



TERMINAL 6

Industry Leader Committee

Meeting #3
September 28, 2017 3:00-6:00 pm



Welcome

- Meeting 2 Recap - Meeting Summary Review
- Follow-Up on Committee Requests
 - Integrated SWOT Summary
 - Information on Existing Fleet and Container Turnaround
- Review of Committee Charge and Purpose
 - Charge: Provide industry knowledge and guidance to the Port of Portland leadership on the Port's future role in container shipping at Terminal 6 and a sustainable business model for managing and developing the container business.
- Review of September 28th Agenda
 - Market Analysis (Task 2) and Operating Model Analysis (Task 4)



Terminal 6 Market Analysis

Nolan Gimpel, Advisian
Michael Kosmala, Coraggio



Port of Portland T6 Business Strategy

Task 2 - Market Analysis



Nolan Gimpel, Project Manager, Advisian
September 28, 2017

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Objectives of the Market Analysis (Task 2)

The purpose of the Study is to determine the Port's future role in container shipping and recommend a sustainable business model for managing and developing the business in the future.

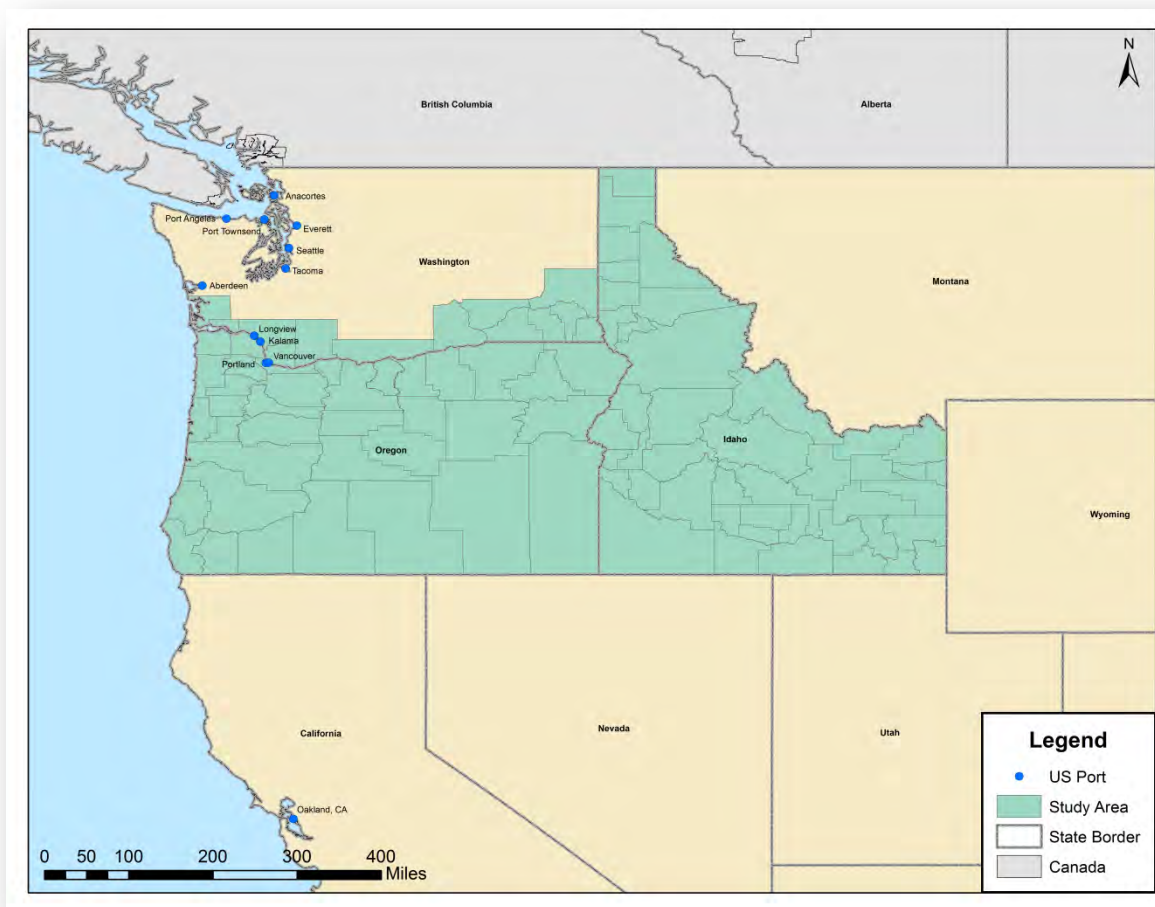
Terminal 6 container facility has been largely idle for the past two years. The Port has the opportunity to redefine its future in the container business and launch new strategies to revitalize the terminal. This task will analyze the container cargo market, focusing on segments that are most likely to be served, potential customers and users of the facility.



Summary: There is cargo in the region, but cost and competition pose a big challenge for Portland.

