commuter and freight railroads.
- The Federal Transit Administration (FTA) provides funding for transit projects but is not a regulatory agency.
- The Surface Transportation Board (STB) is responsible for the economic regulation of the freight railroads and is authorized to resolve disputes with Amtrak.

However, none of these organizations has the authority to facilitate negotiations or resolve impasses between the freight railroads and a transit agency, nor could they secure commuter rail access to freight-owned ROW (U.S. General Accounting Office, 2004).

A lesson learned from the Sound Transit experience is the value of political support.⁷ The political support of a senator or other public figure can have a tremendous impact on negotiations. If a high-level legislator or elected official can be convinced of the regional benefits of partnering with the freight railroads in providing passenger services, he or she may become invaluable in facilitating agreements and securing public support. On the other hand, Tri-Rail used political influence to threaten the introduction of legislation that would limit freight rail speed to 15 mph on state owned track in three counties (Wilkins, 2000). The American Public Transportation Association (2001) reported that “[i]f it is ultimately necessary [for the transit agency] to gain leverage, [it can] consider legislative help, perhaps in the form of a “limited time easement” condemnation, linking railroad tax assessments or access to discretionary government programs to cooperating with the project, or even a mandated state or federal forum in which a settlement could be compelled.”

These types of efforts might work to gain negotiation leverage but can perhaps be avoided if experts on hand can assist in facilitating an amicable agreement before negotiations become too contentious or delayed. It might be better to use incentives rather than threats to leverage cooperation with the railroads. Examples include lobbying for rail funding with the freight railroad, seeking local tax relief for the railroad, and investing in infrastructure together (U.S. General Accounting Office, 2004).

Trusting Relationship

The collaborative process works best when a trusting relationship is established between the public transit agency and the freight railroad.

The collaborative process works best when a level of trust can be established between the transit agency and the freight railroad. Unfortunately, local planners are often ignorant of railroad operations and constraints, and railroad officials at the local level (and at railroad headquarters) can be equally ignorant of the transportation planning process, as well as suspicious of government involvement in their business. Building trust thus requires a conscious effort at relationship building.

The first step in building a trusting relationship is often establishing an open dialogue and good communication early in the planning process and cultivating it throughout negotiations.⁸ Good communication and a trusting relationship can be facilitated by:

- bringing interested stakeholders together in a stakeholder meeting
- establishing consistent contact between the freight railroad and public agency in the form of regularly scheduled meetings
- preparing progress and follow-up reports to ensure that information is communicated often
- involving high level participation and accountability to ensure effective communication
- conducting joint capacity studies and developing realistic cost estimates.

Stakeholder Roundtable

A stakeholder roundtable such as that hosted in Washington State can also serve as a foundation for building a trusting relationship between the public agency and the freight railroad.⁹ A meeting of this type, which can take the form of a roundtable discussion or a symposium, can help clarify the different philosophical and operational perspectives and objectives of those involved. It can also facilitate the identification of common goals and the attainment of mutually beneficial arrangements.

Consistent and Meaningful Contact

A trusting relationship requires consistent and meaningful contact between the freight railroad and the public agency.¹⁰ This can take the form of:

- frequent and regularly scheduled meetings (e.g., monthly or quarterly meetings)
- progress and follow-up reports
- high-level participation by organization leadership
- project accountability

It is clearly important to establish early and direct communication in the initial stages of the planning process, but equally important is continuous dialogue thereafter, because often new agency and freight railroad staff come aboard.

Capacity and Costing Estimates

Determining capacity is a subjective exercise. Therefore, capacity studies of the same rail lines can have very different results (U.S. General Accounting Office, 2004). Railroads have a standard set of tools (e.g., simulation models) for evaluating line capacity. A consultant hired by a local planning agency or transit authority may use an entirely different set of models that result in outcomes that railroads may not trust. Joint capacity studies might resolve this problem.

Finally, different cost estimates for proposed capacity improvements have contributed to contentious negotiations. A consultant's pursuit of an independent evaluation of the costs may aid a public agency in maintaining negotiation leverage. Consultants with costing models and access to industry experts familiar with project costs can provide an agency with an informed perspective on capital costs during negotiations. This perspective, as well as a second opinion, may support successful negotiations and limit project costs to the public agency.

Compensation for overhead or administrative costs that a freight railroad incurs because of the passenger service could be a potential issue. The freight railroad will attempt to ensure that all costs (e.g., capital, operating, administrative, and profit) attributable to commuter rail on its corridors are covered in the negotiated operating agreement.

Costs

Much of the controversy surrounding rail sharing centers on determining an amount that is considered fair compensation for the use of the railroad track or ROW and for the additional costs imposed by passenger trains when applicable. This has resulted in significant variations in the payment amounts for trackage rights.

Table 1: Payments for Trackage Rights

	Basis	Amount Per Car-Mile
Freight railroad (typical)	Car-mile	\$0.20 to \$0.38
Amtrak to freight railroads	Based on a typical payment of \$1.00 per train mile	\$0.07 to \$0.20
Freight railroads to Amtrak	Car-mile	\$0.89 to \$1.04
Commuter rail operators to Amtrak for NEC use	Train-mile	\$2.00 to \$8.00 (includes electric power cost, a share of dispatching, and overhead)

From the above table, it is understandable why freight railroads are not eager to see Amtrak expand its services, especially in corridors that are capacity constrained. By law, Amtrak is required to only reimburse the freight railroads for the “incremental costs associated with the use of the track (defined as the cost that would be avoided should Amtrak cease to operate and specifically excluding any share of overhead or fixed costs) and any incentives to promote on-time performance. This cost is substantially less than the fully allocated costs the passenger trains impose on the freight railroads—estimated at roughly 19 percent of the fully allocated costs (Reistrup, 2002)—and substantially less than what the private railroads typically pay Amtrak or each other for trackage rights. Until Amtrak provides the same level of revenue to its host railroads as freight trains, resistance can be expected to the expansion of intercity passenger rail services by Amtrak. On the other hand, commuter rail services are not regarded as incremental users and can be required to pay higher trackage right fees.

