Freight Facility Location Selection
Freight Transportation and Facility Location Decisions

TRANSPORTATION RESEARCH BOARD WEBINAR SERIES

December 13, 2011
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Agenda

**Freight Facility Location Selection**
*Freight Transportation and Facility Location Decisions*

- What is Logistics, and Why Does it Matter?
- Overview of NCFRP Project
- Types of Freight Facilities
- Selection of Freight Facility Locations
- Public Sector Role
- Best Practices/Lessons Learned
- Closing Thoughts
- Q and A
WHAT IS LOGISTICS AND WHY DOES IT MATTER?

- Overview of NCFRP Project
- Types of Freight Facilities
- Selection of Freight Facility Locations
- Public Sector Role in Freight Facility Development
- Best Practices/Lessons Learned
- Closing Thoughts
- Q and A
Logistics:
The detailed coordination of a complex operation involving many people, facilities, or supplies

Freight Facility:
Facilitates the movement of goods and materials from point of origin to point of consumption
  • Warehouse and distribution facilities
  • Ports, airports, and other intermodal connections
  • Manufacturing and industrial sites

Freight Facilities are the transition points in the Logistics Supply Chain
Why Does Freight Matter?

Freight is the lifeblood of the American economy

- Domestic and International Trade
- Raw materials
- Finished products
- Consumer goods
Why Does Freight Matter?

- Over 60 million tons of freight moves through the U.S. freight transportation system daily, representing roughly $40 billion in goods.

- Trade is increasing as a share of US GDP – from 10% to 30% over past 40 years.

- Processing of freight and intermediate processing represent economic development opportunities in jobs and investment.

- Efficient movement of freight lowers costs, allows the best use of our transportation facilities, protects the environment, and reduce energy requirements.
Common Obstacles to Good Freight Transportation Policy

- Lack of regional cohesiveness
- Incomplete understanding of the role of freight facilities in the economy
- Misunderstanding of the community’s role in the global/regional/local transportation network
- Lack of coordination among planning, economic development, and transportation agencies
- Lack of public/private coordination
Public and Private Sector Perspectives

The Public and Private Sectors view the world through different lenses; neither sees the full picture

- Neither the public or private sector respondents believe that public officials have an adequate understanding of freight operations or business drivers.
- Private respondents have dropped communities who did not plan for transportation infrastructure, or their policies did not adequately accommodate freight facilities.
- Three-quarters of private respondents said they would recommend guidance in the form of inventories of industrial sites; tax incentives for freight distribution businesses; industrial rail access programs; and expedited permitting processes.
- 69% of public respondents have encountered compatibility issues in siting freight logistics facilities.
What is Logistics, and Why Does it Matter?

OVERVIEW OF NCFRP PROJECT

- Types of Freight Facilities
- Selection of Freight Facility Locations
- Public Sector Role in Freight Facility Development
- Best Practices/Lessons Learned
- Closing Thoughts
- Q and A
The Need

Who needs to understand freight?

Public officials at the state and local levels are frequently called on to consider the siting of freight intermodal terminals, inland ports, and warehouses and distribution centers.

- Site selection projects arrive from new companies entering the community or existing companies looking for expansion or consolidation.

- Likewise, officials may want to establish public facilities, like airports or intermodal yards, as a draw for economic development.

To formulate effective economic development strategies and react appropriately to proposals for the development of public or private freight facilities, public sector decision makers should have a proper understanding of the drivers and impacts of freight facilities.
Bridging the Gap Between Private and Public

NCFRP Report 13 – Economic and Transportation Drivers Impacting Location Decisions

- Inform the public sector about the complexity of the various facility types and the role they play
- Inform public-sector planners and decision makers about key criteria that the private sector considers when siting logistics facilities,
- Enhance the potential for successful projects.

  - Bring benefit to the community
  - Avoid impact to community
  - Serve private sector needs
Issues, Challenges and Opportunities for Freight Facilities

- Economic development contribution of freight facilities (to both freight and non-freight activities)
- Freight facilities role in intermodal connectivity and encouraging use of non-highway modes for long-haul goods movement
- Land use conflicts and pressures with competing uses and size of facilities
- Coordination among economic development and planning agencies at local, regional and state levels
- Private sector typically drives site selection and participation is a requirement for success
What is Logistics and Why Does it Matter?

