

San Francisco Bay Conservation and Development Commission

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TO: Commissioners and Alternates

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SUBJECT: 2016 Bay Area Maritime Cargo Monitoring Report
(For Commission information only)

Staff Summary

“San Francisco Bay is one of the world’s great natural harbors, and maritime commerce is of primary importance to the entire economy of the Bay Area.”¹ The Bay Area total maritime cargo shipping volume remained relatively steady between 2015-2016, declining one percent. The 2016 cargo total fell 27 percent short of the *San Francisco Bay Area Seaport Plan* (Seaport Plan) forecast. A breakdown of ocean-going cargo passing through Bay Area ports during 2016 reveals that container cargo volume, the primary shipping mode, increased four percent (589,504 metric tons) from 2015. In the same period, non-container, or bulk cargo, moved as follows:

- Neo-bulk cargo, comprising primarily automobile imports, increased 55,253 metric tons, or 13 percent.
- Dry bulk cargo—comprised of construction material imports and exports of scrap metal—decreased approximately 17 percent, or an estimated 935,000 metric tons.²
- Non-petroleum liquid bulk cargo increased by an estimated 13 percent to 410,000 metric tons in 2016.³
- There was no break bulk cargo reported.

¹ San Francisco Bay Plan

² Not all dry bulk cargoes were reported for 2016, therefore an estimate partially based on 2015 data was used.

³ Not all liquid bulk cargoes were reported for 2016, therefore an estimate partially based on 2015 data was used.

The Seaport Plan also includes projected 2020 throughput, or cargo-handling capability, for each major cargo type at the Bay Area ports. In 2016, container⁴ cargo used 46 percent of the designated 2020 throughput capacity for this cargo type, while dry bulk⁵ used approximately 45 percent of the capacity designated for those commodities. Non-petroleum liquid bulk⁶ cargo utilized an estimated 40 percent of the available capacity, followed by neo-bulk⁷, which used 20 percent of terminal capacity. Break bulk cargo, as defined in the Seaport Plan,⁸ utilized none of the regional port capacity. At current levels, the Bay Area retains considerable unused cargo handling capacity as designated in the Seaport Plan.

Staff Report

Background. The Seaport Plan provides for annual monitoring of waterborne cargo and marine terminal use to aid in assessing requests for deletion of a shipping terminal or port priority use area from the plan, or for conversions of terminals from bulk to container use. The staff has monitored the regional maritime cargo flow since 1994 by retrieving data from the five Bay Area ports: Benicia, Oakland, Redwood City, Richmond and San Francisco. This report describes cargo activity in 2016, and its correlation with the Seaport Plan waterborne cargo forecast.

Cargo Trends. The total amount of waterborne cargo handled by the five Bay Area ports declined 153,260 metric tons, or one percent, in 2016. Since 1994, maritime cargo tonnage has experienced a net growth of 64 percent. Container volume increased 59 percent over the same period. Of the non-container or bulk cargoes, dry bulk has had the greatest increase, growing 110 percent since 1996 (dry bulk records are not complete for 1994-95). Non-petroleum liquid bulk experienced an eight percent net decrease over the past 20 years. Neo-bulk has declined 57 percent since monitoring began; in the same period, break bulk has essentially ceased to be handled at Bay Area ports.

The figures below illustrate the cargo trends for the Bay Area compared with projected cargo volumes. As shown, there are distinct variations among the individual cargo categories in terms of how closely tonnage levels track the projected activity.

⁴ General cargo packed and transited in standard size boxes 20 to 40-plus feet in length from origin to destination.

⁵ Dry bulk cargo is loaded or unloaded via conveyor belts, spouts or scoops, such as sand, gravel and various ores. Sand dredged from the Bay is not included with Seaport Plan dry bulk data.

⁶ Liquid bulk cargoes are shipped in tanks rather than small individual units. The Seaport Plan does not include marine oil terminals; however, petroleum cargo activity is discussed in its own section at the end of this report.

