The Agile Port
Efficient Marine Terminal

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Port of Tacoma

Help our Current Customers Grow

Prepare for the Future

Be a Good Neighbor
#1 Goal for the Port of Tacoma

- The Port of Tacoma to be the most efficient and reliable intermodal gateway in North America

70% of our int’l cargo goes to the MW and upper NE
Why is this Important to Port of Tacoma?

Port of Tacoma 2007

2 Million TEU’s .6 Million Intermodal Lifts
Port of Tacoma 2020

10 Million TEU’s  3 Million Intermodal Lifts
Port Capacity Issues – How To Accommodate the Growth

- It can’t just be more land
- Longer hours of operations
- Must increase the velocity
- Move it faster not just stack it higher
  - Agile port concepts
  - Information transfer technology
  - Inland ports – Will they help?
Military Link

- Military Cargo adds to our Cargo Diversity and is important to our local economy
- Port of Tacoma is a Strategic Port
- 43,000 military personnel and civilians work at Military bases in Pierce County
- Annual Payroll of $1.19 B
- Local spending of $741 M
Agile Port Systems - Port Capacity Issues in Light of (DOD) Surge Requirements

Constraints

Build out @ 7650/ ac

Volume YTD (September Annualized)

Assumes Build out Grounding and Less Dwell

Courtesy of SSA
Agile Port Systems - Port Capacity Issues in Light of (DOD) Surge Requirements

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(September Annualized)

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Courtesy of SSA
The North American Freight Paradox: The Nation’s Ports and Their Intermodal Linkages are Experiencing the “Best of Times and the Worst of Times” in Terms of Growth and Demands on Capacity

Where’s my cargo?
Americas Systems Inc. develops a port system that allows companies to obtain information on shipments.

By Chris Dupin.
We do not have an “intermodal system” as such. Rather we have an aggregation of multiple, private and public modes, each of which are “stove-piped” within their own individual areas of interest with little or no true cross communication and collaboration.
World Container Forecast to 2024 in TEUs
(186% Increase in Next 20 Years)

Source: Global Insight, 2004
By 2020 demand will exceed current capacity of many U.S. ports by as much as 200%.
World Container Ship Evolution

1st Generation (Pre-1960 - 1970)
- TEU Capacity: 1,700 TEU

- TEU Capacity: 2,305 TEU

3rd Generation (1985)
- TEU Capacity: 3,220 TEU

- TEU Capacity: 4,848 TEU

5th Generation (2000 - 2005)
- TEU Capacity: 8,600 TEU
Zim orders **four 10,000 TEU container ships** from Hyundai Shipyards in Korea; will double its carriage capacity. Zim will take delivery of the ships, second half of 2009.

Cosco orders **four 10,000 TEU containerships** from Hyundai Heavy Industries to be delivered in 2008. **$505 M Deal**

*Source: North Sea Terminal Bremerhaven GmbH & Co*
A.P. Moller-Maersk September 2006 Service Announcement for 14,000 TEU Vessel

The new-build known as “M/S Emma Maersk”, was christened at the Odense-Lindo Shipyard in Denmark in August 2006. The nominal capacity of the new vessel could be as high as 14,000 TEUs based on its reported LOA of 397 m, Beam of 56 m, Draft of 15.5 m, Gross Tonnage 170,974 gt, Speed 25.5 knots.

Source: Journal of Commerce August 2006, Marine Log December 2006
USDOD Agile Port Information Technology (IT) Developments
IT Data/Information Integration

Consist Data

Container Vessel

Data/Info Management

Consist Data

Double Stacked Train

Major Terminal & Systems Benefits
Agile Port Systems - Port Capacity Issues in Light of (DOD) Surge Requirements

Agile Port Systems: A NEXUS for Efficient System Wide Freight Transport

Port Freight Operations

Intermodal Rail Operations

Corridor Freight Operations

“A Strategic Opportunity for Improved Freight Transportation Through Information Technology (IT)”

Just In Time Operations
The Agile Port Concept is not a new technology...