Fair Compensation

The fundamental questions that persist in determining fair compensation are which costs should be considered and how the costs should be shared. Regarding the former, there are obvious categories of solely related costs on any shared freight/passenger rail line. Yard and industry tracks used for local freight service are certainly wholly assignable to freight service. Equally obvious are station costs, which are wholly assignable to passenger trains. Less obvious are how costs associated with signaling, communications, and general administrative expenses should be shared. In general, when considering track costs it is probably appropriate to use gross tonnage rather than train-miles. However, train-miles are more appropriate when allocating cost components such as signal or dispatching costs or when evaluating capacity concerns. Railroad cost analysis is, however, a specialized and arcane field^v (see “Wear and Tear Costs” on the next page for an example of the complexities surrounding the allocation of wear and tear costs).

The transit agency requires a certain level of understanding of the variables that influence the financial costs associated with track sharing imposed on the private freight railroads (e.g., traffic volume, traffic characteristics—how heavy, how fast— environmental factors, and the characteristics of the track) to have an informed discussion with the railroads. Ultimately, it is probably best for prospective operators of commuter rail service to seek assistance from a qualified consultant or other railroad industry expert in this area.

Overhead and Administrative Costs

Compensation for overhead or administrative costs, which a freight railroad incurs for supporting passenger service that it would otherwise not have to incur, could be a potential issue. From the commuter agency’s perspective, it would be beneficial to specify a limit on overhead or administrative costs. Payments would

^v There are a number of models available to allocate costs between different types of railroad traffic. A review of Surface Transportation Board railroad rate cases, which turn on whether a rate exceeds 180 percent of “variable cost” as defined—most of the work in rate cases involves defining variable cost—will provide a background on methodologies recently employed by shippers and railroads in these cases. Railroads generally have internal models that they use to determine the “contribution” (profit) of specific traffic types.

then be based on what is actually attributable to passenger service or a flat or predetermined rate to protect the public agency from increased overhead or administrative costs if a freight railroad reorganizes its administrative structure. From the freight railroad's perspective, all costs associated with allowing the passenger services on its track, including administrative costs, must be covered. The freight railroad will thus ensure that all capital, operating, administrative costs, and profit are included in the operating agreement.

Wear and Tear Costs

A discussion on wear and tear highlights the complexities involved in deciding how costs should be shared. Wear and tear on track is the largest infrastructure cost element to the freight railroad. However, a number of factors surround the calculation of the wear and tear imposed on rail track. All other things being equal, the heavier a rail car, the more damage it does to the track. By the same token, the faster a train operates, the greater the dynamic load on the track. So the question is: does a fast but light passenger train do more or less damage to the track than a slow but heavy freight train? Higher speed passenger trains impose higher track maintenance costs than would be required if passenger trains operated at the same speed as freight trains. Cost impacts specific to each major track component are as follows:

- The additional superelevation required for higher speeds means that passenger and freight traffic operate at different levels of "unbalance" on curves. This can result in excessive wear on the low rail in curves when freight trains operate at less than balancing speed, or alternatively excessive high rail wear if superelevation is not increased for the faster trains. The greater the speed differential between passenger and freight trains, the higher the cost.
- FRA track standards imply higher track maintenance standards and costs for tracks that move higher speed trains in terms of more frequent rail inspections, more frequent replacement of rail and ties, and more frequent surfacing cycles.
- Ties carry transmitted rather than direct loads, but the differences between freight and passenger operating speeds can result in extra load on either the low or high side of the tie in curves, reducing tie life.
- Other costs of higher speed service include turnout maintenance, possibly the use of more costly track components, and more frequent track inspections. For example, all track used by passenger trains must be inspected twice per week, while moderate-density freight trackage needs only one inspection per week.

Track life is also impacted by environmental factors (rust and decay). At relatively low traffic levels, rail component degradation may be largely or wholly due to environmental factors. At a certain traffic density, mechanical wear and rail component degradation become the determinant of track component life, and environmental factors become negligible. In other words, the variable or incremental costs of additional traffic on a "light traffic" rail line will be almost zero (since environmental factors rather than traffic account for most of the consumption of the track). By contrast, the incremental cost on a busy mainline is high and linear with traffic.

Clearly Defined Goals and Objectives

Clearly defined goals and objectives are critical to the successful implementation of mutually beneficial agreements in a timely manner.

To create an effective partnership, it is critical for the transit agency and freight railroad to understand each other's business goals and needs. It is also very important to identify common goals and assess common

needs early in the planning process to accommodate passenger services on freight corridors and to also facilitate a productive and cooperative working relationship.

If different interests are understood and common goals identified, specific actions that create mutually beneficial outcomes can be agreed upon. There are many opportunities for cooperation between freight railroads and passenger rail agencies. Examples of common goals include:

- increasing capacity
- increasing train speed, reducing travel time
- improving reliability, ensuring on time performance
- optimizing maintenance costs
- improving ROW conditions

Clearly defined goals and objectives allow both parties to leverage their respective strengths toward reaching common goals.¹¹ Examples exist (e.g., Tri-Rail) where the public transit agency has teamed with the freight railroad to secure funding for a region by capitalizing on the freight railroad's lobbying powers in state legislature or congress. In the case of capacity improvements, the freight railroad can use its experience and buying power to manage the construction of agreed improvements. The transit agency, on the other hand, can use its government ties to obtain environmental clearance and permitting

Philosophical and Operational Perspectives

The ability of a public agency and a freight railroad to understand each other's philosophical and operational interests is crucial to successful negotiations.

