FEBRUARY 2007

HEITMAN PERSPECTIVE

Property and Capital Market Trends

Rail + Real Estate = Integrated Logistics Center

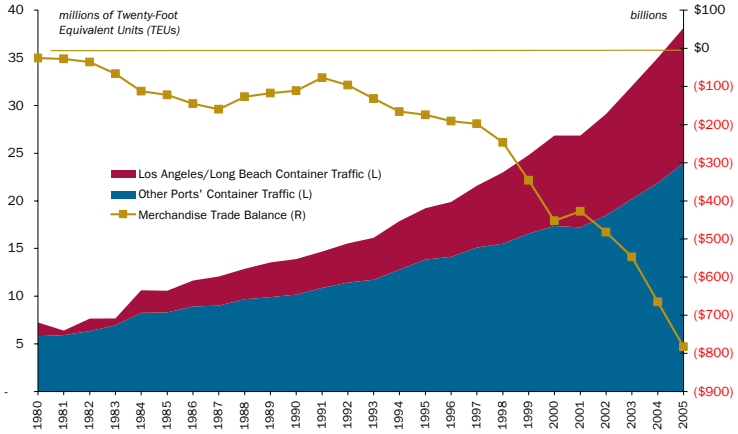
Brian Klinksiek, Assistant Vice President

Rail + Real Estate = Integrated Logistics Center

In 2006, the global business community celebrated the 50th anniversary of the invention of the shipping container. The container is widely recognized as having facilitated the rapid expansion of global trade by allowing the easy, fast, and cost-effective shipment of goods by a variety of transportation modes, including ship, train, truck, and barge. Just as importantly, containers enable efficient transfers *between* modes.

The effect of the shift to containers has been most pronounced over the last 10 years, during which imports to the U.S. from abroad—particularly China—have grown at a compound annual growth rate of about 17%, three to four times greater than U.S. GDP growth during that period. This corresponded with an acceleration in the long-term trend toward importing goods rather than producing them domestically. The share of U.S. GDP attributable to manufacturing decreased from 24% in 1969 to 12% in 2005, a 100-year low. As the following chart shows, container traffic at U.S. ports surged as the trade deficit grew deeper:

Container Import Traffic and Merchandise Trade Balance
U.S. 1980-2005



Source: American Association of Port Authorities; Moody's Economy.com; Heitman Research

The rapid growth in container shipping has created a new geography of logistics. It has focused activity at the ports equipped to berth the largest container ships, especially those with the rail and road infrastructure needed to forward containers efficiently on to their final destinations. The most prominent U.S. container ports are Los Angeles, Long Beach, and Elizabeth, NJ; smaller but growing container ports include Seattle, Tacoma, Savannah, and Charleston.

The effect of container shipping is not limited to the coasts; container traffic is also remaking logistics patterns at the heart of the country. This is because trains, instead of trucks, have captured a large share of container traffic growth. While trucks are faster than trains on average, trains are remarkably efficient in terms of labor and energy. Meanwhile, truckers' wages and the price of diesel fuel have increased, inflating the cost of road transport. Consequently, inland cities with major rail facilities on high-traffic rail lines have gained logistics activity at the expense of mere truck hubs. For example, Chicago and Dallas, both major rail freight centers, have witnessed large increases in container traffic, taking business from conventional truck hubs like Cincinnati and Indianapolis.

As container freight traffic at inland rail hubs grew over the last decade, the facilities needed for loading and unloading containers became more congested. At the same time, crowded roads made intermodal rail yards, often set near downtown cores, harder to reach from the suburban industrial parks where modern distribution centers are located. To create new intermodal rail capacity and facilitate access, a new breed of intermodal infrastructure was born. Projects integrating multiple aspects of inland distribution were created close to—but on the outskirts of—rail hub cities. In particular, projects combining an intermodal rail yard and an industrial park were conceived. These developments, known as Integrated Logistics Centers (ILCs), allow tenants to take advantage of plentiful intermodal capacity at close proximity, cutting travel times and cost. At the same time, the tenants' cost advantages mean they are willing to pay more in rent. Developers that have built successful ILCs have created considerable long-term real estate value; they were able to attract more tenants than other parks, and at higher rents.