⁷ Neo-bulk cargoes in the Bay Area generally are automobiles, steel products and newsprint.

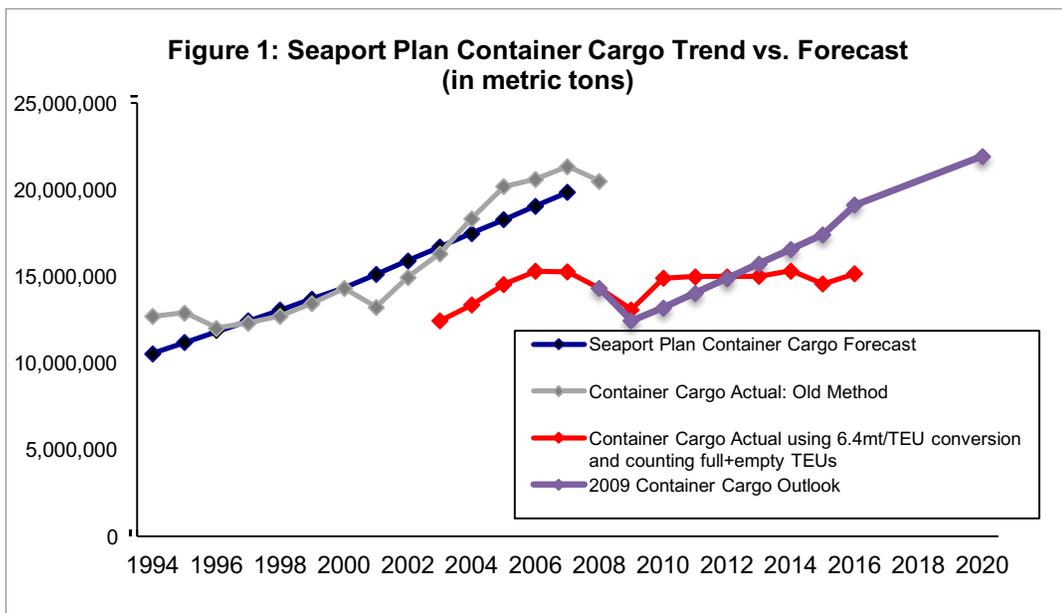
⁸ Break bulk is cargo handled in individually package units.

Cargo Forecast Status. The staff believes the Seaport Plan container and bulk cargo forecasts should be revised in the near future for review and adoption by the Commission. The forecasts were first prepared in 1988 and sunset in 2020. The Commission will likely consider future proposals to delete port priority use areas from the plan and will need accurate demand projections and capacity assessments to support its decisions. Also important to the Commission’s decision-making related to appropriate land use designations will be the examination of advances in cargo handling technologies to meet future cargo volumes. Additionally, the potential effects of rising sea level on port operations including landside facilities will need to be addressed in the Seaport Plan update.