Ultimately, the most crucial factor to successful negotiations is the ability of the public agency and freight railroad to understand each other's philosophical and operational perspectives. This is essential in performing the hard work necessary to reach constructive and creative solutions.

A public agency looking to share freight infrastructure should recognize the freight railroad's viewpoint and how it differs from that of the public agency. It should be recognized that freight railroads are not beholden to public interests but are concerned primarily with the interests of their shareholders and customers. It is also important to recognize their business needs.

Business Partners

Since rail corridors are in most cases private property owned by freight railroads, it is important to approach them as business partners. Every effort should be made to avoid the notion that trackage rights are a means of using private property for public purposes (Spitulnik & Rennert, 1999). Instead, the public agency should think in terms of working out a "business deal" from which both parties stand to gain.

Freight railroads do have interests

Creating a Win-Win Situation

An excellent example is the proposed freight rail bypass of dense Front Range communities in Denver and Colorado Springs. The existing rail line linking these communities is heavily used by freight trains and desired by local authorities as a route for commuter rail. The State of Colorado is facilitating the planning of a freight bypass on the plains east of the Front Range (and may end up acquiring land for such a bypass) to remove heavy freight traffic from the Front Range. This will reduce noise, pollution, and highway traffic delays, as well as make room for commuter rail on currently congested tracks. In turn, the railroads will receive a superior rail alignment without the steep grade south of Denver that currently requires the expensive use of "helper" locomotives. While this bypass is certainly not yet a done deal, it is an example of the types of alternatives that states and localities may be able to offer railroads to induce them to come to the negotiating table.

in expanding capacity, improving safety, and securing funding for track improvements. These are areas in which a public agency may provide something the freight railroad needs in exchange for access to tracks. Other issues such as parking availability and liability will also need to be addressed if passenger service is to be introduced. It is important to enter into negotiations with an understanding of the perspective of the freight railroad.

Operational Concerns

In terms of operational concerns, railroads have seen freight volumes approaching capacity levels, especially in dense urban areas where passenger service is desired. These capacity constraints limit freight operations and create major issues along busy corridors. Also, there are significant differences between the freight railroad's operational needs and those of a transit service with regard to track quality and wear and tear costs. In a nutshell, passenger trains tend to operate at higher speeds and therefore require higher track standards. Freight trains, on the other hand, tend to be heavier and imply more wear and tear costs (U.S. General Accounting Office, 2004).

Track Maintenance Standards

FRA track standards imply varying expenditures for track maintenance activities. For example, geometric standards for FRA Class 2 track are much less stringent than those for Class 4 track. Track surfacing will thus be required less frequently on the Class 2 track for equivalent traffic volumes. A minimum number of sound ties per rail length (39 feet) is also defined for each class. Again, at the lower track classes, tie replacement cycles can be less frequent or the number of ties replaced in each cycle can be less.

Commuter trains typically require a smoother ride quality compared to freight trains. Freight railroads only need to maintain track quality FRA Class 4 (60 MPH operation), while passenger rail may require a higher standard for improved ride quality, and will certainly require a higher standard if trains will be operated at 80 MPH or higher. In the latter case, agreements have to be structured to specify standards for track maintenance. Unless the agreements specifically state a higher and thus more costly maintenance level, the freight railroad will have little or no motivation to incur the additional costs. [Therefore, the public agency either has to provide the funding required for the incremental maintenance](#)

[costs or negotiate agreements that will raise the track quality to the desired level, which will translate into significant upfront capital costs, as well as higher continuing costs for maintenance.](#)¹²

Experienced and Knowledgeable Negotiators

Experienced and knowledgeable negotiators can help address the many issues involved in complex shared use agreements. However, delays may result if negotiators lack the authority to make key decisions.

One of the critical success factors for ensuring mutually beneficial access agreements is experienced and knowledgeable negotiators. Moreover, it is important to consider these factors:

- Negotiators are people with the power to make decisions and implement change to ensure that negotiations move forward. The American Public Transportation Association (2001) recommends that negotiators possess actual decision making authority. Delays may result if lower-level employees lack the authority to make key decisions during negotiations. In the absence of such authority, APTA recommends that the instances where such higher-level authority or approval may be needed be clearly defined.
- Negotiators uphold the big picture goals when the specific details of arrangements are negotiated, including operational agreements and access contracts. Different departments within an organization typically focus on specific areas. In the process, they may lose sight of the overall organizational objectives. In addition, goals and objectives should be clearly defined so contractual agreements are in line with operational issues.
- The public agency's negotiators should have rail industry experience. Specifically, someone with

railroad engineering experience and not just railroad transit engineering experience is needed. During negotiations, it is important to come to a common understanding and be able to converse on equal terms. [This can best be achieved by having not only lawyers, lawmakers, and marketers available during negotiations, but also experienced railroad industry experts who have the industry background and knowledge of terminology, technology, and operational issues.](#)¹³ These railroad experts can speak the freight railroad's language and respect the railroad's points (American Public Transportation Association, 2001). This can help limit delays and also help prevent unanticipated problems resulting from agreement structures.

On-time Performance

It is essential for commuter trains to meet on-time performance targets to reach service goals and increase ridership. Having control over dispatching allows for greater control over on-time performance.