Containers and Intermodal Shipping

To put it simply, a shipping container is a corrugated metal box. It has a steel frame so it can be stacked and sockets that allow it to be lifted by crane. Over the years, shipping containers have been produced in a variety of dimensions, varying principally in length. Today, the international standard for the length of shipping containers is 40 feet, although the former 20-foot standard still provides the metric for measuring container traffic. One of today's 40-foot containers is equal to two Twenty-Foot Equivalent Units, or TEUs.

The most important feature of the shipping container is that it is modular so that it can be "plugged-in" to many modes of transport, including ships, barges, trains, and trucks. This allows the goods in the box to be moved between modes and even to cross international borders without unpacking. As a

Rail + Real Estate = Integrated Logistics Center

result, shippers may select the optimal mode for each leg of a trip without incurring excessive cost or delay when goods are transferred between modes. For example, a container of consumer products bound for U.S. store shelves might be

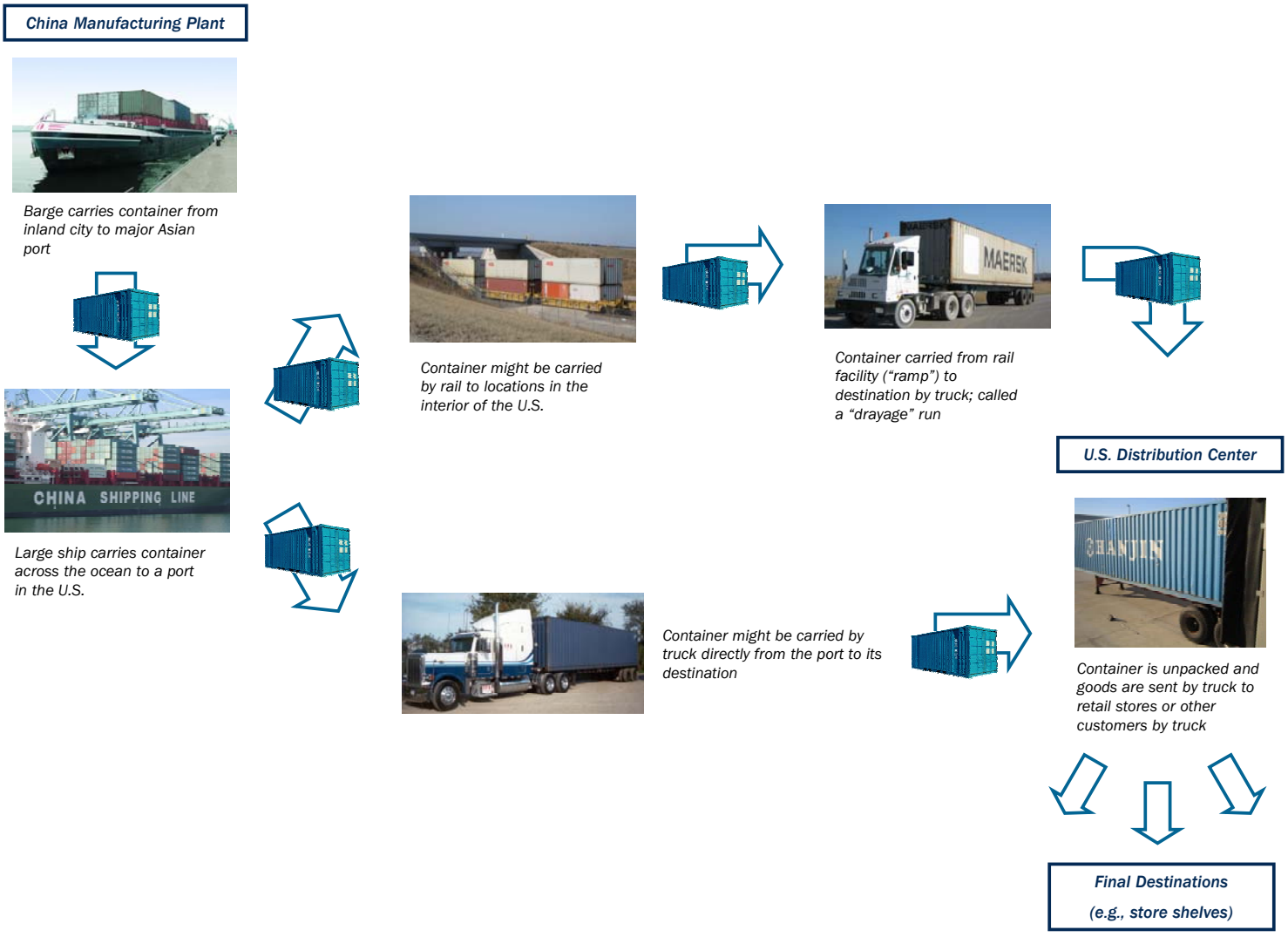
- packed at a factory in inland China,
- trucked to a river,
- sent by barge to Hong Kong,
- loaded on an ocean freighter for the trans-Pacific trip to Los Angeles,
- put on a train bound for Chicago,
- and finally trucked to a Chicago-area warehouse where it is unpacked and prepared for distribution to individual stores.