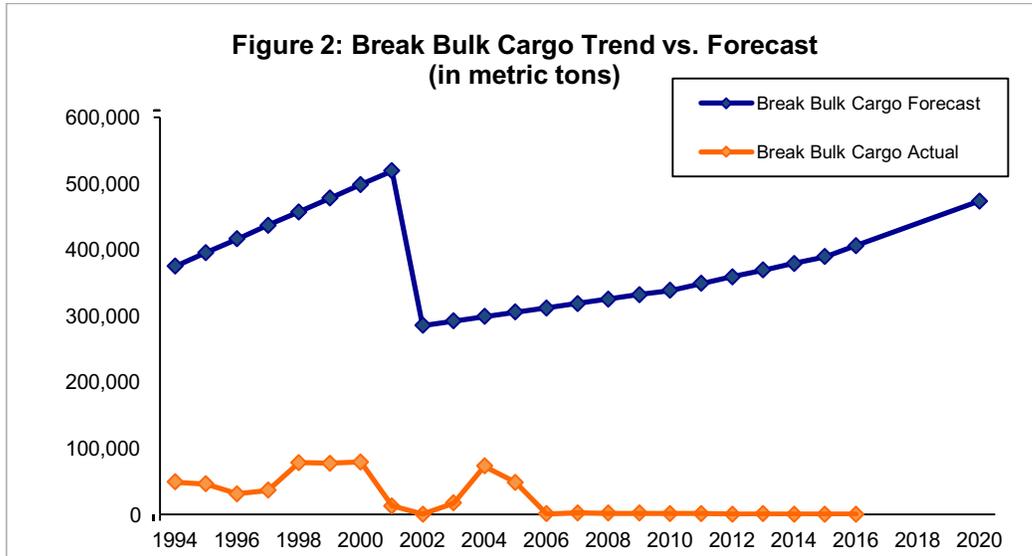
Container Cargo. Seaport Plan projections for all cargo types are calculated in metric tons. For purposes of consistency with industry practice, container cargo is also tracked in TEU, or twenty-foot equivalent units. TEU provides a proportional measure of containers, e.g., a 40-foot container is equal to two TEU, and empty TEU are also counted to more accurately assess land area available in the Bay Area to process containers. Storage and movement of empty containers comprise an important segment of port operations as they occupy a significant land area at terminals. The number of TEU handled in the Bay Area annually has increased nearly 60 percent since 1994, to 2,369,931 TEU in 2016, or approximately 15,165,000 metric tons.

Figure 1 includes an informal updated projection for container cargo prepared in 2009 following the global economic downturn (“Container Cargo Outlook”). This projection adjusted the regional container cargo estimates downward from the 1988 forecast. Actual container cargo handled in 2016, showing a gain over 2015 of 92,110 TEU (approximately 589,504 metric tons), is 26 percent below the updated projection. Volume in 2017 through July is up 2.5 percent through the same month one year ago.

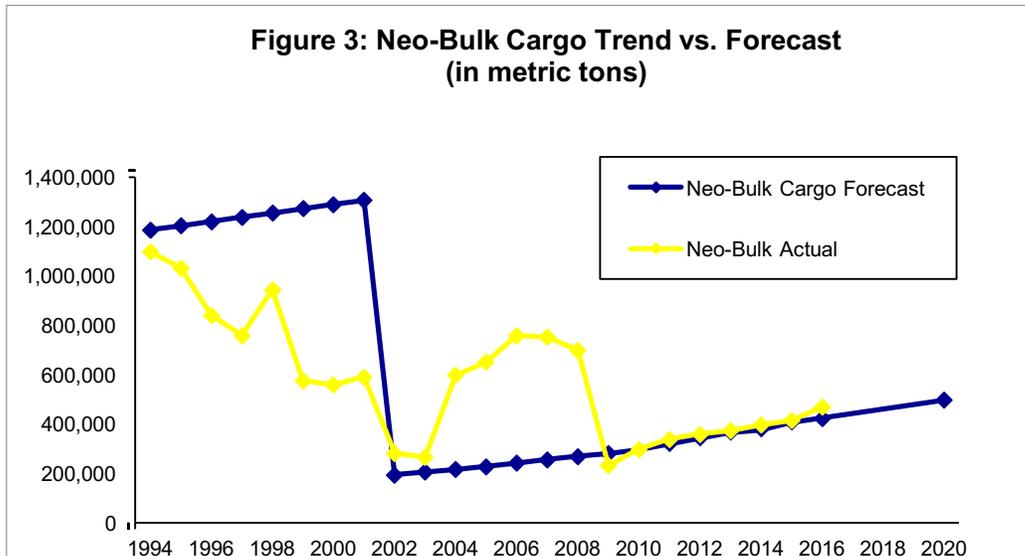
Based on the adopted methodology used in the Seaport Plan, container cargo used 67 percent of its 2020 designated terminal capacity.



