

Title: Trucks In, Out, and About the Port of Baltimore

Lesson Developed by: Sari Bennett and Patricia King Robeson, Maryland Geographic Alliance

Overview of the Lesson: This lesson uses the “Port of Baltimore Truckers Guide” map and photographs to introduce students to places located in the Port.

Grade Level: 4

Duration: Two 45-minute class periods

MARYLAND VSC:

Geography: Grade 4

A. Using Geographic Tools

1. Use geographic tools to locate places and describe the human and physical characteristics of those places
 - a. Construct and interpret a variety of maps using map elements
 - b. Use photographs, maps, charts, graphs, and atlases to describe geographic characteristics of Maryland/United States

Skills and Processes: Grades 3 - 5

D. Acquire Social Studies Information

1. Identify primary and secondary sources of information that relate to the topic/situation/problem being studied
 - c. Locate and gather data and information from appropriate non-print sources, such as music, artifacts, charts, maps, graphs, photographs, video clips, illustrations, paintings, political cartoons, interviews, and oral histories

E. Organize Social Studies Information

1. Organize information from non-print sources
 - c. Find relationships between gathered information

F. Analyze Social Studies Information

1. Interpret information from primary and secondary sources
 - a. Interpret information in maps, charts and graphs

Objectives:

Students will be able to:

- identify map elements on the “Port of Baltimore Truckers Guide” and explain how the map is used to help truckers find their way to and from the Port.
- interpret the “Port of Baltimore Truckers Guide” and use the information to answer questions.
- use photographs to identify and describe places in the Port today.

Vocabulary:

map elements - border, grid, key/legend, title, orientation, author, date, scale

terminal - a place where goods or people are loaded on or unloaded from ships

stevedore - person or a company who manages the operation of loading or unloading a ship

break-bulk cargo - items not in containers that are usually stacked on wooden pallets and lifted into and out of cargo ships

container - a large metal box that fits on a truck, railroad car, or ship. Containers can be 20 feet or 40

feet in length. Containers make loading and unloading much easier. Containers may carry a wide variety of products..

container ships - ships that carry all of their cargo in truck-size containers

tank farm - a group of tanks connected to a pipeline through which oil is moved

intermodal - a combination of more than one mode of transportation

Ro/Ro - for roll-on, roll-off ships where cargo is driven on and off, such as automobiles, tractors, trucks, etc

Materials/Resources:

- “Why so Many Trucks Go To and From Baltimore” - make a transparency
- “Major Highways of Maryland.” make a transparency
- “Port of Baltimore Tucker’s Map” - one copy for each group of four students
- “Helping Truckers Find Their Way to Places in the Helen Delich Bentley Port of Baltimore” - one for each group of four students
- “Where Should the Trucks Go?” - one for each group of four students
- “The Port of Baltimore” - map - make a transparency
- “The Port of Baltimore” - worksheet - one for each group of four students
- “Places in the Port” - make transparencies of photographs listed or use the PowerPoint provided on the CD

North Locust Point - page 12

Seagirt Marine Terminal - page 13

Fairfield Marine Terminal - page 14

Rukert Terminals - page 15

CSX Intermodal Container Transfer Facility - page 16

Lehigh Portland - page 17

Domino Sugar - page 18

Consol Energy Subsidiary CNX Marine Terminals - page 19

Chevron Asphalt Terminal - page 20

Amports - page 21

CSX Corporation - page 22

U.S. Coast Guard Yard - page 23

Dundalk Marine Terminal - page 24

Mittal Steel (formally Bethlehem Steel) - page 25

Teacher Background:

Baltimore is one of only two Eastern U.S. ports where the main shipping channel reaches a depth of 50 feet (15.2 meters). Five public and twelve private terminals handle the Port's traffic. Closer to the Midwest than any other East Coast port, the Helen Delich Bentley Port of Baltimore is within an overnight drive of one-third of the nation's population. In the summer of 2006, the Port of Baltimore was officially renamed the Helen Delich Bentley Port of Baltimore in honor of her work in its continued development. For ease we use “The Port” a shortened version of its official name. The Port has a vital role in Maryland's economic development, generating \$1.5 billion in annual revenue and supporting 33,700 jobs, and, directly and indirectly, puts money into the pockets of 127,000 Maryland workers. It serves over 50 ocean carriers making nearly 1,800 annual visits.

While all of the Port's general cargo terminals enjoy excellent highway access, South Locust Point has Interstate 95 -- the "Main Street" of the East Coast -- literally running past its front door. From South

Locust Point, trucks can travel almost anywhere in the country without encountering a single traffic signal. The Port has two deep water routes to the sea. The northernmost route is through the Chesapeake and Delaware Canal to Delaware Bay. The main 50-foot shipping channel extends from the Atlantic Ocean at Cape Henry, north through the Chesapeake Bay to the Port of Baltimore.

<http://www.globalsecurity.org/military/facility/baltimore.htm>

<http://www.globalsecurity.org/military/facility/curtis-bay.htm>

Lesson Development:

1. Show students the transparency “Major Highways of Maryland.” Ask the following questions.
 - Describe the location of Baltimore City. (near the Chesapeake Bay; surrounded on three sides by Baltimore County, east of Howard County, north of Anne Arundel County and west of the Chesapeake Bay; inside I-695, the Baltimore Beltway)
 - In what cardinal directions do odd number highways generally run? (North and South)
 - What major highways run North and South on this map? I-81; I-83; I-97; and I-95
 - In what cardinal directions do even number highways generally run? (East and West)
 - What major highways run East and West and this map? (I-70; I-68; and I-270)
 - What do you notice about the location of Baltimore City on this map? (Major highways surround it and go through it.)
2. Show students the transparency, “Why So Many Trucks Go To and From Baltimore” and discuss their answers. Tell them that every marine terminal in the Port of Baltimore is just minutes from I-95, the primary north/south route along the U.S. East Coast. This interstate highway connects with several major interstates, including I-70, which starts in Baltimore and heads west through the heart of the country. Trucks can reach 35% of America's manufacturing base overnight; for example, steel can reach manufacturers in Pennsylvania and furniture makers in North Carolina.
3. Divide students into groups and give each group the handouts “Port of Baltimore Trucker’s Map” and “Helping Truckers Find Their Way to Places in the Helen Delich Bentley Port of Baltimore.” Tell them to work as a team and use the map to find answers to the questions. Discuss answers.

Answer Key:

1. *Map Elements: border, key/legend, title, orientation/compass rose, scale*
2. *Atlantic Terminal, Fairfield Auto Terminal, Masonville Marine Terminal, Chesapeake Terminal*
3. *North Locust Point Marine Terminal*
4. *Dundalk Marine Terminal*
5. *Fort McHenry Tunnel*
6. *river, bay, creek, cove, branch, peninsula*
7. *South Locust Point*
8. *25*
9. *24*
10. *12, 42*

4. Tell students that everything from clothing to furniture, from shoes to electronics are in containers on trucks and rail cars that we see everyday going or coming from the Port. Give each group the handout, “Where Should the Truckers Go?” Tell students to read the information beside each “truck” and to use the key/legend on the Port of Baltimore Truckers Guide to determine the location or locations each trucker would need to find. Write the number/numbers of the location from the legend on the trucks. Discuss answers and ask students if any items in their homes may have come

through the Port.