- The Port of Portland study region comprised approximately 226,000 containers (4.2 million tons) or 406,800 TEUs in 2014.
- For a typical alliance container service, it can cost \$7M to \$13M annually to add a call at Portland. Further analysis must be done in Task 6 to compare this with potential revenues from calling at Portland.
- Portland has the most significant depth restrictions among large West Coast ports.
- In the PNW, the long term “winners” will be Fairview (Prince Rupert), Husky/General Central Peninsula (Tacoma) and T18 (Seattle). The rest of the terminals must fight to stay above water, mostly due to alliance structure
- Two terminals (RBT2 Vancouver and T5 Seattle) may be significant game changers

The market study region includes all of Oregon and Idaho as well as some counties in southern Washington



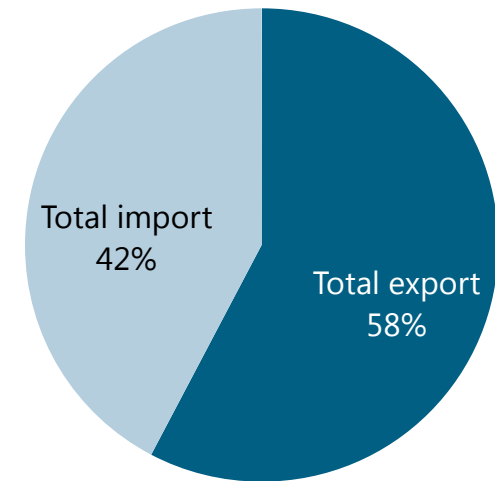
The Port of Portland study region is defined by geographies where the direct transportation costs between the port and the products origin or destination is lower cost compared to other container ports

Study region comprised 226,000 containers in 2014, of which 58% were exports.

Portland Region Container Volume, 2014

	Containers	Thousand Tons
Total export	130,163	3,228
Total import	95,374	1,092
Total study region	225,537	4,248

Import/Export Split for Regional Containers, 2014



- Exports account for 58% of regional total flows, while imports are 42% of total
- For comparison, the NWSA in 2014 handled 1,906,000 containers, although the majority is discretionary cargo headed to/from outside the region.
 - The NWSA market size is approx. 380,000 containers¹

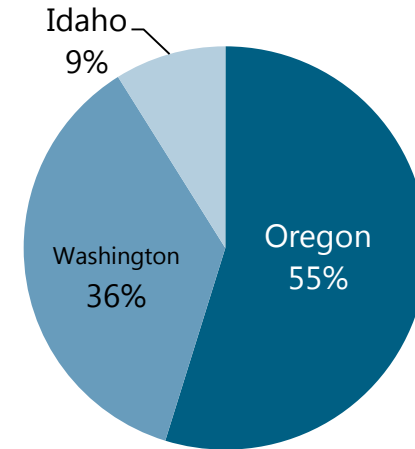
¹ Assumes 20% of the port's volume is not intermodal

Oregon had the most containers in the study region in 2014.

Exports 2014

State	Containers	Thousand Tons
Oregon	71,333	1,769
Washington	47,222	1,187
Idaho	11,608	272
Total	130,163	3,228

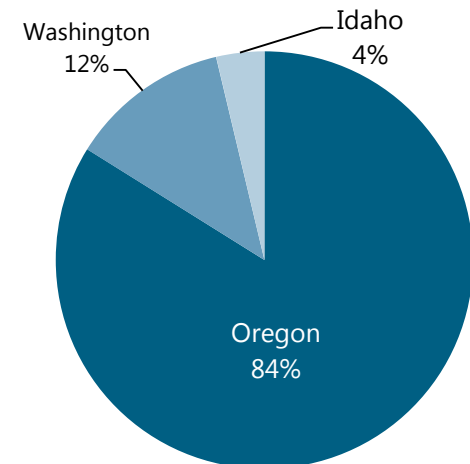
State Share of Regional Export Containers 2014



Imports 2014

State	Containers	Thousand Tons
Oregon	80,003	1,162
Washington	11,821	162
Idaho	3,550	49
Total	95,374	1,373

State Share of Regional Import Containers 2014

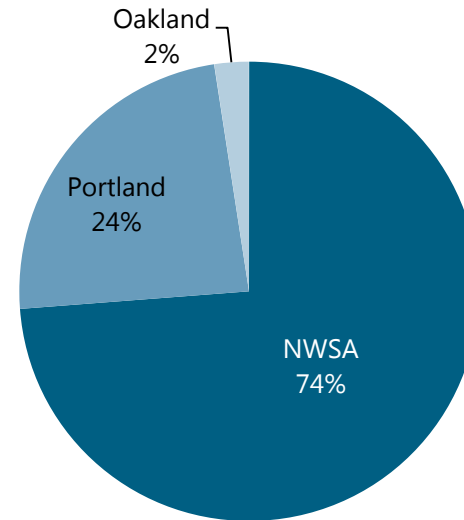


NWSA had 74% share of regional import & export containers in 2014; Portland was second (23%).

