



THE CRANEY ISLAND CONNECTION

CRANEY ISLAND EASTWARD EXPANSION NEWS AND INFORMATION

VOLUME 2 ISSUE 3

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PORTS 101: UNDERSTANDING CARGO CONTAINER MOVEMENT

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THE CRANEY ISLAND CONNECTION IS PUBLISHED MONTHLY UNDER THE AUSPICES OF THE VIRGINIA PORT AUTHORITY AND THE U.S. ARMY CORPS OF ENGINEERS, TO PROVIDE READERS WITH REPORTS RELATED TO THE DEVELOPMENT OF THE EASTWARD EXPANSION OF CRANEY ISLAND. ARTICLES PRINTED HEREIN ARE FOR INFORMATIONAL PURPOSES ONLY. WE INVITE READERS TO COMMENT ON ARTICLES AND SUGGEST FUTURE TOPICS FOR CONSIDERATION.

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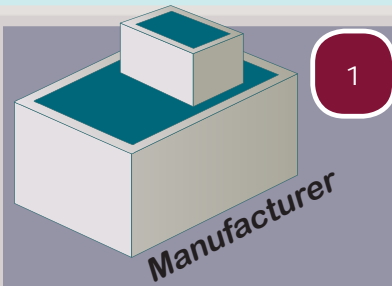
America's container ports move the goods that touch our everyday lives. Multi-colored stacked containers stretch across marine terminals, containing everything from clothing and shoes to electronics and food. As the 2nd largest east coast port, The Port of Virginia is a critical hub for maritime commerce activity. The Port is constantly evolving to meet the ever-growing demands of international maritime commerce and global trade. The Port predicts significant cargo growth over the next 20 to 30 years through improvements to existing terminals and the construction of the Craney Island Marine Terminal (CIMT). With the introduction of CIMT, The Port of Virginia will remain an economic engine for Hampton Roads, and as such it represents a dynamic source for numerous and varied job opportunities in a high growth, high demand, and economically vital sector of the Hampton Roads economy.

While the economic benefits of the global maritime trade are widely publicized, how container cargo ports operate is less commonly known. The ins and outs of goods movement involve multiple players and interest, handling everything from manufacturing and logistics to security and labor. This article will explain how the process of moving containers works.

All kinds of goods and commodities travel to and from American ports. Just as overseas imports supply many of the things we use in our daily lives, a large margin of U.S. commodities and finished products reach foreign markets and homes by way of containerships. Whether imports or exports, the products are shipped in large metal boxes known as cargo or shipping containers. Shipping containers are an American invention, first patented in 1956 by Malcolm McLean. Hinting at the intermodal nature of the goods movement industry, McLean was not a shipper but a trucker, whose concept for the standardized shipping container would make intercontinental trade transportation cheap and efficient. Whereas cargo used to be loaded and unloaded unto trains, trucks, and ships in various sized wooden crates, the standardized shipping container reduced the cost of loading freight by more than 90%, which in turn lowered the cost of international goods.

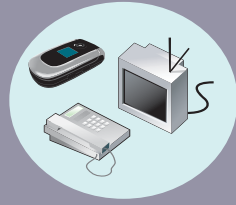
Containers represent only one facet of overseas container transport. Moving cargo on containerships speeds international trade through complex global supply chain. It takes about three weeks for cargo to travel from a port in China through the Panama Canal to The Port of Virginia. The graphic spread on the following page, follows the journey of goods traveling from afar into the U.S.