Answer Key Dundalk Marine Terminal - #5; North Locust Point - #27; Seagirt Marine Terminal - #6; Fairfield - #32; Rukert Terminals Corp - #13, 14, 16, 17; CSX internodal - #7; Lehigh Portland Cement - #15; U.S. Coast Guard Yard - #45; Domino Sugar - #25; Consolidation Coal Sales - #12; Chevron Asphalt Refinery - #37; Ampports - #33, 35, 36; CSX - #40, 41, 42; Mittal Steel - #2

5. Tell students that the Port of Baltimore has a vital role in Maryland's economic development, generating \$1.5 billion in annual revenue and supporting 33,700 jobs, and, directly and indirectly, puts money into the pockets of 127,000 Maryland workers. It serves over 50 ocean carriers making nearly 1,800 annual visits. Truckers serve every community in Maryland. More than 12,000 Maryland companies have motor carriers registered, operating a fleet of 27,000 commercial vehicles and transporting nearly 76 million tons of freight each year. Approximately 90 percent of all goods moved in Maryland move by truck, as do 75 percent of goods moving through the Port of Baltimore. Have students look at the “Port of Baltimore Tucker’s Map” again and discuss the importance of trucks to move products to and from the Port. Now use either the PowerPoint or transparencies of “Places in the Port” to show students what some of the actual locations look like today. Discuss each photograph and have students match the photograph to a location on the map key/legend. Also have students refer to “Where Should the Trucks Go” for more information.

Assessment:

1. Give each student a copy of the handout “The Port of Baltimore” to complete individually.
2. Discuss answers.

Answer Key

1. I - 695
2. I - 895
3. 2
4. Patapsco River
5. Francis Scott Key Bridge
6. *They are located on or near major highways so the goods can easily be loaded onto trucks and moved farther inland. Goods from the interior can be delivered easily to the terminals.*

Closure:

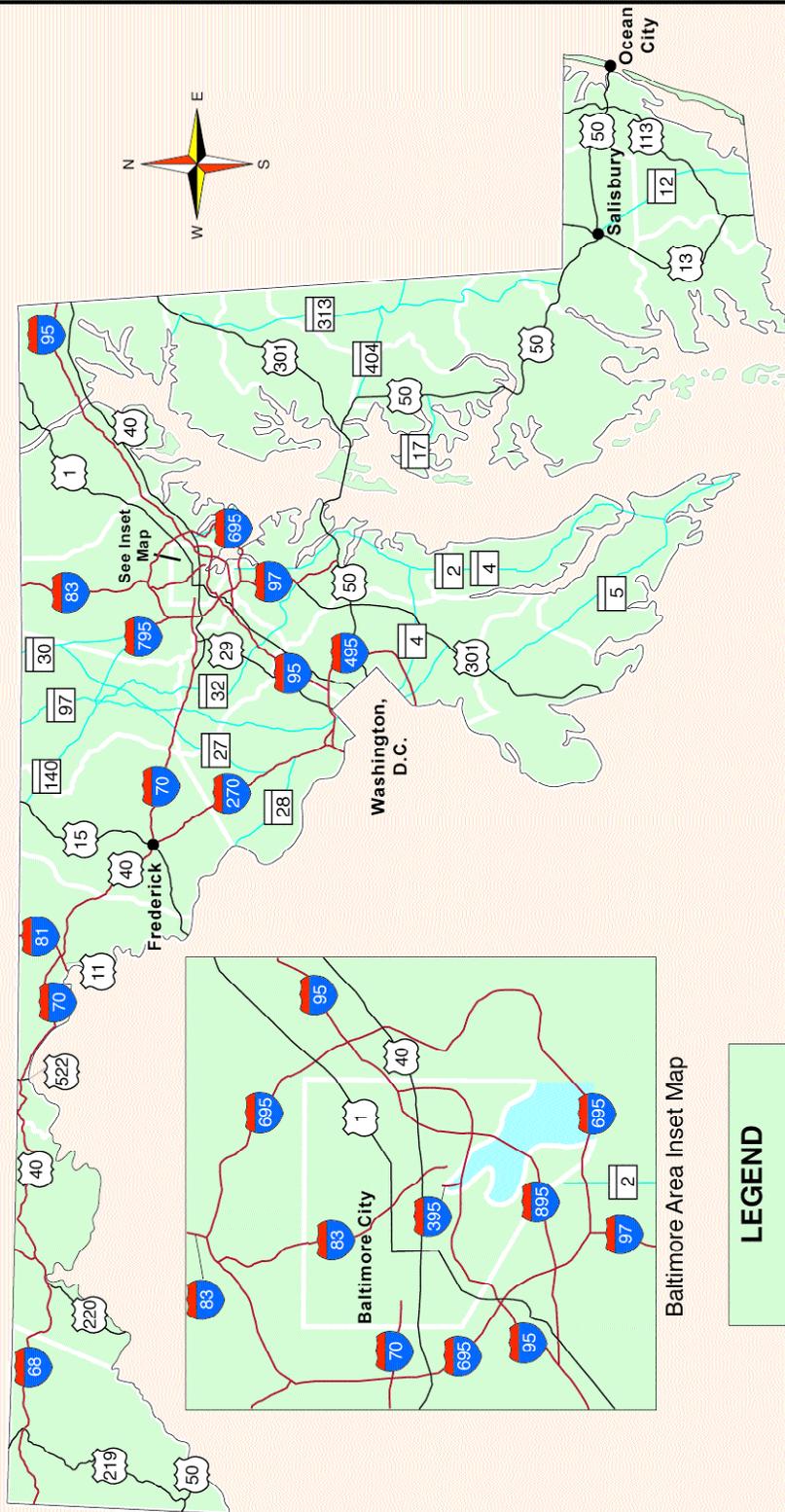
Have students use the “Port of Baltimore Truckers Map” to make a list of other information truckers need to know when using the Port. Ask students to share their information and explain why it is important for them to have a map that contains so much information.

Why So Many Trucks Go To and From Baltimore

- A container is a large metal box that fits on a truck, railroad car, or ship.
- It can be 20' or 40' in length. Containers make loading and unloading much easier. Containers may carry a wide variety of products.
- The container ships move with ease through Baltimore's 50-foot channel.
- The most productive terminal in the North Atlantic, Seagirt Terminal, moves an average of 45 -47 containers per hour.



MAJOR HIGHWAYS OF MARYLAND



LEGEND

- County Boundaries
- Selected State Highway
- U.S. Highway
- Interstate Highway



Sources:
www.mdroads.com
 National Geographic Road Atlas



MARYLAND PORT OF BALTIMORE



PORT OF BALTIMORE - TRUCKERS MAP 2007



LEGEND

-  INTERSTATE HIGHWAY
-  INTERSTATE ROUTE MARKER
-  LOCAL ROAD
-  U.S. ROUTE MARKER
-  STATE ROUTE MARKER
-  MINOR ROAD
-  INTERMODAL RAILYARDS
-  AUTO CONTAINER & GENERAL CARGO FACILITIES
-  BULK CARGO TERMINALS
-  CRUISE TERMINAL
-  FACILITY LOCATOR
-  TRUCK GATE
-  PUBLIC SCALES
-  CONTAINER CRANE
-  U.S. CUSTOMS EXAMINATION STATIONS