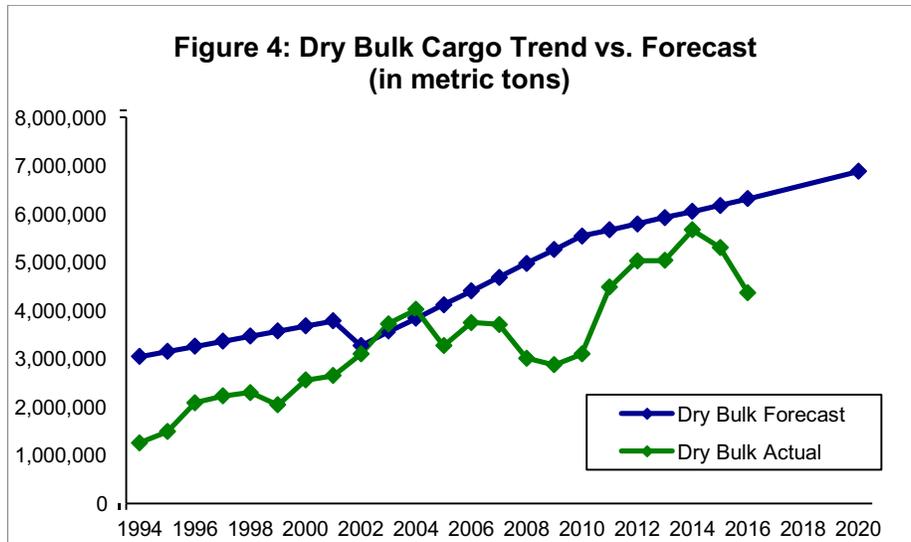
Break Bulk Cargo. Commodities formerly transported as break bulk now ship almost exclusively in containers, therefore break bulk cargo has virtually vanished from the Bay Area, with no tonnage again reported in 2016 (Figure 2). The region’s ports previously handled lumber and newsprint, and these commodities, with automobiles and steel that are still handled in the Bay Area, are tracked as neo-bulk cargo in the Seaport Plan (See Figure 3).



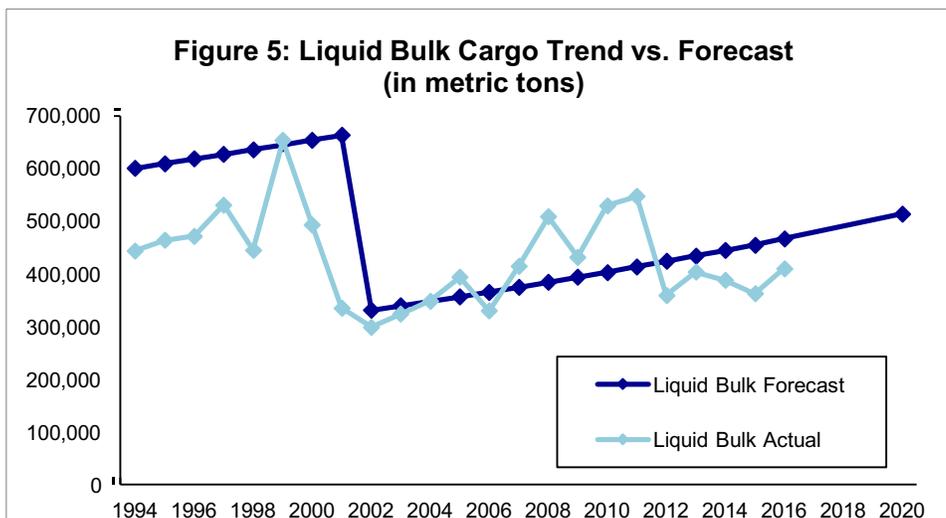
Neo-Bulk Cargo. Figure 3 shows that regional activity has risen steadily from 2009, to 469,522 metric tons in 2016, surpassing by more than 10 percent the forecast for this cargo type (primarily automobile imports in the Bay Area). Overall, neo-bulk cargo levels have dropped 57 percent since 1994.



