

NCIT

National Center for Intermodal Transportation

A Partnership Between the University of Denver and Mississippi State



Intermodal Terminals

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Innovators in intermodal transportation education, research, and technology transfer.

The location and development of an intermodal terminal is an important decision for a railroad; however, such decisions are increasingly interrelated to private and/or public initiatives. Not only are these projects significant for the railroad, but they are increasingly viewed as drivers of regional supply chain efficiency, quality of life and infrastructure utilization to other stakeholders.

While public sector policy makers recognize that the private sector has a different decision making process, this is often viewed through a policy lens, rather than recognizing the railroads' technical business requirements. This white paper synthesizes railroad perspectives on intermodal terminal development. A more intensive analysis, complete with qualitative and illustrative case studies that classify the considerations and interests of various stakeholders is available online.

A Brief History of Rail Intermodal – and Its Facilities

The development of the intermodal industry can easily be charted alongside the geographical growth of the United States. In the early nineteenth century, primitive methods of transportation were developed. The westward movement generated the need for canals, which provided only limited service -- close to waterways. The introduction of the railroad -- which could travel anywhere on land -- rendered canals obsolete. The impetus for intermodal grew out of the railroads' handling of general merchandise traffic -- frequently in small amounts (e.g., just a carton.) Eventually, unitized loads of trailers and containers grew to replace the LCL boxcars.

Over time, other railroads initiated intermodal (or "piggyback") services. Terminal development was a "make-do" strategy that took whatever was available. Most of the facilities were located on abandoned passenger yard tracks located in city centers. Since

the original railroad intermodal product was boxcar LCL, the customer network had many nodes. Literally any team track offered a point of intermodal transfer. As intermodal grew, the number of intermodal ramps proliferated.

The costs of opening an intermodal terminal in the 1950s and 1960s were low. Since the land was “already there” all that was needed were several loading tracks and some parking. Trailers were loaded and unloaded by “circus loading” whereby trailers were driven over ramps onto rail cars and pulled from one car to the next across bridge plates.

Herein was born the challenges that still exist today.

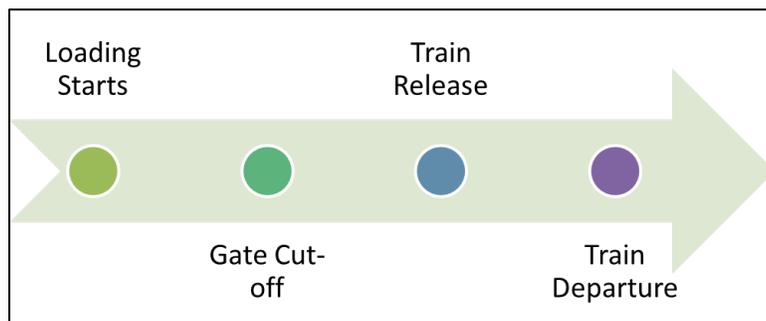
- Every small town – and even some factories – wanted their own piggyback ramp as a way to obtain an advantage – however small.
- Intermodal traffic was handled just like carload freight. Cars were picked up and often rehandled at intermediate yards. Often, the intermodal cars were “humped” and damage was frequent.
- All intermodal cars on a track needed to “face” in the same direction to be loaded and unloaded. This required extensive switching by the railroad.
- Since these facilities were effectively served as carload industries, with local switching and movement in general freight trains, there were no volume thresholds to meet; however, disaggregated volume led to poor equipment utilization and low ramp volumes led to high labor unit costs.

What circus ramps saved in capital expense, they more than consumed in operating expense. The oversupply of low-volume piggyback ramps led to poor service and high costs. There was never any official count; however, it is believed that the number of ramps peaked at over 2,100 in the 1960s. Many ramps provided only seasonal, low-level, or

imbalanced traffic. Some provided a combination of all three. A new approach was necessary.

Over time, railroads came to develop dedicated trains where there was sufficient density to support a train that was assembled at origin and run intact to destination – without the need for intermediate rehandling. The increased density required more efficient – but fewer -- terminals. These terminals were mechanized with cranes and sideloaders to handle volumes more efficiently. Besides volume growth, several trends accelerated terminal mechanization.

