PORT OF SAN FRANCISCO
MARITIME CARGO AND WAREHOUSE
MARKET ANALYSIS

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FINAL REPORT

Prepared for:
Port of San Francisco

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EXECUTIVE SUMMARY

The Port of San Francisco retained CBRE Consulting, Inc. and Martin Associates to update a 2001 market assessment entitled “Maritime Cargo and Industrial Land Use Study.”

Since 2001, the Port of San Francisco’s primary and most stable cargo business has been in imported bulk aggregates. The Port’s 2001 strategic decision to pursue import bulk aggregates and concrete batch operations has proven to be a great success.

Since 2002, Port tenants Hanson Aggregates and CEMEX/RMC (who began operations in 2006) have averaged over 900,000 metric tons annually, surpassing 1 million tons in 2005 and 2007. In 2007, bulk cargoes accounted for 88 percent of the Port’s total tonnage. Port revenues from these operations have totaled $2.6 million.

In 2005, the Port changed its general cargo focus away from containerized cargo (due to carrier consolidations and logistical advantages at the Port of Oakland, which dominates container tonnage in the Northern California region) to breakbulk. Breakbulk general cargo tonnage handled at Pier 80 increased from 70,000 metric tons in 2002 to 252,000 metric tons in 2006. This growth has been attributed to the steel imports which have accounted for over eighty percent of the general cargo tonnage annually since 2004. Macroeconomic conditions such as the value of the dollar and the current economic recession have resulted in a decrease in general cargo tonnage since 2006.

In terms of existing and historical markets handled at the Port, key obstacles to cargo growth include the Port’s “isolated” geographic location away from East Bay markets. The majority of retail and wholesale distribution centers are located in the East Bay. Steel service centers and distribution facilities are concentrated in Stockton. While the competitive cost analysis suggests that the Port of San Francisco can compete for East Bay-destined cargoes such as steel, productivity and transportation links remain serious issues that will need to be continually improved. The Port has recently engaged both the International Longshore Warehouse Union (ILWU) and the Pacific Maritime Association (PMA) in efforts to increase training to a relatively inexperienced workforce handling breakbulk commodities. Competitive production levels and damage-free discharge with competing ports (primarily the Port of Stockton) are paramount. The East Bay (especially Oakland and Richmond) will likely continue to dominate the market for warehouse space in the region, with average rental rates for warehouse space less than half those in San Francisco and San Mateo counties.

With respect to new market opportunities, autos, fruit and windmill components appear to provide the greatest potential. While there are regional market conditions that indicate that the Port could attract these commodities, there are logistics and operational issues with each of these that need to be addressed, most notably the rail tunnel clearance prohibiting tri-level auto carriers and fumigation restrictions within the City. Additionally, San Francisco’s primary competitors, the Ports of Stockton and Richmond, are aggressively marketing their facilities to these commodities. Stockton is building an on-dock cold storage facility capable of fumigation operations for Chilean fruits. The Port of Richmond is in the process of attracting a Honda import account from the Port of
San Diego. The Port of San Francisco continues to have fumigation restrictions and tunnel clearance issues that currently prohibit competing for these markets.

Recent improvements at the Port of San Francisco include the Illinois Street Bridge Project which provides direct on-dock rail to the terminals. Port staff has also been working to improve productivity at Pier 80. Since the outset of this study the days of operation at Pier 80 have increased to 4 days per week. This has been a critical issue for shippers and consignees.

The Port of San Francisco should focus marketing efforts to ocean carriers, freight forwarders, shippers and consignees, emphasizing the findings of the cost analysis presented in this report showing that the Port of San Francisco can compete with Stockton for discretionary cargo. In addition, there appears to be potential for new cargo opportunities including autos, containerized fruit and wind energy components which the Port will continue to investigate. However, factors such as labor efficiency and infrastructure issues need to be addressed if these opportunities are to come to fruition.
I. INTRODUCTION

CBRE Consulting, Inc. and Martin Associates were retained by the Port of San Francisco to update the market assessment prepared for the Port of San Francisco in 2001 entitled, “Maritime Cargo and Industrial Land Use Study.” The 2001 study identified the development of bulk opportunities, specifically relocation of concrete production and batch plants which have since come to fruition and have been a success for the Port, becoming the Port’s most stable line of cargo business. While the original analysis included a detailed assessment of the Port’s existing infrastructure and recommended improvements, this update focuses on the potential cargo market of the Port and includes the identification and projection of existing markets and potential cargoes. These projections identify potential future demand for the Pier 80 and Piers 94/96 facilities at the Port of San Francisco. The balance of this report contains:

- Cargo market assessment – including:
  - Historic overview of West Coast and Northern California cargo activity;
  - Assessment of existing markets currently handled at the Port; and
  - Current warehouse activity in the Bay Area;
- Forecasts of Port’s existing cargo markets;
- Potential market opportunities for cargoes not currently handled at the Port;
- Competitive position of the Port of San Francisco in relation to other Bay Area ports; and
- Recommended areas of focus for Port of San Francisco marketing efforts.

The analysis includes historical cargo trends of Bay Area and West Coast ports as identified from sources including the Pacific Maritime Association (PMA), US Bureau of Census, Journal of Commerce PIERS statistics, and the Port of San Francisco. In addition, interviews were conducted with numerous members of the shipping community, including members of the Port of San Francisco Maritime Commerce Advisory Committee (MCAC), steamship lines, terminal operators and stevedores, shippers and consignees of Bay Area cargo, Port of San Francisco tenants, trucking operators, rail providers, freight forwarders, and auto processors.

An assessment of San Francisco and Bay Area warehouse market is also included in this update. This analysis focuses on the trends in vacancy and absorption of warehouse space in selected competitive markets in the Bay Area.

The results of this analysis provide the port with an overview of the historical and current market of the Port’s key competitors, potential opportunities, barriers to entry in specific markets, and ultimately target markets and areas of focus for future marketing efforts.
II. ASSESSMENT OF EXISTING MARKETS

The Port of San Francisco’s market assessment includes a review of the historic marine cargo activity at US West Coast ports and the changing role of Northern California/San Francisco Bay Area ports in recent years. While it is not the intent of this analysis to focus on historical data, it is necessary to review the trends in cargo activity and the key ports that participate in each segment of the Bay Area cargo market.

1 HISTORIC MARINE CARGO ACTIVITY AT WEST COAST PORTS

This section presents historical tonnage flows through selected West Coast/Northern California ports. This statistical analysis focuses on the trends in tonnage and market share of Northern California ports since this is the primary competitive environment for the Port of San Francisco. The analysis addresses individual market segments including the container market, general cargo market, lumber and log market, autos and truck market, and the bulk market. The data presented were obtained from the annual reports of the Pacific Maritime Association (PMA).

Exhibit 1 presents the total tonnage handled at four West Coast port regions – Southern California, Northern California, Pacific Northwest Oregon and Pacific Northwest Washington – between 2001 and 2007. During this period, total tonnage handled at West Coast ports increased 6.4% annually. The greatest growth occurred at Pacific Northwest (PNW) in Washington, which increased 7.1% annually over the period. Tonnage at Southern California and Northern California ports both grew by 6.7% annually. PNW Oregon ports exhibited 3.9% annual growth.

Exhibit 1 - Historic Total Tonnage Handled at West Coast Ports, 2001-2007


1 The PMA data represents all revenue tonnage handled by the ILWU at West Coast ports. The data does not include tonnage handled at private terminals by non-ILWU labor.
The share of total tonnage at each West Coast region has remained relatively constant. Currently, Southern California ports maintain a 60.3% share, while the PNW Washington ports’ share is 17.5%. Pacific Northwest Oregon ports’ share is 11.6%, while Northern California ports hold a 10.6% share of West Coast tonnage as shown in Exhibit 2.

Exhibit 2 - Share of Historical West Coast Tonnage by Port Region 2001-2007

![Chart showing the share of West Coast tonnage by region from 2001 to 2007.](chart1.png)

Source: PMA Annual Reports, 2001-2007

The growth in West Coast cargo has been fueled by the growth in containerized activity, primarily Asian imports. The share of West Coast containerized tonnage to total cargo has grown from 67.8% in 2001 to 73.8% in 2007. General cargo generally comprises around 3% of the total, while lumber and logs have consistently declined to 0.4% in 2007. Auto and truck tonnage share has remained constant between 6.5% - 8.0% of the West Coast total. Bulk cargoes have declined from 20.1% in 2001 to 16.3% in 2007. Historical shares of these key commodity groups are presented in Exhibit 3.

Exhibit 3 – Historical Share of West Coast Key Commodity Groups

![Chart showing the historical share of West Coast key commodity groups from 2001 to 2007.](chart2.png)

Source: PMA Annual Reports 2001-2007
2 ASSESSMENT OF COMPETING BAY AREA PORTS

The Port of San Francisco has evolved into a unique niche port that has been able to attract many types of cargo and industry. Bulk cargoes, such as aggregates and tallow, vegetable oils, steel, project cargo, and forest products have been handled at the Port.

The containerized cargo carriers that used to call the Port of San Francisco have since opted for other container ports, most notably the Port of Oakland, due in part to its intermodal rail infrastructure and better main-line rail access, and proximity to East Bay area distribution centers.

Due to the Port of San Francisco’s proximity to the main shipping channel that provides direct access and centralized location to Bay Area industrial centers, it can actually provide a more direct port of entry for various types of cargoes. However, the Bay Area has a number of mid-sized ports that also compete for many of the same types of cargo on which Port of San Francisco currently relies. Therefore, this study is intended to identify and quantify the relevant aspects of these competing ports and how they may relate to the success of the Port of San Francisco in attracting new business.

While the Port of Oakland is the largest port in terms of tonnage (accounting for 76% of the total tonnage) in the Northern California market, the vast majority of the tonnage and growth are attributed to the 1.7 million TEUs (Twenty-foot Equivalent Units) of containerized activity handled at the Port. Oakland handles very little general cargo and bulk commodities, which are the primary markets of the Port of San Francisco and its key competitors mentioned above. For that reason, with the exception of the container market, the Port of Oakland will be excluded from further discussions throughout the balance of this report.

The following ports in and around the San Francisco Bay Area are analyzed to consider their strategic or competitive advantages over those of the Port of San Francisco:

- Port of Redwood City;
- Port of Richmond;
- Port of Stockton;
- Port of Sacramento; and
- Port of Benicia.

A brief synopsis of each port is presented below.

2.1 Port of Redwood City

The Port of Redwood City provides facilities for neo-bulk [non-containerized breakbulk or general cargo that is the single commodity carried on a vessel – for example autos carried on a Pure Car Carrier (PCC)] and dry and liquid bulk cargoes. The Port of Redwood City provides five berths that handle a variety of commodities including gypsum, scrap metal, aggregates, salt, concrete, asphalt and recycled industrial fuels.
Key tenants at the port include CEMEX (cement, aggregates), SIMS Metal (metal recyclables), Pabco Gypsum (gypsum), and International Materials Inc. (bauxite). CEMEX accounts for over one-third of the port’s revenues. The Port of Redwood City typically handles over 1.4 million tons of cargo with a capacity of 3.3 million tons.

2.2 Port of Richmond

The Port of Richmond provides liquid bulk and dry bulk facilities, and also has the ability to accommodate containerized cargo. Situated on the northeastern edge of San Francisco Bay, and located only nine miles away from the Golden Gate, Richmond is strategically located for all types of cargo. The Richmond Harbor Channel was recently deepened from -35’ to -38’ Mean Lower Low Water (MLLW). The port also has favorable access to Interstates 580 and 80.

The port has five City-owned terminals with deep-water. In addition, the Port of Richmond encompasses a number of privately owned terminals that handle bulk liquids, dry bulk commodities, scrap metal, and break-bulk cargo. Terminal 3, a 20-acre container and general cargo terminal has two 37-short-ton Portainer gantry cranes. The Port of Richmond also has direct rail service provided by Burlington-Northern/Santa Fe (BNSF) with an intermodal rail facility approximately one mile away. The five city-owned terminals also provide over 400,000 square feet of on-dock warehouse space.

New infrastructure at the Port of Richmond includes the Honda auto import facility at Potrero Point. The 130-acre facility will offer direct access to the BNSF for auto distribution.

2.3 Port of Stockton

The Port of Stockton is approximately 75 nautical miles up-river from the Golden Gate. The Port handles dry bulk commodities such as bulk grain and feed, sulfur, coke, almonds, cement, logs, fertilizer, steel coil, and other steel shapes. Stockton also provides liquid bulk facilities for molasses as well as liquid fertilizer. The Port maintains three multi-purpose 30-ton capacity cranes to handle dry bulk as well as containerized cargoes. Over 1.1 million square feet of warehouse space is also available. The Port lists the main shipping channel depth at -35’ at mean lower, low water (MLLW), -37’ at average low tide and -40’ at average high tide. Berths 2 through 20 are described as maintaining a -37’ depth.

Stockton is currently undertaking a $30 million cold storage expansion at Rough and Ready Island. Once completed, the Inland Cold Storage facility will encompass over 400,000 square feet, making it the largest cold storage facility on the West Coast. The facility will also have a fumigation facility with a 100% particle (methyl bromide) capture, enabling the fumigation of Chilean fruits. In addition, the development of the 1,450 acres of nearby land yields the potential for over 7.7 million square feet of warehouse space serving maritime, industrial and commercial uses. With respect to bulk commodities, the Port is diversifying its tenant base by signing key tenants including US Gypsum (wallboard manufacturing plant) and Pacific Ethanol (ethanol production facility).
2.4 Port of Sacramento

The Port of Sacramento is also an inland river port located approximately 79 nautical miles northeast of the Golden Gate. The port offers five berths or approximately 3,000 feet of berthing space. Recently the Commission voted to provide $10 million to deepen the 43-mile ship channel from -30' to -35' MLLW. The Port of Sacramento primarily handles dry bulk commodities such as bulk rice, bulk grain, wood chips, newsprint, sand and logs. Sacramento also provides liquid bulk facilities for molasses as well as liquid fertilizer. The Port maintains bulk grain elevators at several of its berths.