Overview of NCFRP Project

TYPES OF FREIGHT FACILITIES

Selection of Freight Facility Locations

Public Sector Role in Freight Facility Development

Best Practices/Lessons Learned

Closing Thoughts

Q and A
What is a Freight Facility?

- Distribution Centers
- Ports
- Intermodal Terminals
- Bulk or Transload Terminal
- Hub Terminals
- City Terminals
- Integrated Logistics Centers
Distribution Centers (DCs) take several forms;
All of these store and/or facilitate the movement of goods.
Port (Sea and Air)

*Ports are key facilities for domestic shipping as well as the importing and exporting of goods, providing interface from air and sea to rail and road.*
Intermodal Terminal

*Intermodal terminals allow for the movement of trailers and containers between modes (marine, rail, and truck)*
Bulk/Transload Terminal

Allows for receiving and distributing for lumber, grain, concrete, petroleum, aggregates, and other bulk products.
Hub Terminal

A Hub is a carrier-operated cross-dock facility that allows for re-sorting and re-consolidation of freight between city destinations
City Terminal

A city terminal focuses on intramodal (e.g., truck to truck) sorting and consolidation, as well as the management of pickup and delivery services to customers.
Integrated Logistics Centers are industrial parks or mixed use developments specifically constructed around high performance freight servicing facilities.
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Q and A
Logistics is (by its nature) a dynamic field. Several factors are currently making companies re-think their facility strategies.

Global factors

- Sourcing shifts and nearshoring
- Fuel and carbon costs
- Trade facilities (Panama Canal expansion, transshipping, corridors)
- Location, strength of demand
...and Change Some More

Trends

- Demand-responsive logistics
- Cost containment
- Sustainability brand
Facility Placement & Priorities

*Freight Facilities site selection is overwhelmingly made by the private sector*

- Locations fit in a network fulfilling a business process
- Network optimizes business drivers to serve a market franchise
- Location process is expression of network strategy

![Diagram of freight facility site selection process](image-url)
The Location Process allows for progressive testing and narrowing of alternatives based on business drivers.
Key Location Criteria

- Ability to Access Key Markets or Customers
- Interaction with Transportation Network
- Labor and Workforce
- Total Cost Environment
- Availability and Cost of Suitable Facilities
- Utilities
- Permitting and Regulation
- Tax Environment
- Public Sector Assistance and Incentives
- Climate and Natural Hazards

Increasing degree of importance
### Site Selection Factors by Facility Type

<table>
<thead>
<tr>
<th>Location Criteria</th>
<th>Distribution Center</th>
<th>Port</th>
<th>Intermodal Terminal</th>
<th>Transload Terminal</th>
<th>ILC</th>
<th>Hub Terminal</th>
<th>City Terminal</th>
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<tr>
<td>Ability to Access Key Markets or Customers</td>
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<td>Interaction with Transportation Network</td>
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<td>Total Cost Environment</td>
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<td>Utilities</td>
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<tr>
<td>Tax Environment</td>
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<tr>
<td>Public Sector Assistance and Incentives</td>
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<td>Climate and Natural Hazards</td>
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**Key**
- ![Primary Factor]: Primary Factor
- ![Important Factor]: Important Factor
- ![Lesser Factor]: Lesser Factor

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What is Logistics, and Why Does it Matter?
Overview of NCRFP Project
Types of Freight Facilities
Selection of Freight Facility Locations

PUBLIC SECTOR ROLE IN FREIGHT FACILITY DEVELOPMENT

Best Practices/Lessons Learned
Closing Thoughts
Q and A
Public Sector Goals

Development in concert with community vision....

Accrue Public Benefit

- Revenues
- Jobs

Avoid, Minimize or Mitigate Impact

- Transportation
- Environmental
- Cost
- Controversy
Learn More About Logistics

- Understanding of freight location drivers = ability to plan effectively
- Understanding of community outcomes (both positive and negative) can lead to higher quality decisions
- Questions to ask
  - Where does my community lie within the freight network?
  - Which facility types and functions best match the location and characteristics of my community?
  - What strengths does my community have that help give us a competitive edge?
  - What are the benefits and costs?
Public Sector Strategy

Communicate

➢ Develop regional and local dialogue on the role of freight in planning, and economic development

➢ Educate and engage residents and the business community on costs, benefits, and goals for freight development
Public Sector Strategy

Plan!!!