- The growth of container volumes increased the demand to move COFC – which required mechanization.
- Trailers started moving on cars that required overhead loading.
- As intermodal service improved, schedule “compression” became a major challenge. Intermodal schedules at origin have three components. The gate cutoff is the time at which the railroad stops accepting loads for that train. Release is the time that the ramp operator turns the train over to the railroad for linehaul movement. Departure is just that. With train schedules closely coordinated with shipper activities, it was not unusual for most of the train volume to arrive with 30-60 minutes of gate cutoff. Handling such large volumes in such a short time required mechanization.

Figure 0-1 Intermodal Terminal Outbound Loading

Although mechanization was a powerful productivity boost, it was extremely expensive and was primarily limited to high volume terminals in Chicago and the East and West Coasts. Although cranes eventually became the preeminent lift device, it would take over 30 years. Sideloaders were the first generation primary device of choice. “They were a cheap way to mechanize a facility and needed very little preparation on the ground surface and were not “blocked” by legacy infrastructure such as lights and telephone poles.

Following deregulation in 1980, intermodal was no longer seen as an afterthought – it had become core business. Its volume filled excess capacity and intermodal customers enjoyed reliable and cost-effective service. Despite this growth, the number of terminals continued to decrease.

- In the mid-1980s, the Burlington Northern formalized the hub concept and drastically reduced the number of terminals. The ramps that remained, usually 200-250 miles apart, were mechanized.
- In the aftermath of railroad mergers, railroads looked to consolidate multiple small ramps in a single city into a single facility.

- Motor carrier deregulation resulted in greatly reduced truck rates and allowed new entrants into the business – and to drayage. Intermodal loads could be drayed further – at less expense.
- The cost structure of intermodal changed. Larger, mechanized terminals reduced the amount of switching and improved asset utilization.
- Labor costs declined precipitously as non-union operations became standard – even in cities such as Chicago. Railroads divested themselves of their [unionized] truck lines to avoid financial exposure.

The accelerated development of the intermodal business, and resulting growth of mechanized intermodal terminals, closely tracks the role of the container.

- In the 1960s and 1970s, containers moved on chassis (TOFC) to/from Atlantic and Gulf ports and inland points.
- In the late 1970s, APL pioneered the “liner train,” which allowed them to serve eastern ports without maintaining an Atlantic fleet. Containers were discharged on the West Coast and sent by rail to eastern ports in unit trains by both TOFC and COFC
- By 1984, the Liner Train gave rise to doublestack trains which were COFC only.
- Domestic containerization followed. By 1995, all ramps were either mechanized -- or closed.

In the last 25 years, two simultaneous changes occurred.

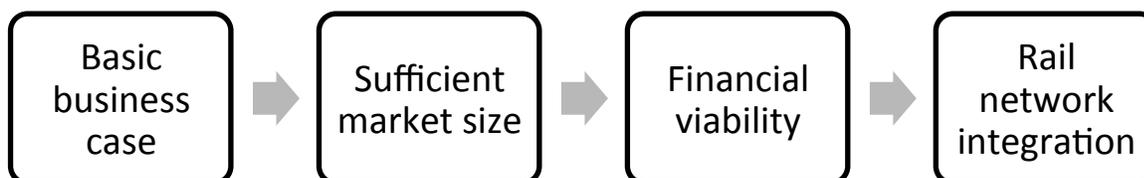
- Globalization of industry and trade transformed logistical theory and practice. To accommodate these changes, a new real estate market arose -- specifically dedicated to warehousing and distribution center uses of land.
- As opposed to the early days of intermodal – when ramps were conversions of existing facilities – new facilities were greenfield sites hundreds of acres in size.

