Container Diversion and Economic Impact Study

Effects of Higher Drayage Costs at San Pedro Bay Ports

September 20th, 2007
Presented by:

AND

BST Associates
Market Research & Strategic Planning
Clean truck program initiatives are estimated to raise drayage costs

- TWIC (Security considerations) & ongoing growth 28%
- Current mixture of IOO’s and LMC’s with clean trucks 16% more
- All port trucks and drivers to be part of LMC’s 20% more (40% vs. TWIC-base)

What is impact?

- Container diversion (M&N) is based on demand shifts due to higher costs
- Economic impacts (BST) based on reduced container moves via SPB

Based upon J. Husing’s Presentation on September 5th, 2007

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Revenue per truck/driver</th>
<th>% Increase</th>
<th>% Increase from post-TWIC base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>$107,100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After TWIC</td>
<td>$137,100</td>
<td>28%</td>
<td>(TWIC affects all ports)</td>
</tr>
<tr>
<td>TWIC + Clean Trucks</td>
<td>$159,200</td>
<td>49%</td>
<td>16%</td>
</tr>
<tr>
<td>TWIC + Clean Trucks + EMP</td>
<td>$191,700</td>
<td>79%</td>
<td>40%</td>
</tr>
</tbody>
</table>
Hinterland Market Areas

♦ Major destinations of container imports moving through SPB ports

Source: 2005 PIERS data and Moffatt & Nichol Analysis
Background to “elasticity,” or demand = f(price)

- Classify movements at port by mode and distance
- Estimate elasticities for each kind of movement

![Diagram showing Low Elasticity and High Elasticity graphs]

- Low Elasticity: change in cost causes small change in volume
- High Elasticity: change in cost causes large change in volume
Movements at San Pedro Bay Ports (2006)

- On-dock and near-dock rail largely unaffected by clean truck policies; while off-dock rail will be affected by Clean Truck requirements
- Local moves and transloads via near dock (<50 mile) warehouses are less sensitive to changes in trucking costs as these loads have a current reason to stay in SoCal
- Long-haul truck moves and transloads via distant warehouses are most susceptible to diversion to other ports

Source: M&N analysis of data from ACTA, August, 2007 and Meyer Mohaddes Associates, April 2004
Observed relationship between cost ratio and market share

- LALB compared with
  - Seattle/Tacoma
  - Oakland
  - NY/NJ and
  - Savannah

- Each point is a market
  - Asian Trade Region – Inland BEA
  - Ratio of transportation costs vs. Ratio of market shares

- Cost is a major factor
  - Accounts for 46% of the decision

\[ y = -4.17x + 1.13 \]

Markets with inland locations near SoCal have elasticity < 0.5
Markets with inland locations far from SoCal have elasticity > 1.0
Import Transportation Cost (to shippers & cargo owners)

For most moves, trucking cost is a small % of overall transportation costs
- Relative to total transportation cost
- Relative to avg. value of cargo, $70,000 per container

Imports bear cost of returning container to Asia

1. US customs declared value
Export / Empty Diversion

♦ Exports bear incremental cost vs. empty return
  — Lower avg. value per TEU
♦ Some export/empty diversion from San Pedro Bay occurred in 2006
  \[3 \text{ Import} = 1 \text{ Export} + 1.8 \text{ Empty} + 0.2 \text{ Diverted}\]
♦ Diversion of exports/empties will be tied to imports
  — Chassis under the program will be returned with clean trucks
  — Railroads discourage non-revenue intermodal railcar moves
Southern California Exports – qualitative assessment

- Waste paper & plastic
- Cotton
- Animal feed
## Estimated diversion from SPB ports – Case #1

**♦ Existing model with Clean Trucks**
- Relative to TWIC/Security, 16% increase in truck-driver costs & rates
- 75,000, or 0.5% of SPB port’s total, TEU diverted to alternate port gateways

