



RON GALPERIN
CONTROLLER

January 24, 2019

Honorable Members of the City Council
of the City of Los Angeles
c/o City Clerk
Room 395, City Hall
Los Angeles, CA 90012

Los Angeles Harbor Department
Board of Harbor Commissioners
425 South Palos Verdes Street
San Pedro, CA 90731

Under City Charter Section 266 (a), the City Controller, Mayor and City Council shall jointly cause at least once in every five years, an Industrial, Economic and Administrative Survey (IEA Survey) of the Harbor Department (Harbor), and shall select an independent qualified organization to conduct the IEA survey.

The 2019 IEA Survey of the Harbor, administered by representatives from the Controller's and Mayor's Offices, and the Chief Legislative Analyst representing the City Council, was prepared by the firm of BCA Watson Rice, LLP, at a cost of \$498,860.

The Harbor manages the Port of Los Angeles (POLA), the largest container port in the Western Hemisphere, encompassing 7,500 acres, 43 miles of waterfront, 220 berths, 27 major cargo terminals, industrial and commercial uses, and extensive roads, railroads and rights-of-way. In fiscal year 2017, the terminals handled nearly 200 million metric revenue tons of cargo.

This IEA Survey provides an extensive review and analysis of three areas: (1) cargo real estate and terminals; (2) commercial real estate; and (3) Harbor management. Some challenges identified include deepening the collaboration between the Ports of Los Angeles and Long Beach, navigating pricing changes in the shipping industry, identifying business diversification opportunities, expanding real estate development possibilities and consolidating the deployment of technology to improve operational efficiency. The executive summary covers these and other key issues faced by the Harbor and makes specific recommendations to address them. Our goals are to strengthen department operations and build upon the POLA's status as a leader in the increasingly competitive global market.

Sincerely,


RON GALPERIN
Controller
City of Los Angeles


ERIC GARCETTI
Mayor
City of Los Angeles


HERB J. WESSON, JR.
President
Los Angeles City Council



Los Angeles Harbor Department Industrial, Economic and Administrative Survey

FINAL REPORT | OCTOBER 2018



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Summary of Key Challenges, Opportunities and Recommendations

KEY CHALLENGES AND OPPORTUNITIES	KEY RECOMMENDATIONS	PRIORITY
Cargo Real Estate and Terminals		
<p>The two ports (<i>Ports of Los Angeles and Long Beach</i>) share the same bay, same customers and same highway and rail infrastructure. From the perspective of the customers' the SPB Gateway is one port. The two San Pedro Bay Ports (SPBP) share many opportunities and challenges that are most effectively addressed cooperatively. The future success of the SPBP depends on their ability to collectively pursue these opportunities and successfully mitigate these challenges. Fortunately, the SPBP have a long history of collaboration to build upon.</p>	<p>The Ports of Los Angeles and Long Beach build on their longstanding practice of collaborating and jointly prepare and implement a long-term, market driven capital investment and financing plans that prioritize future development in the San Pedro Bay Gateway to sustain the competitiveness of the Gateway and the economic benefits it generates to the region.</p>	High
<p>In the past twenty years, significant structural changes in the shipping industry have materially affected the leasing and pricing strategy of the Harbor Department (HD). As a result of these structural changes the HD increasingly does not have a direct, financially-based, contractual relationship with those organizations who have the most control/influence over the cargo routing decision.</p> <p>The HD also faces increased competition as other U.S. West Coast and Canadian ports are expanding their facilities. Potential changes to container terminal pricing strategy include charges to the marine cargo terminal tenants and separate charges to the container shipping lines; and incorporating additional provisions into marine cargo terminal leases/use permits.</p>	<p>Enhance the container terminal pricing strategy by implementing a pricing strategy that includes charges to the marine cargo terminal tenants and separate charges to the container shipping lines.</p>	High
<p>Revenue growth is essential to the HD's business strategy and long-term success. The diversity of the HD's business portfolio is above average by port industry standards, with four lines of business – cargo, cruise ships, industrial real estate and commercial real estate. Given the HD's future growth opportunities, significant capital investment program</p>	<p>Continue to pursue pragmatic diversification opportunities that enhance supply chain velocity and enhanced utilization of</p>	High



KEY CHALLENGES AND OPPORTUNITIES	KEY RECOMMENDATIONS	PRIORITY
and lack of available property, it is critical it continues to focus on sustaining its core cargo businesses.	existing industrial cargo properties.	
Commercial Real Estate		
Through the adopted Public Access Investment Plan the HD has completed renovation and improvements that directly link to supporting private investment and redevelopment of key LA Waterfront development projects and “sets the table” for future project development and waterfront events, economic development, and educational programs. The HD is also redeveloping the Ports O’ Call Village into the San Pedro Public Market which should create a new critical mass of restaurants, retail and entertainment space. Timing of future development opportunities should focus in the near term on product types that will create additional growth and demand for the waterfront’s visitor-serving retail, restaurant and hotel development.	Identify future development opportunities compatible with existing developments and begin the planning process.	High
Permissible uses in the Tidelands Trust area are generally interpreted to mean maritime (water dependent) and visitor-serving uses, which include parks, hotels, retail, restaurants and other commercial uses. Success of those visitor-serving uses depends on making the waterfront an attractive destination and concurrently developing uses that create jobs and community serving benefits. Opportunities for people to live and work in the area, if combined with growth in the cruise industry and other visitor-serving recreational uses, will fuel the revenues needed for continuing growth.	Evaluate potential options for overcoming development obstacles for creative office space and mixed-use development. Mixed use residential and creative office development could fuel more interest in waterfront commercial development.	High



KEY CHALLENGES AND OPPORTUNITIES	KEY RECOMMENDATIONS	PRIORITY
<p>The HD has developed a long-term vision to develop specific waterfront properties for public access and visitor serving developments. The HD's commercial real estate leasing policy and practices could be strengthened. The HD should continue its long-term waterfront planning process to identify relocation or co-habitation opportunities for its large portfolio of non-profit uses to ensure that those uses continue to contribute to the economic growth of the area; and that the best sites are available for revenue-producing development. Some currently under-developed locations, such as the outer harbor area, present future opportunities for commercial development that could be synergistic with existing uses.</p>	<p>Modify the leasing and pricing policy and practices to be more consistent with market rates and standard commercial lease practices to the extent practical given the market realities of the San Pedro and Wilmington waterfronts.</p>	Moderate
<p>The LA Waterfront captures a very small part of the overall tourism in Los Angeles with about 2.4 million visitors in 2016. The number of visitors to events on the LA Waterfront is increasing. A continued focus on creating events and partnering with operations (cruise, maritime museum, aquarium) and tenants (AltaSea, Crafted, and SpaceX) to create targeted events will ultimately create more business demand. As demand increases for the waterfront, the HD should consider requiring developers to partner with the HD or contribute to infrastructure investment currently borne by the HD.</p>	<p>Assess the impact on the number of visitors of current investments in public access infrastructure improvements to target investments.</p>	Moderate
<p>Historically, the HD's Real Estate Division was responsible for both HD cargo and commercial real estate. It is crucial that the HD's commercial real estate assets be managed to ensure that revenue optimization will continue through times of economic challenges or downturns. Creating a separate division to focus on development, management, and promotion of the HD commercial assets has accelerated completion of significant transactions and the quality of those transactions. The HD should continue to focus on improving practices to be similar to other successful waterfronts. Continuing engagement with comparable waterfront areas such as Long Beach and other successful waterfronts (San Francisco, San Diego) will help HD staff stay current and adopt new ideas that could apply to the LA Waterfront.</p>	<p>The Waterfront Commercial Real Estate Division should continue to direct and manage the Department's commercial real estate assets.</p>	Moderate



KEY CHALLENGES AND OPPORTUNITIES	KEY RECOMMENDATIONS	PRIORITY
Harbor Department Management		
The vulnerability of the HD itself to incursions is low because the HD established a Network Security Operations Center (NSOC) and recruited a Chief Information Security Officer (CISO). The vulnerability of Port tenants to cyber attack is currently unknown but may have a substantial impact. The HD has an interest in managing the risk and protecting the port complex from cyber-attacks and disruption.	Continue efforts to ensure its internal cyber environment remains secure, and work with Port tenants to assess and strengthen cyber security within the Port Complex.	High
HD business operations systems have not kept up with requirements. Each division individually evaluates and installs software for their requirements with each defining its own requirements definition and selecting systems. There is no mechanism to facilitate a unified set of business processes and systems requirements.	Evaluate business process and system requirements across Divisions and develop a blueprint for data and systems requirements.	High
The City provides several services to the HD under an Agreement entered into in 1997. Several service arrangements have changed that have impacted the level of service and hence the costs of services provided by the City, but the Agreement has not been updated to document these changes in services and costs.	Clearly identify the costs to be billed directly and indirectly for City services and document the rationale for billing those costs.	Moderate
ERM is the process of identifying and addressing methodically the potential events that represent risks to the achievement of strategic objectives, or to opportunities to gain competitive advantage. ERM could provide a greater awareness of the risks facing the organization and its ability to respond effectively and enhanced confidence about the achievement of strategic objectives.	Consider developing and implementing an Enterprise Risk Management (ERM) approach that expands the Department's consideration of risk in decision making and operations.	Low



Executive Summary

The Los Angeles City Charter in Section 266 requires that an Industrial, Economic and Administrative Survey (IEA Survey) of the property and business of each of the City's proprietary departments (Harbor Department, Department of Water and Power, and Los Angeles World Airports) be performed at least once every five years. These surveys must be conducted jointly by the City Controller, the Mayor and City Council, known as the Joint Administrators.

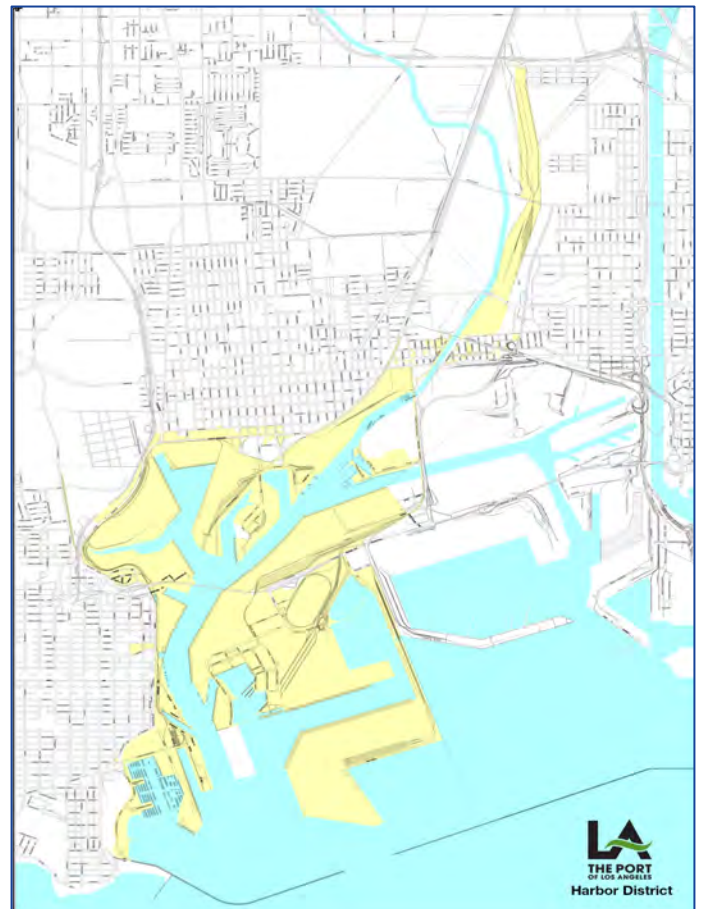
Overview of the Harbor Department

The City of Los Angeles Harbor Department (HD) operates the Port of Los Angeles (POLA), the largest container port in the western hemisphere, covering approximately 7,500 acres of land and water. Within its boundaries is contained 43 miles of waterfront, 220 berths, 27 major cargo terminals, industrial and commercial uses, and extensive roads, railroads and rights-of-way.