The convergence of these two trends resulted in co-locating freight transfer facilities, warehouses, distribution centers, and related freight services within a common “boundary.” In North America, they have increasingly become known as “logistics parks” or “inland ports.” They are an outgrowth of “freight villages” which evolved in Western Europe during the late 1960s and 1970s. Logistics parks have significantly changed how intermodal facilities are developed. In the last twenty years, two projects (Alliance, Texas, and the Elwood, Illinois) became the model to which all parties have aspired. And, although these two projects established a template, it is worth recalling that while both are considered “slam dunks” today, they were not guaranteed success.

Criteria of Successful Intermodal Terminals

When considering a new intermodal terminal, a thorough analysis of the benefits and drawbacks of alternatives must be conducted to determine the likelihood of project success. While every organization has unique criteria, the following four criteria are generally included.

Figure 0-1 Necessary Rail Intermodal Terminal Success Criteria



Business Case Threshold

When considering new intermodal terminals, the proposal must initially meet a very basic business case threshold. The terminal must be the end point of volume moving between itself and another intermodal terminal on the railroad’s network. The volume must exceed a minimum annual level – with reasonable volume every month – hopefully somewhat

evenly distributed through the week. The volume threshold may vary by railroad. Eastern railroads traditionally accept lower levels (e.g., 20,000-30,000 loads per-year) while western railroads require a slightly higher level (e.g., ≈50,000 loads per-year.)

It is important to realize that this threshold is just the initial criteria. Satisfaction of this requirement is not a guarantee of success.

Many initiatives fail to meet the preliminary threshold, and are never even considered as viable projects. Just having large volumes is not enough if *the volumes do not translate to business that could be readily incorporated into a railroad's intermodal network.*

- Richmond, Virginia had I-95 volume – but no traffic originating or terminating there.
- Meridian, Mississippi had train volume – but no traffic originating or terminating there.
- New Orleans, Louisiana had six Class 1 railroads – but no traffic originating or terminating there.

Failing to meet the railroad's threshold does not completely eliminate the possibility of intermodal terminal development. It just means that development will need to be pursued with a public or private entity through private terminal development. Several private terminals have been developed -- despite railroad reluctance to pursue the initiative on their own. (Examples would include: Front Royal, Virginia, Greer, South Carolina, and Lubbock Texas.) All of these cases have several common factors:

- The private facilities are owned and operated by an economic entity that uses the facility to add value to its base product or service;
- The facilities generally operate in a single point-to-point lane; and,
- Service might not even be five-days-a-week and may run on an “as-required” basis.

Sometimes the Field of Dreams scenario works out. “You build it” and “they come.” Quincy, Washington and Huntsville, Alabama eventually achieved critical mass; however, both took many years to succeed. While the project boosters may claim foresighted planning, it is likely that just as many detractors could classify these results as “more luck than brains.”

Critical [Market] Mass

If a proposed intermodal terminal project can meet the initial business case threshold, it must then fulfill the requirements of having critical market mass. There are several success criteria that are universally sought. All of these ultimately involve market proximity.

Rail intermodal transportation involves ramp-to-ramp service that is substituted motor carrier linehaul. In order to provide door-to-door service that “looks” like a truck, intermodal drayage is provided at either end of the transaction. The drayman provides pickup and delivery services between the actual customer locations and the linehaul terminal. Drayage is a tractor-only service. An equipment provider to the customer (or the customer themselves) supplies the trailer or container.

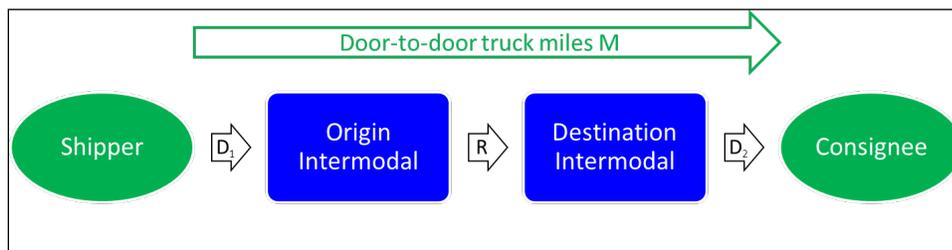
To be competitive, intermodal transportation must provide an all-in, door-to-door transportation expense that is less expensive than the comparable truckload product. When measured on a cost-per-mile rail linehaul is produced at a fraction of the cost of truck, drayage usually costs more.