Exports 2014

US Port	Containers	Thousand Tons
NWSA	95,907	2,399
Portland	30,905	761
Oakland	3,158	64

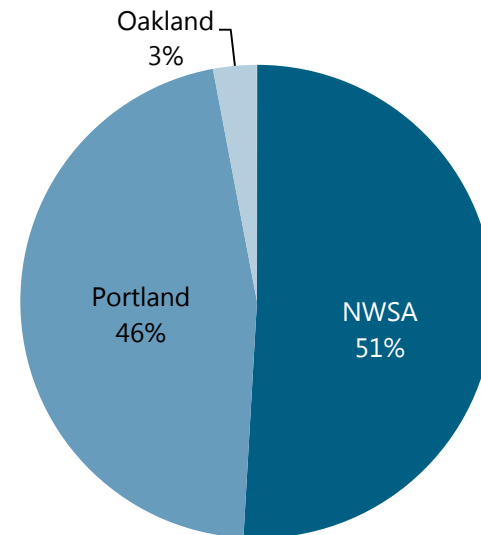
Export Market Share 2014



Imports 2014

US Port	Containers	Thousand Tons
NWSA	48,269	550
Portland	43,714	420
Oakland	2,837	45

Import Market Share 2014





Top export commodities were primarily hay, vegetables or wood products in 2014.

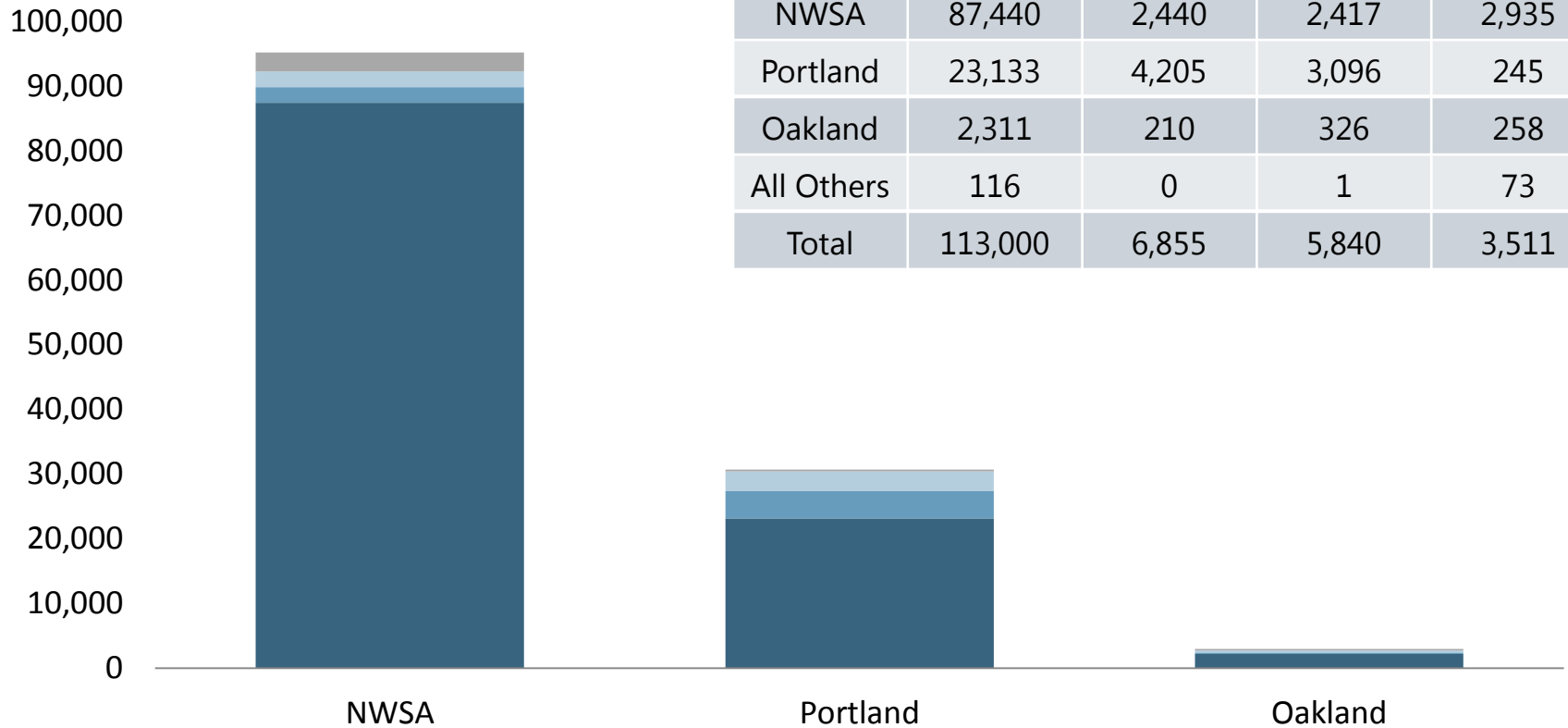
Commodity (Harm Code 4)	Containers	Thousand Tons	Percent Total Containers
Cereal Straw & Husks	31,958	850	25%
Wood Sawn or Chipped Length, Sliced Etc	11,879	317	9%
Vegetables Nesoi Prepared or Preserve Nesoi, Frozen	9,543	245	7%
Kraft Paper & Paperboard, Uncoated Nesoi, Rolls	5,305	145	4%
Seeds, Fruit and Spores, For Sowing	4,632	118	4%
Apples, Pears and Quinces, Fresh	3,815	93	3%
Leguminous Vegetables, Dried Shelled	3,641	89	3%
All Others	59,439	1,373	46%
Total	130,163	3,228	

Asia was the destination for 87% of regional containers handled by PNW ports in 2014.