<table>
<thead>
<tr>
<th>Mode</th>
<th>SPB Throughput in TEU</th>
<th>Trucking Cost ($ per box)</th>
<th>Transportation Cost ($ per box)</th>
<th>Change in Transportation Cost ($ per box)</th>
<th>Elasticity</th>
<th>Change in Market Share (%)</th>
<th>Change in SPB Throughput (TEU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Dock Rail</td>
<td>3,800,000</td>
<td>$0</td>
<td>$3,860</td>
<td>$0</td>
<td>1.0</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Near-Dock Rail</td>
<td>1,300,000</td>
<td>$60</td>
<td>$3,920</td>
<td>$10</td>
<td>1.0</td>
<td>-0.3%</td>
<td>-3,000</td>
</tr>
<tr>
<td>Off-Dock Rail</td>
<td>1,500,000</td>
<td>$160</td>
<td>$4,020</td>
<td>$30</td>
<td>1.0</td>
<td>-0.7%</td>
<td>-11,000</td>
</tr>
<tr>
<td>Transload to Rail</td>
<td>3,600,000</td>
<td>$90</td>
<td>$3,780</td>
<td>$10</td>
<td>1.0</td>
<td>-0.3%</td>
<td>-10,000</td>
</tr>
<tr>
<td>Truck 150+ miles</td>
<td>500,000</td>
<td>$1,080</td>
<td>$3,710</td>
<td>$170</td>
<td>1.0</td>
<td>-4.6%</td>
<td>-23,000</td>
</tr>
<tr>
<td>Truck 50-150 miles</td>
<td>2,500,000</td>
<td>$500</td>
<td>$3,130</td>
<td>$80</td>
<td>0.3</td>
<td>-0.8%</td>
<td>-19,000</td>
</tr>
<tr>
<td>Truck 20-50 miles</td>
<td>1,400,000</td>
<td>$250</td>
<td>$2,880</td>
<td>$40</td>
<td>0.3</td>
<td>-0.4%</td>
<td>-6,000</td>
</tr>
<tr>
<td>Truck 0-20 miles</td>
<td>1,200,000</td>
<td>$110</td>
<td>$2,740</td>
<td>$20</td>
<td>0.3</td>
<td>-0.2%</td>
<td>-3,000</td>
</tr>
<tr>
<td>Total / Average</td>
<td>15,800,000</td>
<td>$184</td>
<td>$3,570</td>
<td>$29</td>
<td>-0.5%</td>
<td>-75,000</td>
<td></td>
</tr>
</tbody>
</table>
## Estimated diversion from SPB ports – Case #2

- **Proposed Concession with employees & Clean Trucks**
  - Relative to TWIC/Security, 40% increase in truck-driver costs & rates
  - 193,000, or 1.2% of SPB port’s total, TEU diverted to alternate port gateways

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<tr>
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<th>SPB Throughput in TEU</th>
<th>Trucking Cost ($ per box)</th>
<th>Transportation Cost ($ per box)</th>
<th>Change in Transportation Cost ($ per box)</th>
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<td>$60</td>
<td>1.0</td>
<td>-1.5%</td>
<td>-22,000</td>
</tr>
<tr>
<td>Transload to Rail</td>
<td>3,600,000</td>
<td>$90</td>
<td>$3,780</td>
<td>$40</td>
<td>1.0</td>
<td>-1.1%</td>
<td>-38,000</td>
</tr>
<tr>
<td>Truck 150+ miles</td>
<td>500,000</td>
<td>$1,080</td>
<td>$3,710</td>
<td>$430</td>
<td>1.0</td>
<td>-11.6%</td>
<td>-58,000</td>
</tr>
<tr>
<td>Truck 50-150 miles</td>
<td>2,500,000</td>
<td>$500</td>
<td>$3,130</td>
<td>$200</td>
<td>0.3</td>
<td>-1.9%</td>
<td>-48,000</td>
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<tr>
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<td>15,800,000</td>
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<td>$3,570</td>
<td>$74</td>
<td>-1.2%</td>
<td>-193,000</td>
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Economic Impacts

♦ Focus on transportation industry impacts
  — Port industry
  — Port Users

♦ Diversion estimates from M&N

♦ Direct impacts
  — Jobs
  — Income

♦ Total economic impacts
  — IMPLAN Model
    − 5 county region
    − State of California
Summary of Impacts - Employment

♦ Case 1 (Existing model w/Clean Trucks)
  — Divert 75,000 TEUs
  — Region loses 1,580 jobs
  — State loses 1,960 jobs

♦ Case 2 (Concession with Employees & Clean Trucks)
  — Divert 193,000 TEUs
  — Region loses 4,450 jobs
  — State loses 5,440 jobs

♦ Important caveat
  — Economic impact studies measure a snap shot in time
  — Annual growth will absorb these losses

Impacts include direct, indirect and induced effects
Summary of Impacts – Income ($Millions)

♦ Case 1 (Existing model w/Clean Trucks)
  – Divert 75,000 TEUs
  – Region loses $112 million
  – State loses $131 million

♦ Case 2 (Concession with Employees & Clean Trucks)
  – Divert 193,000 TEUs
  – Region gains $260 million
  – State gains $213 million

♦ Important note
  – Increased wages for truckers offset the loss of income from cargo diversions

Impacts include direct, indirect and induced effects