- Drayage is performed over shorter lengths of haul, and involves a great deal of dead time. While the total expense (the numerator) may be less than truck, the miles travelled (the denominator) are greatly reduced. A long distance motor carrier can legally drive 500-550 miles per-day. In major metropolitan areas, a drayman may be fortunate to reach 100 miles per-day.

- Drayage is notoriously inefficient. Most pickups and deliveries are priced on a roundtrip basis – either load/empty or empty/load. Empty miles are as extensive as 50% of movement. This increases expense for the purchaser and limits revenue for the provider.

Railroads must also deal with the circuitry problem.

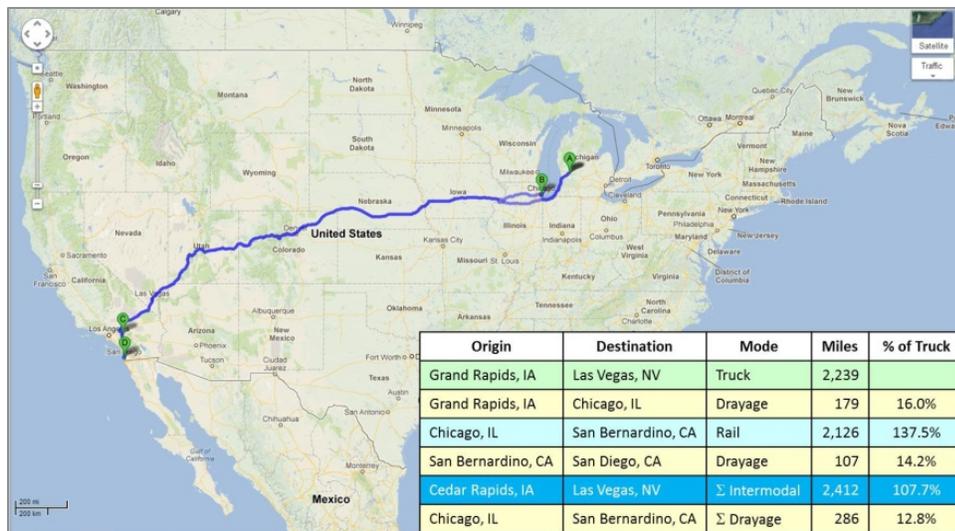
Figure 0-2 Intermodal Route Topology



Consider two cases:

In an ideal world, the intermodal route closely replicates the truck door-to-door mileage and the drayage miles are a small percentage of the total miles.

Figure 0-3 Low Intermodal Circuitry



Even in a low circuitry case, the rail distance is often significantly greater than the highway mileage between the two cities. So, while the railroad cost-per-mile is less than highway, the savings are offset by the increased circuitry. However, circuitry can be even more adverse.

Figure 0-4 High Intermodal Circuitry



The obvious solution to this challenge is to create more intermodal terminals so as to reduce the drayage distance and likelihood of reverse circuitry. However, there is always the risk of cannibalizing existing volumes – and destroying the network’s density and economies of scale. While it appears that the eastern and western railroads have different approaches, this is not true. Rather, they seem to have all applied the same methodology – with different parameters – arriving at different results. Western railroads generally have ramps 200-250 miles apart, whereas eastern railroads frequently have ramps less than 100 miles apart.

When considering new intermodal terminals, a railroad is contemplating a major investment in a facility with a 50+ year asset life. The likelihood of success can be enhanced if there is a large customer base in close proximity to the facility.

Table 0-1: Terminal Location Outcomes

	Desirable Today	Undesirable Today
Desirable Tomorrow	① Optimal outcome	② Great long-term solution – if forecast is correct
Undesirable Tomorrow	③ Short-term solution and long-term problem?	④ Should never be built – but was it originally ②?

All of these outcomes have real-world examples.