Export Containers 2014

Port of Departure	Asia	Europe	Central and South America	Australia/Oceania
NWSA	87,440	2,440	2,417	2,935
Portland	23,133	4,205	3,096	245
Oakland	2,311	210	326	258
All Others	116	0	1	73
Total	113,000	6,855	5,840	3,511

Containers



■ Asia
 ■ Europe
 ■ Central and South America
 ■ Australia/Oceania

Top import commodities are tires and auto parts, furniture, plastics and apparel and footwear

Commodity (Harm Code 4)	Containers	Thousand Tons	% Total Containers
Furniture Nesoi and Parts Thereof	7,265	73	8%
New Pneumatic Tires, of Rubber	6,603	82	7%
Seats (Except Barber, Dental, Etc), and Parts	2,969	18	3%
Parts of Balloons, Aircraft, Spacecraft, etc	2,553	12	3%
Glass Containers For Packing Etc & Glass Closures	2,502	43	3%
Parts & Access For Motor Vehicles	2,342	38	3%
Plywood, veneered panels & similar laminated wood	2,309	58	2%
Artls & Equip F Genrl Physicl Exerc Etc; Pools; Pts	2,277	29	2%
Footwear, Gaiters Etc. and Parts Thereof	2,021	24	2%
All Others (incl. consumer goods, electronics)	62,603	981	68%
Total	95,374	1,373	

Import commodities are destined to western and northern part of Oregon, as well as south Washington

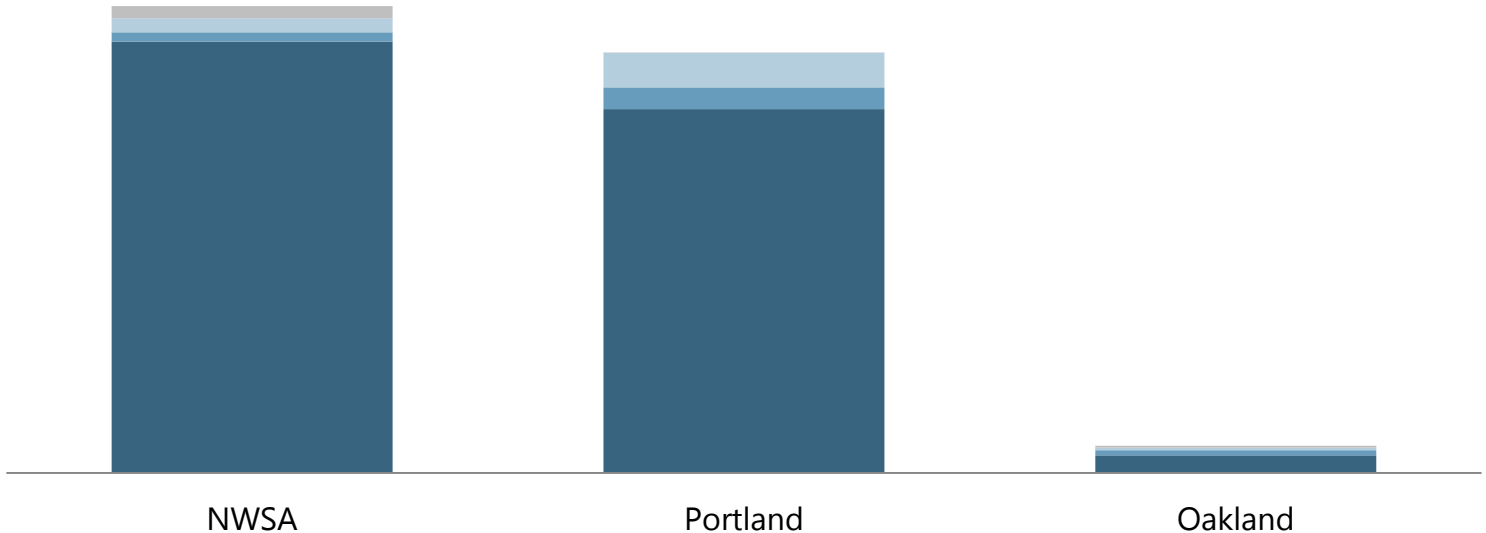
Asia was the source of 89% of regional imports handled by PNW ports in 2014.