This contrasts dramatically with the old method, which relied upon manual labor to unpack and repack ship holds, boxcars, and semi-trailers at every step of the journey.

The technique of using the same box on different transport modes is called "intermodal" transportation. Intermodal once referred exclusively to hauling semi-truck tractor trailers on flatcar trains, known as "piggybacking." While this method allows whole trailers to be placed on trains without having to remove their wheels and chassis, truck trailers cannot be carried on ships, limiting their usefulness in the age of global trade. Today, the term intermodal generally refers to carriage of the much more versatile shipping container. While piggybacking of trailers is still done, most of the growth in intermodal traffic is occurring in shipping containers.

The diagram below provides an overview of intermodal shipping, showing the common paths of goods from a Chinese factory to a distribution center of a U.S. retailer.

The International Journey of the Shipping Container

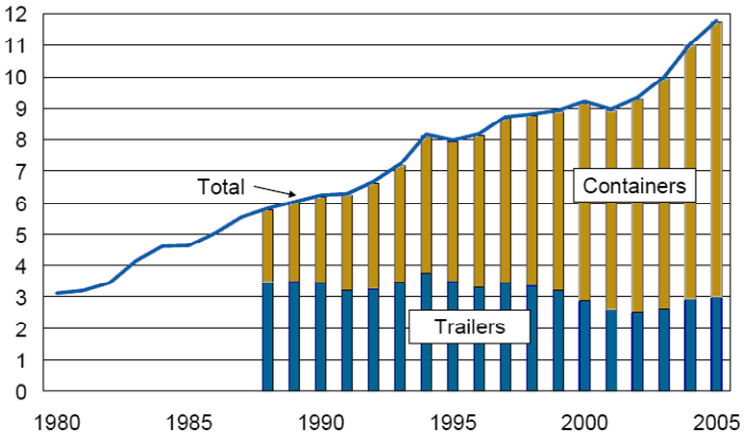


Rail + Real Estate = Integrated Logistics Center

As the diagram shows, shippers can choose between trucks or trains to forward goods from the port to their warehouses. Which they choose is dictated by a number of factors. Trucks tend to be faster, but are more expensive. Trains are cost efficient, but less flexible in scheduling and route options. In this era of low-cost consumer goods imported from abroad, the cost advantage of rail dominates, resulting in strong growth in the number of containers carried by rail.

The following chart shows the growth in intermodal rail traffic, measured in millions of containers and trailers (carried "piggyback" on train cars). As the chart shows, most intermodal growth has involved containers, not trailers.