LOCATION

- | | | | |
|----|---|--|--|
| 1 | Pennwood Wharf (Mittal Steel) | | |
| 2 | Mittal Steel High Pier One | | |
| 3 | KinderMorgan Chesapeake Bulk | | |
| 4 | Barietta-Willis Industries Yard | | |
| 5 | Dundalk Marine Terminal (MPA) | | |
| 6 | Seagirt Marine Terminal (MPA) | | |
| 7 | CSX Intermodal (Seagirt) ICTF | | |
| 8 | Canton Railroad (Penn. Mary Yard) | | |
| 9 | National Gypsum (Gold Bond) | | |
| 10 | Canton Marine Terminal Pier 13 | | |
| 11 | Canton Pier 10/11 | | |
| 12 | Consolidation Coal Sales - CNX Marine Terminal | | |
| 13 | Rukert Terminals | | |
| 14 | Rukert Terminals Corp.; Lazareito | | |
| 15 | LeHigh Portland Cement | | |
| 16 | Agrico Pier (Rukert Terminals) | | |
| 17 | Rukert Terminals Corp. (Clinton Street Offices) | | |
| 18 | Clinton Street Marine Terminal (MPA) | | |
| 19 | Terminal Corp. Offices | | |
| 21 | Petroleum Fuel & Terminal Co. (Apex) | | |
| 22 | Belt's Business Center (U.S. Customs Station) | | |
| 23 | Norfolk Southern (Bayview Intermodal Yard) | | |
| 24 | General Ship Repair | | |
| 25 | Domino Sugar | | |
| 26 | Westway | | |
| 27 | | North Locust Point Marine Terminal (MPA) | |
| 28 | | Baltimore Metals & Commodities Terminal (C Steinweg) | |
| 29 | | South Locust Point Marine Terminal | |
| 29 | | South Locust Point Cruise Terminal (MPA) | |
| 30 | | Tyco Submarine Systems | |
| 31 | | Masonville Marine Terminal (ATC) | |
| 32 | | Fairfield Auto Terminal (Mercedes) | |
| 33 | | Atlantic Terminals (Amports) | |
| 34 | | NuStar Energy LP | |
| 35 | | Port Liberty (Amports) | |
| 36 | | Chesapeake Terminals (Amports) | |
| 37 | | Baltimore Asphalt Refinery Dock (Chevron USA) | |
| 38 | | Condea Vista Company | |
| 39 | | Citgo / Tosco | |
| 40 | | CSXT Chesapeake Bay Piers (Ore) | |
| 41 | | CSXT Chesapeake Bay Piers (Coal) | |
| 42 | | CSXT Chesapeake Bay Shiploader Pier 2 (Coal) | |
| 43 | | Amerada Hess Dock | |
| 44 | | Amoco Oil Co. (Curtis Bay Terminal) | |
| 45 | | U.S. Coast Guard Yard | |
| 46 | | Blue Circle Cement | |
| 47 | | W.R. Grace & Co., Davison Chemical Wharf | |
| 48 | | U.S. Gypsum Dock | |
| 49 | | Alcoa Eastalco Works | |



HELPING TRUCKERS FIND THEIR WAY TO
PLACES IN THE HELEN DELICH BENTLEY
PORT OF BALTIMORE



Name _____ Date _____

Use the information on the map to answer the questions.

1. Identify the map elements on the Port of Baltimore Truckers Guide.

2. A trucker traveling north on I-895, the Tunnel Thruway, would come to what terminals before entering the tunnel?

3. Which terminal is located south of Fells Point across the west channel of the Patapsco River?

4. If a trucker crosses the Francis Scott Key Bridge and travels north on Dundalk Avenue. which terminal does he/she come to first?

5. Name the human-made feature located south of Fort McHenry.

6. Identify four physical features on the map.

7. A trucker traveling north on I-95 would come to what terminal before going through the Fort McHenry tunnel?

8. A ship carrying sugar would go to # _____ on the map.

9. A ship needing repairs would go to # _____ on the map.

10. A ships that carry coal would go to #s _____ & _____ on the map.

WHERE SHOULD THE TRUCKS GO?

Name _____

Date _____

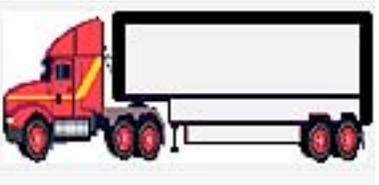
Read the information beside each truck and use the key/legend on the Truckers Guide Map to determine the location or locations each trucker would need to find. Write the number/numbers of the location from the legend on the trucks.



DUNDALK MARINE TERMINAL is located next to Seagirt Marine Terminal. It has 13 berths, 10 container cranes and direct rail access. The 570-acre terminal is the Port of Baltimore's largest and most versatile general cargo facility.



NORTH LOCUST POINT MARINE TERMINAL can handle a variety of cargoes. Today bags of cocoa beans arrive in North Locust Point. The terminal has ample storage capacity with 25 acres of outside space.



SEAGIRT MARINE TERMINAL is the largest container-only facility operated by Ports America. Evergreen, CSAV and Mediterranean Shipping Companies use Seagirt. Seagirt has seven cranes which are among the most efficient in the industry. Each moves an average of 45 - 47 containers an hour.



FAIRFIELD AUTO TERMINAL, in partnership with Toyota Motor Sales USA, opened in 1988. Fairfield has a 50-acre facility that features a 832-foot long pier. Three modern buildings house a car wash, body shop and accessory shop for installing options such as radios in cars.



RUKERT TERMINALS CORPORATION is a privately owned company which specializes in handling dry bulk cargo such as minerals and fertilizers and breakbulk cargo such as forest products. Services include warehousing and transferring cargo to and from ships, rail or trucks.



CSX INTERMODAL CONTAINER TRANSFER FACILITY (ICTF) moves cargo between a ship's hold and rail cars in record time. The facility can put cargo on a train to almost anywhere. With six trains daily, ICTF offers direct service to the Southeast and Midwest and connections to the rest of the continental United States and Canada.

WHERE SHOULD THE TRUCKS GO?

Name _____

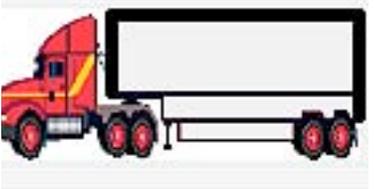
Date _____



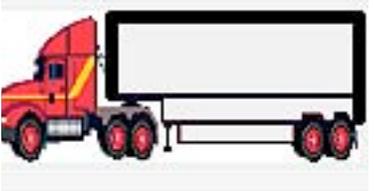
LEHIGH PORTLAND CEMENT is a storage terminal for concrete before it is distributed to places in the region. When cement, a dry powder is combined with water, sand and gravel, it forms concrete, the world's most versatile and widely used building material.



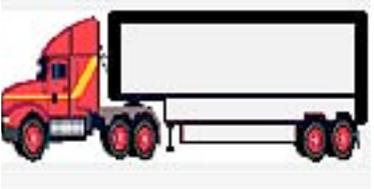
U.S. COAST GUARD YARD has built, repaired and renovated ships for the U. S. Coast Guard for 100 years. It is the Guard's only shipbuilding and major repair facility. This facility, owned by the federal government, is located approximately six miles southeast of downtown Baltimore.



DOMINO SUGAR COMPANY has been processing sugar for more than 100 years. Bulk cargo ships from around the world bring raw sugar to the processing plant. A crane dips a clamshell bucket into the ship's hold and brings up eight tons in one scoop. Each bucketful gets dumped onto a conveyor that runs to a storage building as long as a football field, where a brown sugar mountain 30 feet tall slowly rises. It takes days to unload all the raw sugar from one ship.



CONSOLIDATION COAL SALES owns and operates a facility that exports coal. Dumpers dump coal on a conveyor belt at a rate of 5,000 tons per hour. The pier is 1,253 feet long and the system can load vessels at a rate of 7,000 tons per hour. Storage is available for up to 1.2 million tons of coal. This facility operates 24 hours per day, seven days per week.



BALTIMORE ASPHALT REFINERY DOCK (CHEVRON USA) produces asphalt for paving streets. Asphalt is made from petroleum. This facility includes several tank farms, each housing two to four storage tanks, each holding 286,000 gallons.

WHERE SHOULD THE TRUCKS GO?

Name _____

Date _____



AMPORTS is one of the largest portside vehicle processing businesses in the United States. Amports has six port facilities nationwide with three in Baltimore. Baltimore handles Kentucky-built Toyota exports to the Middle East and Germany. In 2003, Mercedes-Benz signed a contract to bring thousands of its vehicles through the Port.