There are a number of terminal projects that had immediate benefit as well as strong long-term projects. All of these projects would be considered in quadrant ①. Examples would include: ATSF Willow Springs, Illinois; UP San Antonio, Texas; and NS Columbus, Ohio.

Long-term Uncertainty

The early ATSF/BNSF logistic park projects in Alliance, Texas and Elwood, Illinois were unqualified successes. While the results seem obvious today, both were initiatives that had not insignificant levels of risk when they were developed. There are a number of current undertakings whose long-term success remains to be determined. Facilities must generate an economic life as long as its 50+-year physical life.

Success Is Never Guaranteed. Because intermodal terminals and logistics parks require large tracts of undeveloped land, it is frequently difficult to acquire these parcels in well-established industrial areas. However, there is always the concern that the availability of land for terminal development may not be a sufficient guarantee of long-term success. Although there is a fairly recent history of intermodal logistics park success, this record of past success should not be mistaken for a guarantee of future results.

Conflicting goals must be reconciled. When railroads and private developers combine on projects, not only is success not guaranteed, but there is the high likelihood that both parties are not seeking the same result.

- The railroad seeks intermodal capacity that attracts new business – or handles existing business in a non-disruptive and economically-beneficial manner.
- The developer is looking to generate real estate transactions.

The goals are not mutually exclusive; however, they are not guaranteed to simultaneously beneficial results. In the mid-2000s, the flamboyant success of CenterPoint – and the general mania surrounding real estate -- may have given rise to the thought that there were no limits

A partnership outcomes matrix might look like the following.

Table 0-2: Intermodal Logistics Park Outcomes

	Railroad Success	Railroad Failure
Developer Success	❶ True win-win outcome	❷ Real estate success but no intermodal growth
Developer Failure	❸ Intermodal growth but no real estate transactions	❹ Should have never been built

- There are a number of examples of ❶ that were discussed above.
- There are currently no examples of ❷ although it remains to be seen if KCS’s Kansas City project achieves this status.

- There are currently no readily apparent domestic examples of ❸; however, the ProLogis Park Lingang (located adjacent to Yangshan – the newest Port of Shanghai) would be a case in point.
- There are currently no examples of ❹ -- although it remains to be seen if CenterPoint's Crete project achieves this status. This is probably because it would be highly unlikely for a project with such poor financial prospects to pass internal review by both the railroad and the developer.

In some cases, network tuning can obviate the need for terminal capacity. When more than one railroad is involved in the rail transportation, it is necessary to interchange this traffic. Whereas rail carload traffic can only be interchanged by terminal switching, this method ("steel-wheel" interchange) is not always the norm for intermodal traffic. Very often, intermodal traffic arriving at the destination terminal of the first railroad is unloaded, trucked to the next railroad, and reloaded for further movement. The CSX Northwest Ohio terminal was a specific response to handling Chicago interchange traffic in a different manner and location.

Financial Viability

Even if a proposed intermodal terminal project meets the various business criteria, it must be financially viable. A railroad intermodal terminal is a multiple-year project that will be subjected to close scrutiny as part of the company's capital planning process. At its core, capital planning revolves around two questions:

- "What do we need?"; and,
- "Why do we need it?"

The challenge is prioritizing projects because it is highly unlikely that there are sufficient resources for requested initiatives. All railroads have existing methodologies to determine which needs are more important or essential than others. Detailed financial projections and assessments determine financial robustness. The results may be "tweaked" to

recognize regulatory, safety and other hard-to-quantify factors. The capital planning process makes it possible to evaluate needs by ranking them in priority order after all relevant information has been gathered.

Once a project is “scored” -- by a return on investment (ROI) -- in the capital budgeting process there are several outcomes.

Table 0-3: Capital Planning Outcomes

	Sufficient ROI	Insufficient ROI
Sufficient funds in railroad capital budget	❶ Project 100% funded by railroad	❷ Project not funded
Funds (grants) available from non-railroad sources	❸ Project still 100% funded by railroad (non-railroads funds declined)	❹ Non-railroad funds accepted until sufficient railroad ROI reached
Funds (loans) available from non-railroad sources		❺ Loans not accepted
Insufficient ROI due to operational diseconomies	N/A	❻ Project not pursued

In cases ❶ and ❷, there is sufficient railroad capital to pursue the project if the ROI threshold is met. In the remaining cases, application of public and/or private funding is determined.