Intermodal Rail Traffic (millions of containers/piggyback trailers)
U.S. 1980 - 2005



Source: American Association of Railroads; Heitman Research

Approximately 11.7 million containers and trailers were carried on U.S. railroads in 2005, up from 6.2 million in 1990, for a 4.4% compound annual growth rate. Growth was even stronger over the last several years; the compound annual growth rate for the 2003-2005 period was 8.6%.

The Infrastructure of Intermodal Logistics

The shipping container is the key technology enabling intermodal shipping, but specialized infrastructure is required to make the transfer between modes. Across the world, ports continue to be retrofitted to facilitate the transfer of containers from ship to train and truck, and vice versa. New features required at container ports include large cranes to load and unload containers from ships, rail loop tracks at dockside, as well as expanded storage and staging areas. At inland locations, facilities called "intermodal ramps" enable the transfer of containers between train and truck. These require the construction of train tracks lined on each side by concrete strips. Cranes straddling the tracks operate on the strips, lifting containers between the truck chassis and the train car. Staging and storage areas for containers and trucks are also required.

This image illustrates how shipping containers are moved from trucks to train cars at an intermodal facility, also known as a "ramp."

Intermodal ramps can range in size from a dozen acres for a small, single-purpose operation to more than 700 acres for a large installation serving many customers. Railroads and shippers tend to prefer large ramps because of their flexibility and efficiency. For example, the Burlington Northern Santa Fe (BNSF), which carries more containers than any other railroad in the U.S., will not consider opening a new intermodal facility to handle fewer than 250,000 containers a year and many of its new facilities are designed to accommodate up to 1 million. The newer facilities tend to be located on the edge of metropolitan areas where there is less road congestion and where modern warehouse facilities are close. By contrast, older intermodal facilities are often less-efficient conversions of conventional railroad yards set in more-congested center city areas. As new facilities are built, some older facilities will be closed while others will assume a secondary role.

Where intermodal shipping activity is greatest, a large intermodal ramp is sometimes combined with an industrial park containing big-box distribution centers—and occasionally a logistics-oriented airport—to create an Integrated Logistics Center. The land area of ILCs typically totals 1,000 to 2,000 acres, with 600 to 700 acres for the railroad's intermodal ramp facility and the balance for the industrial park. ILCs are often master-developed and owned by a real estate developer, with individual buildings leased to users and the

Rail + Real Estate = Integrated Logistics Center

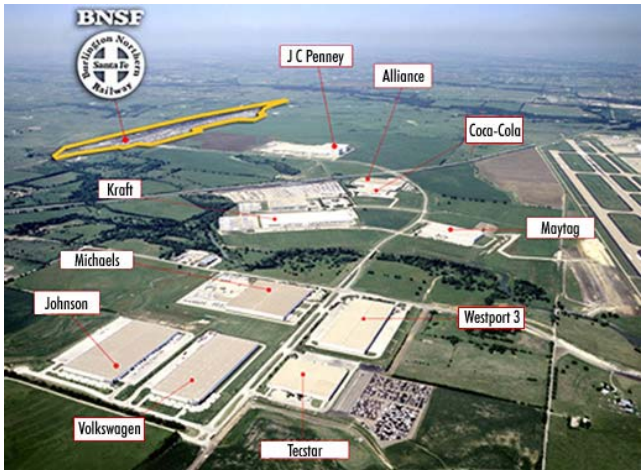
intermodal ramp leased or sold to the railroad. The nation's largest and most notable ILCs include:

Examples of Large-Scale Integrated Logistics Centers (ILCs)