The POLA handled 9.3 million Twenty-foot Equivalent Units (TEUs) of containerized cargo and 198 million metric revenue tons of cargo in FY 2017. The nation's largest railroads (Burlington Northern Santa Fe and Union Pacific) and two major freeways help speed goods to and from the POLA. The POLA and the Port of Long Beach combined comprise the San Pedro Bay Ports (SPBP), the fifth busiest container port complex in the world.

The POLA also has a substantial impact on jobs and employment in Los Angeles, the region and the nation. The POLA creates an estimated 147,000 jobs in Los Angeles, which is one of

The Joint Administrators developed a specific scope of work for the IEA Survey of the Los Angeles Harbor Department. The focus of this review was on the current business model for the HD, including a focus on its cargo real estate and commercial real estate. It also included a review of key HD management issues, including cyber security, use of technology, City provided services and costs and Enterprise Risk Management.



every 13 jobs. It also creates an estimated 526,000 jobs in the five-county region, which is one of every 17 jobs. Nationwide, POLA creates an estimated 1.6 million jobs.



The HD generates a wide range of job opportunities across the spectrum of the regional economy. Port-related employment ranges from industrial and port-related jobs requiring technical skills and training to technology and safety jobs often requiring college and or graduate level training. The HD is a major employer of City of Los Angeles safety employees including fire and security positions.

The HD also generates substantial employment in the warehousing, distribution and logistics industries-jobs critical in the delivery of goods and services to the regions citizens and businesses. The HD is clearly a major driver of diversity and wealth creation within San Pedro, City of Los Angeles and the LA Basin economies.



Strengths and Accomplishments

The HD has many strengths, and its accomplishments over the past decade include:

- ♦ Continued and expanded cooperative initiatives with the Port of Long Beach
 - Continued to identify and pursue cooperative initiatives including cargo movement efficiencies and port capacities, and improved the safety and security of port terminals and properties
 - Updated the long-term container cargo forecasts for the San Pedro Bay gateway
 - Updated the Clean Air Action Program and Clean Truck Program leading to substantial reductions in air pollution and significant improvements in air quality in the San Pedro Bay
- ♦ Improved the competitive and financial position of cargo and terminal operations
 - Ranked as the #1 container port in the United States and North America moving more cargo in 2017 than in any time in its 110-year history,
 - Leads the way in supply chain efficiency and maritime shipping digitization with the launch of Port Optimizer™, a first-of-its-kind information portal developed in collaboration with GE Transportation.
 - Continued as an industry leader in financial performance, including revenue growth, operating income and cash flow generation
 - Made major capital investments in improving cargo terminals, transportation systems, and security
- ♦ Made major investments and progress in the development of commercial real estate and the LA Waterfront
 - Adopted the Public Access Investment Plan and completed renovations and improvements that support private investment and redevelopment of the LA Waterfront
 - Initiated redevelopment of the Ports O'Call Village into the San Pedro Public Market to create a new critical mass of restaurants, retail and entertainment space
 - Developed a long-term vision and commercial leasing guidelines to develop specific waterfront properties for public access and visitor serving developments
 - Created a new Commercial Real Estate Division to specifically focus on commercial real estate assets and developments
 - Significantly increased the number of visitors to events on the LA Waterfront
- ♦ Improved the security of the Harbor Department from cyber threats
 - Established a Network Security Operations Center (NSOC) to monitor the cyber environment and cyber threats
 - Established a Chief Information Security Officer with responsibility for managing cyber threats



Key Challenges and Recommendations

Although the HD has accomplished much over the past decade as described above, the results of our 2018 IEA Survey identified some significant key challenges that the HD must address in order to continue its position as one of the leading port complexes in the world and to maintain its competitiveness with other U.S. ports on the West and East coasts. Below we discuss those key challenges and make recommendations to address those challenges.

Cargo Real Estate and Terminals

The HD operates as a “landlord” port as most of its facilities are leased (use permits) to terminal operators, shipping lines, and private firms for operations. As the landlord, the HD is responsible for the design, construction and maintenance of wharf structures, and historically for the design and construction of backlands and structures. Tenants have typically been responsible for the maintenance of backlands and superstructures and are responsible for the acquisition, installation and maintenance of all cargo handling equipment.

A key focus of this IEA survey was the HD’s Business Model including the following four specific topics relative to cargo real estate and terminals.

Recommendation

The Ports of Los Angeles and Long Beach build on their longstanding practice of collaborating and jointly prepare and implement a long-term, market-driven investment and financing plans that prioritize future development in the San Pedro Bay Gateway to sustain the competitiveness of the Gateway and the economic benefits it generates to the region.

San Pedro Bay Ports (SPBP) Collaboration

The Ports of Los Angeles and Long Beach share the same bay – the San Pedro Bay (SPB). Their properties are contiguous and they both are dependent on the same highway and rail infrastructure to succeed.

From the perspective of the customers’ the SPB Gateway is one port. To these customers, it makes very little difference whether their cargo goes through the Port of Los Angeles or the Port of Long Beach. Most customers consider the SPB ports versus alternative ports in the Pacific Northwest or East Coast. While the SPBP compete with each

other, their major competition is the Port of Oakland, the Northwest Seaport Alliance, Vancouver and Prince Rupert in Canada and the major US East Coast ports.

The two SPBP’s lines of business are virtually the same with the container line of business dominating at each. Both ports handle liquid bulk cargo and have dry bulk and multipurpose cargo operations. Both are also dependent on the Region’s rail network to support their business.

The two SPBP’s share many opportunities and challenges that are most effectively



addressed cooperatively. The biggest opportunity, and challenge, is the potential for growth in container traffic. Current forecasts project container traffic at the SPBP's to increase between 85 percent to 226 percent by 2040. Developing facilities that are capable of efficiently and economically handling this increased container traffic is a key challenge that will require substantial capital investment.

Container shipping lines have and continue to consolidate, from 20 top global shipping lines into eight lines today. These eight lines have formed three alliances that increasingly dominate most major markets due to their economy of scale in networks, vessel size and total carrying capacity. ***The reality of fewer but larger customers makes it essential that the SPBP's are effective in competing for and attracting these large dominant customers to the ports.***



Picture 1: The largest container ship ever to call at a North American port (CMA CGM Benjamin Franklin) at the Port of Los Angeles.

The emergence of very large container ships is also a key opportunity and challenge. Very large container ships carry two to three times the

volume of the average container ship in the world fleet. They require substantial investments in deeper harbors, longer berths, container gantry cranes and larger container terminal footprints. The SPBP current ability to accommodate very large ships is a key competitive strength. The SPBP require ongoing investments to ensure they remain well positioned to attract these very large ships. The completion of the expanded Panama Canal in 2017 has increased the competitive positioning of US East Coast ports in the Asia-US container trade because the Panama Canal can now accommodate much larger ships.

Another shared opportunity and challenge is that of implementing environmental strategies to reduce port related emissions. The SPBP's Clean Air Action Program (CAAP) was first developed in 2006. Despite achieving substantial reductions in air emissions (e.g. reported 84% reduction in diesel related particulates) the SPBP current goal is to reduce port related emissions to zero or near zero in a 2025 - 2030 timeframe. Achieving this goal will require implementation of new technologies and significant capital investments that could range up to between \$6 to \$12 billion. The SPBP must remain competitive and continue to closely collaborate to generate the financial resources to successfully implement the CAAP.

The future success of the SPBP depends on their ability to collectively pursue these opportunities and successfully mitigate these challenges. Neither port will be successful alone. The Gateway will succeed, or the Gateway will recede in terms of market share, discretionary cargo volumes, and customers.



Consequently, sustained and expanded cooperation is essential to future success.

Fortunately, the SPBP have a long history of collaboration to build upon. Examples include developing long term container cargo forecasts; developing a master plan for operations, facilities and infrastructure; developing and operating the Intermodal Container Terminal Facility (ICTF) and Alameda Corridor (ACTA), and joint environmental initiatives including the Clean Air Action Plan and the Clean Truck Program are examples of joint port initiatives. The senior management teams and Harbor Commissions of the two ports, as well as both cities, have consistently been committed to identifying and pursuing cooperative initiatives.

We recommend the ports of Los Angeles and Long Beach build on their longstanding practice

of collaborating and jointly prepare and implement a long-term, market-driven investment and financing plans that prioritize future capital investment and development at the San Pedro Bay Gateway level (vs. the individual port level) to sustain the competitiveness of the Gateway and the economy that:

- ◆ Prioritizes and optimizes investments in marine terminal facilities, transportation and related infrastructure.
- ◆ Successfully implements the Clean Air Action Plan.
- ◆ Sustains the competitiveness of the SPB Gateway and the economic benefits it generates to the region.



Picture 2: Alameda Corridor



Cargo Terminal Leasing (Use Permit) and Pricing Practices

Historically, the HD's strategy was to lease its container terminals to container shipping lines because they control or significantly influence the port selection and cargo routing decisions. Consequently, the strategy was to lease terminals to the entities that controlled the freight.

In the past twenty years, significant structural changes in the shipping industry have materially affected the leasing and pricing strategy of the HD. Many of the tenants in the Port formed marine terminal operator (MTO) subsidiaries to operate the leased terminals and these MTO's became the tenants. These MTO tenants did not directly control the cargo routing decision, even though they were affiliated with the carriers. This weakened the HD's strategy of having a direct contractual relationship with the entities that controlled cargo routing decisions.

The ownership of these MTO's began moving from "strategic" investors that are part of the shipping industry to "financial" investors (pension funds, investment funds, and private equity firms) more interested in return on invested capital and related metrics. Financial investors tend to have a much shorter investment horizon and are more cautious about making longer-term capital investments typical of strategic investors. In addition, the consolidation of the container shipping industry discussed in the previous section, has created significant further changes in the HD's container line of business.

Recommendation

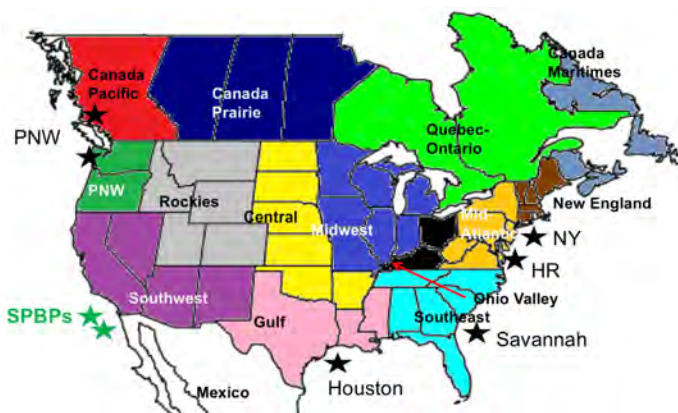
Enhance the container terminal pricing strategy by implementing a pricing strategy that includes charges to the marine cargo terminal tenants and separate charges to the container shipping lines.