- Ensure strongly held and understood vision for local/regional development and strategies to convert that vision into reality

- Coordinate economic development, land use, transportation planning

- Identify appropriate sites and areas for freight facility development

- Build effective zoning, regulatory and incentive policies

“Build it and they will come” is not an effective strategy
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BEST PRACTICES/LESSONS LEARNED

Closing Thoughts
Q and A
### Best Practice Examples – Site Characteristics and Transportation Access

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Case Study</th>
<th>Size</th>
<th>Transportation Access</th>
<th>Freight Handled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inland Port</td>
<td>Virginia Inland Port (Front Royal, VA)</td>
<td>161 acres</td>
<td>One Class 1 Railroad (NS), within 5 miles of I-66 and I-81</td>
<td>Intermodal containers</td>
</tr>
<tr>
<td>Intermodal Terminal</td>
<td>Rickenbacker Intermodal Terminal (Columbus, OH)</td>
<td>175 acres</td>
<td>Two Class 1 Railroads (NS &amp; CSX), within 5 miles of I-270 and Highways 23 and 33, Airport within 1 mile</td>
<td>Primarily intermodal containers</td>
</tr>
<tr>
<td>Bulk or Transload Terminal</td>
<td>Savage Safe Handling (Auburn, ME)</td>
<td>210 acres</td>
<td>One Shortline Railroad (SLA), within 3 miles of I-95</td>
<td>Chemicals, plastic pellets, liquid fuels</td>
</tr>
<tr>
<td>Distribution Center</td>
<td>Family Dollar</td>
<td>75 acres, 1.2 million sq ft for buildings</td>
<td>Direct ramp to I-10 Highway</td>
<td>Consumer retail goods</td>
</tr>
<tr>
<td>Warehouse</td>
<td>Murphy Warehouses</td>
<td>Average 250,000 to 300,000 sq ft for buildings</td>
<td>Rail, Interstate highways</td>
<td>Food, beverages, paper, plastics</td>
</tr>
<tr>
<td>Integrated Logistics Center</td>
<td>Alliance Texas (Fort Worth, TX)</td>
<td>11,600 acres</td>
<td>Two Class 1 Railroads (BNSF &amp; UP), I-35W, Rtes 170 &amp; 114 within 1 mile, Cargo Airport on-site</td>
<td>Primarily intermodal containers</td>
</tr>
<tr>
<td>Hub Terminal</td>
<td>Old Dominion (Morristown, TN)</td>
<td>65 acres</td>
<td>Adjacent to I-81</td>
<td>Consumer retail goods</td>
</tr>
</tbody>
</table>
## Economic and Transportation Impacts of Freight Facilities

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Case Study</th>
<th>Direct &amp; Indirect Jobs</th>
<th>Freight Volume</th>
<th>Transportation Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>Virginia Inland Port (Front Royal, VA)</td>
<td>17 direct jobs; catalyst to another 8,000 jobs</td>
<td>33,600 containers (2008)</td>
<td>5.4 million VMT reduction, $105,000 greenhouse gas emission savings</td>
</tr>
<tr>
<td>Intermodal Terminal</td>
<td>Rickenbacker Intermodal Terminal (Columbus, OH)</td>
<td>Approximately 150 direct jobs at Intermodal facility, projection of 20,000 jobs at freight industrial park</td>
<td>250,000 annual “lifts”</td>
<td>49 million fewer truck miles in Ohio in 10 years - $2 M in pavement maintenance savings, $2.45 M in accident reductions</td>
</tr>
<tr>
<td>Bulk or Transload Terminal</td>
<td>Savage Safe Handling (Auburn, ME)</td>
<td>100 direct jobs with other businesses attracted nearby</td>
<td>500,000 tons per year – 5,000 railcars per year</td>
<td>$619,500 accident reduction, $506,000 pavement maintenance from using rail</td>
</tr>
<tr>
<td>Distribution Center</td>
<td>Family Dollar (Marianna, FL)</td>
<td>515 direct jobs; catalyst to another 155 jobs</td>
<td>90 trucks/day – 32,000 trucks per year</td>
<td>16.2 million truck VMT per year</td>
</tr>
<tr>
<td>Warehouse</td>
<td>Murphy Warehouses</td>
<td>20 direct jobs per warehouse facility</td>
<td>10,000+ carloads per year, throughput of 6,500 tons daily</td>
<td>1.3 million VMT reduced annually; 6,730 fewer greenhouse gas tons</td>
</tr>
<tr>
<td>Integrated Logistics Center</td>
<td>Alliance Texas (Fort Worth, TX)</td>
<td>28,000 direct jobs; catalyst to another 63,388 jobs</td>
<td>600,000 intermodal rail lifts per year</td>
<td>N/A</td>
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<tr>
<td>Hub Terminal</td>
<td>Old Dominion (Morristown, TN)</td>
<td>750 direct jobs</td>
<td>75 to 90 trucks per day</td>
<td>21.5 to 25.9 million truck VMT per year</td>
</tr>
</tbody>
</table>
Warehouse – Murphy Warehouses, Minneapolis-St. Paul, MN