Significant issues for the transit agencies are on-time performance^{vi} and reliability, because these factors impact ridership levels. At the same time, the freight railroads are increasingly facing demands for just-in-time service. Higher value intermodal freight shipments tend to be time sensitive, so freight railroads risk losing customers if not on time. On-time performance and reliability are intrinsically linked to the corridor capacity, control over dispatching, scheduling of maintenance work, and, in the case of commuter services, a commitment from the freight railroad to ensure that passenger trains run on time.

Dispatching Control

Dispatching becomes more complicated when passenger and freight trains share ROW and track. Control over dispatching can thus become very contentious. APTA (2001) recommends that a transit agency should buy the ROW when possible to ensure control over its service, reliability, and future service expansions. However, the costs associated with obtaining the ROW might be prohibitive for new systems (American Public Transportation Association, 2001). For example, the Florida Department of Transportation purchased the ROW and track on which Tri-Rail operates from CSX in 1988 for \$264 million (Lebowitz, 2005). [Metrolink](#)¹⁴ and [Tri-Rail](#)¹⁵ recommended that a transit agency attempt to obtain dispatching control over its entire service area. Failing that, care should be taken to ensure that shared use agreements are appropriately structured so that passenger trains have priority during rush hours when on-time performance is critical to ensure targeted ridership levels. [One way of accomplishing this is to negotiate exclusive time windows each day for operating passenger trains on the rail corridor without the interference of freight movements.](#)¹⁶ In the case of Metrolink, BNSF, and UP established a regional dispatching office in San Bernardino to deal with freight congestion issues. This placed the dispatchers much closer to Metrolink operations, resulting in some benefit to Metrolink trains operating over the two routes owned and dispatched by the freight railroads.

ROW Costs: Metrolink

Three hundred miles of Metrolink's almost 400-mile-route network was purchased by county agencies for \$344 million from UP and BNSF. The total capital invested through 2000 is estimated at \$1 billion, of which 70 percent was devoted to building and improving ROW. The Southern California Regional Rail Authority estimates that it needs between \$21 and \$28 million per year to rehabilitate and modernize the system (Vandenberg, 2002).

Maintenance Schedules

The rigid schedules of passenger trains, especially during commuter rush hours, require that maintenance work be scheduled as not to impact passenger services. Unlike freight trains, passenger trains cannot be held and moved in a fleet through maintenance locations. In the case of the Capitol Corridor service, UP negotiated an incremental hourly wage differential with its maintenance labor organization to allow for maintenance work to be done at night, virtually eliminating passenger train delays resulting from maintenance work.

vi On-time performance is universally defined as within five minutes of the scheduled time (Nelson & O'Neil, 2000).

Guarantees for On-Time Performance

Holding a freight train for a short period of time (to allow a passenger train to pass through) can have significant ripple effects across other lines and at crossing/merge points on other tracks. Impacts may be larger than they would intuitively seem. A commitment from the freight railroad to ensure the on-time performance of passenger trains is thus required. To further encourage on-time performance, the transit agency can specify penalties for failing to meet on-time performance targets (or alternatively, incentives for meeting on-time performance targets) in shared use agreements. This can help ensure that the freight railroads and the rail transit agencies have the same objectives concerning the dispatching of passenger trains. [In the case of the Capitol Corridor, UP was committed to improving the on-time performance of the Capitol Corridor passenger services, and Capitol Corridor Joint Powers Authority \(CCJPA\) agreed to pay on-time incentives to UP for meeting performance targets.](#)¹⁷ Ideally, performance incentives should be structured in such a way as to encourage high levels of performance over long periods of time.

Long-term Arrangements

With so much invested in an operating commuter rail service, it is in the interest of the transit agency to negotiate long-term arrangements.

[From the transit agency's perspective, it is best to negotiate agreements that are in perpetuity so there is no uncertainty about the feasibility of capital investments or concerns about renegotiating agreements.](#)¹⁸ For example, the transit agency will find it difficult to justify millions of dollars of capital improvements if its right to use the ROW or tracks may be changed or terminated after four or five years. Also, with so much invested, the transit agency runs the risk of losing negotiating power if new access agreements have to be negotiated in the short or medium term.

On the other hand, freight railroads have pointed out that the farther into the future agreements are negotiated, the more uncertainty exists and the higher the associated risks. Ultimately, funding is required to offset these higher risks. Agreements in perpetuity require funding in perpetuity. Because public agencies usually bring relatively short-term funding to the negotiation table, agreements will have to be renegotiated from time to time.

Perhaps the best policy to follow is to negotiate specific trade-offs with the freight railroad in terms of the investment level required to run a set number of trains and the additional investment required for each additional train. In this way, the transit operator will have some idea of future capital costs for service expansions.

Safety and Liability

In many instances, safety concerns drive decisions about shared operations. Safety regulation for all commuter, inter-city, and freight rail lines is under the jurisdiction of the Federal Railroad Administration (FRA). For many years, railroads were free to establish maintenance standards and speed limits for track without government involvement or regulation. Following a series of major derailments in the 1970s, the FRA^{vii} was given statutory authority to define track safety standards for all U.S. railroads.

Safety

The FRA defined nine track classes, with Class 1 as the lowest and Class 9 as the highest. Specific geometry and condition standards are established for each class of track, and speed limits for both passenger and freight traffic are also defined:

vii The FRA was also given a staff of safety inspectors and enforcement power.