As a result of these structural changes the HD increasingly does not have a direct, financially-based, contractual relationship with those organizations who have the most control/influence over the cargo routing decision. The HD also has increased financial risk since the container terminal tenants responsible for meeting the HD's Minimum Annual Guarantee (MAGs) volume do not have control or influence over the cargo routing decision. The HD also does not have the direct contractual relationships with container shipping lines that would enable the HD to offer effective financial incentives designed to encourage carriers to route more cargo through the HD's container facilities. The HD has focused on an effort to institute CPI escalators in its marine terminal lease agreements and pursuing a strategy of moving its leases toward market-based prices. While this will benefit the HD's financial performance it will not totally address



the above “industry trends” and financial challenges.

The HD also faces increased competition as other U.S. West Coast and Canadian ports are expanding their facilities. U.S. East Coast ports are also more competitive due to the expanded Panama Canal, harbor deepening and capital expansion programs. This increased competition could affect the approximately 34-40 percent of the “intact” (full container loads that move directly to inland destinations) containers that pass through the SPBP as discretionary cargoes, which due to their U.S. destination or origin, can be routed via any one of these other ports.



Picture 3: Ports competing for discretionary cargo

A final challenge is that a significant portion of the HD’s capital expenditures are allocated to non-revenue generating investments.

These investments include transportation infrastructure in general and non-freight related investments in particular, e.g. security, environmental and public access projects. During the past 10 years, over half (51%) of the HD’s capital expenditures were for non-revenue generating improvements. These trends are simply not sustainable without substantially increasing revenues and cash flows. This can only occur if cargo volumes increase substantially faster than non-revenue generating capital expenditures, if the HD significantly increases its rates, or through a combination of volume growth and rate increases. There is no definitive threshold at which non-revenue generating capital expenditures become unsustainable. However, a couple of key points provide some guidance:

- ◆ Each dollar invested in non-revenue generating assets is one less dollar that can be invested in revenue generating assets. Simplistically, the required Return on Invested Capital (ROIC) on a revenue generating dollar (assuming an equivalent number of dollars were invested in revenue generating investments) would need to double to earn the average ROI that would have been achieved if all dollars were invested in revenue generating assets.
- ◆ Rating agencies specifically review a port’s capital investment program when issuing ratings and rating reports. Capital investments in non-core businesses and non-revenue generating assets are



considerations in determining debt ratings and creditworthiness.

- The effect of a capital program on debt requirements and structures is considered
- The effect of capital spending on revenues, cash flow and liquidity is considered
- The lower a bond rating, which is in part related to the higher risks associated with non-core and non-revenue generating

investments, the higher the cost of debt for a port

We recommend the HD consider enhancements to its container terminal pricing strategy by including charges to the marine cargo terminal tenants, separate charges to the container shipping lines, evaluate the feasibility of instituting a transportation infrastructure fee; and consider incorporating additional provisions into marine cargo terminal leases/use permits.

Industrial Diversification Opportunities

Revenue growth is essential to the HD's business strategy and long-term success.

Historically, cargo growth in general and container cargo growth in particular have driven the HD's revenue growth. Pursuing practical diversification opportunities for the HD's business provides potential advantages including expansion of overall revenues from new lines of business and reduction in financial risk by broadening the risk profile of the HD.

The diversity of the HD's business portfolio is above average by port industry standards, with four lines of business – cargo, cruise ships, industrial real estate and commercial real estate. However, the cargo line of business dominates the HD's business portfolio, utilizing an estimated 55 percent of total acreage, generating approximately 84 percent of revenues, and producing virtually all operating cash flow.



Picture 4: POLA has substantial container cargo handling resources



Successful business diversification requires financial strength, surplus properties and demand for diversified uses. The HD is an industry leader in financial strength, but faces

Recommendation

Continue to pursue pragmatic diversification opportunities that enhance supply chain velocity and enhanced utilization of existing industrial cargo properties.

numerous, large scale, and comparatively unique investment challenges. The HD does not have surplus property to support development of potential diversified industrial business opportunities, with only an estimated 23 parcels totaling 11 acres (largest parcel is approximately one acre) available for development. Current container cargo growth forecasts show a need to add around 1,500 container handling acres in the SPB or increase the productivity and utilization of current facilities by 75 to 85 percent. Given this, the HD will not have surplus property to redevelop into diversified industrial uses.

In terms of demand, there is significant, sustained demand for consumer and related products in the SPB. There is also significant, sustained demand for logistics related infrastructure and services. Given both the amount of SPB warehousing and distribution

center (DC) infrastructure and the minimum acreage requirements for expansion, it is highly unlikely the HD could play a meaningful, competitive role or achieve a meaningful diversification of its industrial revenue base by diversifying into warehousing and distribution. There does not appear to be a growing or unmet demand for most manufacturing and processing facilities.

HD has a supply chain velocity strategic initiative to expedite the efficiency and effectiveness of moving cargo through the SPBP complex. This includes the HD's initiative with General Electric (GE) to develop a secure port information portal to integrate information regarding the status and movement of cargoes through the SPBP complex. It also includes a joint initiative with the private sector to evaluate opportunities to develop "off-terminal" container yards to a variety of services including chassis and interim container storage facilities at a centralized location. This will enable the container terminals to more efficiently use their container storage yards and increase the efficiency and velocity of moving containers through the SPBP complex.



Picture 5: TIICTIF Rail Terminal

Potential Business Disruptors

As part of this IEA Survey the consulting team identified potential changes or innovations that could potentially occur over the next few decades that could have a significant effect on the business and operations of the HD and the Port of Los Angeles. This includes both additional changes in the shipping industry or political and business environment of the Port. It also includes disruptive technology or innovations.

The potential trade tariffs that have recently been presented by the Trump administration could have potential repercussions on the shipping industry and the Port. On March 31, 2018 President Trump ordered the Office of US Trade Representative to publish proposed tariff increases on over 1,300 products the US imports from China. China has targeted approximately 160 US products for tariff increases in response to President Trump's order. These products total an estimated \$50 billion or 39 percent of total US exports to China.

Given the HD's future growth opportunities, significant capital investment program and lack of available property, it is critical it continues to focus on sustaining its core cargo businesses. Successfully implementing its supply chain velocity initiative is an essential element of sustaining the HD's core cargo business. Consequently, it needs to remain the primary focus of the HD's business and industrial real estate diversification efforts. We recommend the HD continue to pursue diversification opportunities that enhance supply chain velocity and utilization of existing industrial cargo properties.

The US Government's tariff initiative is complex, involves multiple components and continues to involve on a month to month basis as does the Chinese government's proposed responses. As of August 2018, the HD has estimated the evolving tariff initiatives could potentially affect:

- ♦ \$42 billion of trade value moving via the HD (20% of total trade value)
- ♦ 10 million metric tons of cargo (20% of total cargo volume)
- ♦ 1.4 million TEUs (23% of total container traffic)

Most importantly, there is a high degree of uncertainty as to what the final outcome of the politically-driven, proposed tariff initiatives will be. It is important to note most US tariff initiatives have been very focused in terms of products (typically a few commodities, e.g. iron and steel) and short-term in duration. ***While all US trade policy initiatives need to be carefully and fully considered, at this early stage the US's***



proposed “trade war” with China would not appear to present a significant, sustained, strategic threat to the HD’s core container line of business.

Disruptive innovation is innovation that creates a new market and value network and eventually disrupts an existing market and value network, displacing established market leading firms, products, and alliances. We identified two potential disruptive innovations that could impact the HD and Port – the Hyperloop Transportation Technology and 3D Printing or Additive Manufacturing.

Recommendation

Monitor changes and innovations that could potentially disrupt the business model, operations and revenues of the Port and make adjustments as needed and feasible.

Hyperloop is a transportation technology targeted for both passengers and freight cargo. Like a train, a hyperloop system follows a set track, however instead of cars on rails,

hyperloop uses capsules in tubes. Within the tube, the capsules sit in near vacuum using magnetic levitation and electromagnetic propulsion. The minimal air resistance allows capsules to move extremely fast and very efficiently. Hyperloop capsules are projected to efficiently travel at airline speeds with estimated maximum speeds close to 700mph for passenger and light cargo capsules.



Picture 6: HyperLoop Freight System

If successful, the Hyperloop Technology could significantly change transportation. Depending on the ultimate price of a system, it could in theory eliminate or dramatically reduce the need for airports, rail lines (freight and passenger) and interstate highways connecting the origin-destination points. In the case of the HD, it could in theory eliminate the need for the Alameda Corridor rail line, intermodal rail yards, and a portion of the SPBP highway network. Conversely, there would be a need to construct a hyperloop terminal or terminals.



3D printing refers to processes in which material is joined or solidified under computer control to create a three-dimensional object,

with material being added together (such as liquid molecules or powder grains being fused together). 3D printing has entered the world of clothing, with fashion designers experimenting with 3D-printed bikinis, shoes, and dresses. 3D printing has also come to the point where companies are printing consumer grade eyewear with on-demand custom fit and styling. In cars, trucks, and aircraft, Additive Manufacturing (AM) is beginning to transform both unibody and fuselage design and production and powertrain design and production.



Picture 7: Large 3D Printer

As 3D printing or AM becomes more prevalent and more economical it could have a major disruptive impact on the supply chain

and the need to transport finished products.

The ability to locally produce items, and the concept of “just-in-time” manufacturing could potentially reduce the amount of goods transported through the Port of Los Angeles, the need for cargo handling facilities, and the revenues generated by these facilities.

We recommend the HD monitor changes and innovations that could potentially disrupt the business model, operations and revenues of the Port and make adjustments as needed and feasible.

Commercial Real Estate

The HD’s commercial real estate currently generates approximately \$50 million in annual revenue, about 10% of the HD’s total operating revenues. The Port’s commercial waterfront consists of a 400-acre area at the water’s edge in the communities of San Pedro and Wilmington. Businesses include a cruise ship terminal, commercial fishing, sport fishing and marinas; fuel terminals; restaurants and retail space;

museums; and a wide variety of educational and community-serving non-profit uses. The waterfront is connected with pedestrian walkways, bike paths, numerous parks and plazas.

A key focus of this IEA survey was the HD’s Business Model including the following four specific topics regarding commercial real estate.



Commercial Real Estate Development Activity and Potential

In 2015, the HD adopted the Public Access Investment Plan. This plan commits the HD to invest 10% of the Port's operating income and an additional \$400 million over 10 years for development and operations of the LA Waterfront. ***Through this plan, the HD has completed renovation and improvements that directly link to supporting private investment and redevelopment of key LA Waterfront development projects and "sets the table" for future project development and waterfront events, economic development, and educational programs.***

The HD manages approximately 149 commercial real estate agreements, with total revenues from commercial real estate leases increasing over the past several years. This includes the Port's cruise business, marina slips, the outer harbor area (Aquarium, Doubletree Hotel, AltaSea and the LA Maritime Museum), Port O' Call Village, and marine fuel terminals.

These include AltaSea, Crafted and SpaceX, which are innovative uses that have the potential to grow and be a unique draw to the LA Waterfront. Crafted leases 130,000 square feet in two warehouse buildings with the plan to develop a craft marketplace with over 550 vendors. AltaSea is envisioned to be a modern oceanographic research, business, and educational facility based on the premise that the ocean has a tremendously underutilized and environmentally threatened economic value. AltaSea is dedicated to solving these problems by bringing leading ocean-oriented facilities together to collaborate and facilitate development of ocean-related assets. SpaceX recently signed a lease to develop research, development and manufacturing facilities.