	Opening Date	Intermodal Ramp Acreage	Industrial Park Acreage	Developer	Railroad	Airport
AllianceTexas *Fort Worth, TX*	1994	750	11,600	Hillwood	BNSF	yes
Logistics Park Chicago (LPC) *Elwood, IL*	2002	625	675	CenterPoint Properties	BNSF	no
Global III *Rochelle, IL*	2003	700	530	CenterPoint Properties	UP	no
Rickenbacker Global Logistics Park *Columbus, OH*	2007	existing adjacent	1,200	Duke Realty & Capital Source Ltd.	NS	yes
Global Access @ Southern California Logistics Airport *Victorville, CA*	2008	approx. 800	approx. 2,000	DCT Industrial & local development partnership	anticipated BNSF & UP	yes
AllPoints Midwest & All Points Anson *Indianapolis, IN*	2008	existing adjacent	1,500	Browning Investments	NS	no
BNSF Gardner Intermodal *Gardner, KS (Kansas City)*	2008	approx. 600	approx. 500	The Allen Group	BNSF	no
Dallas Logistics Hub *Dallas, TX*	2008	320 existing + 390 potential	5,700	The Allen Group	existing UP & possible BNSF	yes

BNSF = Burlington Northern Santa Fe; UP = Union Pacific; NS = Norfolk Southern
Source: HDR|HLB Decision Economics, Heitman Research

Heitman provided financing for AllianceTexas, the earliest large-scale ILC. Started in 1994, AllianceTexas is a 17,000-acre, mixed-use master-planned development in Fort Worth. Developed by Hillwood, it consists of three distinct projects—a residential community, a logistics park, and a race track. The logistics park, which totals 11,600 acres (of which approximately 1,700 have been developed), integrates intermodal rail, air cargo, and warehouses. HDR|HLB Decision Economics estimates that AllianceTexas generated a cumulative economic impact of $23 billion and created more than 20,000 jobs between 1900 and 2003.



AllianceTexas was the first large-scale ILC. This aerial shows the BNSF intermodal ramp, upper left, and the logistics airport, right. A small portion of the warehouse properties at Alliance is visible in the foreground.

Alliance was a pioneer project that set the standard for ILCs that followed, such as the redevelopment of the Army's Joliet Arsenal in the southwest suburbs of Chicago. Begun in 2000 by CenterPoint Properties, the project is known as CenterPoint Intermodal Center to the real estate industry and Logistics Park Chicago (LPC) in rail and logistics circles. Opened in 2002, LPC combines a 625-acre BNSF intermodal ramp with 675 acres of industrial land. The park has 6.9 million square feet (msf) of warehouse space, which is 100% leased to multinational retailers, consumer products companies, and logistics firms. LPC has the capacity for an additional 3.7 msf of new buildings and building expansions.

Logistics Park Chicago, also known as CenterPoint Intermodal Center, is a major ILC in the far Southwest suburbs of Chicago.

LPC has benefited immensely from its position on the main BNSF rail line from Los Angeles to Chicago. Many of the containers that arrive at the Ports of Los Angeles and Long Beach are loaded on a train and shipped directly to LPC for distribution to the center part of the country, earning it the label of "inland port." Tenants in LPC include Sanyo Logistics, DSC Logistics, Georgia-Pacific, and Wal-Mart, which has two on-site warehouses totaling 3.4 msf. The intermodal infrastructure has also created strong demand for warehouse space within a short drive of the park. Caterpillar, Clorox, Michael's, Toys 'R' Us, PETCO, and Corporate Express have warehouses within a few miles of the facility.