Import Containers 2014

Port of Entry	Asia	Europe	Central and South America	Australia/Oceania
NWSA	44,450	933	1,468	1,257
Portland	37,483	2,231	3,584	2
Oakland	1,821	501	275	201
All Others	551	0	4	0
Total	84,305	3,665	5,331	1,464

Containers

60,000
50,000
40,000
30,000
20,000
10,000
0



NWSA

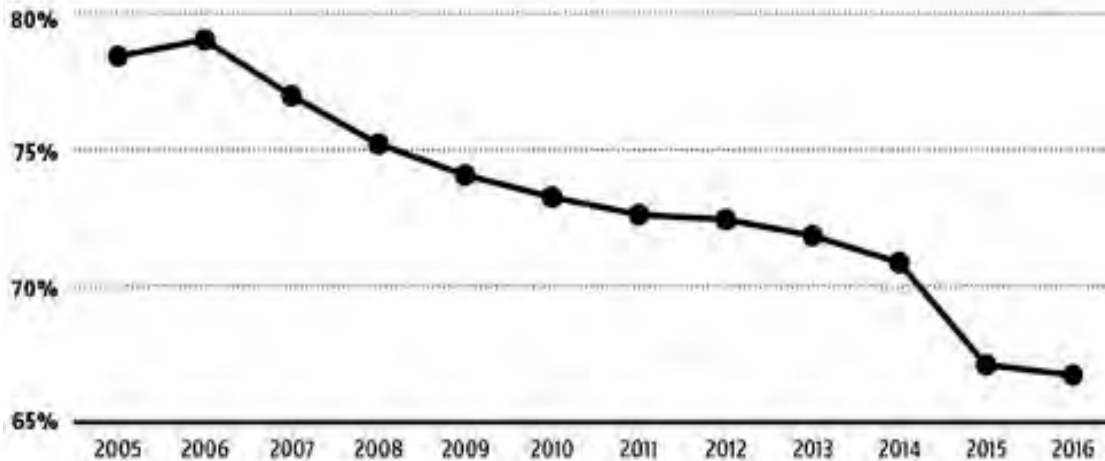
Portland

Oakland

How Portland Fares Relative to WC Competitors

Portland's Advantages	Portland's Disadvantages
Loyal importers using Portland and a growing number of mid-sized importers	Having a smaller local population means lower local consumption levels of imported goods.
A strong and vibrant export cargo market	Being a container port that is 100 miles up a river and requiring dual pilotage isn't cheap.
Carriers who call directly enjoy limited competition	Inability to accommodate the larger container vessels that are increasingly being used (see table below).
With a lack of direct service options compared to other ports, the sellers pricing power is much greater	With a lack of direct service options compared to other ports, the sellers pricing power is much greater
Existence of direct rail service to hinterland markets	History of poor relations between labor and industry

■ Percent of total Asia-US container volumes handled by US West Coast ports.



Port	Draft depth (Ft)
Port of Seattle	50
Port of Tacoma	>50
Port of Portland	43
Port of Oakland	50
Port of San Francisco	50
Port of Los Angeles	>52
Long Beach	>50

Case Study: Port of Hueneme benefits from global partnerships, large local pop., specialized cargo handling.

Description	Assets
Port Hueneme is located just 60 miles northwest of Los Angeles on U.S. 101 and the UP mainline, and serves the Southern California market and lower Central Valley, including its large agricultural and consumer population bases.	<ul style="list-style-type: none"> 3 wharfs for commercial cargo. 3 wharfs licensed from the Navy. Squid Fishery. 4 Floats for Small Craft 8 acre switchyard that holds 99 box cars or 80 auto racks 256,000 Square Feet On-dock Cold Storage 60,000 Square Feet Off-dock Cold Storage (Private) Mobile harbor cranes available



Key Takeaways

- The Port built its container business on fresh/ frozen food products
- South/Central America is the primary trade route.
- The Port serves a large population area.

Market Size	Commodities Handled	Success Factors
Port Hueneme: pop 21,723 (2015). Located 60 miles from Los Angeles MSA, with pop. 18.7M (2015).	The port focuses on cargo that needs to be moved quickly, such as fresh produce and automobiles. Bananas account for about 30 percent of the port's cargo; cars make up 60 percent. The Port handles a limited amount of project cargo as well.	Partnership with one of world's largest banana exporters (Ecuador). Three auto processors are located less than 2 miles from the port. The five deep-water berths are equipped with shore-side power capacity for vessels to plug in. Large population located within 100 miles.

Source: Port of Hueneme, Various News Articles

Case Study: San Diego benefits from operational excellence in breakbulk handling and proximity to Mexico & LA.

Description	Assets
<p>The port oversees 2 maritime cargo terminals, 2 cruise ship terminals, 20 public parks, and 600 tenant businesses. Tenth Avenue Marine Terminal is a 96-acre complex with 8 berths and depth of 42 feet. National City Marine Terminal is a 135-acre complex with 4 working berths and depth of 35 feet. Operated by Pasha.</p>	<p>10th Ave Marine Terminal: Mobile harbor crane. Cold storage, covered storage and open laydown space. 300,000 sq. ft. warehouse. On-dock shore power and fueling. National City Marine Terminal: Secure facilities for valuable cargo with 24-hour monitoring.</p>



Key Takeaways

- The Port built its container business on fresh/ frozen food products
- South/Central America is the primary trade route.
- The Port serves a large population area.