2.5 Port of Benicia

Located 16 miles from the Golden Gate, the Port of Benicia is a 645-acre privately-owned facility that specializes in handling autos. The port also offers 140,000 square feet of vehicle processing buildings for accessorization and pre-delivery inspections (PDIs). Operated by AMPORTS, Benicia is the leading auto import facility in Northern California. The port also operates a liquid bulk dock. The Port of Benicia serves the auto vessels with 3 berths totaling 2,400 feet. Union Pacific Railroad provides on-terminal rail with the ability to handle 170 multilevel railcars simultaneously. The port is situated within the 4,000-acre Benicia Industrial Park.

Exhibit 4 presents the key characteristics of each of these ports identified above.

<table>
<thead>
<tr>
<th>Port</th>
<th>Principal Cargoes</th>
<th>Berths</th>
<th>Access Channel</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redwood City</td>
<td>Cement, Scrap, Bauxite, Aggregates, Gypsum</td>
<td>5</td>
<td>-30</td>
<td>Served by UP rail;</td>
</tr>
<tr>
<td>Richmond</td>
<td>Petroleum Products/Coke, Autos, Lumber/Steel, Vegetable Oils, Scrap, Various Dry Bulks</td>
<td>10</td>
<td>-38</td>
<td>402,000 SF of on-dock warehouse; Point Potrero being developed for Honda Auto imports;</td>
</tr>
<tr>
<td>Sacramento</td>
<td>Bulk and Bagged Rice, Cement, Fertilizer, Project Cargo</td>
<td>5</td>
<td>-30</td>
<td>Served by UP, BNSF and Sirerra Northern; Developing a wood pellet plant; Dredging channel to -35'; Approved a biofuels manufacturing facility; over 220 acres of developable, FTZ-zoned land;</td>
</tr>
<tr>
<td>Stockton</td>
<td>Liquid Ammonia/Fertilizers, Cement, Steel, Project Cargoes, Dry Bulks, Scrap, Coke, Bagged Rice</td>
<td>20</td>
<td>Channel at MLLW -35'; Channel at avg low -37'; Berths listed at -37'</td>
<td>Served by UP and BNSF rail; 1.1 million SF of transit shed; FTZ - 7.7 million SF of warehouse; 135 ft. airdraft restriction; US Gypsum construction wallboard facility; Also - ethanol plant, DC activity, cold storage facility under constr. Rough and Ready - cold storage with fumigation</td>
</tr>
<tr>
<td>Benicia</td>
<td>Autos, Ro/Ro, Liquid Bulk</td>
<td>4</td>
<td>NA</td>
<td>Privately owned (AMPORTS); Industrial complex - 4,000 acres</td>
</tr>
</tbody>
</table>
3 NORTHERN CALIFORNIA MARKET OVERVIEW

The following statistical analysis depicts the performance and trends of cargo groups of the key Northern California ports previously described.

The Port of Stockton has been the dominant Northern California mid-size port peaking in 2006 with nearly 3.5 million tons. In 2007, tonnage has dropped off due to deteriorated market conditions for key bulk commodities, including cement. The Port of San Francisco, typically handling between 1.0 and 1.5 million tons, has historically been the second leading port in terms of total tonnage until being surpassed by Benicia in 2005. Benicia's growth is attributed to the growth in autos, its key commodity. Richmond has also exhibited an increase in throughput, reporting over 1 million tons in 2007. Conversely, the ports of Redwood City and Sacramento have exhibited flat or unstable growth. Exhibit 5 details the historical performance of key Northern California ports from 2001 through 2007.

Exhibit 5 - Historic Total Tonnage Handled at Northern California Ports, 2001-2007

![Historic Total Tonnage Handled at Northern California Ports, 2001-2007](chart)

Source: PMA Annual Reports, 2001-2007

3.1 Northern California Container Market Overview

As previously discussed, the growth in West Coast tonnage has primarily been attributed to the growth in containerized traffic. Container activity is dominated by the San Pedro Bay ports of Los Angeles and Long Beach. The San Pedro Bay ports account for over 70% of the West Coast total. Oakland is the only Northern California port handling containers. The Port of San Francisco handled containerized cargo through 2004, with operations ceasing in 2005. Oakland handled 1.7 million TEUs in 2007. Since 2001, Oakland's container activity has grown at an average annual rate of 6.9%. Exhibit 6 illustrates the dominance of Oakland in the Northern California market.
3.2 Northern California General Cargo Market Overview

General cargo, which includes steel and project cargo such as generators, machinery and windmills, has shown a relatively unstable performance in the Northern California market. The general cargo market commodities are sporadic in nature, so this instability is not necessarily the result of the marketing efforts at each individual port, but other factors, such as U.S. and global market conditions of the corresponding industries. The Port of San Francisco grew from no tonnage in 2001 to between 200,000 and 250,000 tons in the 2004-2006 period before showing a decline in 2007. The Port of Stockton has exhibited growth over the past four years. Richmond, however, has not handled any general cargo tonnage since 2004. The Port of Sacramento has exhibited the most sporadic performance over the period reviewed.
3.3 Northern California Log and Lumber Market Overview

The lumber and log market on the West Coast is primarily concentrated in the PNW (Washington and Oregon) Region. Log exports from mills in the Western U.S. and Canada have been the basis of the tonnage. Lumber imports into the PNW and Southern California ports have also been prominent for the residential construction market. Northern California ports have struggled in this commodity group. Sacramento peaked at 60,000 tons in 2002, but has dwindled to 10,000 tons in 2006. The Port of San Francisco has handled some of this commodity; however sporadic shipments have hindered steady, sustainable growth. Other ports in the Bay Area have not been a factor in this market as shown in Exhibit 8.

![Exhibit 8 – Northern California Log and Lumber Market](image)

Source: PMA Annual Reports 2001-2007

3.4 Northern California Auto and Truck Market Overview

With respect to autos and trucks handled in Northern California, two ports have maintained a significant presence – Benicia and Richmond. Benicia, a privately owned port operated by AMPORTS, has experienced an increase in autos handled by 26.3% annually since 2001. Richmond has become a key player in recent years with the addition of key accounts. As the port has recently the port secured another account, it is anticipated that tonnage will continue to grow at a steady pace. The other Northern California ports, including the Port of San Francisco, have not been competitive in this market. Exhibit 9 illustrates the historical auto tonnage handled.
3.5 Northern California Bulk Cargo Market Overview

Bulk cargoes are typically tied to the local industries or tenants of the ports. For example, tenants of the Port of San Francisco including CEMEX and Hanson Aggregates import raw materials for distribution and use in the ready-mix concrete industry. Darling International exports bulk tallow rendered on site from used cooking oils from local sources.

The Port of Stockton bulk cargos, which include cement, gypsum, and scrap, more than doubled from 2003-2006 before posting a decline in 2007. The Port of San Francisco has handled over one million tons since 2004 due to aggregate shipments that are used in the ready-mix plant that serve the SF peninsula’s construction market. Redwood City peaked in 2005 with over 1 million tons of primarily aggregates and scrap, but has exhibited a decline in recent years. Sacramento and Richmond have not historically been players in the bulk cargo market (though Eagle Rock did open an aggregate import facility at Levine Terminals in October 2007). The growth in bulk cargoes of Northern California ports is presented in Exhibit 10.
### 3.6 Northern California Cargo Summary

As discussed above, the Northern California mid-size port market is primarily based on bulk and breakbulk cargoes, with the Port of San Francisco’s primary competition being Stockton and Richmond. A brief summary of each commodity group is as follows:

- **Container activity is dominated by the Port of Oakland.** Oakland’s continued commitment to develop container terminals and highway and rail infrastructure will maintain its position as a key West Coast gateway.

- **The general cargo market in Northern California has been unstable.** The sporadic peak and valley tonnages handled at the Northern California ports reflect U.S. and global economic conditions. Steel, for example, was impacted by the Section 201 steel tariffs that were put in place in 2002, which placed more emphasis on domestic sources for coil and rebar. Upon the repeal of the tariff, import steel markets showed dramatic increases in subsequent years. Project cargoes, such as generators and windmills components, are tied to specific projects, and are therefore much more of a spot market than sustainable growth markets.

- **Lumber and log market is virtually nonexistent in Northern California.** The continual growth of containerization has eroded the breakbulk import lumber market. Export log shipments are handled through PNW ports in Washington and Oregon. The current economic downturn has exacerbated the import lumber market, which is primarily used in new home construction.

- **Benicia has been the dominant player in the auto market.** However, Richmond is positioned to capitalize on future growth opportunities.

- **Bulk cargoes are tied to local industries and port tenants.** Each port in the Northern California region has its own complement of industries that drive the bulk
cargo throughput for the respective ports. Growth of these cargoes is tied to the performance of the individual tenants.
III. PORT OF SAN FRANCISCO EXISTING CARGO MARKETS

The purpose of this section is to identify market opportunities and areas of focus for cargo berths at Piers 80 and 94/96. Although, the Port’s Piers 48 and 50 facilities are still listed as potential cargo operating terminals, they are not viable cargo handling facilities due to the lack of available space adjacent to the berths and ever changing nature of urban development surrounding the piers. The following will document the existing markets handled by the Port of San Francisco, the competitive position of the Port in relation to developments at competing ports, and provide an outlook for each commodity type.

1 MARKET OVERVIEW

The Port of San Francisco’s cargo base has more recently been controlled by bulk cargoes. Bulk commodities, such as aggregates and sand, currently account for nearly 90% of the total tonnage. Vessel and barge loads of aggregates and sand are discharged at Pier 92/94. In 2005, the Port’s container operations ceased, accounting for the significant decrease in total tonnage handled from 2004 to 2005. Liquid bulk exports, which are loaded at Pier 92, have remained relatively constant. Currently breakbulk cargo, specifically steel, lumber and project cargo, account for 10% of the Port’s total tonnage. Exhibit 11 illustrates the Port’s recent cargo tonnage by key commodity.

Exhibit 11 – Historical Port of San Francisco Tonnage by Commodity Group

The Port of San Francisco’s Pier 80 is the Port’s international gateway for both import and export cargoes. Pier 80’s terminal encompasses 69 acres, including 394,000 square feet of available warehouse facilities. The yard is also supplied with reefer plugs to accommodate refrigerated containers. In addition, Pier 80 has container cranes available for containerized cargo operations. Breakbulk cargoes handled at Pier 80 have exhibited unstable performance over recent years. Steel has been the dominant breakbulk cargo, peaking at over 200,000 tons in 2006, while forest products – lumber
and newsprint – have diminished since 2002, reflecting a shift from breakbulk to containerized shipments. Project cargo shipments handled at the Port have been sporadic in recent years. It is important to note that breakbulk cargoes are sensitive to U.S. and global economic conditions and it is not uncommon for a port to exhibit fluctuation in these commodity types. Exhibit 12 details the historical breakbulk cargoes handled at the Port.

Exhibit 12 - Historical Breakbulk Cargo Handled at Pier 80 by Commodity

<table>
<thead>
<tr>
<th>Years</th>
<th>Steel</th>
<th>Newsprint</th>
<th>Lumber</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>10000</td>
<td>5000</td>
<td>30000</td>
<td>20000</td>
</tr>
<tr>
<td>2003</td>
<td>12000</td>
<td>4000</td>
<td>25000</td>
<td>15000</td>
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<tr>
<td>2004</td>
<td>15000</td>
<td>3000</td>
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<td>2006</td>
<td>20000</td>
<td>1000</td>
<td>10000</td>
<td>3000</td>
</tr>
<tr>
<td>2007</td>
<td>22000</td>
<td>5000</td>
<td>9000</td>
<td>2000</td>
</tr>
</tbody>
</table>

Source: Port of San Francisco

Each of the Port’s key existing cargo markets is discussed below.

- **Breakbulk** - In CY 2007, the Port of San Francisco discharged 160,000 tons of breakbulk cargo. This market is comprised of a variety of products including steel, lumber, newsprint, machinery and equipment. Both Star Shipping and Saga Carriers call the Port of San Francisco with a monthly service, with each port call averaging between 2,000 to 5,000 tons. These vessel calls are typically comprised of numerous shippers. The market is best categorized as a “spot” market (i.e., receiving breakbulk cargoes when an opportunity presents itself). This is characteristic of the breakbulk market in general throughout the Bay Area. However, Ferguson Industries, a pipe manufacturer, and tenant of the Port of Stockton, is better served by the Port of Stockton, especially in terms of inland transport from the dock to the facility. Other key steel users are located in the East Bay and primarily use Stockton as a port of discharge for their product based on the same logic.

- **Liquid Bulk** - The Port of San Francisco has consistently loaded nearly 32,000 tons of liquid bulk products for export in FY07/08. The liquid bulks consist of tallow, fats and greases rendered, processed or transloaded through the Darling International operation at Pier 92. Raw materials are trucked in from locations within a 100-mile radius. Other tonnage is supplied by Darling plants located elsewhere in the US, and is delivered by truck or rail. Darling International recently signed an agreement with the Port to develop a biodiesel manufacturing plant on Pier 92. Although the facility is still in the planning stages, the projected biodiesel product generated by the facility is expected to reach 7 to 10 million
gallons annually. The facility will be constructed in 2009, and is not expected to interfere with other operations at Pier 92. Tallow exports are expected to continue at similar historical levels.

- **Dry Bulk** – in CY2007, approximately 1.4 million tons of dry bulk products were discharged from vessels and barges in the Port of San Francisco. Both CEMEX and Hanson Aggregates discharge these commodities for use in the production of concrete and asphalt serving the local construction industry. The construction industry in the Bay Area is comprised of numerous local markets that are served by port terminals, suppliers, and producers in or near the local markets. Another Port of San Francisco tenant, Bode, delivers the ready-mix concrete to job sites throughout San Francisco and San Mateo counties. The ready-mix concrete market is limited by the fact that the concrete must be used within 90 minutes of batching (production). Allowing for time to load and discharge a concrete truck, there is often less than one hour remaining for delivery of the cement. As a result, the effective market of a concrete batching operation is within one hour of the batching site. Supplemental raw materials such as cement powder used in the local construction market are trucked in from other plant and terminal locations including Pleasanton and Cupertino.

The balance of this chapter details the existing situation by commodity currently handled at the Port as well as the Port’s competitive position relative to competing ports and the expected outlook of each commodity.