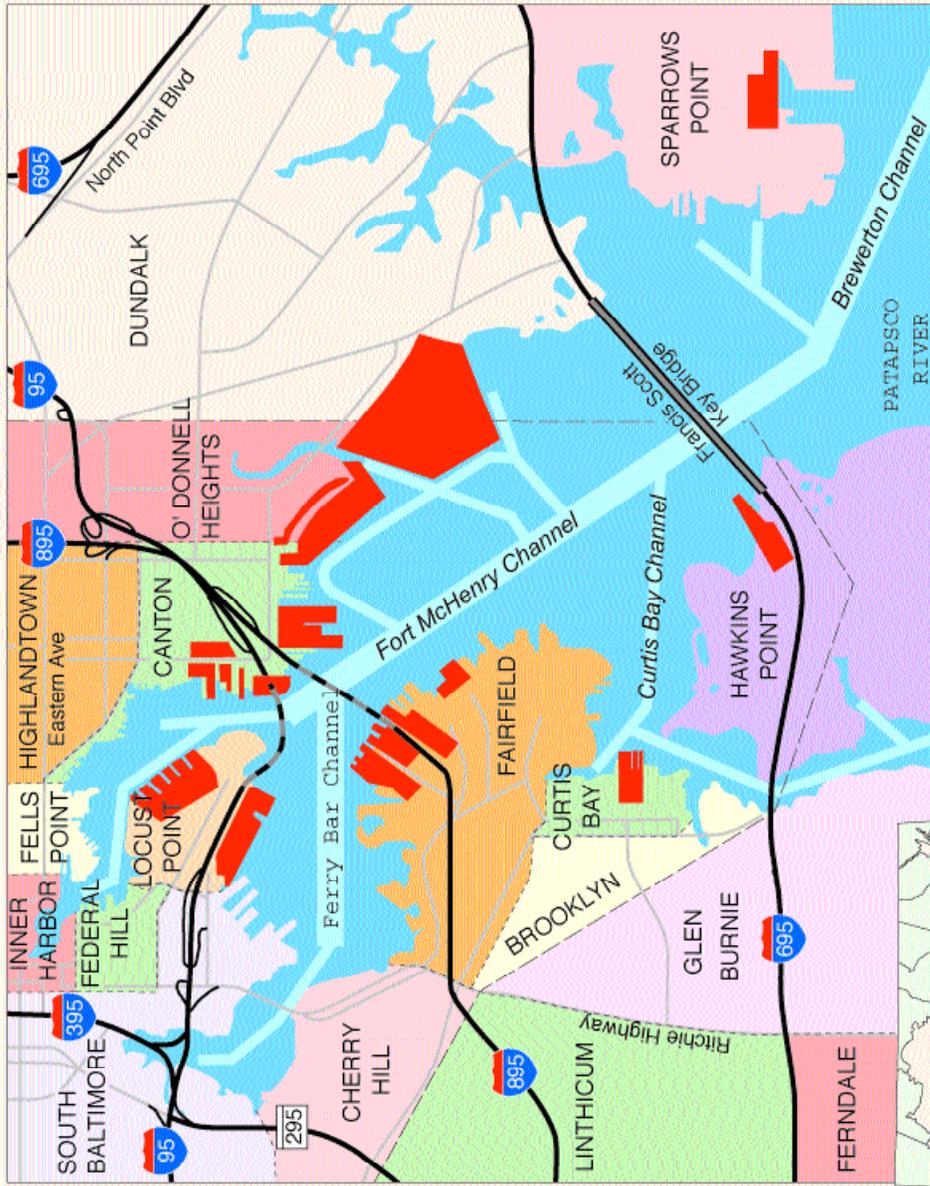


MITTAL STEEL purchased Bethlehem steel in 2005. Bethlehem Steel began as the Pennsylvania Steel Company on Sparrows Point in the 1887. At first it converted iron ore into pig iron. In 1891 the plant began to produce steel. When Bethlehem Steel bought Pennsylvania Steel in 1916 it produced 672,000 tons of steel a year. Mittal Steel sold the facility in 2007. The new company will be called Maryland Sparrows Point Inc. The facility is still the largest tidewater steel plant in the United States. It produces sheets of steel.



CSX Corporation, based in Jacksonville, Fla., provides rail, intermodal and rail-to-truck services. They connect more than 70 river, ocean and lake ports. CSX operates the largest rail-road network in the eastern United States. The CSXT piers (owned by CSX) in the Port of Baltimore are used to move ore and coal.

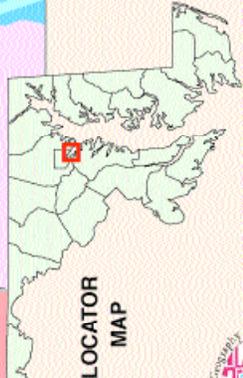
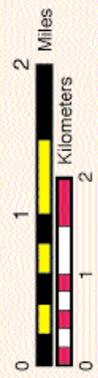
THE PORT OF BALTIMORE



LEGEND

- DUNDALK Neighborhood
- Neighborhood Boundary
- City/County Boundary
- Tunnel
- Harbor Channel
- Minor Road
- State Highway
- Interstate Highway
- Terminal

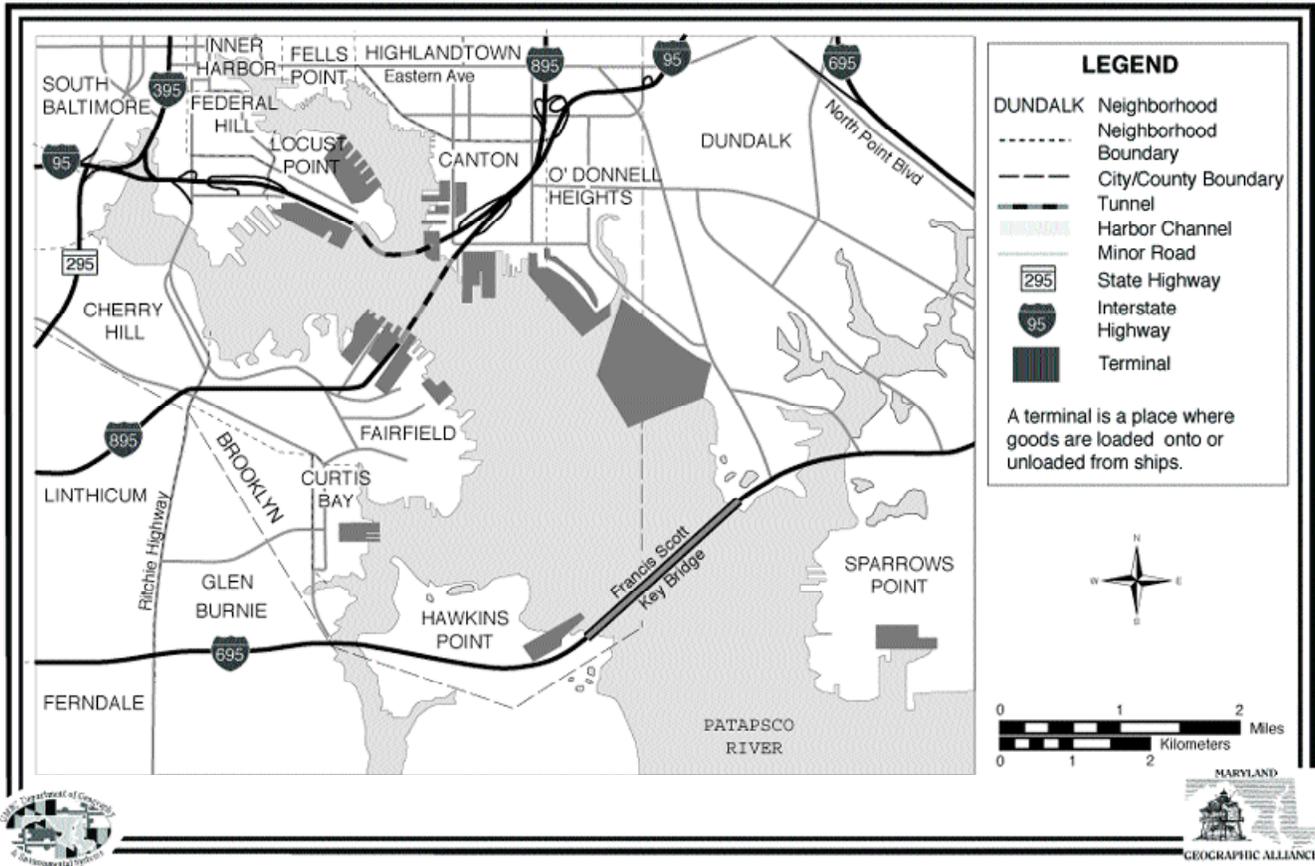
A terminal is a place where goods are loaded on or unloaded from ships.