...It is a way of managing and organizing information to reduce container port terminal dwell time & increase terminal capacity.
Better organized, accurate and timely information between ship and rail can increase the “velocity” of a container through a terminal without changing equipment, management or labor.
Container Dwell:
The Average Length of Time an Average Container Remains on the Terminal

U.S. Marine Container Terminal Dwell:
6 to 8 Days (Average)
U.S. Intermodal Rail
Terminal Dwell:

1 1/2 - 2 Day (Average)

When You Reduce Terminal Dwell by One Half

You Double the Terminal Throughput...without Building!
Agile Port Concepts

Integrating Vessel and Rail Information Systems

- Efficient Marine Terminal (EMT)
- Intermodal Interface Center (IIC)
- Dedicated Rail Corridor
- Rail Storage Buffer
- Inland Port
Agile Port System Components

1. Wharf Area
2. Magazine
3. Loading Tracks
4. ITZ
5. Local Storage
6. Gate Area
7. Rail Staging/Switching Area
Simultaneous Load & Discharge
Port of Tacoma – Efficient Marine Terminal Demonstration

Participants
CCDoTT
USDOT MARAD
USDOD USTRANSCOM
ILWU
Port of Tacoma
Hyundai
Washington United Terminals
TranSystems
Automation Associates
In March 2003
The ILWU President and
The ILWU Coast Committee
Agreed to become a Key Stakeholder in
and active participant of:

*The Agile Port Demonstration Project*

Port of Tacoma
US Department of Defense,
US Department of Transportation,
CCDoTT (Cal State Long Beach Research Agency
Full Scale Testing of the Agile Port
Efficient Marine Terminal (EMT)
July 2003: **Doubled Terminal Throughput**
Future PNW Demonstration Test 2007
Agile Port Demonstration Results: Comparison Of Dwell Times

- Truck to Ship
- Rail to Ship
- Ship to Truck Out
- Ship to Rail Out

- Conventional
- Agile Port

Benchmark and EMT comparison graph.
Comparison of Costs Per Container (Using Number of Lifts By Type)

- Truck Import
- Truck Export
- Rail Import
- Rail Export
- ITZ Export

$-$
$20.00
$40.00
$60.00
$80.00
$100.00
$120.00

Benchmark
EMT Operations

Conventional
Agile Port
Agile Port Program Pacific Northwest
2007 Demonstration Partners

Ports of Tacoma,
Port of Seattle,
Port of Portland,
CCDoTT, SDDC, TRANSCOM, MARAD,
WUT, Hyundai, BNSF, UP, TMBL,
TranSystems Corporation, Manalytics,
Automation Associates Inc.
The Hubbard Group
Agile Port Program Pacific Northwest
2007 Demonstration Partners

Ports of Tacoma,
Port of Seattle,
Port of Portland,
CCDoTT, USDOD,
TRANSCom, MARAD,
Washington United Terminals
Hyundai, BNSF, UP
TranSystems Corporation
Demonstration Objectives

• Evaluate APS benefits for surge deployments

• Ability of a marine terminal to accommodate Full Force Projection Military Operations while minimizing commercial disruption.

• Minimize the amount of terminal property required during staging and ship loading operations.
Demonstration Objectives

• Improve rail movement planning and operations

• Improve military force projection planning

• Fully utilize the capabilities of the PPP Deployment Facility

• Utilize TC-AIMS II – Block 2 Deployment Program
  • Evaluate possible system interfaces with the rail operating system
Agile Port Systems - Port Capacity Issues in Light of (DOD) Surge Requirements

Train Loading/Unloading

- Stage the maximum amount of equipment at Fort Lewis (Inland Port)
- Maintain an adequate surge buffer
- Load approximately 1,003 prime movers on approximately 700 rail flat cars
Ship Loading

- Minimize the amount of equipment staged for loading
- Maintain an adequate surge buffer
- Load as many decks and holds concurrently as the ship design allows – Simultaneous Load and Discharge
USDOD Agile Port
Information Technology (IT) Benefits

• Increased Marine Terminal Productivity (Up to 200%)
• Increased Marine Terminal Efficiency (less equipment needed)
• Reduced Marine Terminal Acreage
The Agile Port
Efficient Marine Terminal

Thank You