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# *Short-Haul Intermodal Service:*

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## *Can Rail Compete with Truck?*

Transportation Research Forum  
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# *Rail intermodal has been successful in long-haul markets...*

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- ✦ Railroads have been successful in attracting “landbridge” and “mini-bridge” traffic; more than three quarters of containers from Seattle/Tacoma move east by rail
- ✦ Railroads have captured a significant share of the eastbound perishables market from California
- ✦ Rail has achieved good market penetration in other high-volume, long distance lanes

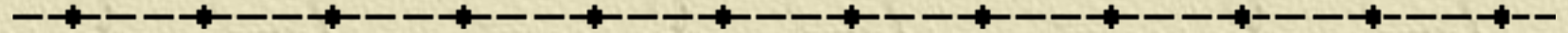
## *...but not on short hauls.*

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- ✦ Illinois Central “Slingshot” service (Chicago-St. Louis, 1970s) was abandoned due to lack of demand
  - ✦ Burlington Northern “Expeditors” (short haul, short trains between major markets, 1980s) were discontinued after only a few years
  - ✦ Conrail “demarketed” shorter-haul services in the 1990s (ex: New York -- Buffalo) due to lack of volume and profitability

# *Can This Problem be Fixed?*

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- ✦ Maybe. Norfolk Southern competes successfully in some short-haul markets:
    - Atlanta - Miami (600 miles)
    - Atlanta - Savannah (300 miles)
    - Atlanta - Charleston (350 miles)
  - ✦ CP's "Expressway" service between Montreal and Toronto (350 miles) has been a market success
  - ✦ Florida East Coast Railway has for many years competed successfully for Jacksonville – Miami traffic (350 miles)

## *But there are obstacles...*

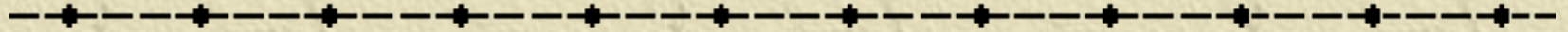


- ✦ Railroads are near or at capacity on many mainlines
- ✦ There are a limited number of train “slots” available, and railroads want to fill them with the most profitable traffic
- ✦ To the extent that a New York – Buffalo container takes the slot of a New York – Chicago container that could otherwise be moved, the railroads will probably not be interested in short-haul traffic

# *How Do Railroads Make Money in Short-Haul Markets?*

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- ✦ NS partners with low-cost carrier Florida East Coast in the Atlanta - Miami market
  - ✦ CP provides only terminal-to-terminal service on Expressway. Shippers are on their own to arrange drayage to and from rail terminals
  - ✦ FEC is a low-cost carrier
  - ✦ Bottom line: the long-haul intermodal market is mature. Intermodal growth will have to come in short-haul markets

# *What Makes Rail a Competitor*



- ✦ Volume. Rail's advantage lies in trainload lots
- ✦ Balanced flows (unequal demand means moving empty rail cars and containers)
- ✦ Low terminal costs. Reasonable travel times. Routes with excessive circuitry cannot be competitive
- ✦ Drayage costs. These can greatly exceed the line-haul rail cost. On-dock rail is essential at ports.
- ✦ Clearances. Use of double-stack rail equipment has greatly reduced cost per FEU



# *The Importance of Double Stack*

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- ✦ In the 1980s, railroads developed freight car designs that could carry two ocean containers stacked on top of one another
  - ✦ These cars produced reductions of up to 40% in line haul cost, due to lighter weight and other design features
  - ✦ Double-stack cars require 22 feet of overhead clearance
  - ✦ The rail industry and some state governments have spent substantial sums “clearing” rail routes for stack train operation