Source: Maryland Port Administration



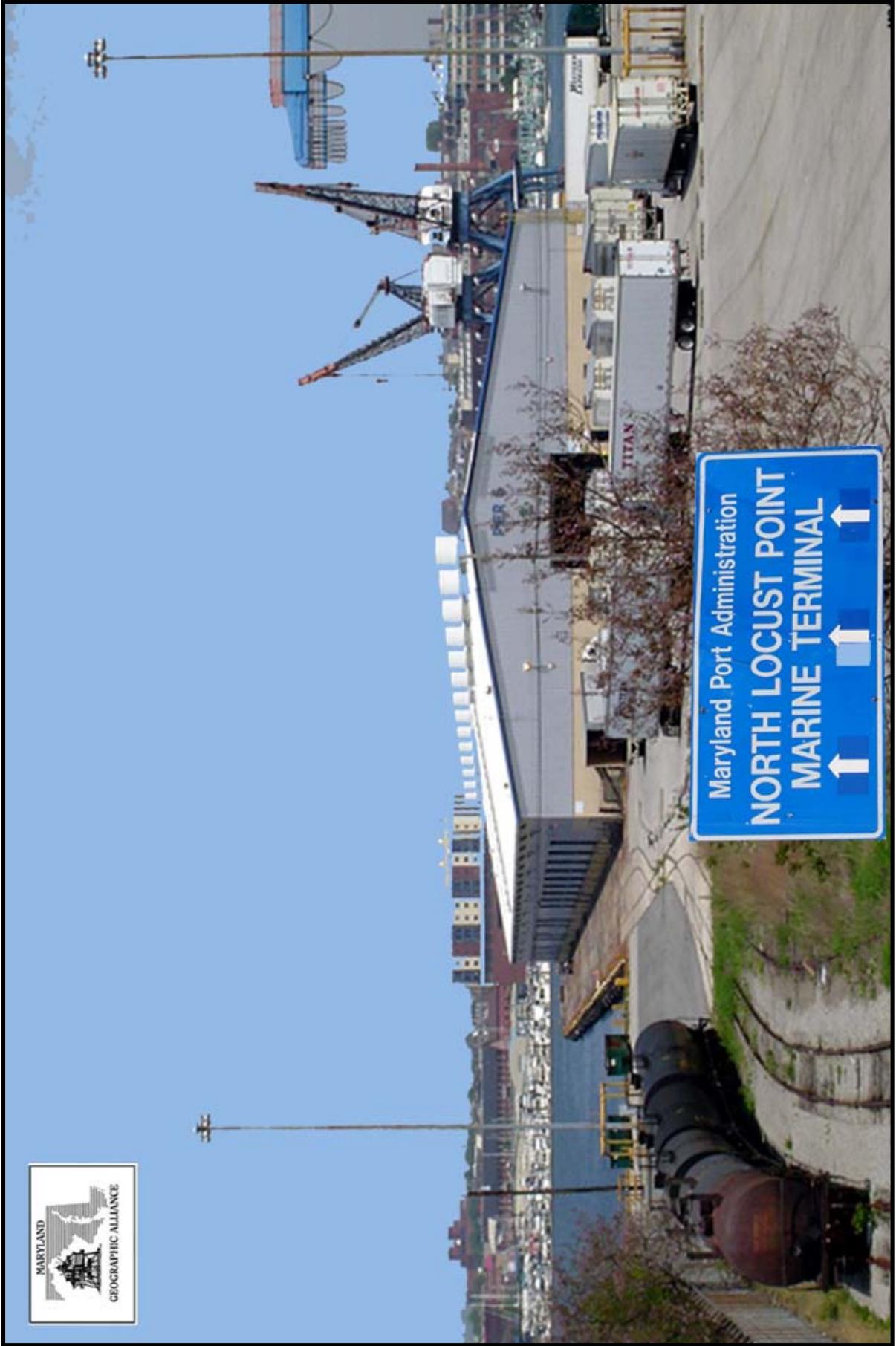
THE PORT OF BALTIMORE

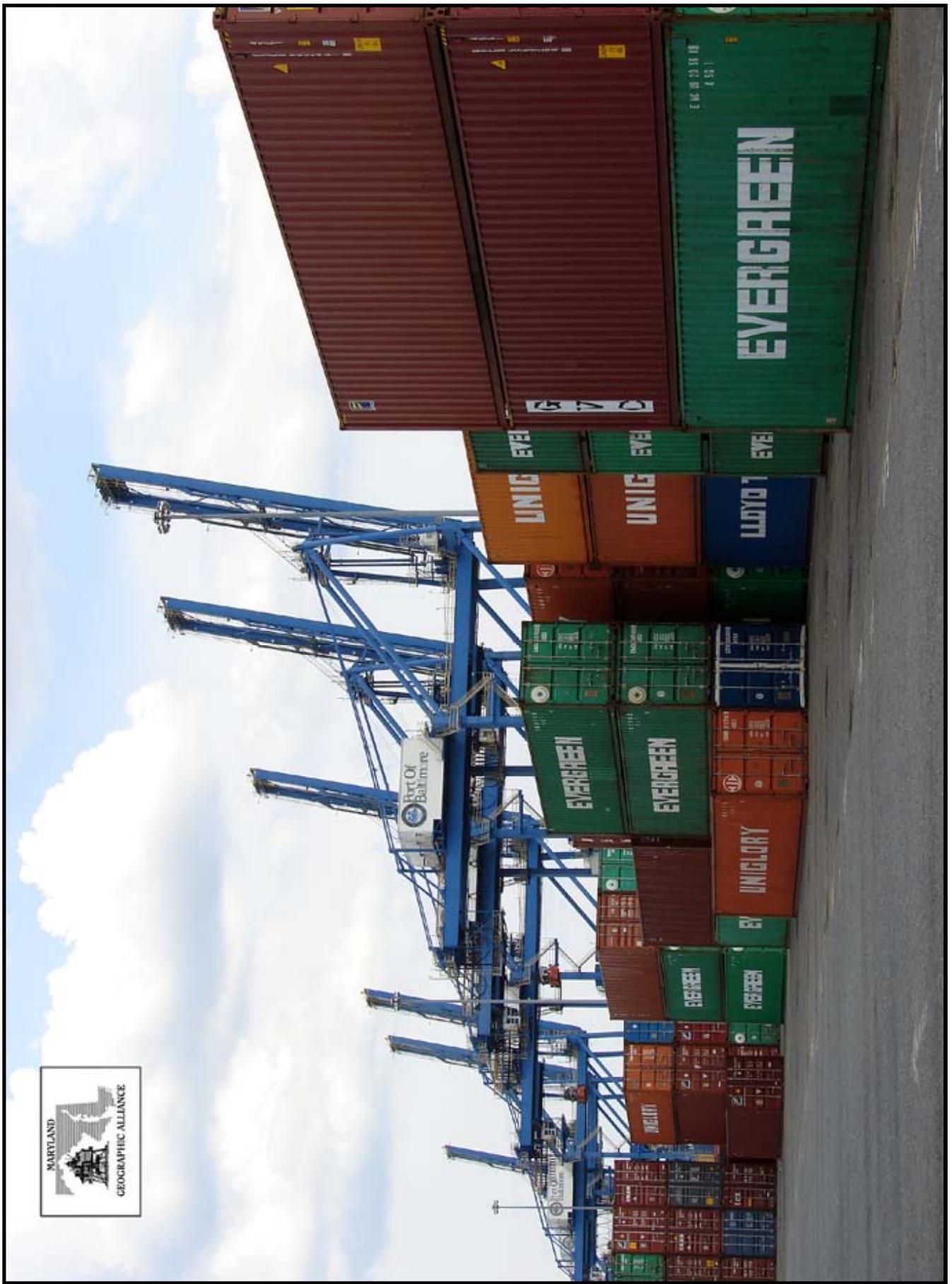


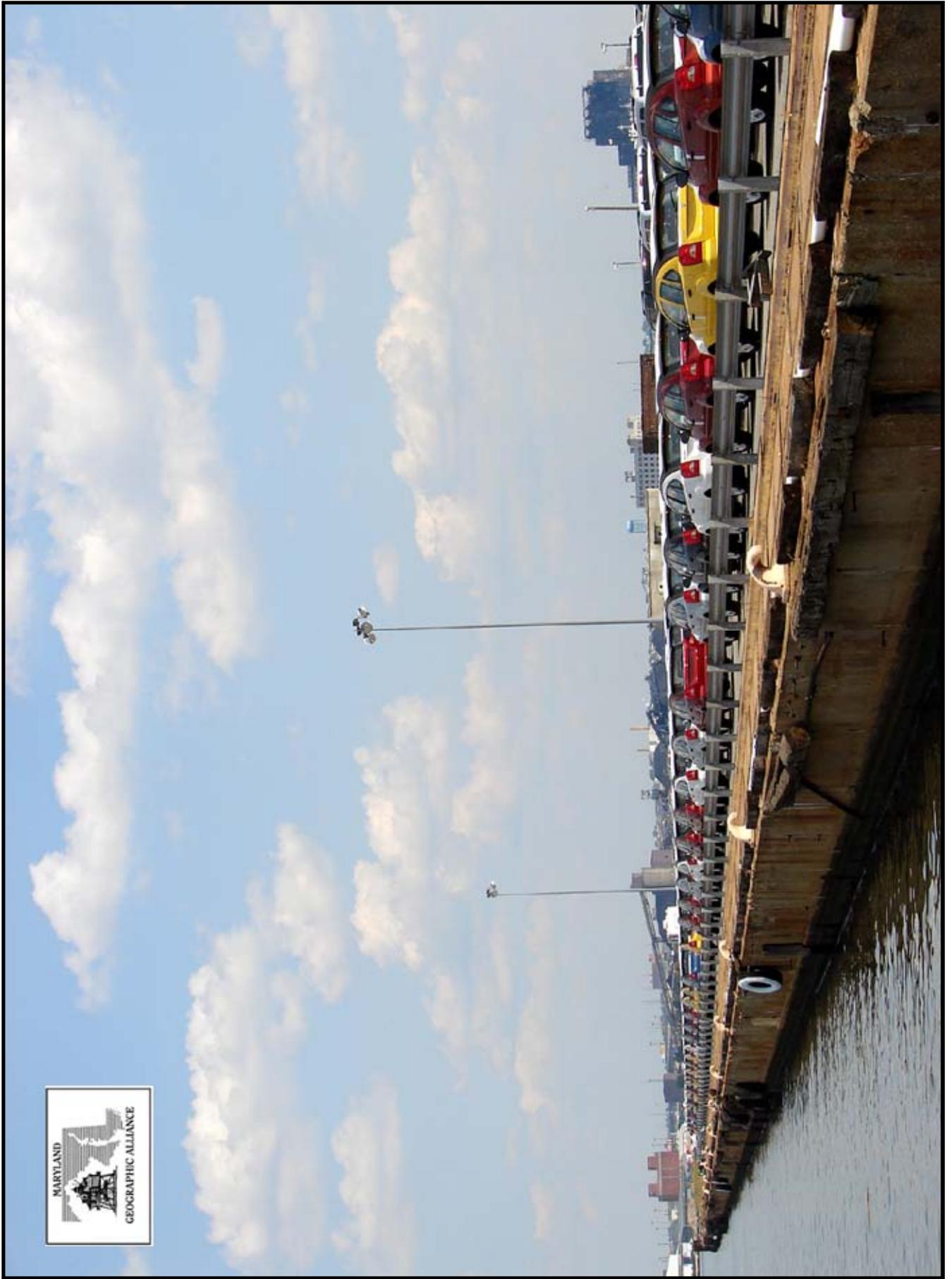
Use what you know and what you have learned and the Port of Baltimore Map to answer the questions below.

1. Which interstate highway is closest to Sparrows Point? _____
2. Which interstate highway goes through Fairfield Terminal? _____
3. How many tunnels are shown on the map? _____
4. Name the river on which Baltimore City is located. _____
5. Name the human-made feature that connects Hawkins Point and Sparrows Point.