CONTAINER CARGO MOVEMENT



1

Manufacturer



2

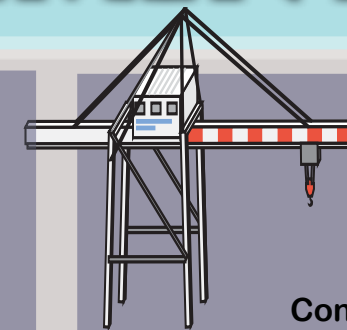
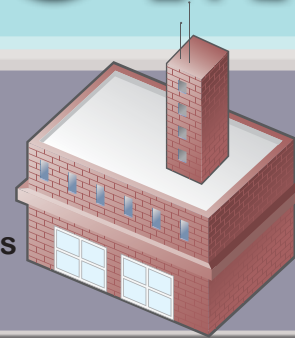
Freight Forwarder

Container Truck



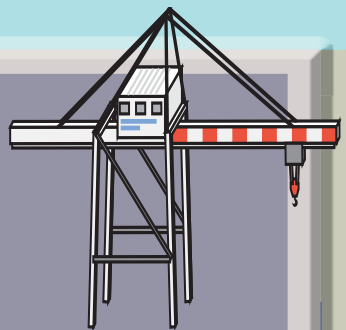
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U.S. Customs



4

Container Cranes

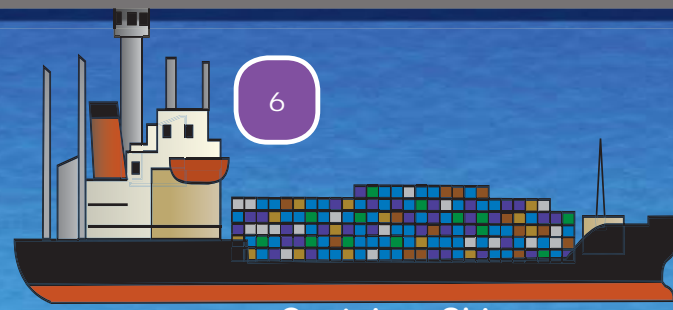


Overseas



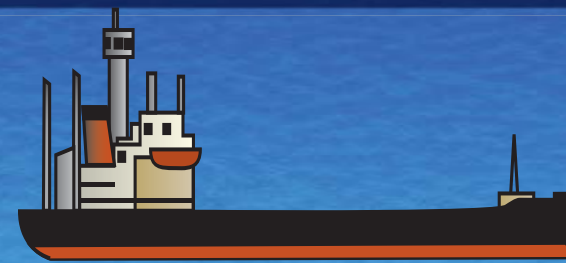
5

U.S. Coast Guard



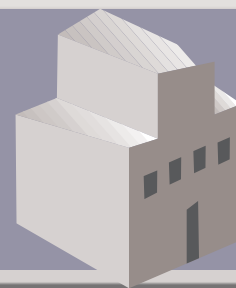
6

Container Ship



Empty Container Ship

U.S.

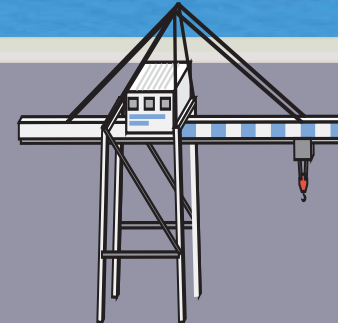
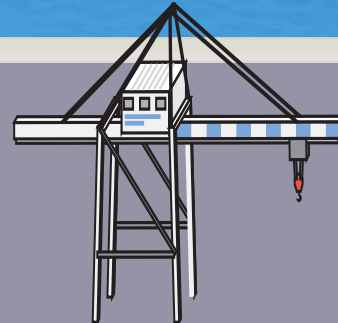


Union Hall



Longshoremen

7



8



Terminal Gate/Security Check



1 Shipping containerized cargo from abroad often begins when a U.S. retailer, wholesaler, or other buyer orders a product manufactured overseas. For instance, your favorite retail store is running low on its top-selling electronic goods. The U.S. buyer will order more goods from its overseas manufacturer. The goods will be packaged in a 40-foot long box, known as a container, at the manufacturer, warehouse, or goods consolidation facility where products begin their voyage to a port abroad.



Containerized cargo is measured in TEUs or twenty-foot equivalent units. This unit of cargo capacity refers to the original containers, which were standardized on a 20-foot length. Today, most cargo is moved in 40-foot long shipping containers. The boxes are standardized internationally to allow for easy transfer between various modes of transportation including, ships, trains and trucks.