# *The Old Way -- TOFC*



# *The Original Double-Stack Car, 1977*

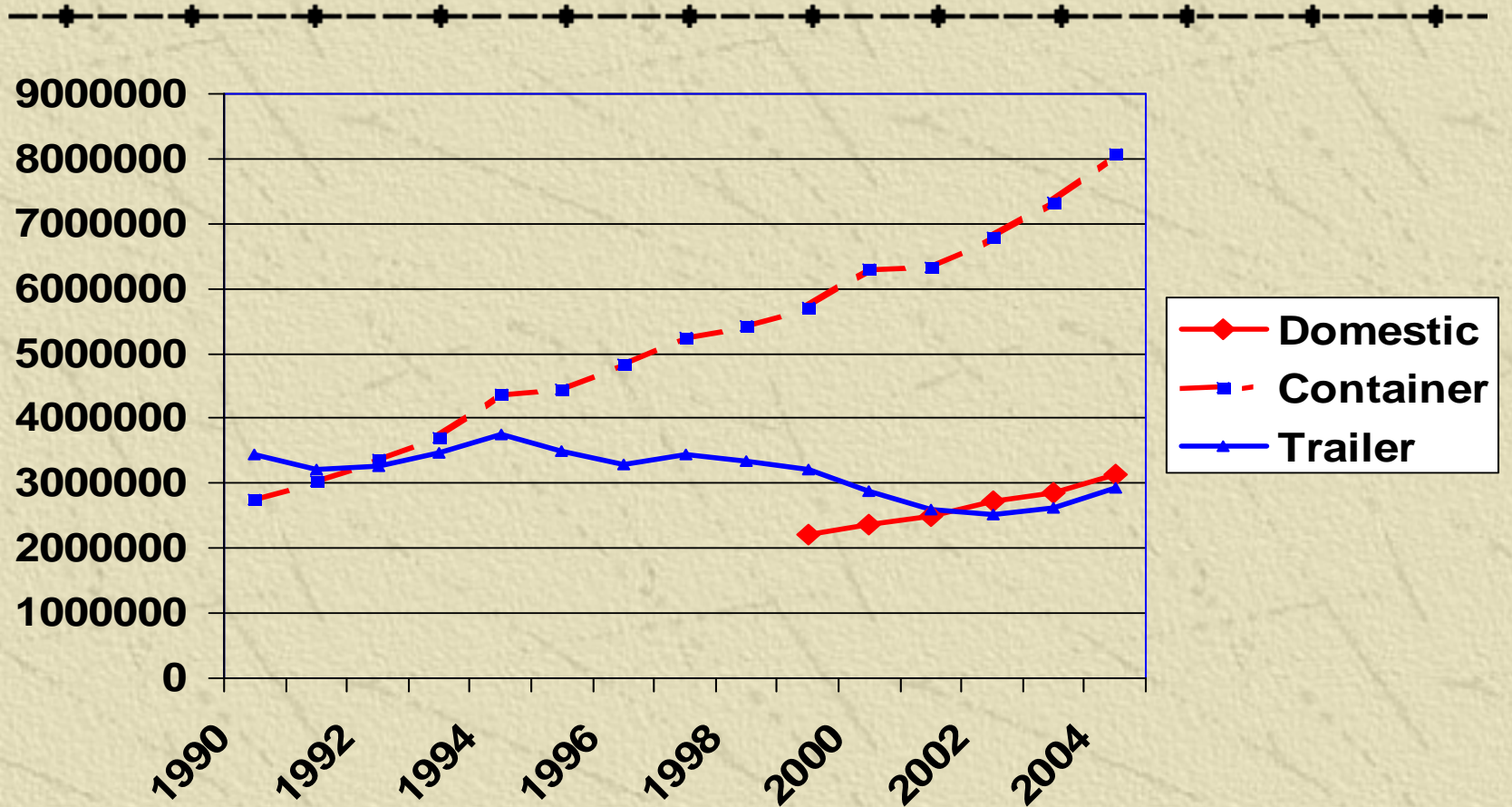
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# *Today on the Alameda Corridor*



# *U.S. Intermodal Traffic 1990 -- 2004*



Source: AAR and IANA

# *Cost Comparison: Rail vs. Truck*

## ✦ Costs included for rail:

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- Cost of car and locomotive ownership and maintenance
  - Ownership per hour, including running time and dwell
  - Maintenance per mile
- Cost of crews (one crew per 7 hours of transit time, based on existing crew change points)
- Cost of fuel (based on computer simulation of stack train operations)
- Cost of track maintenance and replacement (per thousand gross ton miles, based on Conrail's historic cost)

✦ Truck costs include over-the-road cost per mile plus cost of dwell at customer and marine terminal

✦ Running time estimated @ 20 mph average for rail, 45 mph average for truck

# *Direct Rail Movement Cost vs. Total Truck Cost*

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<b>Portside to</b>	<b>Distance</b>	<b>Rail Haul Cost</b>	<b>Total Cost</b>
Albany	145	\$28.27	\$308.27
Syracuse	284	\$55.48	\$335.48
Rochester	362	\$71.99	\$351.99
Buffalo	437	\$85.15	\$365.15
Hagerstown	292	\$42.49	\$322.49
Pittsburgh	513	\$83.40	\$363.40