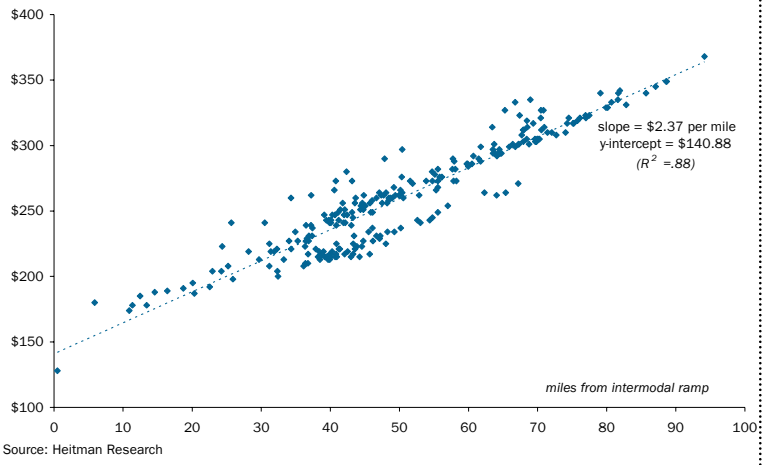
ILCs and Location Decisions

Users tend to cluster near intermodal ramps because proximity helps them keep costs down. When shipping a container over rail, the fee paid to the railroad includes only the cost of shipping the container from the port dock to the inland intermodal ramp. Containers must then be pulled by truck from the intermodal ramp to the warehouse door, incurring an additional cost for "drayage." At 19th century ports, a dray was a low-slung cart without fixed sides used to transport heavy loads from dockside to warehouses; today drayage refers to short shuttle trips made by truck.

Rail + Real Estate = Integrated Logistics Center

As the distance from the intermodal ramp increases, drayage cost rises, pushing up total logistics costs. To demonstrate this, we obtained quotes for drayage runs from three trucking companies in the Chicago area. The following chart plots the cost of various round-trip drayage runs. (Drayage is usually round-trip because empty containers must be returned to the intermodal facility where they originated.) A statistical analysis of these quotes suggests that the cost for a zero-mile drayage run (i.e., one inside the same ILC) would be approximately $140. A simple linear regression suggests that for each mile farther from an intermodal ramp, the likely drayage cost increases by $2.37 per container.

Round-Trip Drayage Cost Quotes
Chicago 2007



Source: Heitman Research

Of course, the total amount saved by each user depends on how many containers they handle every year. Wal-Mart, for example, is said to handle about 70,000 containers annually at its Logistics Park Chicago facility, or about 190 containers per day. Plugging this into the curve above suggests that Wal-Mart's annual drayage cost at that location is approximately $9.8 million. However, if Wal-Mart were located five or ten miles away, the cost would go up to $10.7 million or $11.5 million, respectively.

The benefit of proximity to an intermodal facility can be captured by the user in the form of lower costs, or by the landlord in the form of higher rents. If a landlord were able to fully capture Wal-Mart's cost savings by charging a higher rent, rents adjacent to the intermodal ramp would be $0.24 per square foot higher per square foot than five miles away (based on a 3.4-msf facility). Likewise, rents could be up to $0.49 psf higher than for a warehouse 10 miles away.

In the real world, the benefit of Wal-Mart's location is probably understated by this analysis. First, railroads often charge an overnight storage fee of roughly $200 per container; if proximity allows companies to pick up containers faster and avoid this fee, additional cost savings can be achieved. Furthermore, costs are exceptionally low for the shortest drays—usually less than a few miles and often within the same industrial park—because truck cabs designed specifically for efficient drayage can be used. Additionally, if the drayage run does not use any federal highways, limits on truck weight do not apply. We received a quote of $128 per container for round-trip drayage from the BNSF intermodal ramp to Wal-Mart's facility. Reports in the marketplace suggest that WalMart was able to negotiate an even lower price of $80 per round-trip due to its high volume of containers. Drayage cost of $128 or $80 would suggest a maximum rent premium versus a building 5 miles away of $0.51 psf or $1.50 psf, respectively. This helps to explain why ILCs such as Logistics Park Chicago have been such magnets for industrial users.