The HD is also redeveloping the Ports O' Call Village into the San Pedro Public Market which should create a new critical mass of restaurants, retail and entertainment space.

The development includes 300,000 square feet of restaurant, retail, and entertainment space in two phases and a 30-foot-wide public continuous promenade on the water's edge. Phase 1 is scheduled to start construction at a cost exceeding \$85 million in 2018 and be complete in 2020. The HD is investing approximately \$50 million in public infrastructure projects to support the development.

Recommendation

Identify future development opportunities compatible with existing developments and begin the planning process.



Picture 9: Wilmington Waterfront Park

One of the ways the HD contributes to the LA Waterfront community is through its accommodation of non-profit community organizations. The largest of these includes the Los Angeles Maritime Institute (LAMI), the Boys and Girls Club, Little League, the Boy Scouts of America, and facilities operated by Los Angeles Parks and Recreation. Currently there are 22 non-profit leases occupying 3.2 million square feet of land and water area, including many Port-owned buildings, representing nearly 20% of the Port's LA Waterfront area.

The HD does not receive revenue and in many cases bears responsibility for capital repairs and maintenance of buildings or pays for services for non-profit tenants. Newer non-profit leases, such as AltaSea, include beneficial non-monetary terms such as requiring tenants to use sublease rental revenue for operations and maintenance, actively fundraise to support capital improvement programs, and report to the HD on the results of quantifiable education programs and other community benefits.



Picture 8: San Pedro Public Marketplace Main Entrance



Mixed use residential and creative office development could fuel more interest in waterfront commercial development.

Obstacles to these developments include conflicts with port industrial uses, environmental requirements, and the Tidelands Trust.

Recommendation

Provide incentives for non-profit tenants to invest in the growth and success of prime locations leased to non-profit tenants.

Permissible uses in the Tidelands Trust area are generally interpreted to mean maritime (water dependent) and visitor-serving uses, which include parks, hotels, retail, restaurants and other commercial uses. The Tidelands Trust generally excludes residential uses and non-marine-related office businesses. The Port of San Francisco's recent development provides some examples of potential development exceptions to the Tidelands Trust restrictions, including general office and residential uses.

In addition, a 2016 LA Waterfront Site Development Feasibility Analysis Report concluded that developments underway along the LA Waterfront are significant (over \$1 billion in public and private investment since 2003) and are expected to attract more private investment. The report included 16 properties owned by the HD, City, County and State comprising about 60 acres in Wilmington and San Pedro.

The report further concluded that real estate market conditions in these areas are improving and the LA Waterfront projects are spurring confidence in private developers and owners to invest in new residential development and redevelopment of older buildings. Potential developments include creative office space based on new residential growth in the San Pedro community, attractiveness of the waterfront, and development of AltaSea and the San Pedro Public Market.

Recommendation

Evaluate potential options for overcoming development obstacles for creative office space and mixed-use development in the Warehouse 1 Historic building.



Commercial Real Estate Leasing and Pricing Policy

The HD has developed a long-term vision to develop specific waterfront properties for public access and visitor serving developments. These developments are subject to market and transaction considerations that are uniquely different from Port cargo terminal operations. The HD developed guidelines (Waterfront Commercial Leasing Guidelines) to strategically address issues unique to attracting and financing private developments.

The HD's new guidelines provide a market driven approach to commercial development, create a roadmap for developing commercial real estate, and focus on projects that incentivize private developer investment. To better understand the challenges and opportunities in the development of the LA Waterfront, the commercial real estate portfolios

and leasing policies were compared with the ports of San Francisco and San Diego and the City of Long Beach.

The HD's commercial real estate leasing policy and practices could be strengthened by tracking and adopting market percentage

rental rates and ground lease terms of comparable public agencies, assessing benefit created by new public infrastructure investments and developing cost sharing parameters with developers for future projects, preparing standard commercial lease provisions in line with other public agency commercial leases to

Recommendation

Modify the leasing and pricing policy and practices to be more consistent with market rates and standard commercial lease practices to the extent practical given the market realities of the San Pedro and Wilmington waterfronts.

add certainty to the leasing process for future developments, and reviewing ground leases for similar projects from other public agencies.

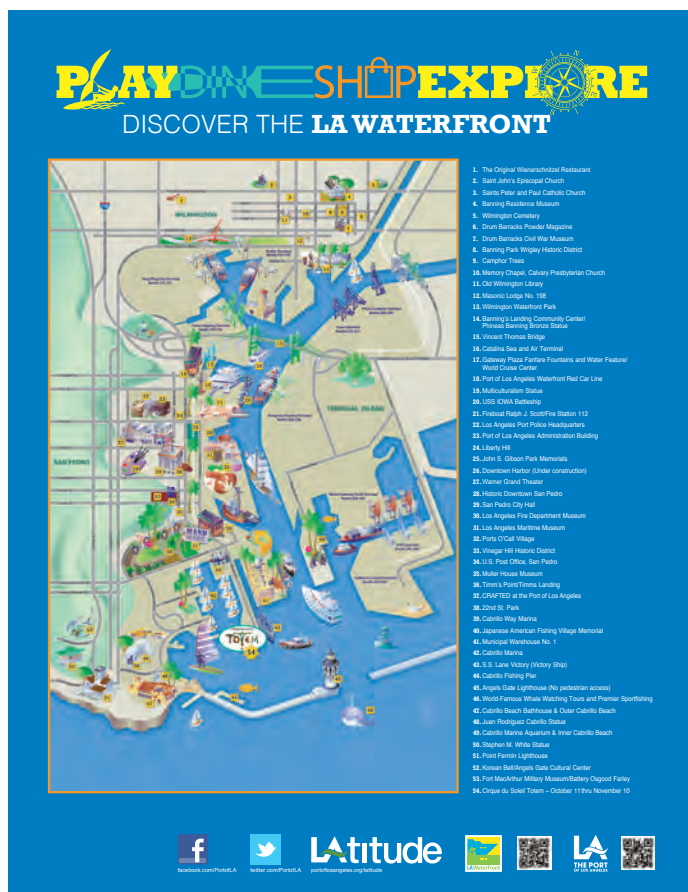


Waterfront Event Development and Marketing

Los Angeles County attracts around 50 million tourists annually. **The LA Waterfront captures a very small part of the overall tourism in Los Angeles with about 2.4 million visitors in 2016.** The HD markets, coordinates and manages public events to benefit the community and also handles coordination of privately sponsored events.

The number of visitors to events on the LA Waterfront is increasing, up from about 63,000 in 2013 to about 270,000 in 2017. The largest Port sponsored events include Fleet Week, Lobster Fest and Cars and Stripes. Examples of private events are the Conquer the Bridge Race and Red Bull Global Rally.

While these numbers are relatively small, they are important indicators of the growth in visitors that will occur exponentially as new developments such as AltaSea and San Pedro Public Market are complete and reach economic stabilization.



Recommendation

Assess the impact on the number of visitors of current investments in public access infrastructure improvements to target investments.

Picture 10: Map of the LA Waterfront



The LA Maritime Museum property is an example of a well-located building that could present a redevelopment opportunity to generate both new revenue and another source of increased visitors. The HD should assess feasible uses that retain the LA Maritime Museum as a use; work with the City of LA to assume management of this asset; and seek developer ideas through a competitive proposal opportunity for adaptive re-use of this iconic building.

Recommendation

Work to maximize the use and potential of the iconic Maritime Museum building.



Picture 11: LA Maritime Museum Building



Management of Commercial Real Estate Assets

Historically, the HD's Real Estate Division was responsible for both HD cargo and commercial real estate. Commercial transactions were driven primarily by policies that applied to cargo real estate resulting in a lack of marketing and investment to create successful commercial waterfront development opportunities.

In 2015 the HD's Waterfront Commercial Real Estate Division was created specifically to focus on commercial real estate assets. This has resulted in several positive changes including the Waterfront Access Plan providing a continued investment in infrastructure to support commercial real estate development, rebranding the waterfront as a destination through events and marketing, improved public access and marketing that attracted new tenants, an acceleration in commercial development and improved negotiations and management resulting in new revenues.

It is crucial that the HD's commercial real estate assets be managed to ensure that revenue optimization will continue through times of economic challenges or downturns.

Leases for new development have the potential to be transformative over the next five years. Negotiations are also now successfully completed on many agreements that were overdue to reset compensation.

Recommendation

The recently created Waterfront Commercial Real Estate Division should continue to direct and manage the development and management of the Department's commercial real estate assets.

The HD's current IT system for managing commercial real estate assets has very limited capability, is not linked to financial data and requires manual Revenue tracking and analysis. The HD is in process of moving to a new system for managing commercial real estate assets.



Harbor Department Management

The Joint Administrators defined specific topics areas to be included in the assessment of the HD's overall management. These topics and results are presented in the following sections.

Cyber Security at the Harbor Department and Port Complex

Commercial and governmental organizations safeguard their physical assets by developing and maintaining rigorous physical security. As organizations depend more on computer-based business processes, and automated operations, security procedures in the “cyber” realm become as or more important than physical security.

Threats can originate from within the organization or from external sources. Employees and contractors can purposely damage the Cyber Environment by stealing data for career or monetary gain or destroying data to avenge an imagined slight. External agents or “hackers” can be individuals, criminal organizations, activists or state-sponsored groups. They can be motivated by monetary gain through extortion (e.g., holding data for ransom), or to make a political point through demonstration, or to disrupt operations as a means to interfere with economic activity.

The primary role of cyber security is to protect the Cyber Environment by reducing vulnerability to these and other threats. Cyber Security as a function consists of policies, procedures, processes, and personnel established to provide the necessary protection. Given the fact that, despite best efforts and strong protections, an event can occur, organizations should seek to lessen the business impact by having remedial programs in place,

e.g., insurance or operational safeguards and alternatives.

The vulnerability of the HD itself to incursions is low because the HD established a Network Security Operations Center (NSOC) and recruited a Chief Information Security Officer (CISO). The effectiveness of the NSOC is demonstrated by the ISO 27001 certification achieved in 2015. The Port of LA was the first port in the nation to achieve this certification. Additionally, the appointment of the CISO and supporting staff provides a strong program of cyber security protection against perimeter intrusion by external actors.

Recommendation

Continue efforts to ensure its internal cyber environment remains secure.

The vulnerability of Port tenants to cyber-attack is currently unknown but may have a substantial impact. Of particular concern are container terminal operators, who operate computer-controlled or computer attached



equipment. The HD has no visibility into the cyber security practices of Port tenants.



Picture 12: Harbor Department's Network Security Operations Center

An increasing concern in the marine community is the potential for interference with marine equipment that is connected to or controlled by computers. A cyber-attack that cripples, diverts, or destroys equipment may have a major and prolonged impact on port operations as automated equipment becomes more widespread.

The HD has an interest in managing the risk and protecting the port complex from cyber-attacks and disruption. The HD has or should have an oversight role in the cyber security practices of certain tenants, especially in cases where a cyber attack has the potential for a major impact on the Port itself.

Recommendation

Work with Port tenants to assess and strengthen cyber security within the Port Complex.

Use of Technology for the Harbor Department

The sensible use of technology is key to achieving cost efficiency and effective operations. Technology has evolved from a means to support back office operations to a vital ingredient in virtually all business operations and activities.