### 2 CONTAINERS

Although container activity at the Port was discontinued in 2005, it is necessary to examine the factors contributing to or limiting the potential of future services.

#### 2.1 Existing Situation

As noted, the Southern California ports control over 70% of the containerized market on the West Coast. Oakland is the dominant container port in the Northern California market handling 1.7 million TEUs in 2007. The Port of Oakland has made, and continues to make, major investments in its port infrastructure, expanding and improving its container capabilities and capacity. As a result, the growth in container traffic in the Northern California port region has occurred at the Port of Oakland. The trends in carrier consolidation, vessel sharing agreements and the use of larger vessels that require deeper water, more productive container handling equipment and larger terminal areas make it increasingly more difficult for a smaller, niche port such as San Francisco to compete with Oakland for container traffic. Also, intermodal rail access to Midwest destinations and excellent highway access to East Bay distribution centers (DCs) also benefit Oakland and keep it at the forefront of the Bay Area container market. Maps depicting locations of key DCs by type of activity (including department store, discount/general merchandise, home center/hardware, home furnishings, food service and grocery stores) can be found in Appendix A of this report.

Given these conditions, and the isolated geographic location of the Port of San Francisco on a peninsula, limits the potential for container activity – via regular liner service – through the Port to serve East Bay markets and DCs. Further exacerbating
the Port’s container limitations, rail clearance issues at Tunnels #3 and #4 prohibit double-stack service to inland markets.

Based on these conditions, the theoretical market reach for the Port of San Francisco is limited to San Francisco, San Mateo and Marin counties. Areas beyond this immediate hinterland are subject to competitive inland truck rates via the Port of Oakland. The import container market (specifically the Asian import market), which has exhibited growth on the West Coast, is driven by consumer demand, and therefore is related to population growth. Based on relationships of population to inbound loaded containers, this market is estimated to consume about 100,000 TEUs. When factoring in outbound and empty moves, the total TEU market is estimated to be in the order of 278,500 TEUs. Exhibit 13 presents the future consumption estimates through 2030.

Exhibit 13 – Estimated Consumption Market for the Port of San Francisco

<table>
<thead>
<tr>
<th>County</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Francisco</td>
<td>818,163</td>
<td>844,466</td>
<td>854,675</td>
</tr>
<tr>
<td>San Mateo</td>
<td>736,667</td>
<td>761,455</td>
<td>786,069</td>
</tr>
<tr>
<td>Marin</td>
<td>253,682</td>
<td>260,305</td>
<td>273,151</td>
</tr>
<tr>
<td>Total SF Market</td>
<td>1,808,512</td>
<td>1,866,226</td>
<td>1,913,895</td>
</tr>
<tr>
<td>Import Consumption TEU's</td>
<td>101,277</td>
<td>104,509</td>
<td>107,178</td>
</tr>
<tr>
<td>Total I/E and MT TEU's</td>
<td>278,511</td>
<td>287,399</td>
<td>294,740</td>
</tr>
</tbody>
</table>

Source: AAPA, CA Department of Finance, Martin Associates

Compounding the issue of a limited container market of the Port, is the fact that the Bay Area, while a large consumption market, is projected to be the slowest growing region statewide though 2030. The Bay Area’s 17% share of the California population is dwarfed by the Southern California market, which currently encompasses nearly 55% of the State’s population. Exhibits 14 and 15 detail the California state population by region and anticipated growth rates though 2030.
**Exhibit 14 – Share of California Population by Region*  

<table>
<thead>
<tr>
<th>Region</th>
<th>2010 Pop Est</th>
<th>2010 Percent</th>
<th>2030 Pop Est.</th>
<th>2030 Percent</th>
<th>2010-2030 AAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Coast</td>
<td>821,876</td>
<td>2.1%</td>
<td>994,200</td>
<td>2.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Shasta Cascade</td>
<td>620,263</td>
<td>1.6%</td>
<td>854,381</td>
<td>1.7%</td>
<td>1.6%</td>
</tr>
<tr>
<td><strong>Bay Area</strong></td>
<td><strong>6,682,720</strong></td>
<td><strong>17.1%</strong></td>
<td><strong>7,817,156</strong></td>
<td><strong>15.9%</strong></td>
<td><strong>0.8%</strong></td>
</tr>
<tr>
<td>Central Valley</td>
<td>4,055,403</td>
<td>10.4%</td>
<td>5,776,035</td>
<td>11.7%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Gold Country/High Sierra</td>
<td>3,330,082</td>
<td>8.5%</td>
<td>4,967,063</td>
<td>10.1%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Central Coast</td>
<td>2,057,620</td>
<td>5.3%</td>
<td>2,483,426</td>
<td>5.0%</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Orange/LA/SD/Inland Empire</strong></td>
<td><strong>21,358,854</strong></td>
<td><strong>54.6%</strong></td>
<td><strong>26,042,805</strong></td>
<td><strong>52.9%</strong></td>
<td><strong>1.0%</strong></td>
</tr>
<tr>
<td>Desert Region</td>
<td>208,858</td>
<td>0.5%</td>
<td>305,825</td>
<td>0.6%</td>
<td>1.9%</td>
</tr>
<tr>
<td><strong>Total California</strong></td>
<td><strong>39,135,676</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>49,240,891</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>1.2%</strong></td>
</tr>
</tbody>
</table>

Source: California Department of Finance;  
* Regions defined by State of California – Bay Area Region is comprised of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara and Santa Cruz counties

**Exhibit 15 - Population Growth rates by California Region**

Source: California Department of Finance

2.2 Container Market Outlook

Given these factors, it appears that the probability of a container liner service is limited. Another option to examine is the potential for a barge or small feeder service.
from a load center port, most likely Los Angeles or Long Beach to San Francisco. Matson Line operated the Pacific Coast Shuttle Service that moved containers and empties between the Bay Area, PNW and Southern California, however this service was discontinued. Key issues that typically constrain barge feeder services include additional handling, stevedoring or transshipping from ocean vessel to feeder vessel. Additionally, the vessel or barge needs U.S. flag vessel, thus subject to increased manning and crew requirements, higher labor costs, and ultimately increased vessel operating costs.

Time sensitivity of cargo also needs to be considered. A barge/feeder operation would require a one-day sail from Southern California. Factoring in cutoff and dwell times awaiting transshipment or meeting vessel departure could equate to another half day on each end of the voyage. This 1 to 2 day process must be compared with a truck dray of 6 to 8 hours at a cost of about $900-$1000 per container.

Interviews with barge and feeder carriers indicate that currently, interest is minimal or nonexistent in pursuing this type of operation. Also, while MARAD’s Marine Highways Initiative (MHI) is enthusiastic and could offer some incentives in the medium and long-term, until firm legislation or policies are put in place, growth of feeder/short sea operations for the Port appears limited.

3 STEEL
3.1 Existing Situation

In CY2007, the Port of San Francisco handled 148,233 metric tons of steel products, including pipe, coil and structural shapes. One key advantage of the Port of San Francisco is that Star and Saga both make regular monthly liner service calls. The average port call ranges from 2,500 to 5,000 tons. Based on PIERS data supplied by the Port, key shippers/consignees include:

- Arcelor;
- Stemcor;
- Metal One America;
- Dongkuk Industries;
- Husteel;
- Skyline Steel; and
- James Steel.

Typically, port routing decisions are made by customers or overseas shipper. Based on interviews with carriers and consignees, the majority of steel is consumed in a 200-mile radius of the Port. Steel destined for inland destinations via rail are drayed and loaded at the Oakland railhead, with the cost of drayage estimated at about $10 per ton. It is important to note that Pier 80 direct access via the new Illinois Street Bridge will offer an improved option for shipments destined inland.

In recent years, the Port of Stockton has gained market share as depicted in Exhibit 16. From 2005 to 2006, Stockton’s tonnage jumped by 350%. This can be attributed to the fact that the Port of Stockton has tenant and local industries (e.g. Ferguson Industries and Macsteel) that take advantage of the proximity and resulting inexpensive drayage rates from the Port of Stockton to their facilities.
Although the previous exhibit confirms the fact that San Francisco and Stockton are the two dominant ports in the Bay Area in terms of steel imports, it is necessary to illustrate that the majority of steel on the West Coast is moved via Southern California ports, as indicated in Exhibit 17.

Southern California’s successful breakbulk steel market is emphasized in Exhibit 18 which presents the vast number of steel service centers located in the LA Basin in comparison to those in Northern California.
Shippers and consignees using Southern California ports are able to take advantage of economies of scale with numerous orders on a single vessel call. While there is a push from the mega container ports, specifically Los Angeles and Long Beach, to shift terminal acreage away from breakbulk operations in favor of more container terminal acreage, there are numerous other ports vying for that business, including San Diego and Port Hueneme. Therefore, the competitive market for the Port of San Francisco is Northern California as well as inland destinations that will be efficiently served via rail from San Francisco.

3.2 Competitive Factors Affecting Port Selection

As noted, the Port of Stockton is San Francisco’s key competitor in the breakbulk steel market. The following discussion lists some of the key advantages and disadvantages of each Port:

Advantages of the Port of San Francisco include the following:

- **Easy port access and deep water:** The Port’s channel can handle vessels up to -40 MLLW. Vessels do not need to transit upriver to Stockton, which is an additional 10-14 hours sail time (extra day of vessel operating costs average $25k/day); and
- **Less expensive pilotage costs and less expensive port charges:** Pilotage costs to Stockton are nearly double that of a San Francisco port of call; Port charges including harbor charges, line handling, dockage (based on 1 day), pilotage and tugs can range from $16-$20K in San Francisco versus $25-$30K in Stockton.
Port of San Francisco disadvantages include the following:

- **Union labor is inexperienced and inefficient:** Numerous interviews with carriers and shippers suggest that the Longshore labor situation needs to be addressed. The workforce is young and not as experienced at handling breakbulk cargoes in an efficient manner. Interviews suggest that Stockton is about 30% more efficient in terms of stevedoring productivity than San Francisco.

- **Large presence of steel service centers and end users and service centers located in East Bay area:** Estimated trucking cost to East Bay (Stockton) is $20-22 per ton, in addition trucks must cross a bridge and may encounter congestion.

Key Stockton disadvantages include the following:

- **Upriver sail to Stockton is 10-14 hours:** This additional transit time can add, at a minimum, $25,000 per call;

- **Vessels with beam over 100’ are subject to sailing restrictions:** Vessels are restricted to daylight conditions that can further exacerbate the cost of calling Stockton.

In addition to vessel transit costs, port charges, and terminal efficiency and productivity, inland transportation costs and the ability to serve key end user markets is paramount. Exhibit 19 indicates that the Port of Stockton holds a strong cost advantage to local Stockton end users while Modesto and Sacramento are more competitive in terms of pure freight rates. However, the Port of San Francisco holds a $50 per truck loading advantage.

### Exhibit 19 – Truck Rates* to Key Bay Area Markets

<table>
<thead>
<tr>
<th>Truck and Drayage Rates</th>
<th>Port of San Francisco</th>
<th>Port of Stockton</th>
<th>Cost Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stockton</td>
<td>$436</td>
<td>$175</td>
<td>$261</td>
</tr>
<tr>
<td>Sacramento</td>
<td>$448</td>
<td>$350</td>
<td>$98</td>
</tr>
<tr>
<td>Richmond</td>
<td>$296</td>
<td>$350</td>
<td>-$54</td>
</tr>
<tr>
<td>Modesto</td>
<td>$371</td>
<td>$268</td>
<td>$103</td>
</tr>
<tr>
<td>Oakland</td>
<td>$271</td>
<td>$350</td>
<td>-$79</td>
</tr>
<tr>
<td>Fresno</td>
<td>$575</td>
<td>$575</td>
<td>$0</td>
</tr>
</tbody>
</table>

**Truck Loading Rates**

|                     | $75 | $125 | -$50 |

Source: Martin Associates’ interviews

* Rates do not include fuel surcharge (currently varies between 25%-40%)

Taking into account all of the costs, dwell times, delay times and productivity differences described above, Exhibit 20 presents a competitive cost analysis between the Ports of San Francisco and Stockton to serve key regional steel markets.
Exhibit 20 – Detailed Competitive cost Analysis to Serve Key Steel Markets

<table>
<thead>
<tr>
<th>Cost per ton To Serve Key Markets</th>
<th>Port of San Francisco</th>
<th>Port of Stockton</th>
<th>Cost Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel operating cost differential ($25k/day)</td>
<td>NA</td>
<td>$5.25</td>
<td></td>
</tr>
<tr>
<td>Port charges (4,000 tons)</td>
<td>$4.00</td>
<td>$6.25</td>
<td></td>
</tr>
<tr>
<td>Stevedoring (pipe)</td>
<td>$26.40</td>
<td>$22.00</td>
<td></td>
</tr>
<tr>
<td><strong>Vessel, Port and Stevedoring Subtotal</strong></td>
<td><strong>$30.40</strong></td>
<td><strong>$33.50</strong></td>
<td><strong>-$3.10</strong></td>
</tr>
<tr>
<td>Truck to Stockton</td>
<td>$25.56</td>
<td>$15.00</td>
<td>$10.56</td>
</tr>
<tr>
<td><strong>Total Cost to Stockton</strong></td>
<td><strong>55.96</strong></td>
<td><strong>48.50</strong></td>
<td><strong>7.46</strong></td>
</tr>
<tr>
<td>Truck to Sacramento</td>
<td>$26.13</td>
<td>$23.75</td>
<td>$2.38</td>
</tr>
<tr>
<td><strong>Total Cost to Sacramento</strong></td>
<td><strong>56.53</strong></td>
<td><strong>57.25</strong></td>
<td><strong>-$0.73</strong></td>
</tr>
<tr>
<td>Truck to Richmond</td>
<td>$18.56</td>
<td>$23.75</td>
<td>$5.19</td>
</tr>
<tr>
<td><strong>Total Cost to Richmond</strong></td>
<td><strong>48.96</strong></td>
<td><strong>57.25</strong></td>
<td><strong>-$8.29</strong></td>
</tr>
<tr>
<td>Truck to Modesto</td>
<td>$22.31</td>
<td>$19.65</td>
<td>$2.66</td>
</tr>
<tr>
<td><strong>Total Cost to Modesto</strong></td>
<td><strong>52.71</strong></td>
<td><strong>53.15</strong></td>
<td><strong>-$0.44</strong></td>
</tr>
<tr>
<td>Truck to Oakland</td>
<td>$17.31</td>
<td>$23.75</td>
<td>$6.44</td>
</tr>
<tr>
<td><strong>Total Cost to Oakland</strong></td>
<td><strong>47.71</strong></td>
<td><strong>57.25</strong></td>
<td><strong>-$9.54</strong></td>
</tr>
<tr>
<td>Truck to Fresno</td>
<td>$32.50</td>
<td>$35.00</td>
<td>$2.50</td>
</tr>
<tr>
<td><strong>Total Cost to Fresno</strong></td>
<td><strong>62.90</strong></td>
<td><strong>68.50</strong></td>
<td><strong>-$5.60</strong></td>
</tr>
</tbody>
</table>

Source: Martin Associates’ interviews

As shown, after calculating the costs including the additional sail upriver, stevedoring, port charges, and productivity differentials for 4,000 tons of cargo, the Port of San Francisco holds a $3.10 per ton advantage over discharging at the Port of Stockton. When drayage and truck loading rates are figured into the final delivered cost per ton, Stockton holds a clear advantage to serve the local Stockton end users, which includes the Port of Stockton’s tenant base. However, San Francisco operates at a cost advantage to serve inland destinations of Richmond, Oakland and Fresno. Modesto and Sacramento are extremely competitive markets – within $1.00 per ton for each port.