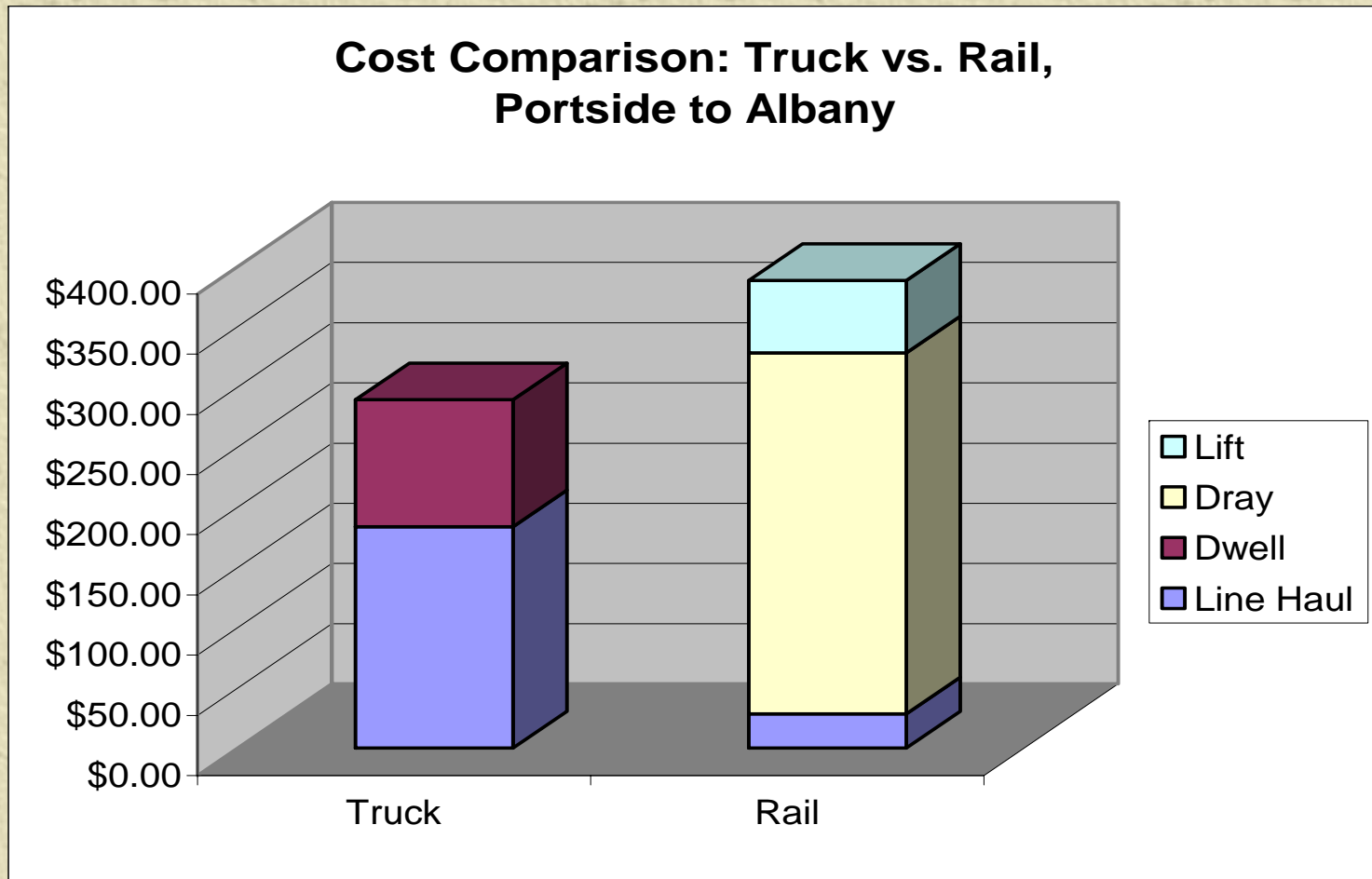
# *Total Rail Cost (Incl. Dray and Terminal) versus Truck Cost*

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<b>Portside to</b>	<b>Distance</b>	<b>Total Rail Cost</b>	<b>Truck Cost</b>
Albany	145	\$308.27	\$211.25
Syracuse	284	\$335.48	\$327.55
Rochester	362	\$351.99	\$348.75
Buffalo	437	\$365.15	\$383.98
Hagerstown	292	\$322.49	\$274.70
Pittsburgh	513	\$363.40	\$348.75



# *Terminal and Dray Overwhelm the Line Haul Advantage of Rail*



# *So What Can be Done to Take Trucks off the Highways?*

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## ✦ Reduce terminal construction and operating costs

- On-dock rail
- New strategies such as “mini-terminals”
- New technologies (Expressway)
- Public investment

## ✦ Reduce dray costs

- Better scheduling of drays to increase productivity
- Central management of drayage

## ✦ Improve highway access to rail terminals

# *Concluding Thoughts*

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- ✦ Highways are becoming increasingly congested, with no real relief in sight.
  - ✦ Railroads can be competitive in many markets where they do not now participate. Short-haul intermodal is one. But...
  - ✦ Railroads are at capacity on many routes, and will want to move only the highest-yielding traffic.
  - ✦ Also, the problems to be solved involve primarily terminal and dray operations, not railroad operations. Some new thinking and a spirit of innovation will be required if railroads are to compete.