- Class 1: 10 mph for freight and 15 mph for passenger. Much yard, branch line, short line, and industrial spur trackage falls into this category.
- Class 2: 25 mph for freight and 30 mph for passenger. Branch lines, secondary main lines, many regional railroads, and some tourist operations fall into this class.
- Class 3: 40 mph for freight and 60 mph for passenger. This commonly includes regional railroads and Class 1 secondary main lines.
- Class 4: 60 mph for freight and 80 mph for passenger. This is the dominant class for main-line track used in passenger and long-haul freight service.
- Class 5: 80 mph for freight and 90 mph for passenger. This is the standard for most high-speed track in the U.S.
- Class 6: 110 mph for freight and 110 mph for passenger. This is found in the U.S. exclusively on Amtrak's Northeast Corridor between New York and Washington, D.C.
- Class 7: Amtrak has also received special Class 7 status for 125 mph passenger rail operation.
- Class 8: This status is reserved for passenger trains operating at 150 mph and allows no simultaneous operation of freight trains. There are a total of 18 route miles of Class 8 track on Amtrak's Northeast Corridor line.
- Class 9: This status is reserved for passenger trains operating at 180 mph and requires a separate right of way and dedicated track.

In general, Amtrak operates at speeds only moderately higher than freight trains, while commuter trains generally operate no faster than Amtrak. However, when passenger and freight trains share tracks, there is always a risk of a collision, derailment, or damage due to a shifted load. While current contracts between Amtrak and the freight railroads do not hold railroads liable for damage to Amtrak trains and injuries to passengers in accidents, courts have held that this provision does not apply in cases of gross negligence. Since railroads cannot insure against gross negligence, the cost of a serious accident could conceivably threaten the financial health of a large Class I railroad.

High speed passenger trains on freight railroad ROWs bring new risks due to the large differentials in operating speeds, which may require full fencing and other security measures. However, it appears that it will most likely be impossible to mix very fast passenger trains (speeds of faster than 125 mph) and relatively slow freight trains safely on the same tracks. True high-speed passenger services will almost certainly require separate ROWs.

Grade Crossing Safety

If rail traffic and train speeds are increased along a corridor with the implementation of commuter and/or high-speed rail passenger services, the potential for more collisions and more fatal collisions may rise at grade crossings. In 2002, 323 collisions between trains and vehicles occurred at grade crossings in Texas, resulting in 29 fatalities. Grade crossing safety is a primary concern and must be considered thoroughly before implementing any shared rail operations in a corridor. Grade separations ensure a high level of safety but can be very costly. On the other hand, the closing of certain grade crossings (access management) in an effort to address safety concerns will affect roadway access and adjacent property owners, which could result in community opposition.

Emergency Notification Procedures

In general, passenger transit systems sharing transportation corridors with freight railroads have established emergency notification procedures in the event of an incident (e.g., undesired emergency brake application or

if a derailment or shifted load was suspected) on either the freight railroad or the transit system. Some transit agencies have also placed fences between the transit tracks and the freight railroad to prevent maintenance workers or passengers from inadvertently wandering onto the freight ROW.

Inadequate Design Criteria

In some instances, the freight track may have been designed under obsolete or old criteria. The introduction of passenger services may thus highlight drainage facilities or other environmental or design issues that are not considered important given the low frequency or speed freight operations. Apart from frequency and operating speed consideration, design of the following should also be considered: crossings, bridges, track spacing, fencing, crash walls, vertical separation, and drainage.

Liability

In 1997, Congress passed the Amtrak Reform and Accountability Act (ARAA), which limited the aggregate overall damage liability to all passengers from a single incident to \$200 million. The latter also applies to commuter rail operations. Commuter rail operations thus require \$100 to \$500 million in insurance coverage. Annual premiums tend to vary, but tend to be between one and two million dollars. However, it should be noted that the \$200 million limit does not limit damage to non-passengers. The latter has been untested in court (U.S. General Accounting Office, 2004).

Congress also affirmed the statutory basis for enforcing indemnification obligations in contracts (U.S. General Accounting Office, 2004) with the result that liability should not present any additional costs to the freight railroads. In general, the freight railroads want full faith and credit indemnification (American Public Transportation Association, 2001). BNSF, for example, will only consider commuter rail service on BNSF track if no liability is incurred to BNSF. This has to be negotiated at the time of obtaining the ROW or trackage rights.

Concluding Remarks

The current rail freight situation differs considerably from the low freight volume situation that prevailed in the 1980s and resulted in ROW sales by freight railroads. Freight traffic volumes are now overwhelming capacity in many key rail corridors and train delay is expected to increase given existing capacity and forecasted freight growth. Freight railroads are becoming increasingly reluctant to agree to any operating arrangement that restricts use of their track. This does not mean that the freight railroads will not entertain a shared use arrangement, but from the case studies, it is clear that freight railroads will not accept any degradation in service or bear any costs attributable to passenger service. Capital improvements that will benefit both freight and passenger operations have been very persuasive in the past. However, in most cases, these capital improvements come at a significant cost to the transit agency.

Thus, in most situations, the freight railroads have tremendous leverage at the onset of negotiations, because it is their resource that the commuter agency wants to access. Also, railroad management and attitudes change regarding the operation of rail passenger service. There are many issues for the public agency to consider in any shared use arrangement. In addition, some transit agencies prefer having control over use of the ROW, dispatching of trains, and performing (or contracting for) track maintenance to ensure the on-time performance of their commuter trains, which is critical to reaching targeted ridership levels. This usually means owning the ROW. If there is no alternative to sharing a busy freight-owned corridor, access agreements could include clear and unambiguous incentives and penalties to encourage the on-time dispatching of commuter trains.