Market Size	Commodities Handled	Success Factors
<p>San Diego MSA: 3.3M (2015). Located 100 miles from Los Angeles MSA pop. 18.7M (2015). Also located 20 miles from Mexican border.</p>	<p>Importer of perishables and refrigerated commodities, fertilizer, cement, breakbulk commodities. Vehicle import/export facility handling 10% of autos entering US.</p>	<p>The Port has a diverse mix of maritime and real estate assets in prime tourism/business areas of the city. Its specialization in niche breakbulk commodities has allowed it to achieve operational excellence.</p>

Case Study: Philadelphia benefits from large local market, public-private partnerships, federal funding.

Description	Assets
PAMT, leased to Astro Holdings Inc. ("Astro"), spans 112 acres and has 3,800 linear ft. of berthing space, including six berths with one being a Roll-On/Roll-Off (RO/RO) berth. The Packer Avenue Marine Terminal handled 407,100 TEUs and a total of 374 container vessels in 2015.	2 Post-Panamax container cranes and 3 Panamax container cranes. 6 Toploaders: 95,000 lbs., 5 Toploaders: 30,000 lbs., 100 Forklifts: 3,000 lbs. to 35,000 lbs., 20 Yard hustlers Rail connection to CSX and Norfolk Southern Computerized container tracking system; ocean container to domestic truck transloading; distribution



Key Takeaways

- South/Central America is the primary trade route, but it also has some Europe/ANZAC services.
- The Port serves a large population area.
- Deepening of the Delaware channel from 40' to 45' at a cost of \$392 million by '18
- Container volumes have been relatively constant or increasing over the past few decades

Market Size	Commodities Handled	Success Factors
Philadelphia MSA pop: 6M (2016). State pop: 12.8M (2016). Located within a one day drive of 200 million people.	Containers, steel products, frozen meat, fruit, heavy lift, project, paper.	Huge market within one day driving distance; Strong relations and partnerships with private sector. Receives and manages significant federal funding (e.g. Delaware River Main Channel Deepening project). In 2016, Pennsylvania allocated \$300 to Port investments. \$200 million will go to upgrading Packer Avenue terminal, including buying four 23-wide cranes, expanding by 40 acres, and deepening the berths to 45'

Source: Port of Philadelphia, Various News Articles



Conclusion: 407K TEUs in region could entice a container service, but why Portland over other PNW terminals?

- *The bottom line is that there is sufficient cargo in the region to be of interest to a container service, but Portland's ability to capture that cargo depends upon a number of factors- many of which are outside its control.*
- The cost to a container carrier for calling at Portland is significant in absolute terms, but could be offset by offering a niche service.
- Portland faces strong competition from PNW terminals that have advantages in terms of size, efficiency, water depth, intermodal, etc.
- Several niche ports around the US have built a good business through specialization, partnerships, and government support. However, those niche markets were built around niche BCO's which do not exist in the Study Region to any great extent.

Committee Engagement

- Things that hit the mark?
- Any surprises?
- Anything missing?



Operating Model Analysis

Nolan Gimpel, Advisian
Michael Kosmala, Coraggio



Port of Portland T6 Business Strategy

Task 4 – Operating Model Analysis

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September 28, 2017

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Operating Model Details



Operating Port Terminal - the public port authority owns and operates the terminal by owning and operating all equipment and infrastructure. The Port is fully responsible for all management aspects of the terminal.

This was the operating model the Port utilized from 1974-1993

Operating Model Details



Semi-Operating Port Terminal- The port may or may not have a specific container terminal but has a “common” public wharf for vessel operations. Storage and gate operations may be controlled by a separate terminal operator. In this model the port own the wharf and the terminal and may participate in the management of the terminal, but contracts out for the labor for the operational aspects, specifically the vessel operations. The equipment could be owned by the port or be provided by the terminal operator. Port ownership of the land and the hiring of a terminal operator is the key for this model.

This was the operating model the Port used from 1993 though 2011

Operating Model Details



Landlord Terminal - The public port authority owns the terminal but leases it out to a terminal operator or ocean carrier for operations and has no management control or responsibility for the terminal. The Port may or may not own the terminal operating equipment but usually owns the ship to shore cranes. Maintenance of the cranes could be done by the Port or by the lessee depending on local practices, labor agreements or labor contract.

This was the operating model the Port used from 2011 through 2017

Operating Model Details



Concession Terminal - The public port authority offers a long-term concession to a tenant. Concessions usually range from 25 to more than 50 years and usually require the concessionaire to provide the terminal equipment and all improvements to the terminal above ground level (pavement, terminal technology, gates, buildings, etc.). Cranes could be maintained by the Port or the concessionaire depending on work rules, local practices or contractual obligations. All other equipment is owned by the concessionaire. The Port typically has no exposure to maintain any terminal assets.