Dry Bulk Cargo. After experiencing steady growth over the previous seven years, the amount of ocean-going dry bulk cargo handled by the Bay Area ports declined from 5,304,414 metric tons in 2015 to approximately 4,369,200, or 17 percent (Figure 4) in 2016. Overall, this cargo type has more than doubled since tracking was initiated; however, 2016 cargo tonnage is estimated to be 30 percent lower than the corresponding forecast.⁹ Bay Area dry bulk cargo is largely split between import of construction materials and scrap metal exports.



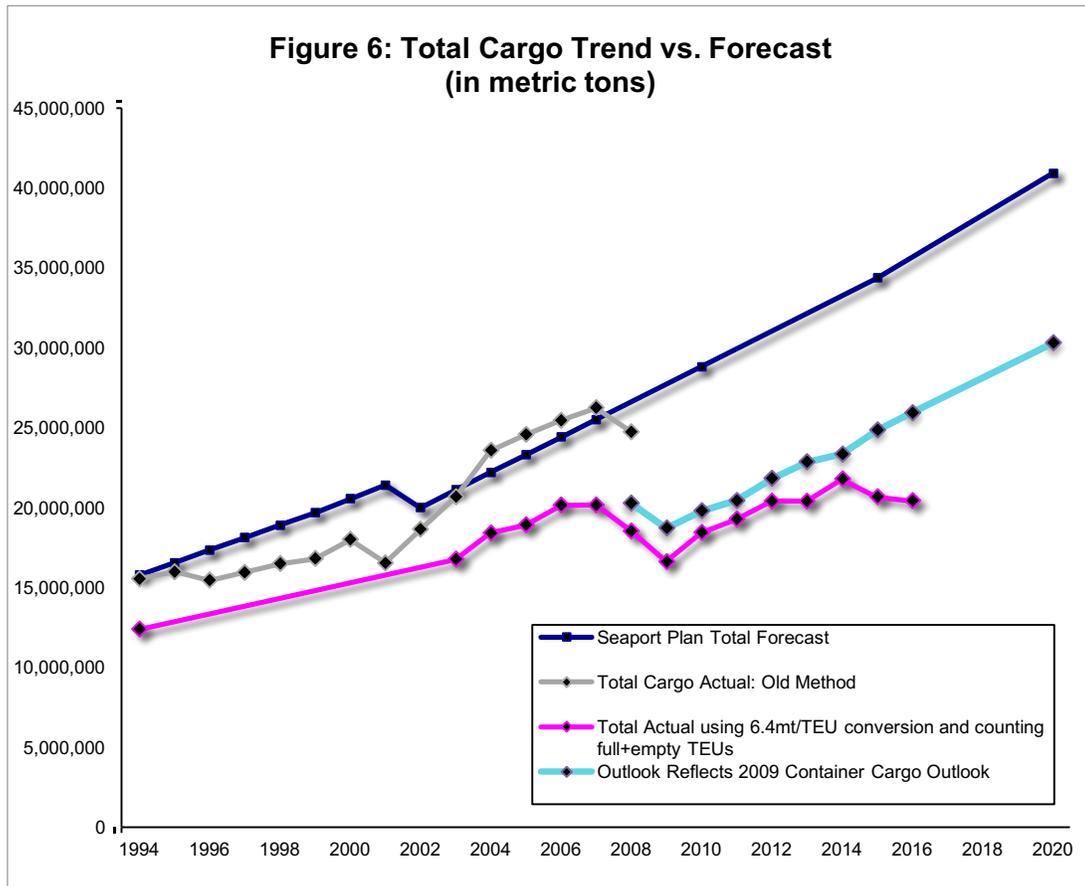
Liquid Bulk Cargo. The volume of non-petroleum liquid bulk cargo increased nearly 13 percent from 362,609 metric tons in 2015 to an estimated 410,000 metric tons in 2016, although remaining below projected levels by 13 percent.¹⁰ This decline has resulted partly from a shift in demand for tallow from overseas to domestic markets and Mexico, which are served by rail.