To conclude, the era when lightly-used rail lines could be purchased for modest sums by public agencies is in the past. In the future, cooperation between freight railroads and public agencies will be required if additional rail passenger service is to be operated on freight corridors. The key is to develop win-win situations for both

freight railroads and public agencies. A successful partnership will involve finding a compatible situation, careful planning, relationship building, and significant public funding.

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1. In essence, there are four possible types of shared rail operations:

- Federal Railroad Administration (FRA)-compliant passenger trains sharing track with freight trains. If passenger equipment meets FRA safety standards, intercity and commuter passenger trains can operate in the same ROW, share track with freight trains, and operate simultaneously. Examples of this type of shared rail operations are the passenger services provided by Amtrak and Dallas Trinity Railway Express.
- Non-FRA-compliant passenger trains operating on shared track with freight trains. In this case, the passenger and freight trains cannot operate simultaneously due to FRA crash safety standards. An example would be light rail transit (LRT) sharing track with freight trains.
- High-speed rail sharing track with freight trains. FRA regulations allow for the sharing of rail track and simultaneous operation of compliant passenger equipment and freight equipment up to FRA Class 7 (125 mph). Class 8 (150 mph) requires temporal separation (freight cannot operate simultaneously with passenger trains), and Class 9 (180 mph) requires dedicated track.
- Shared ROW. In this case, freight and passenger trains operate on separate tracks adjacent to each other. FRA regulations exist regarding temporal separation and crash strength. However, no regulations exist relative to required track spacing, fencing etc.

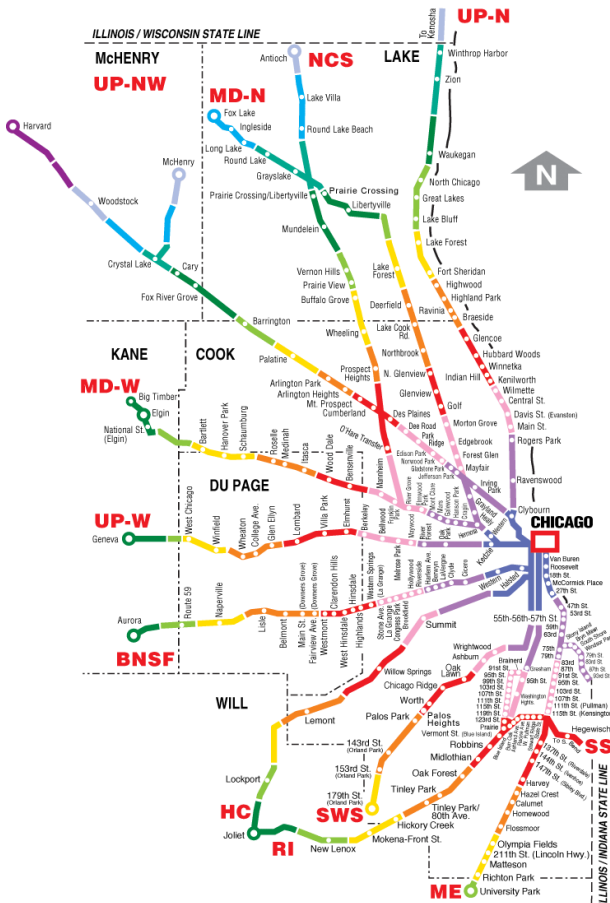
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2. Metra: Most of the Metra-owned ROW was acquired as the result of freight carrier bankruptcy or by direct purchase. On this ROW, Metra shares or allows access to its track under various agreements with several railroads. The SouthWest Service line is an example of an arrangement in which the Metra-owned corridor is shared with a freight railroad. In this corridor, Metra crews operate Metra equipment under the control of Metra dispatchers, but freight service is also operated on the line. Metra also has ROW where no freight railroad operates. The Metra Electric Service line is an instance in which Metra owns and maintains the track and operates and dispatches only Metra commuter trains along its route.



Metra Train. Northeast Illinois Regional Commuter Railroad Corporation. <http://www.metrarail.com/>

Metra utilizes the second type of arrangement, in which trains operated by a commuter authority run on freight railroad tracks. On track owned by Canadian National Railway and Canadian Pacific Railway, Metra operates its trains with its crews. However, dispatching and track maintenance are provided by the freight railroads. This type of arrangement has been common in metropolitan areas, especially where new-start commuter rail service is introduced in environments in which freight service is well established.



The most unusual of Metra's operations is on trackage owned by UP and BNSF. In both cases, the railroads had historically operated commuter trains on (in most cases) high-volume freight traffic corridors. When approached by Metra, the freight railroads were interested in relieving themselves of loss-making commuter rail services but were unwilling to relinquish operating control over strategically important freight rail lines. The result was a "purchase of service" agreement in which Metra reimburses the two freight railroads for the direct expenses associated with operating the commuter trains with their equipment and crews. With the passage of time, Metra purchased new equipment and leased it to the freight railroads, which continue to operate the commuter trains and maintain the track and equipment.

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Metra System Map, Northeast Illinois Regional Commuter Railroad Corporation, http://metrarail.com/System_map/index.html



Metrolink Train. Solow, David, Metrolink, Southern California Passenger Rail: It Just Keeps Growing and Growing... 10/20/2004. 11th Annual Passenger Trains on Freight Railroads Conference. Washington D.C. 2004. Simmons-Boardman Publishing

3. Metrolink: In the case of Metrolink, the addition of commuter trains on track owned by the freight railroad is tied to specific capacity improvements. Metrolink is responsible for funding capital improvements that will benefit the passenger service. Conversely, if freight volume exceeds a specified level, the freight railroad is responsible for funding capacity improvements to avoid delays to the passenger trains. In the past, the public agency and freight railroad have partnered to fund a triple tracking upgrade, with the freight railroad contributing 20 percent of the costs.