This analysis suggests that, from a pure cost perspective, the Port of San Francisco is able to compete for specific East Bay markets. However, intangibles such as labor issues, working days, and restrictive truck scheduling issues as previously mentioned factor into a port routing decision.

### 3.3 Steel Market Outlook

Overall, steel imports follow a cyclical pattern, reflecting the strength of the U.S. economy. When the dollar is strong, many U.S. manufacturers depend on imports for supply of coil and slab. Additionally, world market conditions also come into play in the volatile and sensitive steel import market. In 2002, Section 201 steel tariffs, which were placed on certain import products, pushed the cost of imports over a threshold that many consuming industries could not afford. In turn, domestic steel producers benefitted from
these sanctions and supplied many of the consuming steel industries. Additionally, the demand for Chinese steel consumption created such demand for charter vessels that charters to U.S. markets became cost prohibitive.

Shippers and consignees typically choose the port of entry. As identified above the port selection process reflects not only ocean transport and port charges but also the inland transportation costs, truck or rail, to consumption points. Since the majority of the steel service centers and distribution facilities are located in Southern California, the Port of Los Angeles, even with congestion issues, is still dominant. Other Southern California ports, specifically San Diego, are trying to enter into this market; however they have had little success to date. To this end, it would be extremely difficult for a port in the Bay Area to break into the LA market and the resulting market focus for the Port of San Francisco is to compete for the Bay Area regional market. The Port, with the completion of the Illinois Street Bridge, will offer more options to rail steel to inland markets, but rail shipment quantities will need to be built up to take advantage of economies of scale.

Due to current economic conditions, interviews with shippers and carriers suggest that the near-term forecast for the import steel market is uncertain. Interviews indicate flat volumes for Bay Area customers although exact percentages were not provided. It can be expected that infrastructure projects, including the new Bay Bridge, will maintain levels for the near-term. However, as these projects near completion, steel tonnage will level off.

Key issues that need to be addressed include the ILWU labor situation and number of days worked per week. The younger workforce is relatively inexperienced in terms of handling breakbulk cargoes. There is a need to change the perception of labor issue to the carriers as well as the shippers and consignees. The carriers are impacted by the additional discharge time of inefficient labor. Shippers and consignees are impacted by the potential for damage to the cargo as well as the truck loading operations and days of availability to meet manufacturing and delivery requirement.

PMA training programs may help this situation. Currently the ILWU 10 workforce operates at other ports including Oakland, Crockett, Benicia, and Richmond. The key focus of the Local leans toward containers. There are approximately 1,500 to 1,600 active members listed, and the PMA does not have available funds to train 100% of the members. Thus, a training program focused on 10% of the membership would be more feasible. Once the members are trained, there is no guarantee that trained workforce would be willing to work the breakbulk vessels. The Port of Stockton has dedicated steady men (not steady crews) that increase efficiencies and productivities of the gang. The Port of San Francisco should continue to work with the ILWU, PMA, carriers and terminal operators to formulate a plan to provide experienced labor for breakbulk cargoes.

4 FOREST PRODUCTS
4.1 Existing Situation

In Calendar Year 2007, the Port of San Francisco handled 2,258 metric tons of breakbulk lumber and 3,946 metric tons of newsprint. These two commodities totaled 45,000 metric tons in 2003, but have since dramatically declined. Two key factors have contributed to the decline of the breakbulk lumber market in not only the Port of San
Francisco, but all California ports: 1) the key driving factor, residential demand has slowed; 2) share of imports moving via containers has increased dramatically in recent years. Exhibit 21 illustrates the decline in breakbulk lumber at California ports. Los Angeles, historically the most dominant port, handled about 110,000 tons in 2004, but has dipped to less than 20,000 tons in 2007. The Ports of San Francisco and Sacramento have also mirrored this decline. This is further demonstrated in Exhibit 22, which shows that the breakbulk share has consistently decreased from 24% in 2003 to less than 5% in 2007.

Similarly, paper and pulp products including newsprint imports have been in decline on the West Coast. Three ports control the U.S. import paper and pulp markets – Mobile (AL), Jacksonville (FL) and Baltimore (MD). Although Long Beach has been the top performer among California ports, only 115,000 tons were handled in 2007.
Incorporating the Port of LA into the total brings the entire market to about 200,000 tons in 2007. The presence of paper and pulp in the Gulf and East Coast ports is driven by the accessibility of South American markets and rail infrastructure that serves the production regions in the Southeast and Midwest. Exhibit 23 presents the overall decline in California ports, while Exhibit 24 depicts the decline in share of breakbulk tonnage from nearly 30% in 2003 to 14% in 2007.

Exhibit 23 – Breakbulk Paper Products Handled at California Ports

Exhibit 24 - Share of Breakbulk to Containerized Paper Handled at California Ports

4.2 Competitive Factors Influencing Port Routings

Over 40% of lumber is used in new home construction and since 2006, residential market conditions have softened considerably. Benchmark prices of 2X4 lumber is currently down 50% from the 2004-2005 period. The Western Wood Products
Association (WWPA) estimates that lumber production is expected to drop by 11.5% in 2009, representing the lowest production levels since 1982. In addition, a strong Canadian dollar hurts imports into U.S. markets. To further compound the soft market is the fact that key mills in U.S. and Canada, including a Canfor mill in Chetwynd, has been indefinitely idled, while another Canfor mill in Mackenzie has been permanently closed. AbitibiBowater has also idled a saw mill and newsprint mill in Mackenzie, while Stuart Lake Lumber closed a mill in Fort St. James.

Currently PNW mills are serving the Southern CA market via domestic barge shipments. Weyerhaeuser serves the San Diego market via barge from Aberdeen and Longview. The service operates on a 3-week rotation, carrying 6.6 million board feet (BF) per barge. Total landed cost by barge into San Diego is $53 per 1000 BF versus a rail rate to San Diego of $75 per 1000 BF. The potential to develop a similar service into the Port of San Francisco to serve Bay Area markets is not conducive due to the proximity of San Francisco to PNW mills. Materials are either railed or trucked directly to distribution centers and end users throughout Northern California.

4.3 Breakbulk Forest Products Outlook

Housing starts, the key driver in import lumber market is expected to fully rebound in 2011, however the longer term forecast appears unfavorable, as shown in Exhibit 25. Furthermore, the latest economic situation exacerbates a worsening home market.

Exhibit 25 – Projected Bay Area Housing Starts

Key vendors are located in Southern CA, and therefore are more accessible to SoCal ports – Los Angeles, Long Beach and San Diego. Distribution activity is centered in East Bay markets and is served directly from PNW mills via truck or rail. The continual shift of forest products to containers fuels the uncertainty and volatility of this breakbulk market. Current economic conditions and the lending crisis have influenced the lumber import market. The short term forecast is bleak, with expectations of a rebound to 2005 levels in 2011. In order to potentially participate in this growing market,
the Port would need to attract a small container service (South American – Brazil, Chile), which appears unlikely.

5 PROJECT CARGO

In CY2007, 6,139 metric tons of project cargo was handled at the Port of San Francisco. The project cargo market Bay Area ports can best be defined as spot markets – typically unstable and sporadic from year to year. Examples of more stable project cargo markets include the Gulf ports that handle oil drilling equipment. Exhibit 26 illustrates the fluctuating performance of the project cargo market at the Port in recent years. After increasing nearly five-fold from 2004 to 2005 to nearly 35,000 metric tons, tonnage declined back to 2004 levels in 2007.

Exhibit 26 – Project Cargo Handled at Pier 80

Interviews with carriers and terminal operators could not identify near-term growth trends. Project cargo opportunities are discussed in detail in the following chapter.

6 BULK MARKETS

6.1 Existing Situation

The Port of San Francisco’s most stable commodity group has been the dry and liquid bulk cargoes handled by the Port’s tenants at Piers 92/94/96. Since 2002, the Port’s dry bulk tonnage has increased, peaking in 2005. Economic conditions beyond the Port’s control have contributed to the dip in tonnage in 2006 and 2007. Exhibit 27 illustrates the growth in dry bulk cargoes handled at the Port of San Francisco since 2002.
Bulk tonnage increased dramatically in 2002, when the Port handled its first full year of aggregates totaling 697,000 metric tons. Since then, aggregates have averaged over 900,000 tons annually, eclipsing 1 million tons in both 2005 and 2007. In CY 2007, the Port handled 1,412,750 tons of dry bulk material between Port tenants Bode, Hanson Aggregates and CEMEX. Hanson handles inbound aggregate products and supplies to local ready-mix companies, including another port tenant, Bode. Each vessel call averages about 68,000 tons of material. CEMEX/RMC, a ready-mix facility, receives barges of material that average about 16,000 tons per load. The barges are comprised of material that is lightered from a vessel calling the CEMEX dock in Redwood City. Both CEMEX and Hanson operate other facilities at other Bay Area ports.

The aggregate material is blended with cement powder and other fill material to create the ready-mix product. The distribution market of the ready-mix is essentially San Francisco County and San Mateo County north of San Francisco International Airport. CEMEX ships 80 to 100 loads outbound by truck on an average day; Bode estimates about 500 tons per day are loaded out. Both CEMEX and Bode receive the other components of the ready-mix by truck from other distribution facilities. CEMEX uses their own integrated system of distribution among other key facilities, while Bode receives truckloads of cement from Hanson facilities in Cupertino and Stockton.

With respect to liquid bulk cargo, Darling International, a Port tenant located at Pier 92, loads outbound tallow rendered from oils from local suppliers. Darling shipped 31,791 tons in FY2007-2008. The rendering operation has generated between 22,000 and 32,000 tons annually over the past 5 years.

Darling International recently signed an agreement with the Port of San Francisco to develop a biodiesel facility at Pier 92. Completion of the facility is expected in 2009, with an estimated 7 to 10 million gallons of biodiesel produced annually at full build-out. The biodiesel production may require the need to bring in more feedstock. It is expected that the additional oils would be transported via truck and rail from local and regional suppliers. Darling International anticipates the tallow exports to continue at
historical volumes in addition to biofuels distribution. Outbound volumes of the biodiesel would be destined for blending facilities that will most likely be served via rail or truck.

6.2 Competitive Factors Affecting Growth

The bulk market is driven primarily by construction activity including major infrastructure projects, such as the Bay Bridge project, highway and road construction and local/regional residential, commercial and industrial real estate development.

Competition from other regional Ports’ facilities and tenant bases limits the reach for distribution to inland markets. For example, Hanson Aggregates, in addition to the Port of San Francisco terminal, also operates facilities in Oakland and Redwood City. CEMEX operates a cement terminal, aggregate and aggregate recycling facility. Furthermore, Hanson Aggregates supplies cement powder to Bode from plants in Cupertino and Stockton. Supplemental cement fill material is trucked from local sources as well. Based on interviews, a bulk truck rate from Stockton is approximately $11 per ton.

Interviews indicate that the San Francisco market is not large enough to support vessel and barge calls of cement powder and other fill material. It is difficult to redistribute bulk materials to other areas (specifically East Bay markets) from San Francisco due to congestion issues and low profit margins on bulk trucking rates.

Growth in bulk cargo is tied to the port’s tenant base. Competing Bay Area ports are increasing bulk capacities by diversification of tenant base. Some of the key bulk tenants and development projects at Northern California ports include:

- Stockton:
  - US Gypsum – 1 million tons gypsum from Mexico;
  - Pacific Ethanol; and
  - Local California rice exports – approximately 1 million tons.

- Redwood City:
  - CEMEX - both cement, aggregate and aggregate recycling;
  - Hanson Aggregates;
  - Sims Metals – 200,000 vehicles recycled annually; and
  - Pabco Gypsum – 270,000 tons of imports.

- West Sacramento:
  - Enligna wood pellet manufacturing plant -200,000 tons; and
  - Biofuels plant approved.

6.3 Bulk Market Outlook

Interviews with dry bulk tenants indicate flat or negative growth over the near-term due to economic conditions. Long-term demand for dry bulk market is driven by construction activity. Exhibit 28 presents the construction jobs forecasted for the Bay Area through 2028. Construction activity exhibited tremendous growth in the late 1990s through 2002. Activity is expected to remain fairly constant through 2013, then expected to decline, approaching 1998 levels.
Although liquid bulk exports from Darling International showed growth over the 2006-2007 period, this cargo has been historically flat. Announcement of the biodiesel plant may require additional feedstock, however it appears that the additional volumes will be trucked or railed from local sources.

Cement and aggregate supplies from current tenants appear to be adequate to handle market demand. In order to attract additional dry bulk tonnage of significance, the Port would need to sign a new tenant. The signing of a key bulk tenant would most likely erode acreage for potential breakbulk cargoes.