⁹ Not all dry bulk cargoes were reported for 2016, therefore an estimate partially based on 2015 data was used.

¹⁰ Not all liquid bulk cargoes were reported for 2016, therefore an estimate partially based on 2015 data was used.

Bay Area Total Cargo. The graph below illustrates that total cargo (container plus bulk cargoes) at the Bay Area ports declined in 2016, falling 27 percent, or 5,527,000 metric tons, below revised projection levels based on the new container cargo methodology that counts empty TEU and applies 6.4 metric tons per TEU (Figure 6.)



Capacity. The Seaport Plan contains projected 2020 cargo handling capacity, or throughput capability, for each major cargo type. These projections show that the Bay Area ports can absorb considerable increases in waterborne cargo at terminals designated in the Seaport Plan based on current activity (see Table 1). Container cargo is the largest category by volume, and 2016 container cargo activity utilized 46 percent of the projected 2020 Bay Area throughput capability for this cargo type. Based on projected rates of cargo growth and available capacity, the region would not exceed the projected Seaport Plan container cargo capacity until 2019 under the adopted Seaport Plan forecast, or 2030 using the 2009 container cargo outlook.

The second largest category by volume in 2016 was dry bulk, which used 45 percent of the 2020 dry bulk capacity. Non-petroleum liquid bulk used 40 percent of the regional capacity for the category. Neo-bulk cargo in 2016 used 20 percent of the projected 2020 neo-bulk throughput capability. No capacity was used for break bulk handling.