6. Why do you think the terminals in the Port of Baltimore are located on or near major highways?





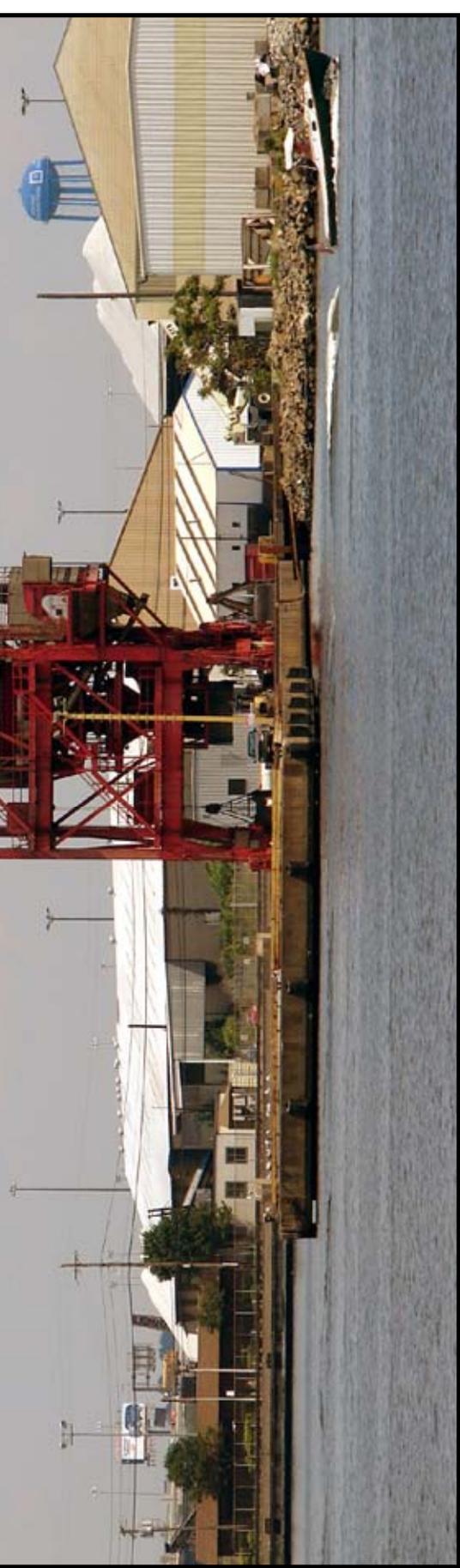




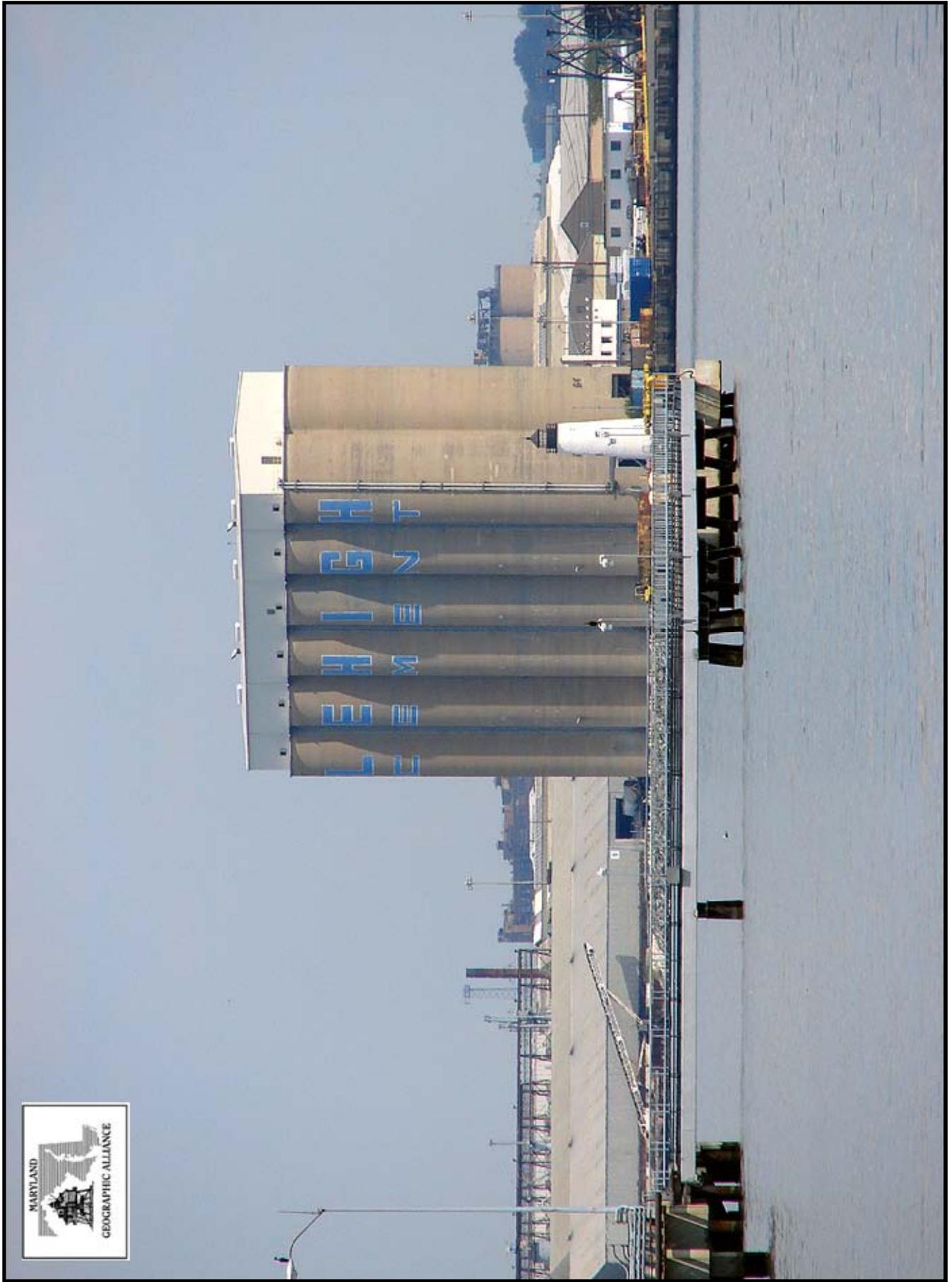
**RUKERT
TERMINALS
CORPORATION**
**AGRI-WAREHOUSE**