Selection Criteria/Characteristics:

- Access to interstates or major highways
- On-site rail access
- 150,000 – 250,000 sq ft buildings
- Reasonable real estate taxes
- Storm water handling capabilities

Economic and Transportation Impacts:

- 20 jobs per warehouse, total of 184 in the metro area
- Rail reduces truck mileage by approximately 852 miles per truckload
- Freight travelling by rail reduces annual VMT by 1.3 million
- Freight travelling by rail reduces greenhouse gases by 6,730 tons annually
Selection Criteria/Characteristics:

- Direct access to Interstate 10 with no local traffic conflicts
- Available land and industrial park – 75 acre site, 351 acre park
- Location facilitates access to large consumer market within ½ day
- Local/regional/state economic incentives and customer service - $6 million public investment in infrastructure plus tax exemption
- Demonstrated available workforce

Economic and Transportation Impacts:

- 90 trucks in/out per day
- $55 million private investment
- 515 jobs, $13/hour wages
- Helped attract 2 other businesses to the industrial park
Port – Virginia Inland Port (VIP), Front Royal, VA

Selection Criteria/Characteristics:

• Proximity to seaports handling international freight (200 miles)
• Access to Class 1 Railroad and Interstate highways
• Partnerships with Norfolk Southern and Virginia Port Authority
• 161 acres with significant railcar storage and land for DC facilities
• Access to customers and public sector assistance/incentives

Economic and Transportation Impacts:

• Approximate 30,000 containers/year
• Equal split of imports(exports
• 17 direct jobs at VIP
• 39 businesses, 8,000 jobs attracted over time
• Rail use reduces truck VMT and CO2
Integrated Logistics Center – AllianceTexas Logistics Hub, Fort Worth, TX

Selection Criteria/Characteristics:

• Large undeveloped tracts of land near Ft Worth Metroplex
• First 100% air cargo airport in world
• Two Class I railroads: UP and BNSF (their largest intermodal facility)
• I-35 and State highways, FTZ, industrial and distribution companies
• Private developers and public cooperation

Economic and Transportation Impacts:

• 230 corporate businesses
• 28,000 jobs at ILC – aviation, logistics, finance, telecom, automotive, life sciences
• 31.2 million square feet developed, $2.5 billion annual economic impact
• $6.8 B private investment, $388 M public
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Selection of Freight Facility Locations

Public Sector Role in Freight Facility Development

Best Practices/Lessons Learned

CLOSING THOUGHTS

Q and A
A Few Parting Thoughts....

- Freight/logistics drive economy
- Private sector decision-making drives freight facility siting
- Better understanding of private sector issues lays the groundwork
- Regional/local planning actions can make a difference
  - Reap benefits (jobs and tax revenues)
  - Avoid/mitigate impacts
  - Manage controversy
- Effective strategies are proactive and collaborative (and vision-based)
- Lay groundwork with development of vision/plan/regulatory tools
  - Clearly defined economic development strategy/goals
  - Consistent zoning regulations and clear permitting requirements
  - Consideration of incentives

**YOU ARE NOT ALONE** ...Resources available from TRB, NCFRP, FHWA, APA, and many others
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Q AND A
THANK YOU

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