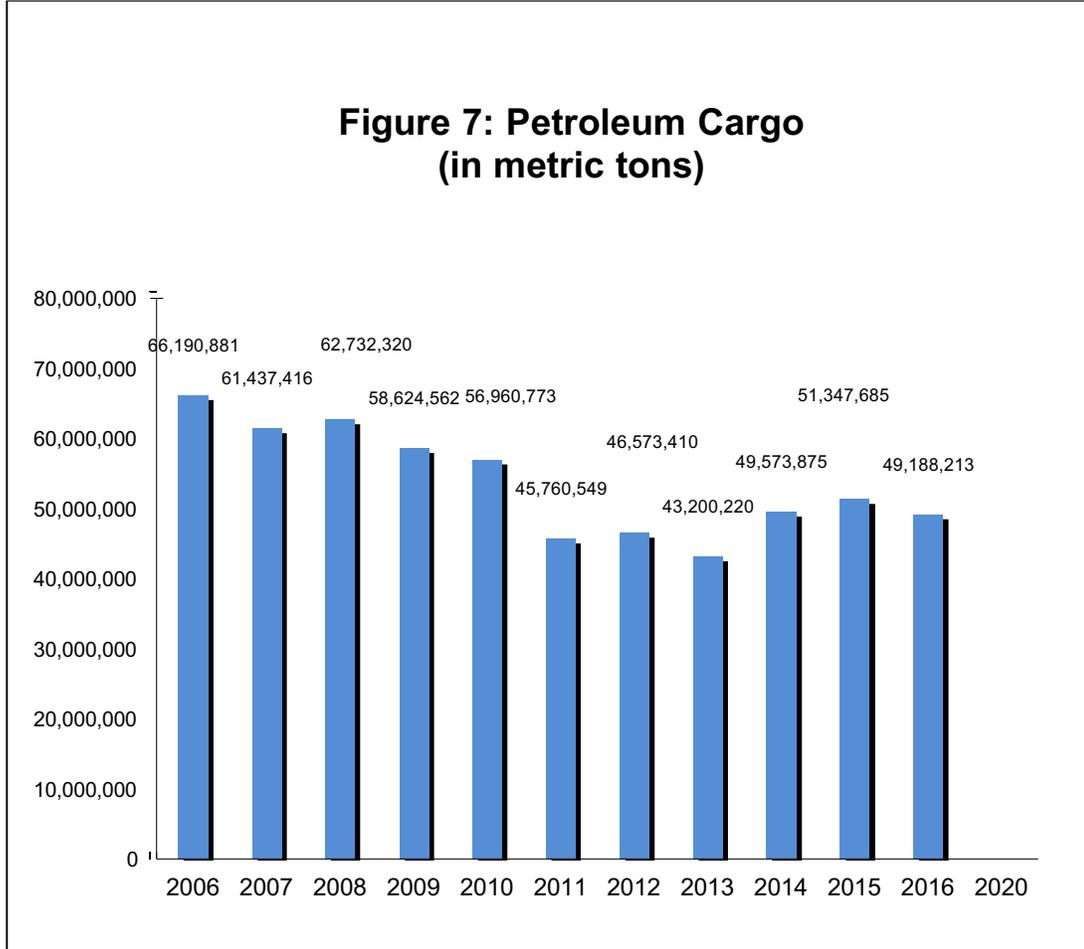
Table 1: Bay Area Cargo Capacity

	2016 Actual Cargo (metric tons)	Revised 2020 Baseline Forecast (Seaport Plan, metric tons)	2020 Terminal Capacity (Seaport Plan, metric tons)	2016 Actual Cargo as % of 2020 Terminal Capacity
Container (a)	15,165,638	21,932,800	32,857,600	46%
Break Bulk	0	448,198	613,200	0
Neo-Bulk	469,522	497,035	2,367,800	20%
Dry Bulk	4,369,000	6,881,390	9,807,200	45%
Liquid bulk	410,000	514,494	1,000,000	40%
Total	20,414,483	30,273,917	45,612,850	45%

(a) Container cargo data reflect 2009 assessment of the San Francisco Bay Area Containerized Cargo Outlook by the Tioga Group, Inc.

Petroleum. Although the Seaport Plan does not address land use needs of Bay Area refineries (these are addressed in the *San Francisco Bay Plan* water-related industry findings and policies), and therefore, does not include a forecast for petroleum cargo, the volume of petroleum transported by ship to Bay Area refineries is significant and was added to the annual cargo monitoring report beginning in 2002 to provide a more complete picture of maritime cargo flow in San Francisco Bay.

After experiencing a 3.6 percent increase in 2015, total petroleum products fell slightly more than four percent to 49,188,213 metric tons in 2016, slightly below the volume in 2014 (see Figure 7). Even with this decrease, the volume of petroleum cargo shipped continues to be greater than twice the total general cargo tonnage discussed above.



Conclusions. Total actual cargo fell approximately 27 percent short of the total cargo forecast in 2016. Container cargo fell below the projected 2016 volume by 17 percent. Bay Area auto imports continued to rise, causing neo-bulk cargo to surpass the forecast for this cargo type by 11 percent. Dry bulk declined to 30 percent below projections.

Comparisons of 2016 cargo tonnage with the projected 2020 throughput capability of Bay Area ports show that for all cargo types the ports can continue to absorb significant increases in waterborne cargo. Using the adopted Seaport Plan methodology, container cargo used two-thirds of the 2020 regional terminal capacity; under the new method discussed on page 3, that proportion shrinks to 46 percent of designated regional capacity, as shown in Table 1 above.¹¹

Dry bulk used 45 percent of the regional throughput capability for this cargo type, followed by non-petroleum liquid bulk cargo at 40 percent of the regional capacity and neo-bulk at 20 percent utilization. Break bulk cargo used none of the designated capacity in 2014.

¹¹ Until such time a thorough Seaport Plan revision is undertaken for the Commission to review and adopt a revised container forecast, staff will report container and total volumes using both methodologies.