2 After the commodity has been ordered, manufactured, and packaged, the buyer or a maritime industry professional, known as a freight forwarder will first coordinate land transport for the goods to the port via a local trucking company and then arrange for a container ship to transport the container overseas, in this case to the U.S.

3 At least 24 hours prior to import containers being loaded onto a ship, the shipment is screened by U.S. Customs and Border Patrol. Shipping companies are required to submit to U.S. Customs a manifest or account of what exactly is held in each container. The company must provide information on the individuals involved in the transaction. This information is sent to a U.S. Command Center for risk analysis. U.S. Customs officials, present at foreign ports, will receive information from the command center, and will conduct physical inspections to mitigate potential threats.

4 Next, containers are loaded on container ships by container cranes. Container cranes are a type of specialized crane. Container cranes sit dockside to load and unload containership cargo. These machines are typically classified according to their lift capacity, and the

size of container ships they can load and unload. For instance, a Panamax crane can handle a container ship capable of passing through the Panama Canal. A "Panamax Ship" is a ship that can carry containers stacked 13 containers wide. Norfolk International Terminals is home to the world's largest container cranes, each measuring 219 ft. These cranes can work ships with containers stacked 26 across, moving as many as forty 50-ton containers in an hour. After the container is cleared for departure, it will be placed on board the ship along with numerous other containers. As many as 10,000 containers can be placed aboard a containership.

5 Before containerized cargo can enter the country, the U.S. Coast Guard reviews the manifest information, documenting everything contained on the ship. The ship manifest must be reviewed by the Coast Guard three days prior to the ship's arrival to harbor.

6 Upon nearing the harbor but prior to entering it, the ship is boarded by a port pilot. Port pilots navigate ocean going vessels entering or leaving port. With specialized knowledge of the harbors waters, pilots direct the containership the final few miles into the harbor, ensuring safe docking into the marine terminal. Pilots work with tugboat operators and the ship's crew to complete the last few miles of the trip.



7 Unloading the cargo ship requires substantial support from unionized labor. The terminal operators arrange for longshoremen to unload containers from the containership. Containers are placed on trucks, rail cars, barges or in the storage yard.

8 Before trucks take containers off the terminal a final security check is employed. Radiation checks are performed at terminal gates. Even the most minimal level of radiation can be detected - triggering an alarm. Further inspections are conducted as necessary. If the truck is cleared, it leaves the port and delivers the goods to the nation's distribution centers and retailers.



CRANEY ISLAND EASTWARD EXPANSION BLUE RIBBON PANEL



On September 8-9, the Craney Island Eastward Expansion Blue Ribbon Panel, a renowned panel of geotechnical and civil engineering experts, convened once again in Portsmouth to review the design progress on the Craney Island Eastward Expansion Marine Terminal design. Meeting with representatives from The Virginia Port Authority and the U.S. Army Corps of Engineers, the panel of experts included Dr. Graham Plant of Graham Plant Consulting, Dr. Masaki Kitazume from the Port and Airport Research Institute of Japan, as well as Dr. J. Michael Duncan and Dr. James K. Mitchell, both from Virginia Tech.

The group was charged with examining the direction of future work on the expansion project, from a geotechnical perspective and specifically approving the 10% plans and specifications. Meeting attendees addressed outstanding issues from previous Blue Ribbon Panel meetings and discussed the status of completed work for a series of technical project areas. Technical issues were analyzed in the framework of overall implications for continued project advancement. Topic areas included the 10% plans and design, Main Dike Stability and Design, Cross Dike Stability and Design, Settlement Prediction Analytic and Methods, Analytical Approach to Couple Stability and Settlement, Ground Improvement and the Fill Management Plan. The group drew consensus on a number of items and suggested next steps towards the construction of this multi-faceted and complex project. Over the next 18 months the panel will reconvene throughout each phase of design for the expansion and port development to provide geotechnical expertise.



Left to Right: Dr. Masaki Kitazume, Dr. Graham Plant, Dr. James K. Mitchell, and Dr. J. Michael Duncan

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- Craney Eastward Expansion Construction Elements
- Transportation Update
- Project Update
- Next Issue

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