- Case ❸ is really the same as ❶. In most cases, railroads prefer to use their own capital so as to maximize their flexibility and minimize any external requirements.

- In Case ④, the railroad is able to undertake a project by reducing its capital contribution and replacing it with public/private funding. While it is mathematically possible to reduce the railroad portion to 0%, such an outcome is not very likely.
- Case ⑤ indicates a preference by most railroads to not accept loans.
- Case ⑥ represents an outcome where the project fails to generate any savings. In those cases, railroads are likely to cease consideration of the project – even if an external source offers operating subsidies.

Historically, most intermodal terminal projects fell into cases ① or ②. However, recently, case ④ has become more prevalent as the public/private sectors have become increasingly receptive to intermodal transportation.

- Logistics parks have become very attractive investments for private capital.
- The public sector is attracted to ports and logistics parks as engines of economic growth.
- The benign environmental impact of intermodal versus traditional trucks is also attractive to public entities.

Even in times of budget turmoil, more public money has become available. The US Department of Transportation has held several rounds of competition for their Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant program. States and municipalities have also been forthcoming with funds. In many cases, the project involves multiple funding sources. The Florida East Coast Railway initiated two port-related, intermodal terminal projects through public-private funding.

Not all money is equal. Federal funding requires evaluation of the environmental effects of a federal undertaking -- including its alternatives – pursuant to the National Environmental Policy Act (NEPA.) With three escalating levels of analysis, many railroads have found the NEPA process excruciating.

Case ④ also raises a theoretical dilemma. Would a railroad build a terminal for no other reason than political benefit? It is unlikely that a railroad would accept such a one-off result; however, it might be harder to detect if the terminal was just a component of a larger initiative. There are industry “whispers” that the Norfolk Southern’s Prichard (West Virginia) Intermodal Terminal was a “deal sweetener” for the West Virginia Congressional delegation’s support of the Heartland Corridor project. There is also some feeling that BNSF service to the Port of Quincy was expedited by political convenience

Rail Network Integration

Since intermodal terminals are designed to complement rail linehaul operations, their integration into the rail network is very important.

Mainline Access

The most frequently cited requirement was that an intermodal terminal must be adjacent to the railroads mainline. Mainline capacity is perhaps the scarcest resource on a railroad and the ability to handle trains quickly is essential. This allows for timely and seamless pickup and delivery of trains. In order to maintain competitive schedules, railroads seek to do this work with the train’s road crew. This eliminates the delay – and expense – of having the train being handled by a switch crew. The need for mainline location is often misunderstood by potential partners.

- The ideal configuration is a terminal that is immediately adjacent -- and parallel to the mainline – although there have been recent exceptions.
- The distance that can be overcome varies by project circumstances; however, even a build-in of one or two miles is considered significant. If such construction is required, the railroad would want assurances that the land is available and already zoned appropriately.

- Track configuration and signaling is important. This requires high speed turnouts – and a terminal length that allows entry and exit with realistic (e.g., minimum) curve radii appropriate for the intended train speed and car configuration.

The issue of mainline access can impact site selection in another way.

- Some railroad transportation executives want a long, narrow terminal characterized by working tracks 8,000 feet long. That way a road crew can spot the train on just one pass.
- Most intermodal terminal operators would prefer a less-rectangular design because the longer the working tracks, the longer the distance for yard drivers to move.
- Other railroads prefer ramp tracks of 4,000 to 5,000 feet in length so that they are able to assemble or disassemble an 8,000 foot train with one move and not have extended intra-terminal spotting length.
- All railroad lines are not equal. A branch line might be attractive because there are not a number of potential conflicts; however, it may add additional time to the schedule. The same is true of short lines. By their very nature, short line owners are very entrepreneurial. While some are experienced rail industry executives, others are more driven by private equity and susceptible to “common wisdom.” While the former may understand intermodal limitations, the latter may be attracted to intermodal’s promise.