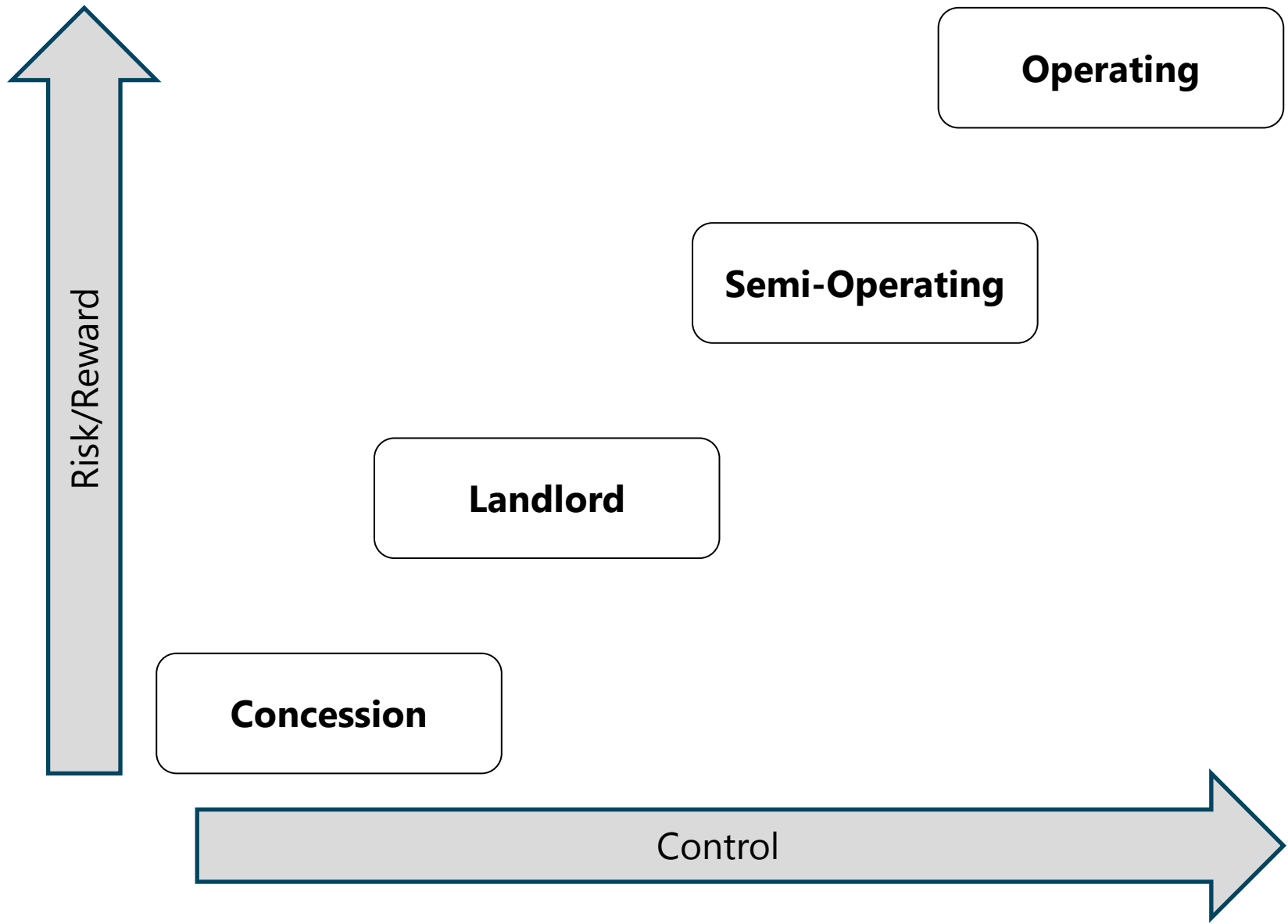
Model Components

- Financial (OpEx and CapEx) perspective
- Ocean Carrier's perspective
- Terminal Operator's perspective
- Port's perspective
- Shipper's perspective
- Labor perspective
- Public's perspective
- Risks to the Port





Terminal Operating Models





Terminal Models with Less Than 500k TEUs in North America

Concession Terminals

- APMT Mobile, 273K teus

Landlord Terminals

- Anchorage 471K teus
- Philadelphia 460k teus
- Tampa 50k teus
- Port Manatee 28k teus