Harbor Department business operations systems have not kept up with requirements.

The HD's operations are hampered by a lack of technology in operating areas. The resultant issues most often identified involved data and information, and the inconsistency of systems

functions and business process support. The most serious shortcoming of the data-related issues is the inability of the organization to develop an integrated view of operations. Data defined on different bases; is in the form of unstructured text and is only available in the form of paper or is simply unknown and cannot be integrated. Systems functions and business process support are inconsistent and spotty.

Each division individually evaluates and installs software for their requirements with each defining its own requirements definition



and selecting systems. These processes and systems should span Divisions with their function and operation more similar than different in practice. More coordinated efforts would provide a continuous and uniform flow of data created and maintained on an integrated basis.

There is no mechanism to facilitate a unified set of business processes and systems requirements. The Information Technology Division (ITD) is responsible for providing the technical infrastructure and giving technical guidance and support to the systems selection process. Business requirements definition and software selection is the province of the operations Divisions. This creates a void. There is no individual or group that is responsible for establishing a set of department wide business systems requirements. In practice, then, there are no department requirements only Division requirement.

Recommendation

Evaluate business process and system requirements across Divisions and develop a blueprint for data and systems requirements.

Costs and Charges for City Provided Services

The City provides several services to the Harbor Department. This includes fire protection and maintenance park land and facilities services through the City of Los Angeles Fire Department and Recreation and Parks departments. Charges for services totaled \$43 million for FY 2017, of which 80% or \$34 million was for services provided by the Fire Department and the Recreation and Parks Department.



Picture 13: LA City Fire Department Fire Boat

The Trust agreement that granted the Port area to the City of Los Angeles required that all revenues derived from that property be used for the promotion and accommodation of “commerce, navigation and fishery”. To comply with this requirement and fairly reimburse City Departments for services provided, the HD and the City of Los Angeles entered into a Memorandum of Understanding (MOU1956) in 1997 that defined how services provided to the HD by City agencies would be reimbursed.



Since 1997 several service arrangements have changed that have impacted the level of service and hence the costs of services provided by the City. However, no comprehensive study has been performed to ensure that there is a reasonable and equitable reimbursement of City department costs.

We found the Fire Department's allocated overhead costs to the HD have more than doubled over the past 5 years. These large overhead cost increases cannot be budgeted for by the HD because actual overhead cost rates are not known for at least two years after the close of any given fiscal year. Retroactive adjustments to actual costs have caused considerable challenges in the HD's budgeting estimates.

Recommendations

- ◆ Clearly identify the costs to be billed directly and indirectly and document the rationale for billing those costs.
- ◆ Improve communications between City departments and the HD regarding accounting and budget changes that will have a significant monetary impact on City department overhead cost allocations to the HD.
- ◆ Revise procedures for estimating annual Fire Department charges to reduce true up adjustments that are currently made when actual costs are determined two years later.



Enterprise Risk Management at the Harbor Department

Enterprise Risk Management (ERM) is defined as the discipline by which an organization assesses, controls, exploits, finances, and monitors risks from all sources for the purpose of increasing the organization's short- and long-term value to its stakeholders.

The four key risk types include hazard risk, financial risk, operational risk, and strategic risk. The HD does have a comprehensive and well managed program for managing hazard risks at the HD and Port. This includes identifying and mitigating hazard risks.

ERM is the process of identifying and addressing methodically the potential events that represent risks to the achievement of strategic objectives, or to opportunities to gain competitive advantage. Risk management is an essential element of the strategic management of any organization and ideally should be embedded in the ongoing activities of the business.



Picture 14: Enterprise Risk Management Process (CGMA.org)

We evaluated the implementation of ERM at the HD using the Risk Maturity Model developed by

the Risk and Insurance Management Society (RIMS). **Since the HD has not decided to implement ERM it is not surprising that the results of our evaluation of ERM implementation shows it has not been implemented.** ERM implementation at the HD was evaluated to be ad hoc based on the Risk Maturity Model. This means there is no recognized need for an ERM Process and no formal responsibility for ERM; internal audit, risk management, compliance and financial activities might exist but aren't integrated; and business processes and risk ownership aren't well defined.

Recommendation

Consider developing and implementing an Enterprise Risk Management approach that expands the Department's consideration of risk in decision making and operations.

Implementation of ERM could benefit the HD in a number of ways. **ERM could provide a greater awareness of the risks facing the organization and its ability to respond effectively and enhanced confidence about the achievement of strategic objectives.** It could also improve the overall efficiency and effectiveness of HD operations by providing a stronger and more rigorous strategic decision-making framework and process.



Detailed Results

The remaining pages of this report provides the details of the above executive summary key challenges and recommendations.

Background and Scope

The Los Angeles City Charter in Section 266 requires that an Industrial, Economic and Administrative Survey (IEA Survey) of the property and business of each of the City's proprietary departments (Harbor Department, Department of Water and Power, and Los Angeles World Airports) at least once every five years. These surveys must be conducted jointly by the City Controller, the Mayor and City Council, known as the Joint Administrators.

The Joint Administrators developed a specific scope of work for the IEA Survey of the Los Angeles Harbor Department. The focus of this scope of work and review was on the current business model for the HD and potential to further optimize the business model.

As part of the business model focus, a key area identified by the Joint Administrators was the potential opportunities and challenges to increasing cooperative initiatives between the two ports operating in the San Pedro Bay – the Port of Los Angeles and the Port of Long Beach. It also included assessing the evolving container cargo industry relative to the HD's container cargo line of business. Opportunities to diversify the business of the HD was also an element of the business model assessment.

Since the HD, as a landlord port, is primarily in the business of real estate, a major focus was on real estate operations and revenues. This included reviewing major leases to understand where the HD makes or loses money and what to do to improve major leases. It also included identifying leasing and pricing best practices to identify potential to increase current revenues and identify new opportunities, and identify potential opportunities to optimize property use, and expand public private partnerships. The HD's real estate used for the cargo business is very different than the real estate used for commercial purposes, so these two types of real estate were addressed separately.

The Joint Administrators also included a review of key HD management issues in the scope of the IEA Survey. These included, cyber security, use of technology, City provided services and charges and Enterprise Risk Management.



Section 1: Cargo Real Estate and Terminals

The HD's FY2016 operating revenue totaled \$441 million, of which \$388 million or 88 percent were cargo and terminal related revenues, principally wharfage and land rentals revenue. Container terminal related revenues account for the majority of these revenues.

Overview of Cargo Real Estate and Terminals

The HD operates as a “landlord” port as most of its docks, wharves, transit sheds, and terminals are leased (use permits) to terminal operators, shipping lines, and private firms for operations. The role of the Real Estate Division (RED) at the HD is primarily one of asset management. RED's charter includes negotiating and executing new leases and renewals in accordance with Board approval, implementing policies and procedures and monitoring tenant compliance with lease terms and conditions.

As the landlord, the HD is responsible for the design, construction and maintenance of wharf structures. Historically, the HD has also been responsible for the design and construction of backlands and structures although this role is evolving toward a shared responsibility between the HD and its tenants. Tenants have typically been responsible for the maintenance of backlands and superstructures. Tenants are responsible for the acquisition, installation and maintenance of all cargo handling equipment.

A key focus of this IEA survey was the HD's Business Model. The Joint Administrators, in collaboration with the IEA Survey Team, defined four specific topics to be included in the review of the HD's business model relative to cargo real estate and terminals:

1. Collaboration between the San Pedro Bay Ports (SPBP)
2. Cargo Terminal Leasing and Pricing Practices
3. Cargo Revenue Diversification Opportunities
4. Potential Business Disruptors

Each of these are discussed in the following sections.



San Pedro Bay Ports (SPBP) Collaboration

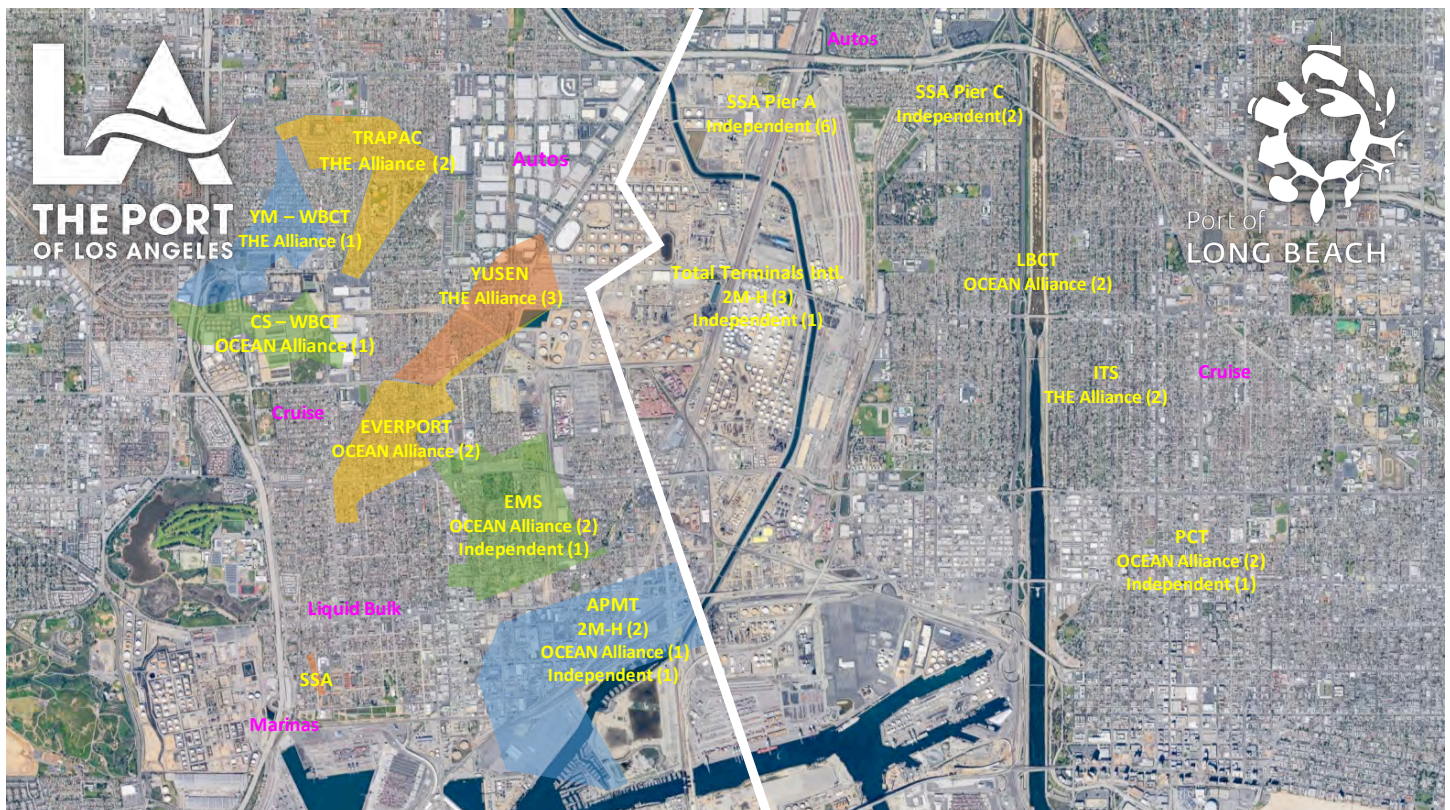
Key Recommendation

The Ports of Los Angeles and Long Beach build on their longstanding practice of collaborating and jointly prepare and implement a long-term, market-driven capital investment and financing plans that prioritize future development in the San Pedro Bay Gateway to sustain the competitiveness of the Gateway and the economic

The Ports of Los Angeles and Long Beach share the same bay – the San Pedro Bay (SPB). Their properties are contiguous and they both are dependent on the same highway and rail infrastructure to succeed.