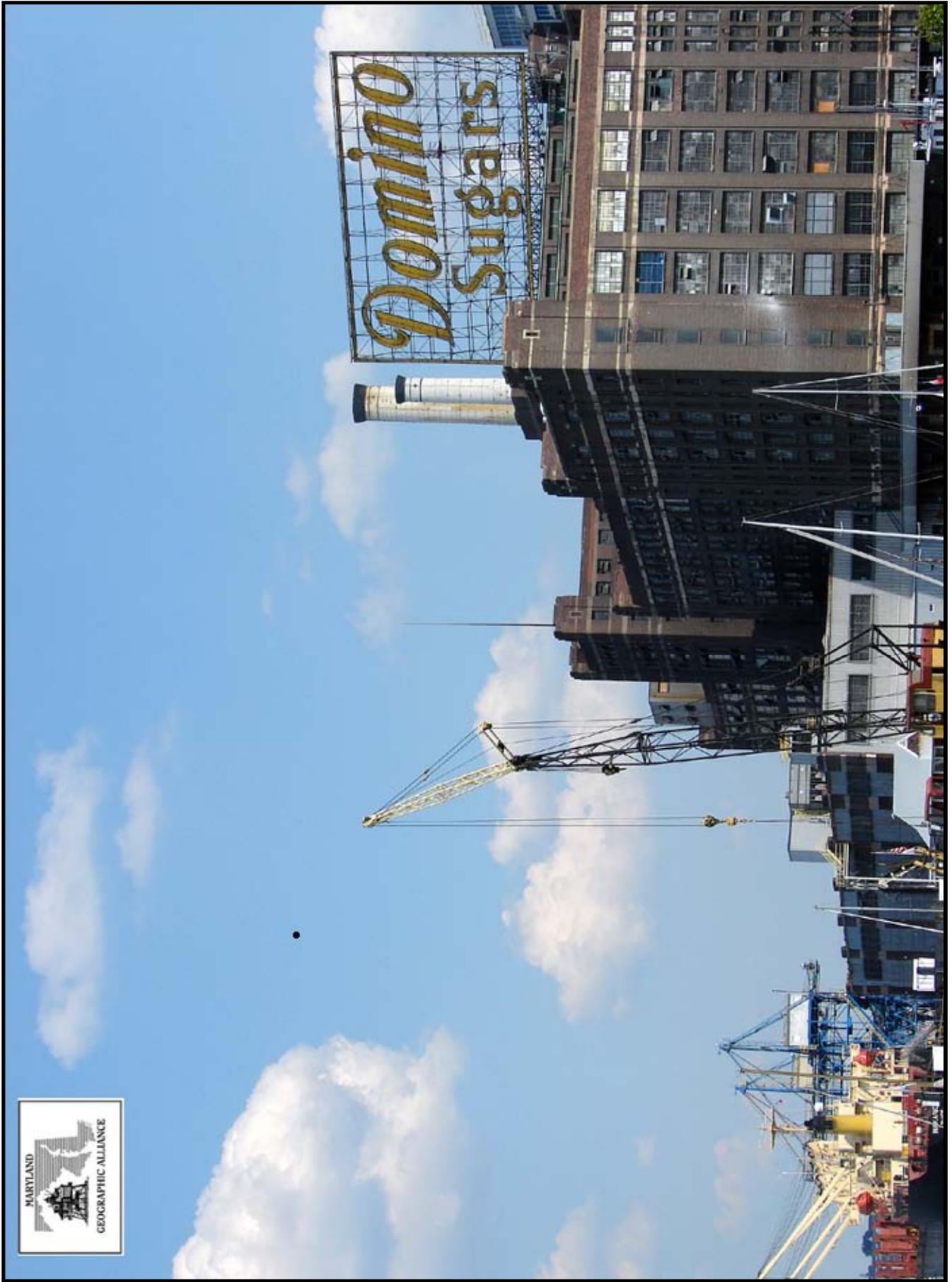


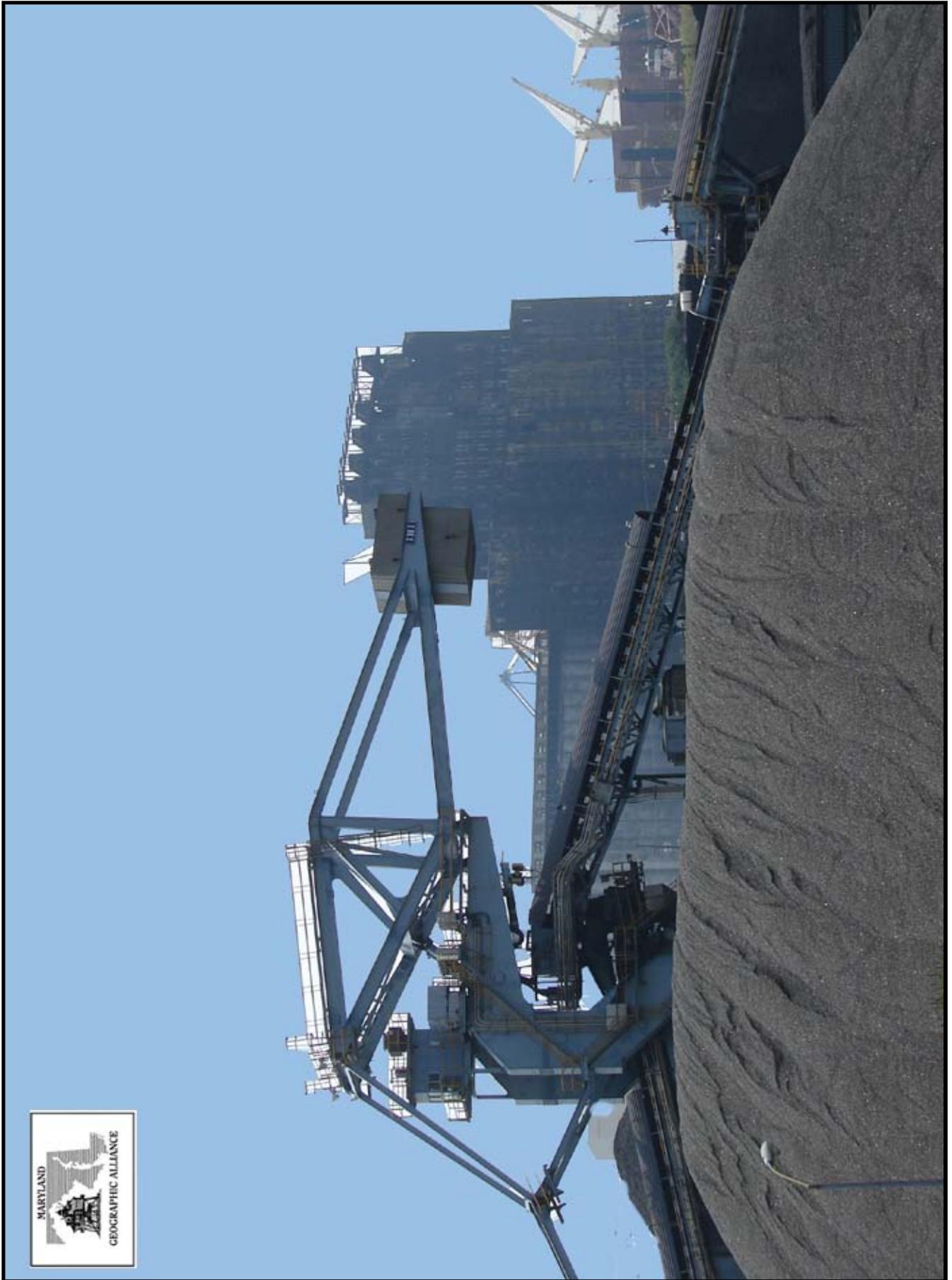
**RUKERT
TERMINALS
CORPORATION**
**GATE, 16
SCALE, #3
#4
#5**











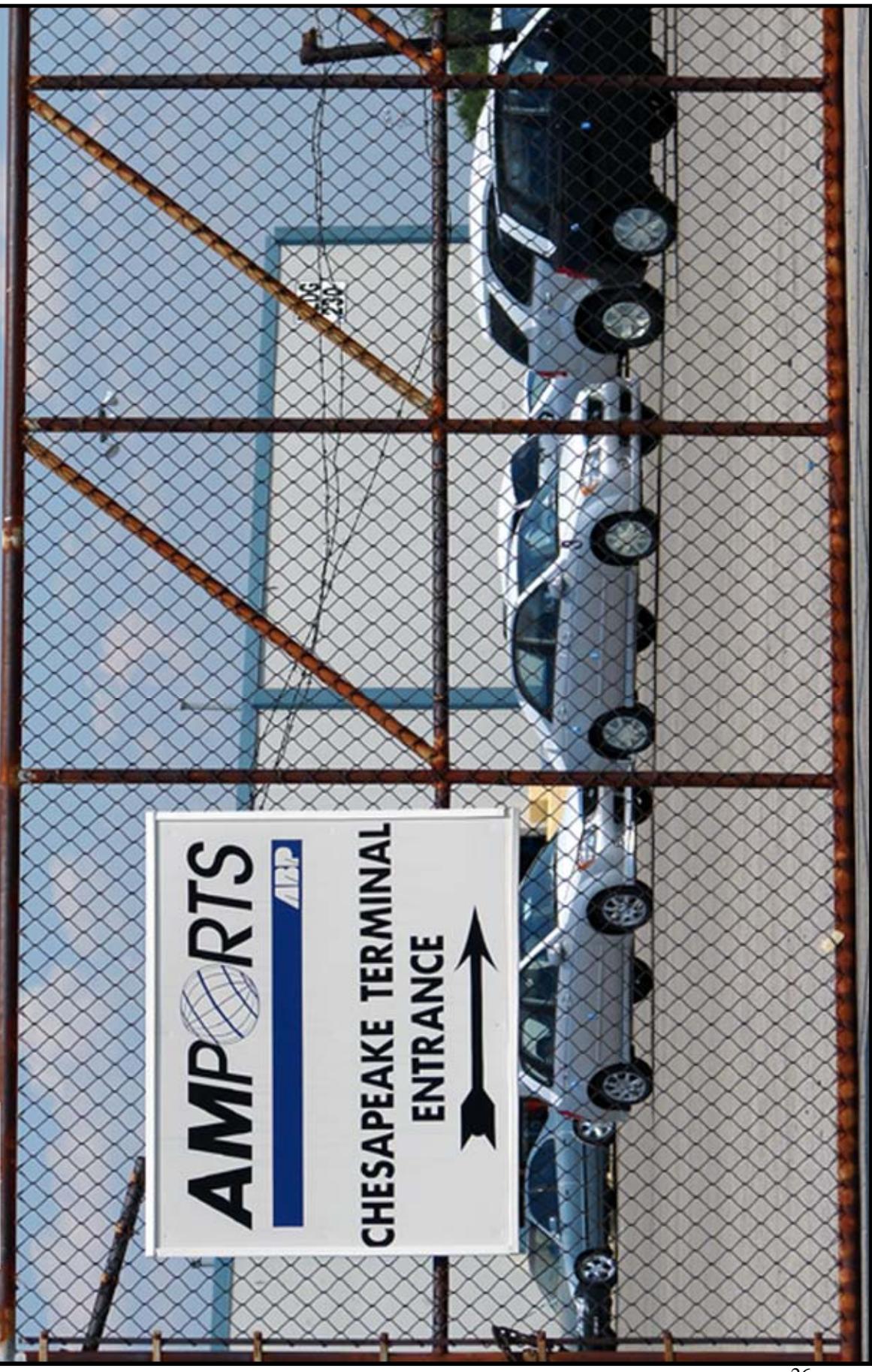






AMP  **ORTS**

CHESAPEAKE TERMINAL
ENTRANCE 





Courtesy of U.S. Coast Guard Yard