7 EXISTING CARGO MARKET FORECASTS

As part of the analysis, market forecasts of existing cargoes have been developed. The baseline forecasts were derived from Port of San Francisco tonnage data for each commodity. Recent historical performance, historical tonnage, recent growth and market conditions affecting growth were taken into account in calculating these forecasts. In addition, interviews with key carriers, shippers, consignees and terminal operators for near-term projections factored into the forecasts. Key industry trends, most notably the construction and housing markets, have also been examined to assess the future base cargo operations at Piers 80, 92 and 94/96. The forecasts through 2028 are presented in Exhibit 29.

A brief synopsis of the key factors by each commodity is as follows:

- Containers:
  - Low and High Growth – no container service.
- Steel:
  - Low Growth – follow assumed market recovery, 1.5% AAGR (Average Annual Growth Rate) thereafter;
  - High Growth – follow assumed market recovery, 3% AAGR thereafter.
- Lumber:
  - Low Growth – follow market recovery, 1.5% AAGR thereafter;
  - High Growth – follow market recovery, 3% AAGR thereafter.
- Newsprint: flat, no growth.
- Project Cargo:
  - Low Growth – flat, no growth;
  - High Growth – 5-year average assumed in 2009, 3% AAGR thereafter.
- Bulk Aggregates:
  - Low Growth – follow market recovery, 1.5% AAGR thereafter;
  - High Growth – follow market recovery, 3% AAGR thereafter.
- Tallow: Low and High Growth based on historic range, flat growth.

### Exhibit 29 – Existing Market Forecasts

<table>
<thead>
<tr>
<th>Commodity</th>
<th>2007</th>
<th>2008</th>
<th>2012</th>
<th>2016</th>
<th>2020</th>
<th>2024</th>
<th>2028</th>
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<td></td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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<td>0</td>
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<td>0</td>
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<td>0</td>
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<td>Steel Tons</td>
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</tr>
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<td>1,403,121</td>
<td>1,215,005</td>
<td>1,070,228</td>
<td>1,135,901</td>
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<td>1,696,894</td>
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<tr>
<td>Tallow Tons</td>
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</tr>
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<td>22,200</td>
<td>22,200</td>
<td>22,200</td>
</tr>
<tr>
<td>HIGH</td>
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<td>34,412</td>
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<td>40,319</td>
<td>43,642</td>
<td>47,240</td>
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</table>

### 8 CURRENT INDUSTRIAL AND WAREHOUSE ACTIVITY AT BAY AREA PORTS

Activities on port properties are not restricted to the loading and discharging of ship and barges at port docks. Port industrial tenants also include producers, consumers or distributors of marine cargo, as well as businesses that are not dependent
on marine activity at the port. The industrial, distribution and warehouse activities near Bay Area ports, as well as the Bay Area in general, are discussed in the following pages.

In addition to marine cargo activity, the Port of San Francisco terminals and facilities are currently used for a variety of maritime related and non-maritime industrial related activities, including warehouse activities. The Port’s retail, recreational and other commercial activities are not included in the discussion; however, they continue to put pressure on existing maritime properties as land use in San Francisco evolves. The following section presents a market assessment of warehouse in the Bay Area.

8.1 Introduction

CBRE Consulting has prepared a market study on dry and refrigerated warehouse space in the Bay Area through the second quarter of 2008. Given that the last study was prepared at the height of the technology boom, it reflected the intense pressure on lower-intensity warehouse uses from office/technology uses. While this pressure subsided in the subsequent dot-com bust, industrial use continued to be threatened from more intense uses, which over the past several years has been from residential uses.

Despite the nationwide housing downturn, there remains continued pressure on warehouse uses from residential uses. This has been particularly apparent adjacent to the San Francisco waterfront south of the Bay Bridge. The development of Mission Bay has put tremendous redevelopment pressure on surrounding land, including that which is owned by the Port. As this land is redeveloped into more profitable uses, users of traditional warehouse space are being forced to move outside San Francisco to find available and affordable warehouse facilities. This issue is currently being addressed by the San Francisco Planning Department in its Eastern Neighborhoods Planning Process. The protection of Production Distribution and Repair (PDR) uses are a key concern for many local policy makers.

Outside of San Francisco, Alameda and Contra Costa counties were the only counties where low-cost warehouse space of substantial size was still available as of June, 2008. In San Mateo County, warehouse space is still available, but it is expensive and not easily accessible to port-related traffic. In addition, this space will likely either continue to be dominated by cargo traffic from San Francisco International Airport or converted to other uses, primarily biotech.

As part of this market assessment, market data was collected on both dry and refrigerated warehouse spaces from BT Commercial quarterly reports and from the US Bureau of the Census’ County Business Patters (CBP). Data was collected for the City and County of San Francisco, San Mateo County, and the Interstate-80/880 corridor (mostly comprised of Alameda County plus parts of Contra Costa County). Together, these counties contain the majority of port-accessible warehouse space in the Bay Area. Other counties in the region, including Marin, Napa, Santa Clara, Sonoma, and Solano, either contain very little warehouse space or are not easily accessible to traffic from the Port of San Francisco. The warehouse markets in San Francisco, the I-80/880 Corridor, and San Mateo counties are discussed in greater detail below.
8.2 Market Snapshot

The San Francisco warehouse market is separated into three submarkets: Mission/South of Market (SOMA), Third Street Corridor/Potrero Hill, and Bayview. The total building base in these three areas is 19.3 million square feet. As shown in Exhibit 29, just over half this base is located in the Third Street Corridor/Potrero Hill submarket. Over the past eight years, the building base in Bayview has increased by nearly 1 million square feet. However, a decrease of over 3 million square feet in the Mission/SOMA submarket results in a net decrease of approximately 2 million square feet in the San Francisco market area. Exhibit 30 also shows that Mission/SOMA had one of the lowest vacancy rates and highest rental rates in the region at the end of the second quarter 2008 at 1.9 percent and $1.10 per square foot per month, triple net (NNN).  

Average asking rents in San Francisco ranged from $.48 to $1.52 per square foot per month NNN in the second quarter 2008.

The East Bay warehouse market, or I-80/880 corridor, is significantly larger than the San Francisco warehouse market, with a total building base of nearly 75.0 million square feet. As of June, 2008, the cities with the largest amount of warehouse space in this market were Hayward, San Leandro, and Oakland. These three cities had a combined total of 46.5 million square feet of warehouse space as of June, 2008, or 62.1 percent of the total warehouse space in the East Bay. Aside from the cities of Newark and Richmond, the building base in all of the East Bay cities decreased from the second quarter of 2000 to the second quarter of 2008, for a total loss in the market area of 6.3 million square feet. The average asking rent rates in all of the East Bay cities were under $0.75 per square foot per month NNN, and the vacancy rate for every city except Union City was well below 10 percent in the second quarter of 2008.

The San Mateo County warehouse market comprises seven major submarkets, with a total of about 31.7 million square feet, down slightly from 33.3 million square feet reported in June, 2000. A majority of this building base, or 54.9 percent is in the South San Francisco/San Bruno submarket, where the San Francisco International Airport is located. The vacancy rates in most of the submarkets in San Mateo County as of June, 2008 were below 10 percent (with the exception of Redwood City) and the average asking rental rate was comparable to that in San Francisco at $0.84 per square foot per month NNN. In San Mateo County during the second quarter of 2008, average monthly asking rents ranged from $0.45 to $1.83.

Perhaps reflecting a more uncertain economy in 2008, all three market areas indicate negative net absorption through the second quarter. Furthermore, only four of the 19 submarkets included in these market areas have experienced positive absorption in 2008, with one reporting zero net absorption.

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2 A triple net (NNN) lease is a lease requiring the tenant to pay, in addition to a fixed rental, the expense of the property leased, such as taxes insurance, maintenance, etc. All asking rates represent triple net lease rates. When only gross rates were available, they were converted to triple net rates.

3 Net absorption is defined as the change in occupied square footage during a given time period. Gross absorption is the total leasing activity for a given time period.
### Exhibit 30
Warehouse/Industrial Market Data
San Francisco, Alameda, Contra Costa, and San Mateo Counties
Second Quarter 2008

<table>
<thead>
<tr>
<th>Submarket</th>
<th>Building Base (2)</th>
<th>Available Space</th>
<th>Vacancy Rate</th>
<th>Avg. Asking Rate (NNN)</th>
<th>Asking Rate Range (NNN)</th>
<th>2008 YTD Absorption (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Direct</td>
<td>Sublease</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd St Cal/Potrero Hill</td>
<td>9,785,817</td>
<td>260,636</td>
<td>32,000</td>
<td>292,636</td>
<td>3.0%</td>
<td>1.9%</td>
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<tr>
<td>Mission/SOMA</td>
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<td>0</td>
<td>97,970</td>
<td>1.9%</td>
<td>0.9%</td>
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<td>Bayview</td>
<td>4,359,440</td>
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<td>8,800</td>
<td>109,910</td>
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<td>2.7%</td>
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<td><strong>Total San Francisco County</strong></td>
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<td><strong>459,716</strong></td>
<td><strong>40,800</strong></td>
<td><strong>500,516</strong></td>
<td><strong>2.6%</strong></td>
<td><strong>1.8%</strong></td>
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<tr>
<td>Richmond</td>
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<td>391,310</td>
<td>38,760</td>
<td>430,070</td>
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<td>7.2%</td>
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<td>Berkeley</td>
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<td>Emeryville</td>
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<tr>
<td>Oakland</td>
<td>13,057,210</td>
<td>770,725</td>
<td>502,905</td>
<td>1,273,630</td>
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<td>7.3%</td>
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<tr>
<td>San Leandro</td>
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<td>222,937</td>
<td>179,890</td>
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<td>8.4%</td>
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<tr>
<td>Union City</td>
<td>8,353,087</td>
<td>1,035,738</td>
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<td>Newark</td>
<td>3,986,761</td>
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<tr>
<td>Fremont</td>
<td>7,991,463</td>
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<td>68,314</td>
<td>551,682</td>
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<td><strong>Total 80/880 Corridor</strong></td>
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<td><strong>5,670,444</strong></td>
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<td><strong>5.9%</strong></td>
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<td>Brisbane</td>
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<td>5.1%</td>
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<td>S San Francisco/ San Bruno</td>
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<td>Burlingame/ Millbrae</td>
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<td>Richmond</td>
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<td>Belmont/ San Carlos</td>
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<td>15,898</td>
<td>0.5%</td>
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<td>Menlo Park</td>
<td>1,186,562</td>
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<td><strong>Total San Mateo County</strong></td>
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<td><strong>263,833</strong></td>
<td><strong>2,061,975</strong></td>
<td><strong>6.5%</strong></td>
<td><strong>2.3%</strong></td>
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</tbody>
</table>

**Sources:** NAI BT Commercial; CBRE Consulting

(1) Warehouse/Industrial buildings defined as those typically used for warehouse industrial purposes (less than 3/1000 parking, clear height minimum of 18’, dock and/or grade doors, limited glass, and minimal buildout, etc.)

(2) NAI BT Commercial maintains a building by building historical record. Comparing previous reports to this report may show different statistics. Changes are caused by the reclassification of buildings and revised building sizes.

(3) As of June 30, 2008

### 8.3 Market Trends

**Vacancy**

Vacancy rates in San Francisco and San Mateo counties have followed a similar trend, decreasing from a high in 1995 to a low in 1999/2000, then rising again during the early 2000s before declining. Over the past two and a half years, the San Francisco vacancy rate has ranged from about 2.0 to 3.0 percent, while that for San Mateo County has ranged from about 5.0 to 7.0 percent. The East Bay trend has been more erratic. After climbing to a high of 11.2 percent in 2003, vacancy dropped to 4.3 percent in 2006, and rose again to 7.6 percent at the end of the second quarter 2008, as seen in Exhibit 31.
**Average Asking Rates**

Although rents for the three market areas have followed a similar trend, average asking rates for East Bay warehouse space are significantly lower than those in San Francisco and San Mateo counties. Aside from a dramatic spike in rents in 2000 rents followed by a drop in 2001, rents in all three market areas have remained relatively constant since 2002, as seen in Exhibit 32.

**Net Absorption**

In San Francisco, net absorption has been steadily decreasing since 2005 to reach a low of negative 87,000 square feet in the first half of 2008, as shown in Exhibit 33. The Third Street/Potrero Hill submarket had the lowest net absorption (a loss of about 45,000 square feet), or 52 percent of the net loss of occupied warehouse space during the six-month period between January and June, 2008.
Net absorption of warehouse space in the I-80/880 corridor has also fluctuated considerably over the past few years, as seen in Exhibit 34. For example, net absorption was negative in 2001 and 2003, rose to 2.4 million square feet in 2004 and fell back down to negative 1.1 million square feet during the six-month period between January and June, 2008. The city with the highest net absorption of warehouse space during the six month period between January and June, 2008 was Newark, with about 384,000 square feet, as was shown in Exhibit 34.

Net absorption was zero or negative in all but one submarket in San Mateo County through June, 2008. The negative net absorption is likely due to minimal availability in a tight warehouse market that has experienced several years of strong gross absorption, as shown in Exhibit 35.
8.4 Key City Trends

Vacancy and absorption rate trends in four key cities (San Francisco, South San Francisco, Oakland and Richmond) were also analyzed. Exhibit 36 shows that the vacancy rates in Oakland and Richmond as of June, 2008 were 3.7 percent and 8.2 percent respectively. Oakland’s vacancy has fluctuated between a low of 1.4 percent in 1995 and a high of 7.1 percent in 2003, with most years ranging between 1.5 percent and 4.9 percent. Richmond is a much smaller market, with only 5 million square feet of warehouse space as compared to the much larger San Francisco, Oakland, and South San Francisco/San Bruno markets each with over 13 million square feet of warehouse space. Thus the vacancy rate in Richmond has varied widely from a low of 1.5 percent in 1995 to a high of 13.3 percent in 1999. South San Francisco and San Francisco have had similar trends in vacancy and mirror those seen county-wide.