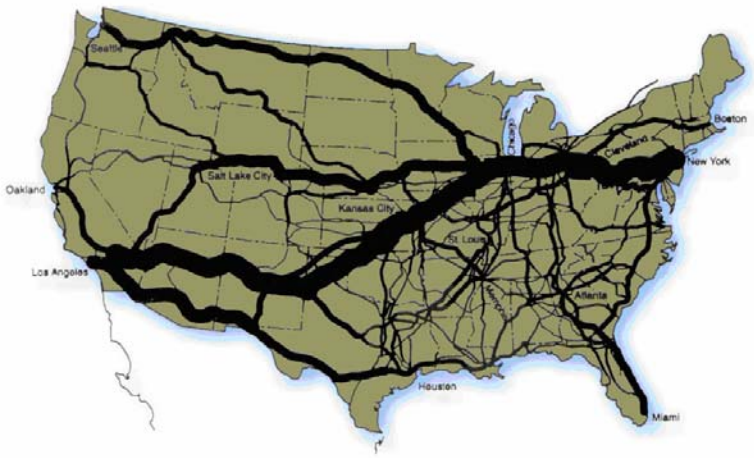
It must be noted that landlords should not expect to capture the entire potential premium. In practice, the economic benefit of a location near an intermodal ramp is shared by the landlord and the user. Rent comparables from the submarket around LPC suggest that it receives a rent premium of about $0.20 psf compared to properties 10 miles away.

Demand for New ILCs

The U.S. Department of Transportation forecasts annual container volume at the ports of Los Angeles and Long Beach to reach 59.4 million TEUs in 2020, which suggests a 9.9% compound annual growth rate, slightly faster growth than that experienced over the past five years (9.7%). Container growth could be even stronger at secondary ports serving as spillover sites for Southern California. Growth in container port traffic is expected to translate into substantial increases in intermodal rail traffic and container activity at inland locations. For example, if the recent relationship between intermodal growth in Chicago and Southern California holds, forecast port growth would translate into annual intermodal growth for Chicago of about 4.8%. Railroads are already investing in mainline infrastructure to handle this; BNSF and UP have added a second track, and in some spots, a third track, to their transcontinental routes. We expect increases in container shipping to also create the need for new ILCs—or the expansion of existing facilities—at strategic U.S. locations.

Rail + Real Estate = Integrated Logistics Center

The most promising locations for new ILCs are sites close to rail routes with high levels of container traffic, generally within metro areas relatively central to the nation's population. The following map shows container volumes on U.S. railroads in 2004, the most recent period for which we have route-specific container data. The thickness of each line is proportional to the number of TEUs carried on that route. As the map shows, the highest TEU counts are found on the BNSF route from Los Angeles to Chicago and the CSX and Norfolk Southern routes from New Jersey to Chicago. There is also a high TEU count on the BNSF route from Seattle to Chicago.



The map suggests that Chicago is an obvious site for ILCs. This has been borne out by the development of Logistics Park Chicago and the Global III intermodal facility. Other prime candidates for growth in container traffic activity include Kansas City, Dallas, Atlanta, Columbus, and Memphis, all central locations that also have considerable intermodal rail traffic. In the future, look for ILCs to play an increasingly important role in these markets.

ILCs as Investment Strategy

Investors and developers who are cognizant of intermodal logistics trends should be able to take advantage of the ILC trend to capture a warehouse rent premium. They can do this in one of three ways:

- ***Building an ILC from scratch*** is a bold way to create real estate value. However, it is a long-term proposition that requires identifying a suitable site, negotiating an agreement with an operator railroad, assembling a large enough tract of land, and building infrastructure and other site improvements.

- ***Developing near an existing ILC*** is a fast way to take advantage of real estate value already created by another developer. However, the rent premium may not be as great for warehouses not technically "on the property." More significantly, the development of an ILC often causes industrial land prices in the surrounding area to be bid up, thereby reducing or eliminating any out-sized yields available to developers pursing this strategy.

- ***Buying existing product in or near ILCs*** gives investors' properties a local source of demand that is "not going anywhere," increasing tenant retention rates and reducing downtime when tenants do move out. ILCs can serve as a demand anchor and help to reduce risk, much as universities buttress apartment demand in college towns.

Logistics trends are re-shaping the way goods reach our shelves; they are also re-shaping the landscape of warehouse demand. The Integrated Logistics Center is a proven but growing model for handling container traffic at inland locations, presenting several real estate investment opportunities with varied risk/return profiles and time horizons.