Failed intermodal initiatives in Sauk Village, Illinois and Stark County, Ohio highlight the dangers of building on a short line.

Balance

While adequate, minimum volume levels are an early threshold for terminal viability, equipment balance is also important. In other words, inbound and outbound equipment need to be the same. Otherwise there is expense for equalizing equipment levels. While this is a requirement for all asset-based network operating businesses, it is much more complicated for intermodal because of different equipment types and sizes.

- The first priority is to ensure that *loaded* inbound and outbound trailers and containers are balanced. Failing that, it is necessary to reposition empty trailers and containers. Marketing and pricing are used to adjust prices in the headhaul and backhaul lanes; however, sometimes market characteristics pose structural problems. Los Angeles is outbound imbalanced; Miami is inbound imbalanced. Moving empty equipment is handled in the same manner as loaded volume.
- If, even after empty repositioning, the lane is imbalanced then it is necessary to reposition empty cars.
- The car problem is exacerbated because trailers and containers have different lengths and use different car types. If a facility handles different types of traffic, this increases the complexity – because outbound trains are not always loaded back with the original cars. While, domestic containers cannot be loaded in 40-foot stack cars; international containers can be loaded in 53-foot stack cars – although such a move is very “wasteful.” The complexity is further enhanced because necessary remedies (e.g., additional switching) may adversely impact an operating unit’s budget performance.
- Large terminals designed to hold an entire day’s worth of trains can also help solve the problem; however, this may require building a terminal that is larger – and more expensive – than necessary.

Scheduling

The last aspect is how an intermodal terminal’s inbound and outbound volume is to be handled. While every railroad has its own strategies, a general hierarchy seems to have evolved.

- The preferred method is to run solid trains between two points. This is the simplest and most reliable; however, it requires a significant amount of volume every day to maintain rail economies of scale. In some cases, non-intermodal volume may be added to “fill out”

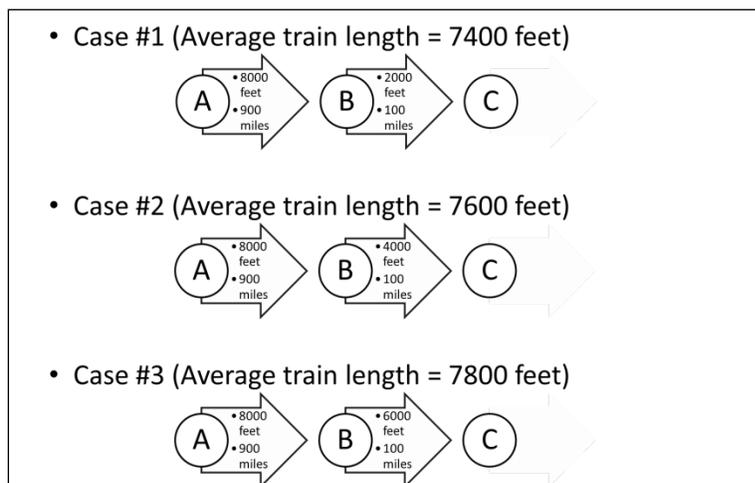
a train. It is usually traffic of a high service level (e.g., automotive multi-levels) so that railroads do not provide premium service at a less-than-premium price.

- The second alternative is to run a train with two destinations. The train will set-off traffic at one destination and run the remainder on to the second destination – without having it picked up by another train. In this case, the threshold is not the volume between the first (A) and last (C) points – but rather the first (A) and the second-to-last (B) – that determines the train’s overall economies.

As the figure below indicates, in order to achieve an 8,000-foot train from A, volume destined to B and C is combined. While the amount of freight destined to C may vary widely, it really does not change the average train length (from A-to-C) significantly.

More importantly, because the train runs to B -- and then on to C -- without any contingent events, service reliability can be protected.