Semi-Operating Terminals

- Gulfport 165k teus
- San Diego 142k teus
- Port Hueneme 84k teus

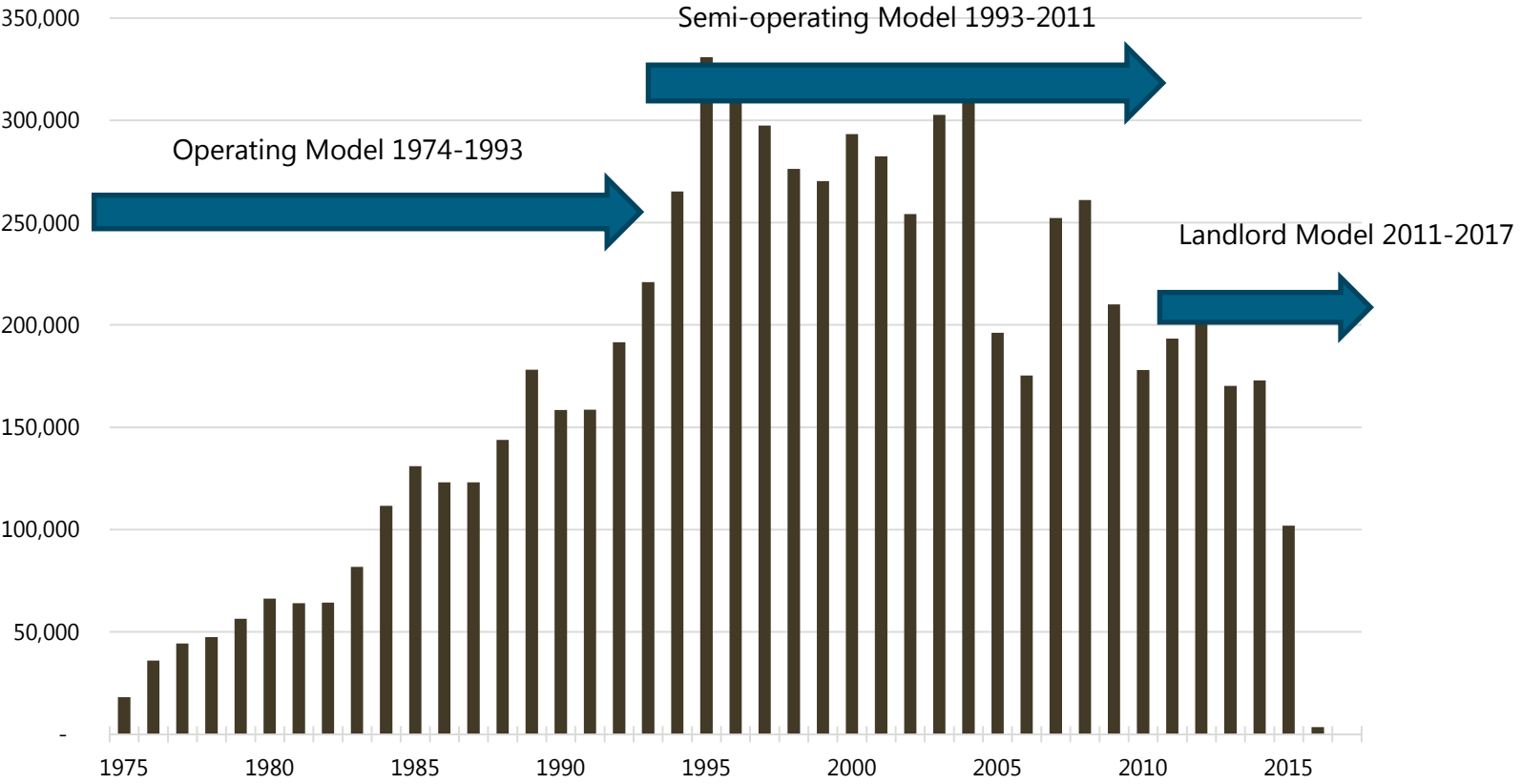
Port Operated Terminals

- Wilmington (DE) 363k teus
- Palm Beach (FL) 267k teus
- Wilmington (NC) 260k teus
- Connelly Boston 248k teus
- Kahului (HI), Freeport (TX), Galveston and Barber Pt (HI) are all <100k teus



Terminal 6 Container Volume

TEUs, Fiscal Year Ending





Financial Aspects

OpEx

The OpEx (Operating Expenses) are the costs associated with the loading and unloading of the vessels as well as the terminal and gate operations. In addition the maintenance of the terminal will be under OpEx unless some capital expenditure is undertaken. OpEx will have base costs but will have variable costs based upon productivity, volume and model type.

CapEx

CapEx (Capital Expenses) are the costs associated with the development of the terminal and the purchase of major container handling equipment such as STS cranes, RTG's, reachstackers, side picks and other container handling equipment. Major terminal infrastructure such as electrical, communications buildings and pavement would also be included in this category. Furthermore, any infrastructure for automation (or semi-automation), including existing terminal operating system technologies would be included in this category.



Short and Long Term Approach

Committee Engagement

- For each of the four Operating Models, what clarifying questions do you have?



Break



A Beautiful Constraint

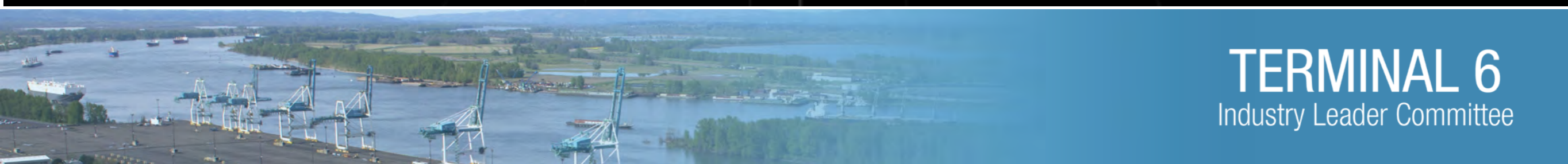




How can we win the race...when our car is no faster than anyone elses?

We can if we substitute a TDI engine for a conventional one.





Committee Activity



Next Meeting and Evaluations

November 16, 2017 3-6 pm

Alternatives Analysis and Financial Analysis