The following exhibit shows the SPBP's with the borders between the Port of Los Angeles and the Port of Long Beach.

Picture 15: San Pedro Bay Port Complex





The Ports of Los Angeles and Long Beach Have a Common Business and Customers

Most importantly, from the customers' perspectives the SPB Gateway is one port facility. This includes shipping lines, and the beneficial cargo owners (BCOs, i.e. the importers and exporters who use the SPBP).

To these customers, it makes very little difference whether their cargo goes through the Port of Los Angeles or the Port of Long Beach. Most of the world's largest container shipping lines call at both ports. Many of the importers and exporters routing their cargo via the SPBP use both ports. In evaluating at which ports their vessels will call and which ports they will import or export their cargo through, they consider the two SPBP's versus alternatives such as Seattle,

Tacoma, Vancouver, New York, Norfolk or Savannah. This is reflected in the high degree of commonality the SPBP have in terms of businesses and customers.

The two SPBP's lines of business are virtually the same. The container line of business dominates in each port. Liquid bulk cargoes play significant roles. Both ports have dry bulk and multipurpose cargo operations. They are both dependent on the Region's rail network to support their cargo lines of business.

As the following exhibit shows, the two-port's marine terminal infrastructure is similar in scope and scale.

Exhibit 1: San Pedro Bay Ports Marine Terminal Infrastructure

TYPE	LOS ANGELES		LONG BEACH	
	NUMBER	ACRES	NUMBER	ACRES
Container Terminals	7	1,704	6	1,421
Multipurpose Terminals	4	235	7	275
Dry Bulk Terminals	2	27	7	69
Liquid Bulk Terminals	7	114	6	56
TOTAL	20	2,080	26	1,821

Source: Capstan Consulting analysis of POLA and POLB terminal facility information



The two ports increasingly share the same container shipping line customer base as the container shipping industry continues to consolidate. As the following exhibit shows, the three global container shipping line alliances that dominate the global container trades operate at terminals in each of the SPB ports.

Exhibit 2: San Pedro Bay Ports Container Shipping Line Alliance Customers

CONTAINER SHIPPING ALLIANCE	PORT OF LOS ANGELES TERMINALS	PORT OF LONG BEACH TERMINALS
2M	1	2
OCEAN	3	2
THE ALLIANCE	3	2

Source: Capstan Consulting



The Ports of Los Angeles and Long Beach Share Opportunities and Challenges

Finally, and most importantly, the SPBP continue to face the same opportunities and challenges as the following exhibit shows.

Exhibit 3 : San Pedro Bay Ports Shared Strategic Opportunities and Challenges

Opportunities

- **Solid Growth Prospects**
 - The long-term cargo container cargo forecast projects a 3 to 5 percent growth under the Base & High Forecast
- **Customer Portfolio**
 - SPBP's are the largest gateway for the three global alliances that dominate container shipping
- **Big Ship Capability**
 - The SPBP's have the most big ship capable terminals of any North American gateway

Challenges

- **Competition**
 - The expanded Panama Canal, Competitors', "Big Ship Infrastructure Investments" & increase capacity are intensifying competition
- **Capital Investment Requirements**
 - Terminal modernization and automation, implementation of the Clean Air Action Plan, and rail infrastructure needs requires major capital investment
- **Environmental**
 - Clean Air implementation poses significant challenges



Shared Opportunities

The SPBP have a long history of jointly preparing long-term container cargo forecasts for their container lines of business. The most recent update to this forecast occurred in 2016. The forecasts include nine different cargo forecasts based on detailed analyses of the major macroeconomic and microeconomic factors that drive the Global, Transpacific and SPBP container trades. The forecasts project the SPBP container traffic will increase from 16.7 million twenty-foot equivalent units (TEUs) in 2017 to between 30.9 million TEUs, (an increase of 85 percent) and 54.5 million TEUs (an increase of 226 percent) by 2040.

The top 20 global container shipping lines consolidated into eight lines operating in three global alliances (2M, Ocean, THE Alliance) during the past three years. These three alliances dominate global container shipping capacity and services in general and on the major east-west trades (including the Transpacific trade) in particular. They also increasingly dominate most major markets due to their economy of scale in networks, vessel size and total carrying capacity. They account for virtually all of the investments in very large container ships that have occurred during the

past 5-7 years. Very large container ships offer significant economies of scale potential due to their fuel efficiency and comparatively lower capital cost per TEU slot of capacity. Every one of these dominant global players use the SPBP and are increasingly deploying larger ships to the SPBP.

The emergence of very large container ships is fundamentally reshaping the container shipping industry in general and the container port industry segment in particular. Very large container ships can carry two to three times the volume of the average container ship in the world fleet. They require substantial investments in deeper harbors, longer berths, container gantry cranes and larger container terminal footprints. The SPBP are the largest container gateway in the Western Hemisphere. Their ability to accommodate ships of 16,000+ TEUs is a key competitive strength and a major factor why all three of the global alliances serve the SPBP multiple times per week. The SPBP current capability and ongoing investments will ensure they remain well positioned to remain the Hemisphere's largest container gateway.



Shared Challenges

The competitive intensity of the global and North American container port industry is accelerating in response to the rapid consolidation of container shipping lines and their corresponding investment in very large container ships.

- ◆ Consolidation has rapidly shrunk the number of large container shipping line customers for container ports. As noted above, the top 20 lines have consolidated into eight lines during the past three years. Further consolidation is anticipated in the next 2-4 years. As a consequence, the competition among ports to attract this shrinking customer base has increased significantly. Further, the gain or loss of one of the surviving eight lines has a substantially greater effect on a port, given the substantially greater volume each of these lines now carries.
- ◆ The completion of the expanded Panama Canal in 2017 has increased the competitive positioning of US East Coast ports in the Asia-US container trade, the largest US container trade. The Panama Canal can now accommodate ships of 12,000-14,000 TEUs whereas prior to the expansion, the Panama Canal was limited to a maximum average vessel size approximating 5,000-5,500 TEUs.
- ◆ The dramatic shift to very larger container ships has triggered the need for the container port industry to invest in the requisite channels, berths, cranes and terminals to accommodate very large container ships. These investments are substantially greater than historical investments due to both the scope and amount of infrastructure required.

Consequently, both the size of requisite investments and the associated market and financial risk have increased dramatically. The substantial investment required to accommodate 14,000-16,000 TEU ships has become the new ante to play in the container terminal shipping business. As more ports make these substantial investments, it becomes increasingly important to attract the shrinking number of container line customers in order to both justify and amortize these substantial investments. This has further heightened the competitive intensity in the container shipping business.

The SPBP's collective ability to retain the shrinking number of global container shipping lines will determine how successful they are in achieving the growth potential defined in the 2016 container forecast update. The HD's most significant competition is not the Port of Long Beach (POLB), its competition is the Port of Oakland, the Northwest Seaport Alliance, Vancouver and Prince Rupert in Canada and the major US East Coast ports.

The SPBP have been global leaders in the development of environmental strategies and programs to reduce port related emissions. The SPBP's Clean Air Action Program (CAAP) was first developed in 2006. It was updated in 2010 and again in 2017. Despite achieving substantial reductions in air emissions (e.g. reported 84% reduction in diesel related particulates) the SPBP continue to do more. The 2017 update comprises seven areas of strategic focus including ocean going vessel emissions, heavy duty truck emissions and marine terminal emissions.



The overarching goal of the 2017 update is to reduce port related emissions to zero or near zero in a 2025-2030 timeframe. New technologies, significant capital investments (estimated to range up to as much as \$6-\$12 billion) and the ultimate scope of mandated compliance are important factors that will determine the success of the plan. Sustaining the efficiency and competitiveness of the SPBP Gateway in parallel to implementing the updated CAAP will ultimately determine the success of the updated CAAP since without sustained efficiency and competitiveness, the SPBP will not be able to generate the requisite financial resources to implement the CAAP. The SPBP will need to closely collaborate in order to successfully implement the plan. Collaboration

on developing incentive programs, selecting the optimal technologies as they become available, prioritizing SPBP investments, and prioritizing tenants' investments and compliance targets will all be required.

The SPBP's future success is predicated on their ability to collectively pursue these opportunities and successfully mitigate these challenges. Neither port will unilaterally be able to succeed. The Gateway will succeed, or the Gateway will recede (lose market share, see its role as the Asian gateway for discretionary container cargo decline). Consequently, sustained and expanded cooperation will be essential to future success.



The Ports of Los Angeles and Long Beach Have a History of Collaboration

The ports of Los Angeles and Long Beach have a longstanding, successful track record of cooperating. The two ports have pioneered North American port cooperation from the perspectives of scope, scale and effectiveness.

Some examples of the cooperation and collaboration of the two ports include:

- ♦ The two ports have been developing long-term container cargo forecasts together since the 1980s. This cooperative initiative results in one cargo forecast for the San Pedro Bay (SPB) gateway which ensures one consensus outlook for growth drives capital investment plans versus duplicative forecasts which could lead to significant redundant investment in excess capacity.
- ♦ The 2020 Operations, Facilities and Infrastructure (OFI) plan was a cooperative plan, completed in the mid-1990s. It provided a 30-year roadmap to guide the development of the SPBP's operations, port facilities and supporting infrastructure. The SPBP have successfully built out the SPBP based on this plan.
- ♦ The ICTF and Alameda Corridor projects are unprecedented in North American port industry in terms of scope and scale of planning and infrastructure investment. The SPBP created the joint powers authorities (the JPA and the Alameda Corridor Transportation Authority) to complete these critical infrastructure projects.
- ♦ Joint environmental initiatives have also been a hallmark of cooperation between the SPBP.

The Clean Air Action Program and the Clean Truck program have led to substantial reductions in air pollution and significant improvements in air quality. Elements of each of these programs have been included in several of the U.S.' largest container ports environmental planning and programs.



- ♦ The SPBP have a Federal Maritime Commission (FMC) approved Discussion Agreement (Port Infrastructure and Environmental Programs Cooperative Working Agreement) whose purpose is to promote cooperation, openness and joint action through means of discussion, consultation, development of consensus and agreement between the Cities of Los Angeles and Long Beach ("the Parties") for the establishment and implementation of programs and strategies to:
 - Improve port-related transportation infrastructure
 - Increase cargo movement efficiencies and port capacities
 - Improve the safety and security of port terminals and properties
 - Decrease port-related air pollution emissions in the San Pedro Bay area.



The following exhibit provides a partial listing of the cooperative initiatives of the two ports.