The average monthly asking rate was $0.45 per square foot (NNN) in Oakland and $0.36 per square foot (NNN) in Richmond, down from $0.48 and $0.57 in 2000, as shown in Exhibit 37. Warehouse space in the South San Francisco/San Bruno submarket as of June, 2008 was renting at $0.83 per square foot per month, up from a low of $0.57 per square foot per month (NNN) in 2005, as shown in Exhibit 37. As shown, this submarket experienced an extreme rent peak of over $1.40 per square foot per month in 2000.
8.5 Refrigerated Warehouse Space

With respect to refrigerated warehouses, Exhibit 38 shows there are only 10 facilities in the Bay Area, the majority of which are located in Alameda County. The total building base of refrigerated warehouse space is approximately 750,000 square feet. These numbers are significantly lower than those figures presented in the 2000 report, primarily due to what appears to be data collection differences. In the prior market study, 1997 NAICS data was used to determine the number of buildings, employees, and total building size at the refrigerated warehouse facilities in the Bay Area. The data may have been overstated due to the location of facility headquarters and over-estimating the local building base and employee headcount. Nonetheless, conversations with local refrigerated warehouse operators indicate that the amount of refrigerated warehouse space in the Bay Area has declined slightly over the past eight years.

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Number of Buildings</th>
<th>Number of Employees (1)</th>
<th>Avg. Square Feet per Employee</th>
<th>Total Square Feet (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Francisco County</td>
<td>2</td>
<td>70</td>
<td>2,301</td>
<td>161,104</td>
</tr>
<tr>
<td>Alameda County</td>
<td>6</td>
<td>188</td>
<td>1,908</td>
<td>358,726</td>
</tr>
<tr>
<td>Contra Costa County</td>
<td>1</td>
<td>30</td>
<td>6,667</td>
<td>200,000</td>
</tr>
<tr>
<td>San Mateo County</td>
<td>1</td>
<td>6</td>
<td>5,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Total/Average</td>
<td>10</td>
<td>294</td>
<td>3,969</td>
<td>749,830</td>
</tr>
</tbody>
</table>

Sources: NAI BT Commercial; Refrigerated Warehouse representatives; Realquest; Claritas; International Association of Refrigerated Warehouses (IARW); County Business Patterns; and CBRE Consulting.

(1) Total number of employees is approximate. In most cases estimates were provided by warehouse management.
(2) Square footage figures are approximate. Where available they were determined through property specific data, but in some cases estimates were provided by warehouse management.

8.6 Bay Area Warehouse Market Conclusions

Based on this market assessment, it appears warehouse space in San Francisco will remain in short supply and limited demand. Demand for other more profitable land uses will continue to put pressure on landowners to convert lower intensity uses such as warehouses and industrial space into higher density uses, such as office space and residential units. As a result, the market will likely be dominated by users who, for strategic reasons, need to locate in San Francisco. The East Bay, especially Oakland, will increasingly become the more desirable option for warehouse space in the Bay Area. These pressures will likely result in further contraction of the supply of warehouse space, thereby raising rents and lowering vacancy rates on space remaining in the market. The Port of San Francisco can capitalize on this tight market by targeting niche warehouse users. However, it is important to remain aware of the inherent constraints of operating a warehouse facility in San Francisco, such as limited containerized shipping activity, union labor requirements of the Port, and transportation constraints.
Interviews with warehouse operators indicate that more cost effective options are in East Bay locations. San Francisco warehouse operators are not looking to expand; while operators in other Bay Area markets are looking to increase capacity. With average asking rates less than half those in San Francisco and San Mateo counties, the East Bay (especially Oakland and Richmond) will likely continue to dominate the market for warehouse space in the region.

**9 FOREIGN TRADE ZONE OPERATIONS**

The Port of San Francisco’s Foreign Trade Zone (FTZ) is currently located at Piers 19/23. The facility offers 547,000 square feet of indoor warehouse space and 60,000 square feet of outdoor storage. The current operator’s lease is being terminated by the port and could not be reached for an interview.

As the Port of San Francisco moves into new operational modes with respect to the FTZ, it may be necessary to reexamine the current configuration of designated space at Piers 19/23 and potentially search for a new location(s) within Port property. It is possible to have the permitted FTZ square footage reallocated to another location(s) at the Port. The Port of New Orleans redesignated an underutilized General Purpose Zone. The Port applied for a redesignation over existing warehouses and backland areas. The original FTZ area was paved, becoming what is now Napoleon Container Terminal. The London Metals Exchange approached the port about available warehouse operations and has become a key tenant of the FTZ.

The Port is competing against other FTZ operations in the Bay Area. Oakland’s FTZ #56 offers over 1 million square feet of warehouse and distribution space, which is controlled by a single operator, Pacific American (PACAM). The facility is rail served and handles such commodities as food, wine, consumer goods and cosmetics. The Port of Stockton’s FTZ #231 offers seven sites with rail access and over 10 million square feet of warehouse and distribution space. The designated area also features three Prologis distribution parks ready to build on 340 acres.

The National Association of Foreign Trade Zones (NAFTZ) launched the Trade Agreement Parity (TAP) Initiative in an effort to level the playing field for the U.S. manufacturing industry. Manufacturers located in FTZs are at a disadvantage. Currently the U.S. extends duty-free entry to goods manufactured overseas by firms in FTZ partner countries, but not to manufacturing firms located in U.S. FTZs. The TAP legislation would extend U.S. Free Trade Agreement (FTA) preferential treatment to goods manufactured in U.S. FTZs and Subzones and put back (“exported”) into the US market. The estimated economic impact of the proposal is $66 billion of new shipments from U.S. FTZs to U.S. market, creating 95,000 new manufacturing jobs in FTZs. The TAP legislation may benefit the Port by bolstering new manufacturing growth in designated FTZ areas. The Port is encouraged to stay abreast of developments and potential niche opportunities that would benefit from the Port’s FTZ designation.
IV. POTENTIAL NEW CARGO MARKET OPPORTUNITIES

Chapter III focused on the existing markets served by the Port of San Francisco. This chapter will examine potential opportunities of cargo that the port does not currently handle. The analysis identifies potential markets, current regional ports serving these markets, and the competitive factors that affect and influence port routing decisions. The analysis also identifies the Port of San Francisco’s competitive position in attracting these cargoes.

1 AUTOS
1.1 Existing Situation

West Coast ports are extremely active in the auto import and export markets. This analysis focuses the auto operations at California ports – specifically Benicia, Richmond, Port Hueneme, Los Angeles/Long Beach, and San Diego. A brief description of each port’s auto operations is as follows:

- **Benicia:**
  - Proprietary terminal operated by AMPORTS
  - Key imports - Kia & Toyota
  - Key carriers include K-Line, NYK and MOL

- **Richmond:**
  - Auto Warehousing Company (AWC)
  - Key imports – Kia, Toyota
  - Signing Honda account from Pasha in San Diego
  - Key carriers include NYK, EUCOR

- **Port Hueneme:**
  - Processing operations operated by IAP and Glovis
  - Key makes handled - BMW, Volvo, Saab, Jaguar, Land Rover and Suzuki
  - WWL is dominant carrier; NYK and MOL also call

- **Los Angeles/Long Beach:**
  - Toyota and Mercedes Benz are key accounts at Long Beach
  - Nissan is key account at Los Angeles
  - NYK and WWL are key carriers

- **San Diego:**
  - The Pasha Group is terminal operator and processor
  - Import - Honda, Mazda, VW/Audi, Porsche and Acura
  - Export Chrysler and GM to Hawaii (30k units) and Pacific Rim (5k units)
  - Key carriers include NYK, MOL and Vag Transport

From 2003-2007, auto imports at West Coast ports have grown at 5.6%, while California ports have grown at 8.8% over the same period. In Southern California, San Diego has exhibited the most constant growth since 2003. In Northern California, Benicia has demonstrated 28.1% annual growth, while Richmond has become a consistent player since 2004. Exhibit 39 demonstrates the historical auto tonnage handled at all of the key California ports.
1.2 Competitive Factors Influencing Port Selection

While overall growth in the auto import market is driven by the consumer demand for new purchases and lease renewals, stepwise growth at individual ports is due to changes and shifts in accounts between ports. San Diego signed an account with Mazda (2006) to import about 100,000 units annually away from Port Hueneme. Honda is repositioning inland distribution from San Diego to Richmond, which will ramp up to 100,000 to 150,000 units annually. The Port of San Francisco was a candidate until tri-level rail became a key issue. There is still potential for some makes/models to move away from Southern California ports to other regions including Northern California.

The challenge to attracting imports to the Port of San Francisco is the rail tunnel clearance issue which prohibits the handling of tri-level cars (and double stack container service). The Joint Powers Board (JPB)/Caltrain own trackage rights and is responsible for maintenance and repair of the track. Currently the San Francisco Bay Railroad (SFBR), the Port’s short line switching company, is able take freight cars of 17’6” through tunnels #3 and #4. JPB and Union Pacific Railroad (UP) surveys indicate that tunnels can handle railcars of 18’6”, although SFBR has not been permitted to run test cars through for confirmation. The JPB’s long-range plan to electrify the track would limit the clearance in tunnels #3 and #4 to 17’, ultimately eliminating future freight operations from the Port. The Port is in the process of exploring all options and its legal rights pertaining to the track, therefore this issue may not be resolved in the near-term. Furthermore, the cost of tunnel improvements to handle tri-level railcars is unknown. Interviews indicate preliminary estimates range widely from $200,000 to $22 million.

To further complicate the issue, there is a proposal to build high speed rail between San Francisco and Los Angeles, which passed in a statewide proposition on the November ballot.
1.3 Port of San Francisco’s Potential Opportunity

The key opportunity for San Francisco in the auto market is two-fold. First, secure an account that would import autos for regional distribution (estimated 200-mile radius). This would require an importer to split Northern California regional distribution from inland distribution that is typically served via rail. Optimistically, if the Port of San Francisco would solve the rail tunnel issue, the prospect for handling inland markets via rail would most likely follow in the longer-term. The second opportunity for the Port is to handle domestic manufactured exports. These units would be railed from Midwest destinations (again assuming the rail tunnel situation is resolved), providing the carrier with a load back to Asia and other international markets. It is expected that a service of this type could initially generate 40,000 to 80,000 import units and 30,000 to 40,000 export units.

Assuming industry averages for West Coast operations of 3,000 units per acre per year, auto throughput at the 70 acres on Pier 80 could potentially reach about 150,000 to 200,000 units annually. Based on Martin Associates’ economic impact model, an initial throughput of 115,000 units annually would yield about 406 total jobs and $3.9 million in annual tax payment to State and local governments, as illustrated in Exhibit 40.

Exhibit 40 - Opportunity Cost to the Port of San Francisco of Autos

<table>
<thead>
<tr>
<th>Potential Auto/Processing Impacts</th>
<th>115,000 Import/Export</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOBS</td>
<td></td>
</tr>
<tr>
<td>DIRECT</td>
<td>126</td>
</tr>
<tr>
<td>INDIRECT</td>
<td>259</td>
</tr>
<tr>
<td>INDIRECT</td>
<td>22</td>
</tr>
<tr>
<td>TOTAL</td>
<td>407</td>
</tr>
<tr>
<td>PERSONAL INCOME/LOCAL CONSUMPTION ($)</td>
<td></td>
</tr>
<tr>
<td>DIRECT</td>
<td>$8,465</td>
</tr>
<tr>
<td>RE-SPENDING/CONSUMPTION</td>
<td>$26,552</td>
</tr>
<tr>
<td>INDIRECT</td>
<td>$930</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$35,947</td>
</tr>
<tr>
<td>BUSINESS REVENUE ($)</td>
<td>$30,364</td>
</tr>
<tr>
<td>STATE AND LOCAL TAXES ($)</td>
<td>$3,900</td>
</tr>
<tr>
<td>LOCAL PURCHASES ($)</td>
<td>$1,537</td>
</tr>
</tbody>
</table>

Source: Martin Associates’ economic impact model

Chinese manufactured autos have been on the horizon for the U.S. market for several years. Currently these manufacturers must keep pace with increased domestic demand prior to distributing to the U.S. market. In the near-term, while there is potential to distribute a few models, full product lines are needed to sustain large scale distribution in the U.S. market. Therefore, Chinese auto manufacturers are not expected to be a player in the U.S. import market in the near-term.
The Port’s marketing efforts need to focus on processors and terminal operators to identify progress of opportunities. Also correspondence with manufacturers, both overseas and domestic is encouraged.

2 BREAKBULK AND CONTAINERIZED FRUIT
2.1 Existing Situation

Both containerized and breakbulk fruits are imported through California ports. Bananas comprise the majority of the containerized activity while Chilean fruits, such as grapes, are primarily imported in breakbulk vessels. Southern California ports dominate the West Coast fruit market. This is due to the fact that the majority of the fruit imported through California ports is consumed in the Southern California market. Interviews with importers and carriers indicate that approximately 70% to 80% of fruit remains in the local Southern California region for distribution and consumption. The remaining 20% to 30% is destined for other consumption markets including Northern California, the Pacific Northwest, other western states, and Canada. Port Hueneme is a key port in the fruit market, whose tenant base is comprised of Chiquita, Del Monte, and Pacific Fruit/Bonita Banana. Dole is the key account at the Port of San Diego, while the Ports of Los Angeles and Long Beach handle a variety of Chilean fruits. Currently, NYKCool and CSAV are the two key lines carrying the Chilean products.

With respect to containerized bananas, the West Coast import market has been relatively stable, importing about 700,000 metric tons annually. An additional 300,000 of breakbulk bananas are imported annually. The ratio of containerized to breakbulk banana shipments has remained relatively stable. The composition of tenants at the Port of San Diego (Dole) and Port Hueneme (Chiquita, Bonita Banana and Del Monte) make these ports the key players in the containerized banana market. Exhibits 41 and 42 illustrate the West Coast market and the dominance of the Port of San Diego and Port Hueneme.

Exhibit 41 – Historical West Coast Banana Imports

Source: US Census Bureau
Exhibit 43 illustrates that West Coast breakbulk fruit imports experienced significant growth over the 2003 to 2005 period; however, have not exhibited growth in recent years. The growth on the West Coast has occurred at Port Hueneme, while Los Angeles and San Diego have remained flat or in decline.

Source: US Census Bureau
The share of containerized to breakbulk imports in the West Coast fruit market has remained relatively stable between 60% and 70% since 2004.