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4. Sounder Commuter Rail: During negotiations, the Sound Transit and freight railroads agreed on access for passenger rail on specific segments of the rail corridor, as well as the prerequisite improvements (project by project) for access to be granted along a segment. Therefore, ROW access for passenger trains on freight track segments became tied to specific capital improvements, including double tracking, turnouts, and control systems. In other words, upon completion of the agreed capital improvement funded by Sound Transit, the commuter agency obtains the right to operate its passenger service on that segment of the ROW. The freight railroad is thus ensured that adequate capacity exists to accommodate both the passenger and freight services in a manner that would not compromise the on-time performance of the freight trains.



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Capitol Corridor Train Image. Amtrak.
http://www.amtrakcapitol.com/aboard_the_train/bulletin_board.php

5. Capitol Corridor: CCJPA worked with UP to go beyond the basic Amtrak agreements. CCJPA and UP reached a consensus around specific critical needs and cooperated to remedy those needs. CCJPA funded improvements to the trackage and thereby increased train speed through the reduction of “slow orders” (e.g., temporary speed restrictions over a specific section) caused by deferred maintenance.

Maintenance was undertaken at a higher level, and the track was improved to allow for greater speeds. Existing state agreements called for the railroad to meet only Federal Railroad Administration standards for Class 4 trains (which permits operation of passenger trains at up to 79 MPH). CCJPA determined what was needed to meet a higher maintenance standard than typical Amtrak arrangements. The overall ROW conditions were improved through capital projects funded by the California Department of Transportation (Caltrans). CCJPA worked with UP to identify critical track improvements and other capital improvement strategies to improve ride quality and reliability. Once key bottlenecks were identified, the two parties came together to model congestion points and to examine the impacts of proposed capital improvements

on those points. Collaboration has also been evident in the joint review and alteration of schedules to the benefit of both agencies. These adjustments to scheduling on the corridor have reduced dwell times, allowed for shortened run times for both agencies, and resulted in a significant increase in time available for freight train movements.

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6. Sounder Commuter Rail: In the case of Sound Transit, the public vote on transit that was passed revealed the funding allocated for the commuter rail line and the specific commitments in terms of service delivery. This impacted the bargaining position of the public agency, because the freight railroad knew how much money was available and what needed to be achieved. At the same time, the development and planning processes of public agencies and securing and committing public funding can be very time consuming. In these situations, public expectations and/or impatience may adversely impact the public agency's bargaining position.

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7. Sounder Commuter Rail: In Seattle's case, the relationship between freight mobility—and therefore the need for additional capacity to accommodate passenger services—and the region's economic performance was well understood. U.S. Senator Patty Murray (D-Washington) supported Sound Transit's plans for the region, including the capacity improvements on the rail corridors.

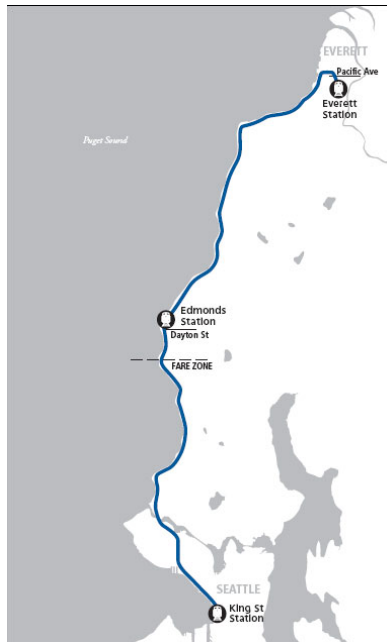
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8. Sounder Commuter Rail: To create an effective partnership between organizations with different objectives, it is critical to ensure open dialogue and to establish an open relationship between the parties. The open dialogue created through frequent and regular contact between Sound Transit and BNSF resulted in a trusting relationship. This helped maintain a good faith relationship where on-time performance has been above 95 percent in the absence of any incentives until construction is complete.

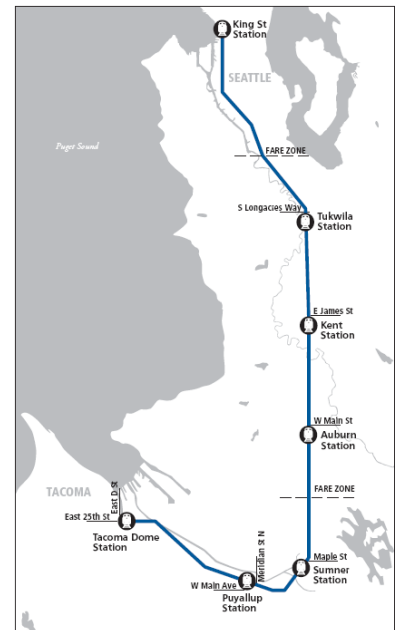
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9. Sounder Commuter Rail: Interested stakeholders came together to contribute and discuss their goals for, views of, and interests in the region which aided the initial agreements between the new-start transit agency and the freight operators on the congested rail corridor. The 1995 "roundtable" meeting, which was attended by approximately twenty-five people representing the Washington Department of Transportation (WashDOT), the Port of Seattle, the freight railroads, and commuter rail, facilitated a relationship among the regional stakeholders and initiated a dialogue that benefited the eventual negotiations. The participants agreed on regional mobility objectives and recognized the key contribution of freight movements to the economic vitality of the region. The meeting helped conceptualize a guiding plan for the region and ensured that freight growth would not be compromised. This stakeholder meeting thus helped to lay the groundwork for the cooperative agreements between Sound Transit and the freight railroads.