Exhibit 4: Port of Los Angeles and Long Beach Cooperative Initiatives

PORT OF LOS ANGELES AND LONG BEACH COOPERATIVE INITIATIVES

- ◆ Long-term container cargo and fleet forecasts
- ◆ 2020 Operations, Facilities and Infrastructure (OFI) Plan
- ◆ ICTF-JPA
- ◆ Alameda Corridor
- ◆ Joint Rail Ownership
- ◆ Clean Air Action Program (includes Clean Trucks Program)
- ◆ Chassis Working Group
- ◆ Rail infrastructure studies
- ◆ SBP Ports Sustainable Supply Chain Advisory Committee
- ◆ Supply Chain Optimization

Source: Capstan Consulting

The senior management team of the two ports, the two Harbor Commissions, and the Cities of Los Angeles and Long Beach have consistently been committed to identifying and pursuing cooperative initiatives. The ICTF, the Alameda Corridor, the Clean Air Action Program and Clean Truck program would not have succeeded without the cooperation of all of the above entities.

Recommended Approach to Increased Collaboration

Given the fact the SPBP will rise or fall on the basis of their collective ability to pursue identified opportunities and successfully respond to competitive threats, the SPBP track record of sustained collaborative success and ongoing initiatives, an incremental approach to expanded cooperation offers great potential to achieve benefits and take advantage of significant opportunities while minimizing downside risks.

- ◆ **Sustaining Growth:** the 2020 Plan (OFI Study) demonstrated the substantial benefits of collaborative planning and investing. The successful implementation of a collaborative investment plan ensures the right facilities will be in place at the right time at an affordable cost while simultaneously minimizing the risk of overcapacity and over investing in redundant assets.
- ◆ **Responding to competitors' initiatives:** by collaboratively planning and prioritizing capital investments, the SPBP could maximize the potential to enhance the competitiveness of the SPB Gateway, anticipate and proactively invest ahead of customers' future requirements and enhance the successful completion of the CAAP by balancing and aligning requisite capital investments, and policies and programs with customers' future requirements.
- ◆ **Optimizing capital investment requirements:** collectively the SPBP future capital investment requirements could range up to \$10-\$17 billion between now and 2030. Continuously refining, aligning and prioritizing



these investments across the SPB Gateway will be critical given 1) the magnitude of the potential investment requirements, 2) Gateway versus port or terminal specific investments will be increasingly important to achieving the requisite supply chain velocity and flexibility customers will require, and 3) a Gateway-based approach is also essential to sustaining growth and maximizing competitive advantages.

- ♦ **Sustaining compensatory financial returns:** as noted above, port competition is

intensifying. A typical component of intensified competition is price discounting. Price discounting poses significant downside risks, particularly in a high fixed cost, fixed location business such as ports. The potential for jeopardizing long-term compensatory returns necessary to sustain a business in return for short-term market share gains is significant. This risk becomes all the more significant within the context of the billions of dollars the two ports will need to invest over the next 10-15 years.

RECOMMENDATION 1:

The ports of Los Angeles and Long Beach should consider collaboratively preparing a long-term, prioritized, market-driven capital investment and development plan for the SPB Gateway that:

- ♦ ***Prioritizes and optimizes investments in marine terminal facilities, transportation and related infrastructure***
- ♦ ***Successfully implements the CAAP***
- ♦ ***Sustains the competitiveness of the SPB Gateway and the economic benefits it generates to the region***

Implementation Action Plan

Significant groundwork has already been accomplished by the SPBP to fulfill this recommendation. The long-term container cargo forecast has been completed. The CAAP has been developed. The SPBP have existing long-term capital investment programs. The focus is to collaboratively integrate these initiatives and utilize the results to prepare a 2050, customer specific/customer driven capital investment plan. The major elements of this program include:

- ♦ **Establish a SPBP 2050 Planning Team:**
This team would include engineering, terminal operations, transportation, environmental and financial managers from the SPBP. Their charter is to define, prepare and ultimately implement the 2050 development program. It is recommended the team be led by the senior planning and engineering managers from the two ports and report directly to the Executive Directors of the two ports. They would be responsible for assembling the 2050 planning team. The structure, composition and staffing for the 2050 team would be determined by the plan



content and priorities. There are at least three options for the structure of the 2050 team. These include:

- A group of managers and staff drawn from the two ports, jointly managed by senior managers from the two ports and reporting directly to the Executive Directors
 - Creating a Joint Powers Authority (JPA) or similar type entity that houses the requisite expertise and a charter for implementing the 2050 plan. Its responsibilities would include design, permitting, program and construction management.
 - A third option would be to expand the charter of the 2050 JPA or similar entity to include all engineering and environmental planning functions of the two ports. Its expanded responsibilities would include all engineering, program and construction management, environmental planning and implementation for the two ports. The potential benefit of this option would be the integration of all engineering and environmental functions (2050 Plan, design, construction, maintenance, permitting and environmental activities) in an organization whose focus is the SBP Gateway.
- ♦ **Customer / Fleet Demand Scenarios Module:** This module would establish a series of customer (container shipping line) specific demand/fleet forecast scenarios that collectively represent the most likely range of future growth for the SPB Gateway. The foundation for this module is the 2016 SPBP
- container forecast. This module would best be developed jointly by the senior commercial managers of the two ports.
- ♦ **Evaluation of Emerging Technology Module:** This module would assess current and emerging trends in transportation and information technologies and their applicability to and implications for future development of the SPB Gateway. It is recommended this module include a detailed assessment of the short, medium and long-term applicability and implications of the SPBP/GE IT initiative. Other technologies to be evaluated would include block chain, driver-less vehicles, and the rail industry's Positive Train Control initiative. The results of this module should become a key building block for each of the subsequent planning modules.
 - ♦ **SPB Marine Terminal Module:** Similar to the 2020 plan, this plan would identify, based on alternative customer specific demand / capacity scenarios, the requisite marine terminal capacity required to meet each scenario. The marine terminal development plan would prioritize and sequence investments by terminal.
 - ♦ **SPB Transportation Module:** This component would identify, prioritize and sequence requisite investments in transportation facilities and infrastructure required to support the marine terminal investment module. The ports current rail planning initiative would be a key input to this effort as well as the completion of the Gerald Desmond Bridge replacement, all planning to date related to SCIG, the POLB's Pier B rail



initiative and the SPBP's existing transportation and capital improvement planning initiatives.

- ♦ **Clean Air Action Plan Module:** The integrated marine terminal and transportation modules would provide the customer/market driven roadmap for prioritizing and sequencing the implementation of the Clean Air Action Program from a SPB Gateway perspective.
- ♦ **Plan of Finance Module:** This module would develop a plan of finance for implementing

the 2050 Plan. The SPBP CFOs should have lead responsibility for assembling a team and preparing the plan of finance.

- ♦ **Implementation Module:** This module would define the integrated plan for implementing the 2050 module. It would be presented to the senior management teams for their review, discussion and approval. The approved plan would then be presented to the SPBP's respective port commissions for their approval.



Cargo Terminal Leasing (Use Permit) and Pricing Practices

The HD's cargo and container line of business generates the majority of all wharfage revenues. Historically, the HD's strategy was to lease its container terminals to container shipping lines. The rationale for this strategy was the container shipping lines controlled and/or influence, to a significant degree, the port selection and cargo routing decisions respectively, i.e. they "control" how container cargoes are routed¹. Consequently, the strategy was to lease its terminals to the entities that controlled the freight routing decision.

Significant Changes in the Shipping Industry

In the past twenty years, two significant trends have materially affected the leasing and pricing strategy of the Harbor Department:

- 1. Carrier affiliated Marine Terminal Operators (MTOs):** Historically, many of the HD's tenants formed marine terminal operating subsidiaries to operate their leased terminals. As part of this initiative, many of the carriers requested and the HD agreed to assign the lease to the carriers' terminal operating affiliates. Although the new tenants were carrier affiliated and consequently the carriers retained an incentive (ensure their affiliates met their Minimum Annual Guarantees or MAGs under the lease agreements), nonetheless the MTOs did not directly "control" the cargo routing decision. The MTO affiliates, in certain instances, also

had a mandate to compete for third party business. These initiatives further distanced the HD from its original strategy of having direct contractual relationships with the entities that controlled the cargo routing decision.

Key Recommendation

The HD should consider enhancing its container terminal pricing strategy by implementing a pricing strategy that includes charges to the marine cargo terminal tenants and separate charges to the container shipping lines.

- 2. Financial Investors' Increasing Investments in MTOs:** Around 2004-2005, financial buyers began to invest in North American MTOs. Financial buyers include pension funds, infrastructure investment funds and private equity firms. Their investments ranged from minority shares to complete ownership of the MTO. Financial buyers' motivations are very different than strategic investors. Financial buyers are typically motivated by financial metrics (for example, return on invested capital, capital

¹ In practice, the cargo routing decision in terms of port selection is determined by the terms & conditions of the service contracts between container shipping lines and BCOs. These terms may assign the port

selection to the carrier, to the BCO, or to mutual agreement of both parties.



gains) and typically look to “flip” their investments in a comparatively (versus the duration of a typical marine terminal lease or use permit) short period of time (typically about 10 years or less). Given this comparatively short investment horizon, financial buyers generally are more cautious in making long-term capital investments in order to maximize their financial returns. Strategic buyers are typically motivated by long-term strategic decisions related to moving cargo and gaining/sustaining competitive advantage. Financial buyers also have neither control nor influence over the cargo routing decision.

The container shipping industry has gone through a rapid consolidation in the past ten years. The top 20 global container shipping lines have consolidated, through mergers, acquisitions and bankruptcies into eight surviving carriers. These eight carriers have formed three global shipping alliances (2M, Ocean and THE Alliance).

These changes have resulted in:

- ◆ A significant reduction in the number of container shipping line customers available to the SPBP and HD.
- ◆ Triggered significant shifts in carrier services between the SPBP as alliance members route their vessels to alliance facility terminals.
- ◆ Increased the HD’s requirement to invest in enhancing the “big ship” capability of its container terminals and supporting infrastructure.
- ◆ Increased both the commercial and financial opportunity and risk associated with the gain or loss of a container shipping line customer.

Structural Changes in the Shipping Industry Create Challenges

The HD owns seven container terminals. As shown in the exhibit below, the HD’s tenants are owned by a mix of strategic carriers, carrier affiliated MTOs and financial buyers. This mix represents both the realities of today’s North American container terminal industry and a substantive change in tenant ownership vis-à-vis the HD’s original strategy of leasing container facilities directly to container shipping lines.



Exhibit 5: Harbor Department Container Terminal Tenants

TERMINAL	TENANT	OWNERS/CARRIER AFFILIATION	FINANCIAL OWNER(S)
Pier 400	APM Terminals	APMT Terminals North America / Maersk Transport & Logistics	Currently no financial ownership, although APMTNA is seeking to sell a minority share
Pier 300	Eagle Marine Services	CMA-CGM (reported 10% owner)	EQT Infrastructure, P5 Infrastructure (reported 90% equity holder)
Berths 226-236	Everport Terminal Services	Evergreen Line	
Berths 212-225	Yusen Terminals Inc.	NYK Lines (estimated 51%)	Macquarie Infrastructure & Real Assets (estimated 49%)
Berths 136-147	Transpacific Container Terminal	Mtsui O.S.K. Lines (MOL): 51%	Brookfield Capital: 49%
Berths 121-131	Yang Ming Transport Corporation, Ltd.	Yang Ming Line	
Berths 101-102	China Shipping (North America Holding Company Ltd.)	China Shipping Company	

Source: Capstan analysis and Harbor Department container facilities information

These structural changes pose three challenges to the Harbor Department:

- ♦ First, the HD increasingly does not have a direct, financially-based, contractual relationship with those organizations who have the most control/influence over the cargo routing decision.
- ♦ Second, the HD's financial risk has increased since the container terminal tenants responsible for meeting the HD's MAGs do not have control or influence over the cargo routing decision and consequently the cargo volumes required to meet their MAGs.
- ♦ Third, HD financial incentives designed to incent carriers to route more cargo through the HD's container facilities may or may not get passed through to the carriers who control the cargo routing decision. The incentives are



provided to the tenants, i.e. the entities with which the HD has a contractual relationship. There is no mechanism to ensure these incentives are uniformly passed on to the container shipping lines.