Figure 0-5 Alternative Train Configurations

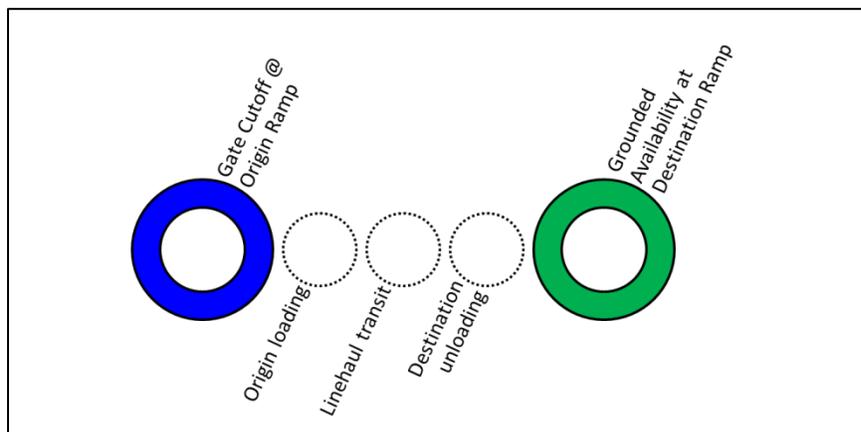


- The least attractive option is to originate trains with traffic to different destinations that involve “block swapping.” Trains may setoff traffic enroute that is picked up by a

different train that takes it to destination. This was very common when intermodal volumes were smaller; however, a late inbound connection can delay outbound departures. Most intermodal schedules today seek to avoid these intricacies and dependencies.

While the railroad is determining the transportation plan, the service commitment to the customer has been simplified to gate cutoff to grounded availability. While the customer has track-and-trace visibility to the shipment’s transit, the production function is retained by the railroad, which reserves the right to make changes. This reflects intermodal’s maturity as the railroad-customer commitment has transitioned from a design specification to a performance specification.

Figure 0-6 Intermodal Customer Commitments



There is a direct correlation between service quality and terminal capacity.

- If a railroad meets its schedules with a high degree of reliability then customers will make delivery appointments based on the schedule prior to the load’s arrival – often for the same day as scheduled availability.
- Otherwise, they will wait for confirmed, actual availability to schedule the delivery. This will result in the load sitting in the terminal for at least another day -- with attendant congestion.

Other Issues

The final issue to consider is how potential public and private partners can assist the railroad. Terminal development is usually driven by investors and owner/operators. Traditionally, social and environmental considerations for the affected surroundings are represented by public entities that may have unique perspectives, with specific methodologies for evaluating the desirability of proposed intermodal terminals.

Clearly, one of the most essential functions a public sector partner can perform is to facilitate approval. The paradox of intermodal is that while it has many benefits to society in the form of reduced pollution, diminished congestion, lower expense and enhanced safety, these benefits are global. However, in order to achieve these societal benefits it is necessary to increase truck and rail traffic around a terminal – and possibly disproportionately impact the population adjacent to the terminal.

There has always been a Not in My Back Yard (NIMBY) attitude by a certain sector of the population; however, many projects have encountered worse: Build Absolutely Nothing Anywhere Near Anything (BANANA) and Nowhere on Planet Earth (NOPE.) While agitated neighbors are one thing, sophisticated legal challenges can increase project costs to the point of failure or cancellation.

While externalities may be concentrated around the intermodal terminal, there are still remote challenges. An increasing challenge is local zoning that prevents customer distribution centers working 7x24. Here, the issues are not so much focused on pollution, but the nighttime noise – and light -- that is disruptive to neighbors. One of the attractions of logistics parks is that they are frequently – but not always – removed from residential neighborhoods.

This impacts terminal productivity. While some truckers might pick up a load at night and hold it in their yard for delivery the next morning, this is not common. There is increased expense by handling the unit twice, and the trucker has liability exposure for when a load is parked in its yard.

The result is that intermodal terminals experience heightened peak volumes rather than load-leveling over a 24-hour day. This increases operating expense and may require larger terminals.