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Seattle - Everett: Sounder Service Map. Sound Transit. <http://www.soundtransit.org/riding/fac/sounder/maps.asp>



Tacoma - Seattle: Sounder Service Map. Sound Transit. <http://www.soundtransit.org/riding/fac/sounder/maps.asp>



Capitol Corridor Route Map. Amtrak.
http://www.amtrakcapitol.com/stations_and_schedules/route_map.php

10. Capitol Corridor: According to CCJPA, developing a trusting relationship with UP was a critical factor in the ability to dramatically improve Capitol Corridor rail passenger service and increase ridership. CCJPA and UP worked together to improve track conditions, adjust schedules, evaluate capacity improvement projects, and devise an innovative incentive scheme to motivate UP to ensure that passenger trains are dispatched appropriately.

CCJPA went from a strained relationship with UP to a constructive relationship through progressive partnership building. CCJPA recognized that it is important to remember that people make up the organizations and building relationships takes time. The two entities built trust and understanding by working together through easier issues and focusing on positive conflict resolution. When conflicts needed to be resolved, they worked one-on-one to find a solution.

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11. Tri-Rail: Tri-Rail has worked with CSX Transportation in utilizing the freight railroad’s lobbying powers to secure funding for the region. Tri-Rail has also capitalized on the freight railroad’s leverage to purchase equipment, maintenance, and materials. CSX can purchase at a lower price than a public agency because of the large volumes it purchases on a regular basis. CSX and Tri-Rail have also cooperated on testing advanced signal systems for higher-speed operations (Wilkins, 2000).

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12. Tri-Rail: According to Tri-Rail, its shared use agreement could have been better structured regarding construction projects. In terms of the current agreement, CSX has the right to review all construction projects on the state-owned track. This right has led to delays in project delivery and has impacted Tri-Rail’s overall planning process.

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13. Tri-Rail: Having experienced railroad experts available during negotiations can significantly improve the efficiency of the negotiation process and outcome, but difficulties and impasses may occur regardless of the capabilities of the negotiators.

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Tri-Rail System Map. South Florida Regional Transportation Authority. http://www.tri-rail.com/system_map/index.htm



Tri-Rail Train. South Florida Regional Transportation Authority. <http://www.tri-rail.com/>

15. Tri-Rail: Dispatching control and on-time performance have been the two most problematic areas in Tri-Rail's shared use arrangement with CSX. Tri-Rail experienced dramatic drops in on-time performance from 85 percent to 47 percent when CSX was not prioritizing Tri-Rail's trains (Wilkins, 2000). Tri-Rail thus believes that new-start commuter rail services should seek to obtain dispatching control from the beginning if possible, because having control over dispatching ultimately means having control over the on-time performance of passenger services. If a transit agency does not have dispatching control, the agency should ensure that passenger trains have priority during rush hours when on-time performance is critical to reaching targeted ridership levels.

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16. Tri-Rail: The on-time performance concerns were ultimately resolved through cooperation between CSX and the South Florida Regional Transportation Authority. It was pointed out to CSX that Tri-Rail experienced poor on-time performance during periods that were critical in making its planned service schedules when the track was shared with freight trains. CSX eventually agreed to a six-month trial period in which Tri-Rail was given exclusive time windows each day for operating its trains without freight movements on the corridor. The trial results were reviewed periodically (Wilkins, 2000). This arrangement, in which no freight movements occur during rush hours, continues to be in place currently and has allowed Tri-Rail to significantly improve its on-time performance. CSX is currently negotiating to hand over dispatching duties to Tri-Rail on a permanent basis once double tracking of the corridor has been completed in 2006 (Wilkins, 2000). Until then, Tri-Rail will benefit from CSX dispatching the passenger trains in terms of the avoided costs associated with the full-time operations of a dispatching center, including employee and facility costs.

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17. Capitol Corridor: To improve on-time performance in the Capitol Corridor, it was necessary to disentangle the on-time performance incentive agreements for the Capitol Corridor service from Amtrak’s national agreement with UP. In terms of the national agreement, trains are evaluated on a systemwide basis (i.e., the average on-time performance of all Amtrak trains operating on UP track) and over a longer period of time (i.e., calculations spanning several years). In contrast to most Amtrak intercity services, the Capitol Corridor service operates over a relatively short distance with frequent train departures. CCJPA worked with UP to separate the Capitol Corridor incentive evaluation from Amtrak’s larger service. This allowed the Capitol Corridor to match its performance needs with its incentives.

CCJPA’s performance incentives are structured to encourage higher levels of performance over longer periods of time. A 92 percent on-time performance is the minimum target to earn any incentive. The first month that the passenger service is running above 92 percent on-time performance, 50 percent of the maximum incentive is awarded. The

incentive increases to 75 percent of the maximum for either a consecutive period of service above 92 percent or for reaching 96 percent on-time performance over a month. To earn the maximum incentive, UP must attain at least two consecutive months of service above 96 percent on-time performance. If the on-time performance ever drops below 92 percent, the incentives revert back to zero and the process begins anew. Any unearned incentives in a year are used for mutually agreed-upon track improvements in the corridor.

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18. Sounder Commuter Rail: The shared use agreement for the track between Seattle and Tacoma may result in significant costs to Sound Transit when the agreement has to be renegotiated in approximately 40 years. Sound Transit recommended that access agreements be pursued that do not require renegotiation, because (a) long-term arrangements make capital investments more feasible, and (b) they avoid difficult negotiating scenarios in the future. With so much invested in an operating commuter rail service, Sound Transit is bound to have less negotiating leverage when a new access agreement must be negotiated upon the expiration of the current 40-year agreement.

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