Exhibit 44 – West Coast Share of Breakbulk to Containerized Fruit Imports

2.2 Competitive Issues Influencing Port Selection

Southern California ports control the import market for several reasons including, the local population centers and consumption markets and the number of warehouse and distribution facilities that serve the market area. Shipping and routing decisions are typically made overseas by exporters. Key accounts with wholesalers and retailers such as, Vons, Ralph’s Safeway, BJ’s, Costco, and Albertsons often influence routing decisions. In Northern California, Costco and Safeway operate distribution centers in the Stockton area. Exhibit 45 emphasizes the presence of importers in the SoCal area. Interviews with shippers emphasize that it is this presence of warehouse and distribution facilities that drive the port routings. To justify a Bay Area port of call, significant market share to Northern California, Pacific Northwest, and Canada must be achieved.
Growth also occurs as operators move between ports. Chiquita is a key account in Hueneme that could have relocated to San Diego. Interviews suggest that there may be opportunity for key tenants to consider other port options.

Skilled terminal labor and efficiency is a key issue in handling breakbulk fruit. In Southern California, Port Hueneme is the most efficient breakbulk handler moving approximately 85 pallets per ganghour. Los Angeles is about 20% less efficient at 70 pallets per ganghour and San Diego is the least productive, handling between 40 and 70 pallets per ganghour. These productivity rates translate directly into cost to the importer. More productivity will yield a better stevedoring rate. This productivity has contributed to the success of Port Hueneme. The Port of San Diego’s container productivity has fallen by about 20%, thus making banana imports a critical issue. The Port of San Francisco also faces labor challenges in terms of productivity. As stated previously, this issue will need to be addressed if the Port wishes to pursue the breakbulk market. The Port of San Francisco does have skilled labor in terms of containerized cargo, which will play favorably if the Port decides pursue containerized banana operations.

Another key driver in port selection is the ability to fumigate Chilean fruits. The City of San Francisco has an ordinance banning the use of the fumigant methyl bromide. Other fumigants are in testing stages, methyl bromide is currently the only option. While containerized bananas do not require fumigation, the Chilean Fresh Fruit Association (Sonoma, CA) estimates that of the 1.4 million tons of Chilean fruit handled annually, 70% requires fumigation, including grapes and stone fruits. Fumigation restrictions in San Diego have limited the Port’s growth opportunities. A limitation at the Port of Los Angeles is the identification of the Outer Harbor area as the future site for cruise terminal development, thus ultimately displacing the current fruit operations.
The Port of Stockton is building a cold storage warehouse at Rough and Ready Island which will likely be completed in time for the 2009 fruit season. The 400,000 square foot cold storage warehouse will include a fumigation facility that is expected to capture 100% of the fumigation contaminants. This development, in addition to the fumigation restrictions, puts the Port of San Francisco at a competitive disadvantage. This infrastructure investment at the Port of Stockton may cause importers to pay more attention to Northern California ports, which could have a positive impact on the Port of San Francisco.

2.3 Port of San Francisco Opportunity

Based on the previous analysis, the key opportunities at the Port of San Francisco for breakbulk fruit imports do not look favorable in the near-term. Therefore, the focus should shift to containerized banana operations.

The outlook for future fruit imports is driven by per capita consumption trends for each commodity. Per capita consumption has been declining for bananas, oranges and peaches and increasing for pineapples, lemons, mangoes and avocados. Exhibit 46 illustrates the historical banana per capita consumption pattern. Exhibit 47 shows the population forecasts by key western states that would comprise the majority of the market is about 1.2% annually. It is expected that fruit growth will mirror these figures in the long-term.

Exhibit 46 – US Banana Consumption (Pounds per Capita)

Source: USDA
A single terminal operator appears to be the best fit for Pier 80, since they would control enough volume to make their own routing decisions. Based on information gathered in interviews, it appears as if Chilean exporters are interested in serving Southern California markets. Containerized banana terminal operation that should be investigated include Dole in San Diego, as the situation could be in jeopardy with current opposition to the port and development plans; Pacific Fruit/Bonita Banana in Port Hueneme - is cutting worldwide banana distribution. This situation should be investigated to identify if there is potential to relocate operations to better suit future distribution patterns.

From a carrier’s perspective, a Northern California port of call would be advantageous to serve Northern California, the PNW, and Canadian markets. With only 20% to 30% of goods moving northbound, marketing departments don’t feel there is enough volume to support a call. Additionally, if a Bay Area port of call is established, and a presence is maintained in Southern California, thus splitting operations, an additional vessel would be required.

Competition from Stockton is increasing. Not only will the cold storage development have an impact, but Metro Stevedoring recently placed a new crane at the Port which will most likely target breakbulk commodities. This, coupled with the fact that the refrigerated warehouse will have the ability to fumigate, Stockton becomes a very suitable port in the near-term.

Exhibit 48, based on Martin Associates’ economic impact model, demonstrates that a weekly containerized banana service would generate 944 total jobs and $9.1 million in taxes; similarly a breakbulk fruit operation moving 200,000 tons of cargo at the Port of San Francisco would generate 743 jobs and $7.4 million in annual tax payment to State and local governments.
3 WIND ENERGY PROJECT CARGO

3.1 Existing Situation

The Port of San Francisco handles sporadic market project cargo shipments of equipment and machinery. These markets tend to be extremely sporadic in nature, which is outlined in the previous chapter. More sustainable project cargo has typically occurred in the Gulf Region where the ports are serving the offshore oil field industry. The growth of the wind energy market in the United States is driving more ports to become involved in the windmill market. Again the Gulf region, specifically Houston and Corpus Christi, have established themselves as key ports serving this industry. On the West Coast, San Diego and Port Hueneme and PNW ports of Longview, Tacoma and Vancouver (WA), are growing in the market. Specifically, Vancouver recently added new cranes to accommodate more capacity.

Shipment sizes are unique and vary with each individual windmill farm project and the location. Some projects may require 3-4 towers and others can range up to a few hundred. The size of the windmill components can vary with the manufacturer and power wattage transformer needed. Key components of a windmill include:

- Towers;
- Blades; and
- Nacelles (transformers/engines/rotors).

Key origins of import components include Japan, China, Denmark, Spain, Germany and India. Oldendorff and ECL have become the key carriers in the West Coast market. Rickmers Line specializes in project cargo on the Gulf Coast. Although the specifications of each shipment vary, one vessel call can handle approximately 50 to 90 pieces, which could be comprised of 50-66 blades, 20 sets 80-Meter towers (each set

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### Exhibit 48 - Opportunity Cost to the Port of San Francisco of Fruit Operations

<table>
<thead>
<tr>
<th></th>
<th>Containerized 94,000 TEU</th>
<th>Breakbulk 200,000 tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOBS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIRECT</td>
<td>343</td>
<td>234</td>
</tr>
<tr>
<td>INDUCED</td>
<td>627</td>
<td>496</td>
</tr>
<tr>
<td>INDIRECT</td>
<td>25</td>
<td>13</td>
</tr>
<tr>
<td>TOTAL</td>
<td>944</td>
<td>743</td>
</tr>
<tr>
<td>PERSONAL INCOME/LOCAL CONSUMPTION ($1,000)</td>
<td></td>
<td></td>
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<tr>
<td>DIRECT</td>
<td>$20,045</td>
<td>$16,323</td>
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<tr>
<td>RE-SPENDING/CONSUMPTION</td>
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<tr>
<td>INDIRECT</td>
<td>$1,078</td>
<td>$551</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$83,998</td>
<td>$68,073</td>
</tr>
<tr>
<td>BUSINESS REVENUE ($1,000)</td>
<td>$35,188</td>
<td>$17,992</td>
</tr>
<tr>
<td>STATE AND LOCAL TAXES ($1,000)</td>
<td>$9,114</td>
<td>$7,368</td>
</tr>
<tr>
<td>LOCAL PURCHASES ($1,000)</td>
<td>$1,781</td>
<td>$911</td>
</tr>
</tbody>
</table>

Source: Martin Associates’ economic impact model
contains 3 pieces - size varies 11X4 meters and 24X3 meters) or 2.4 MW unit generators.

3.2 Competitive Factors Influencing Port Selection

Key elements of port selection include inland transportation routings including tunnel clearances, bridges and distance, and on-dock storage areas. The typical dwell time for components is approximately 15 to 30 days but can be longer depending on the project status. Reliable labor is a key requirement not only in terms of efficiency, but also limited damage claims. Longview has extremely efficient production, discharging 4-6 units per hour over three shifts. By comparison, San Diego discharges 3-4 units per hour over 6 shifts. Conversion and assembly of components is required from vessel frames to over-the-road shipment. The Port of Corpus Christi has excelled at converting the components for road shipments. Steady gang structures have been a fundamental element to their success.

Interviews indicate that the vast majority of the components are shipped inland via truck. In the past, rail has not been a cost effective option, but it is expected to become a critical part of the logistics chain going forward. Currently, a project needs to have enough volume to support a unit train of 40-60 rail cars for rail transport feasibility. Top sections of the towers are the components most likely to be transported by rail. Flat car availability is also an issue. The railroads, shippers and manufacturers are in the process of trying to develop a rail car loading system that allows for easy transformation from vessels to rail.

The Production Tax Credit (PTC) is up for renewal in Washington DC. Wind farm developers have not stopped ordering pieces, but until the PTC is renewed, the status of some projects is on hold. This is increasing the dwell time at commonly used ports and is creating space constraints as new shipments arrive. This creates opportunity for other ports interested in getting into the market. For example, the Port of Olympia is aggressive and is trying to capture a share of the PNW market.

The Port of San Diego is the key port of discharge in Southern California, however they have experienced some issues. Projected growth is two to three times over the next three years. Larger, new generation megawatt units that will be discharged will occupy more space. The first of the 2.4 MW units arrived at the Port in August. The City requires oversize permitting thus creating a logistical constraint. Furthermore, there have been labor issues which have resulted in ship delays. These labor and terminal congestion problems may influence future growth.

In the Bay Area, a key issue with the windmill pieces is the size and permitting requirements to transport the pieces through the city. Labor issues also need to be addressed due to the complexity in handling the components. There has been a growing interest in the Port of Stockton.

3.3 Port of San Francisco Opportunity

The wind energy market is a growth industry. Exhibits 49 and 50 illustrate the planned projects for 2009, 2010 and future unspecified years for key western states as identified by the American Wind Energy Association (AWEA).
## Exhibit 50 – Future Wind Energy Projects 2009, 2010 and Unspecified Date

<table>
<thead>
<tr>
<th>State</th>
<th>Project Name</th>
<th>Location</th>
<th>Turbine Manufac.</th>
<th># of WTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>Dry Lake</td>
<td>18 miles N of Snowflake</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>California</td>
<td>Pine Tree Wind project</td>
<td>12 miles north of Mojave</td>
<td>GE Wind</td>
<td>80</td>
</tr>
<tr>
<td>Wyoming</td>
<td>Rolling Hills</td>
<td>Converse County</td>
<td>GE Energy</td>
<td>66</td>
</tr>
<tr>
<td>Wyoming</td>
<td>Seven Mile Hill</td>
<td>Carbon County</td>
<td>GE Energy</td>
<td>66</td>
</tr>
<tr>
<td>Arizona</td>
<td>Pine Tree Wind project</td>
<td>near Lompoc (Santa Barbara County)</td>
<td>GE Energy</td>
<td>60-80</td>
</tr>
<tr>
<td>California</td>
<td>repower</td>
<td>San Gorgonio Pass (Riverside County)</td>
<td>GE Energy</td>
<td>60-80</td>
</tr>
<tr>
<td>California</td>
<td>Alta Wind Energy Center</td>
<td>Tehachapi (Kern County)</td>
<td>GE Energy</td>
<td>800</td>
</tr>
<tr>
<td>California</td>
<td>Project</td>
<td>South of Ferndale, Humboldt County</td>
<td>GE Energy</td>
<td>30-35</td>
</tr>
<tr>
<td>California</td>
<td>Calithness 251</td>
<td>Tehachapi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California</td>
<td>Ridgetop Energy</td>
<td>Mojave, Kern County</td>
<td></td>
<td></td>
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<tr>
<td>California</td>
<td>Montezuma</td>
<td>Solana</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California</td>
<td>Pacific Renewable</td>
<td>Lompoc</td>
<td></td>
<td>55</td>
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<td>up to 40</td>
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Source: American Wind Energy Association (AWEA)
In summary, wind energy is a growth market as there are many key projects on the horizon in the western states in which the Port of San Francisco could compete as a port of call. Growth at the Port of San Diego is anticipated; however issues may leave them vulnerable to competition. San Francisco has not been marketed to this industry in the past. The Port of San Francisco must open lines of communication with carriers and key freight forwarders that make and advise on routing decisions.

4 OTHER BULK CARGOES

As discussed in the previous chapter, the Port’s current bulk markets, specifically cement and aggregate are susceptible to changes in economic conditions and the resulting contraction construction activity. The growth in bulk cargoes at competing ports has been the result of diversification of port’s tenant base. A few of these key tenant signings at Northern California ports include; US Gypsum and Pacific Ethanol at Stockton, Pabco Gypsum at Redwood City and Enligna wood pellet manufacturing plant at West Sacramento.

The recent completion of Illinois Street Bridge Project which provides on-dock rail service to Pier 80 will enable the Port of San Francisco to potentially compete for other import and export commodities such as iron ore, coal, slag and bauxite that typically travel inland via rail unit trains. Attracting and handling these types of commodities may require the signing of a new tenant or may be shipped through the Port of San Francisco on a spot market, case by case basis.

U.S. exports to such regions as Asia have increased in recent years; however global economic conditions may affect the near-term growth of these cargoes. As the health of the global economy improves, export commodities are expected to return to previous levels. The Port’s position in terms of water depth and proximity to the open ocean should position the Port as a leading candidate for these types of cargoes. The Port’s marketing efforts with bulk carriers and rail service providers should continue in pursuing these potential opportunities. It should be note that the signing of a key bulk tenant would most likely erode acreage for potential breakbulk cargoes.

5 OTHER MARITIME OPPORTUNITIES

5.1 Layberthing

The Port of San Francisco provides layberthing, the docking of vessels at a berth for reasons other than cargo handling. Vessels use a layberth for a number of reasons including repair work, taking on supplies or equipment, and to change crews. These examples require a layberth for short periods of time. If a port does not have designated layberths, short-term layberthing can be accommodated at marine cargo berths if no cargo handling activity is to be performed during the layberthing period. The priority for ports is to use marine cargo berths for marine cargo activity. Vessels may also require long-term layberthing. Examples of why vessels would require long-term layberths include the tie up of vessels taken out of service by the vessel's owners/operators (due to low market demand or long-term repair work and the vessel is unable to sail to a repair yard), vessels seized by U.S. Marshals and taken out of operation, and also for U.S. government vessels that must be maintained on stand-by readiness in the event of military need.
Other than for the anticipated layberth demand as cited above for U.S. government vessels and commercial vessels taken out of service due to low market demand, the need for layberths in the San Francisco Bay Area cannot be anticipated or projected. Vessel owners/operators must seek out available layberths on a case by case basis as they occur. Currently, there is limited layberthing available at Bay Area ports to accommodate layberthing needs.

The Port of San Francisco has the greatest supply of deepwater layberthing available in the Bay Area. Piers 27, 29 30-32, 48, 50, 54, 70, 80 and 96 are listed as Piers available for layberthing. These berths offer deep water and easy accessibility from the ocean. Currently, the Port of San Francisco is the homeport for three Cape H Class vessels which are currently being renewed for a 5-year term in 2008 (MARAD) Ready Reserve Force (RRF) vessels. Other Bay Area ports such as Richmond, Oakland and Redwood City are not players for MARAD vessels.

Other military vessels layberthed in the Bay Area include 10 RRF vessels under long-term lease at the former Naval Air Station in Alameda. Also, Suisun Bay is an anchor for decommissioned military vessels awaiting scrapping, not RRF. In recent years, the Military Sealift Command (MSC) placed LMSR vessels at layberth in Bremerton (WA), San Diego and Edmonds (WA).

Commercial vessel layberthing is done on a spot, case by case basis. The Port is currently providing a layberth for a Horizon vessel at Pier 50 D. Oakland’s Pier 68 recently provided a layberth for a Matson vessel. Interviews indicate that the Port of Stockton receives a few inquiries per year but does not have idle dock availability to accommodate these requests.

The Port of Redwood City is limited to a 500 ft. “guest berth” available at Dock 5 for layberthing. Docks 1 through 4 are active cargo docks. The maximum draft of vessels calling the Port is 34 ft. The Port of Richmond has over 1,000 ft. of berthing available for layberthing at Terminal 4 permitting the docking of vessels drawing a maximum draft of 35 ft. However, due to the conditions of the dock, only the layberthing of barges will be permitted. Stockton receives inquiries for layberthing services; however cargo activity at the port prohibits the use of these docks for layberthing. The Port of Oakland is limited to short-term opportunities.

In addition to having the greatest amount of berthing available for potential layberths, the Port of San Francisco is centrally located within San Francisco Bay providing an economical location to vessel owners/operators. Maritime service providers and repair and tug assist/escort companies are located in San Francisco and can cost effectively service vessels layberthed at the Port. The lack of local services at the Port of Redwood City increases the cost of layberthing vessels at that port, such as the cost for tug assist/escort. The presence of the San Francisco Drydock and the ancillary support service provided by Bay Area businesses to the drydock are a benefit to vessel owners seeking layberthing in the Bay Area.

In addition to layberthing operations for military and cargo vessels, the Port may have the opportunity to target berthing of mega yachts. The mega yacht market is growing in Southern California. The Port of San Diego recently signed a 2-year agreement with The San Diego Mooring Company to manage a Mediterranean style mooring operation at the Port. Mediterranean mooring docks the vessel perpendicular to
the berth. Mega yachts are generally over 100’ in length. The Princess Mariana (252’ LOA) was the first mega yacht berthed at the Port of San Diego in August, 2008. The Port of San Francisco is in an advantageous position to attract this opportunity due to the City’s upscale tourism industry. The Port has a number of berths capable of accommodating mega yachts.

5.2 Potential for an Airfreight Ferry Service

The Air Cargo Shuttle Service Study, which was performed in 2001 to investigate the potential development of a San Francisco Bay airfreight ferry service, has identified demand. It can provide an economic alternative to highway transportation. The study examines congestion in the Bay Area highway system and proposes a solution of operating a high speed ferry service between downtown and the Port of Oakland and Port of San Francisco’s Pier 26/28. Conceptually, shuttles would transport packages and mail discharged at Oakland International Airport destined to San Francisco (Pier 26-28) for delivery in the City and Peninsula. The study estimates that 20% of Oakland International Airport packages are destined for the Peninsula. Key participants in the program, FedEx and UPS were on board with the idea however the project stalled when Oakland could not offer a shuttle ramp due to environmental considerations. While it is not a part of this study, the Port is still encouraged to revisit this option and keep lines of communication open with FedEx, UPS and Oakland Int’l Airport for potential development of this service.
V. IMPLICATIONS

1 EXISTING MARKETS

The Port's key and most stable cargo business has been bulk cargo. Container operations ceased in 2005 and breakbulk commodities handled at Pier 80 have been unstable in recent years reflecting US and global economic market conditions.

Key obstacles to cargo growth include the Port's “isolated” geographic location away from East Bay markets. The majority of retail and wholesale distribution centers are located in the East Bay. Steel service centers and distribution facilities are concentrated in Stockton. While the competitive cost analysis suggests that the Port of San Francisco can compete, the perception of the shippers and carries must be changed. The labor situation, in particular ILWU 10, at Pier 80 is viewed as inefficient by carriers and shippers. The union workforce is relatively young and in-experienced and needs training to handle breakbulk commodities. The Port and PMA will have to work with the ILWU 10, terminal operators and carriers to rectify this situation. In addition, the Ports of Stockton and Richmond are becoming more aggressive. Stockton is building an on-dock cold storage facility capable of fumigation operations for Chilean fruits. The Port of Richmond is in the process of attracting a Honda import account from the Port of San Diego. The Port of San Francisco has fumigation restrictions and tunnel clearance issues that currently prohibit competing for these markets.

Growth forecasts for existing cargo and tenant base suggest the following:

- **Container operations are not likely to return.** The abandonment of container service from the Port in 2005 for other West Coast ports, specifically Oakland, emphasizes the importance of the proximity to distribution center activity to serve regional markets and double stack rail service to serve inland designations. Furthermore, while marine highway or short sea shipping operations appear marketable, the cost of transshipping and US carrier operations prohibit cost effective options to already mature truck markets.

- **Breakbulk steel is volatile and extremely sensitive to world market conditions.** Currently, construction is down, and it is anticipated that throughput will mirror the direction of the economy in general. Steel imports are driven by location of importer, which are primarily located in the East Bay. The Port of San Francisco can compete in this market against Stockton; however ILWU efficiency issues need to be addressed.

- **Breakbulk lumber is driven by the new housing market.** At this time, housing starts are in a slump and tonnage will not likely return until market conditions improve. A continual shift from breakbulk to containerized shipments could offset growth opportunities.

- **Newsprint is a declining market on the West Coast and is not expected to return.**
• **Project cargo has been sporadic.** The cargo market, by its nature, is sporadic. More sustainable project cargo operations, in particular wind energy components, are discussed in detail in the following section.

• **The Port’s dry bulk aggregate operations are expected to follow construction trends in the Bay Area.** The Port’s inland market reach is limited due to the time sensitivity of ready-mix products. Competition from other Bay Area ports with ties to the Port of San Francisco tenant base, specifically Redwood City and Stockton, will erode growth potential.

• **Tallow operations are expected to continue with historical growth patterns.** The development of the biofuels facility at Pier 92 may increase the need for additional feedstock, however it is anticipated that any additional material will be trucked from local sources. Outbound biofuels shipments will unlikely move via water.

### 2 POTENTIAL NEW CARGO OPPORTUNITIES

The study identifies the following potential new cargo opportunities for the Port of San Francisco:

• **Auto Imports/Exports** – There is potential to develop “regional” distribution for imports. Current rail clearance issues prohibit tri-level service to inland destinations. There is also potential for domestic manufacturer to use the Port of San Francisco for auto exports. Short term rail solutions will need to be negotiated until clearance issues are permanently resolved.

• **Fruit Imports** - Breakbulk fruit will continue to be displaced from Southern California container ports, but due to current fumigation restrictions this opportunity is not realistic for the Port in the near-term. The Port of Stockton is building a fumigation facility that will capture 100% of the particle contaminants. **Containerized fruit**, particularly bananas which do not require fumigation, from a single tenant/terminal operator such as Dole, Chiquita or Bonita Banana appear to be the best fit and offer the most potential for the Port.

• **Wind Energy Project Cargo** – Windmill imports is a growing market, with over 225 projects planned across the United States, supporting nearly 12,000 towers (2,500 towers proposed in Western states). This equates to approximately 120,000 individual pieces – tower sections, blades and nacelles and rotors. Ports in the Pacific Northwest and Gulf have taken advantage of this opportunity. Currently San Diego handles a significant amount of wind energy components, however terminal logistic issues and inefficient labor may negatively influence future growth in San Diego. Stockton is becoming a port of interest in this market suggesting that the Northern California ports can compete.

• **Other Bulk Commodities** - The Port’s geographic location, water depth and proximity to open ocean trade lanes to Asia should position the Port as a leading candidate for bulk imports and export commodities such as ore, coal, slag and bauxite. These types of cargoes typically move inland via unit trains, and the Port’s recent completion of the Illinois Street Bridge Project which provides direct
on-dock rail to the terminal will further provide the Port with the ability to attract these commodities. The Port’s marketing efforts with bulk carriers and rail service providers should continue in pursuing these potential opportunities. It should be noted that the signing of a key bulk tenant would most likely erode acreage for potential breakbulk cargoes.

3 FOCUS OF MARKETING EFFORTS

Based on this analysis it is recommended that the Port focus on the following key issues:

- **Address terminal and labor issues which could impact future cargo opportunities.** Overwhelming responses from interviews indicate that a key limiting issue at the Port is the inexperienced and inefficient labor practices of ILWU 10. The potential cargo types identified in this report demand efficient and damage-free handling. With experience, it is assumed that productivity will increase over time.

- **Address/increase days of operation at Pier 80.** At the outset of this analysis, terminal gates were only open 2 days per week. In recent months, this issue has been addressed and the Pier 80 gates are open 4 days per week. Previously limited days of operation force shippers and end users to schedule around available days to retrieve shipments. Ultimately, this issue would entice shippers to consider competing ports in the Bay Area, particularly Stockton. More consistent and reliable days of operations may lure local truckers into taking loads out of the Port. Truck availability is crucial in servicing the Bay Area markets.

- **Identify actual cost of tunnel repairs for tri-level cars.** Resolving the tunnel clearance issue is paramount in attracting an auto importer. While there may be interest for a manufacturer to split operations, and serve only the Northern California regional market from the port of San Francisco, the Port will increase its marketability dramatically if adequate rail clearances are available to allow for tri-level service to inland destination.

- **Investigate fumigation restrictions within the City.** Historically, the Southern California ports have handled the breakbulk Chilean fruits because of the large presence of cold storage and distribution facilities in the LA Basin. However, the Port of Stockton is building a 400,000 cold storage facility capable of fumigating Chilean fruits that is slated to be open for next Chilean season. The state-of-the-art facility will capture 100% of the particle contaminants. If successful, the Port of Stockton will be a leading candidate to handle these commodities, thus potentially shifting the mindset of the importers and shippers to reexamine Bay Area ports of entry.

- **Focus Pier 80 marketing efforts on long-term, sustainable cargo associated with tenant base.** The breakbulk steel, forest products and project cargo markets handled to date have been sporadic or in decline. These typically small-volume, multi-order vessel calls are subject to vulnerability and competing ports. Single tenants/terminal operators that should be considered include the following:
Auto processors and manufacturers;
Single containerized fruit tenant with enough volume to bring in regular service;
  - Market to overseas growers who make routing decisions;
  - CSAV and NYKCool are two primary carriers.
Other biofuels opportunities akin to Darling International – however, a bulk tenant operation will most likely erode acreage for other general cargo users.

Focus on local steel importers where the Port has a competitive advantage to develop inducement calls. The competitive cost analysis demonstrates that with the exception of local Stockton end users, the Port of San Francisco can be competitive in serving other areas including Sacramento, Richmond, Modesto and Fresno. The Port is encouraged to work with current carriers Saga and Star to identify (and market to) other potential shippers, as identified by PIERS reports, currently using other competing Ports. The Port is at a huge advantage by having both Star and Saga make a scheduled call. Carriers prefer the Port of San Francisco due to its location, easy channel access and deep water.

Focus marketing efforts on wind energy logistics providers. Interviews suggest that the Port of San Francisco is not a port that comes to mind with respect to wind energy components. It is necessary to market the Port’s assets clear to these decision makers. Key forwarders and carriers to be contacted include:
  - Transgroup Worldwide;
  - ECL;
  - Oldendorff; and
  - Rickmers Line.

Continue to investigate the potential of an airfreight ferry service. Key participants in the program, which would shuttle air freight and mail discharged at Oakland International Airport via Piers 26-28 for delivery in San Francisco and Peninsula, have expressed interest. Both FedEx and UPS were on board with the idea however the project stalled when Oakland could not offer a shuttle ramp due to environmental considerations. The Port is still encouraged to revisit this option and keep lines of communication open with FedEx, UPS, U.S Postal Service (USPS), and Oakland International Airport for potential development of this service.

All in all, the Port of San Francisco’s recent historical cargo base has been controlled by bulk cargoes which serve a local market. Increasing competition from the Port of Stockton, for breakbulk cargoes such as steel, may jeopardize further growth opportunities at the Port of San Francisco. The Port of San Francisco should market to carriers, shippers and end users (consignees) to emphasize the findings of the cost analysis presented in this report that shows that the Port of San Francisco can compete with Stockton for discretionary cargo. In addition, there appears to be potential for new cargo opportunities including, autos, containerized fruit and wind energy components which the Port should continue to investigate. However, factors such as labor efficiency and infrastructure issues need to be addressed if these opportunities are to come to fruition.
VI. APPENDIX A
Location of California Distribution Centers by type of commodity
Department Stores

Discount and General Merchandise