In addition to the above challenges, the HD faces increasing competition. Approximately 40-50 percent of the containers that pass through the SPBP are discretionary cargoes. Discretionary cargoes, due to their US destination or origin, can be routed via any one of multiple ports. For example, a Chicago based importer routing cargoes from Asia to Chicago has the option of using any of the five major West Coast gateways as well as New York, Norfolk, Charleston or Savannah. These cargoes are sought after by all the foregoing ports and consequently are the primary source of inter-port competition.

Other U.S. West Coast ports are expanding their facilities and Canada is investing in national port and railroad infrastructure. The expanded Panama Canal, in conjunction with U.S. East Coast ports' harbor deepening and capital expansion programs, has increased the competitiveness of US East Coast ports in competing for the HD's discretionary cargoes. Protecting and growing discretionary cargo

market share is key to the HD's long-term financial performance.

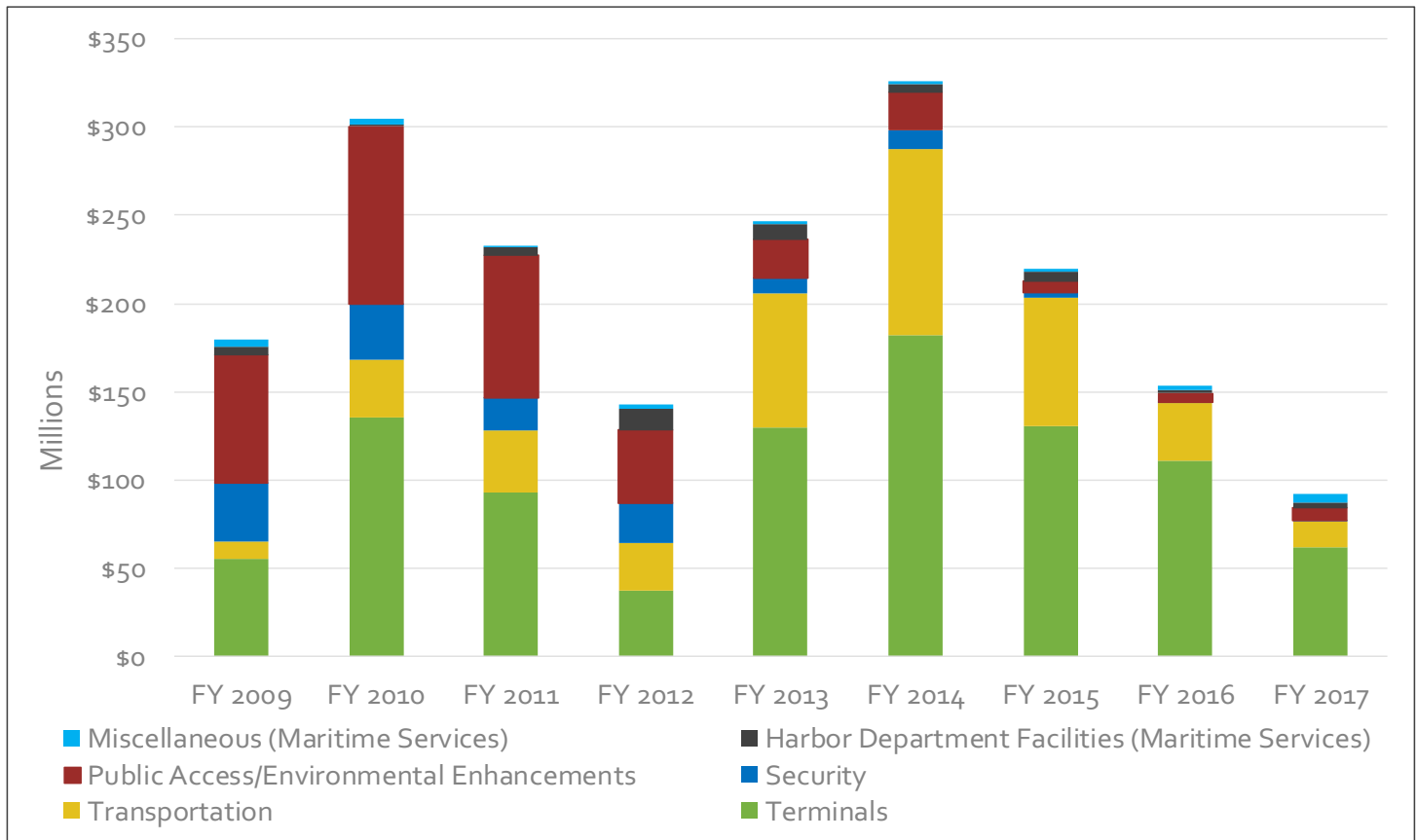
Non-Revenue Generating Investments are a Significant Part of HD's Capital Investment Program

A significant portion of the HD's capital expenditures are allocated to non-revenue generating investments. These investments include transportation infrastructure in general and non-freight related investments in particular, e.g. security, environmental and public access projects.

As the following exhibit shows, during the past 10 years, revenue generating capital expenditures totaled \$935 million or 49 percent of the HD's total capital-related cash expenditures. Conversely, non-revenue generating capital expenditures totaled \$963 million or 51 percent of the total. Non-revenue generating projects have declined in the past three years as major investment initiatives were completed. This is consistent with the HD's overall capital program which has declined during the past three years and is not significantly below historical averages.



Exhibit 6: Harbor Department Capital Investment Cash Expenditures — FY 2009 to FY 2017



Source: Capstan analysis of Harbor Department historical capital expenditures

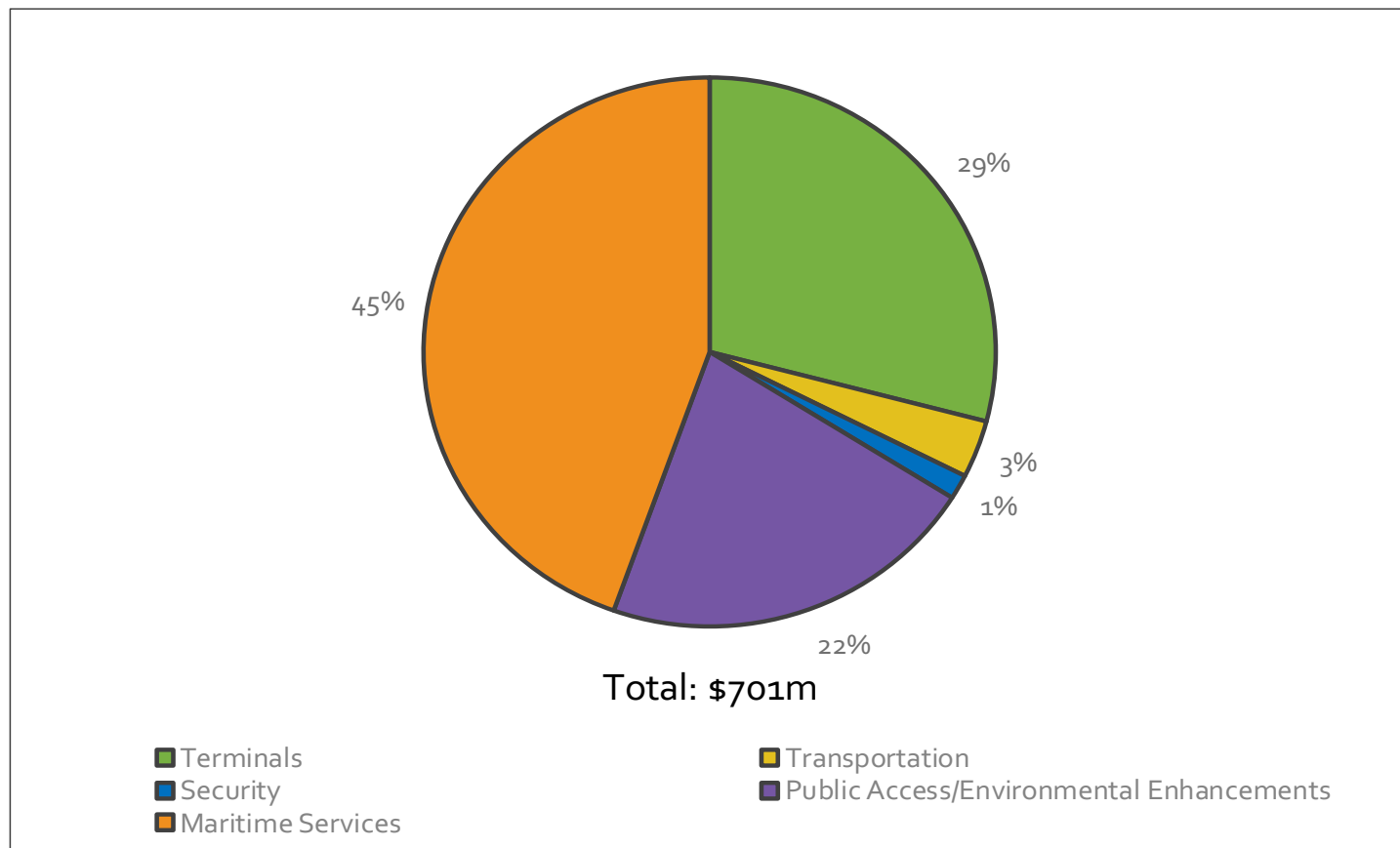
While transportation and security expenditures do not generate revenue, they are essential to supporting the HD's core cargo businesses. They nonetheless pose significant challenges to sustaining the HD's financial performance.

As the following exhibit shows, the HD's 10-year Capital Improvement Program totals \$701 million. Non-revenue generating investments are

estimated to approximate \$498 million or 71 percent of the total. These investments exclude CAAP related investments which are estimated to range up to \$6-\$12 billion by 2030. The HD's share of this total investment, depending on program financing strategies, could approximate \$1-\$2+ billion.



Exhibit 7: Harbor Department 10-Year Capital Improvement Program: FY 2018 to FY 2027



Source: Capstan analysis of the HD's Ten Year Capital Improvement Program

In the long-term, these trends are simply not sustainable without substantially increasing the HD's revenues and cash flows which can only occur if cargo volumes increase substantially faster than non-revenue generating capital expenditures, or if the HD significantly increases its rates (most of the container terminal leases limit rate resets to every five years) or a combination of volume growth and rate increases. The current competitive environment, as discussed throughout this report, is unlikely to support significantly above market growth or significant, sustained price increases.

There is no definitive threshold at which non-revenue generating capital expenditures become

unsustainable. However, a couple of key points provide some guidance:

- ◆ Each dollar invested in non-revenue generating assets is one less dollar that can be invested in revenue generating assets. Simplistically, the required Return on Invested Capital (ROIC) on a revenue generating dollar (assuming an equivalent number of dollars were invested in revenue generating investments) would need to double to earn the average ROI that would have been achieved if all dollars were invested in revenue generating assets.
- ◆ Rating agencies specifically review a port's capital investment program when issuing



ratings and rating reports. Capital investments in non-core businesses and non-revenue generating assets are considerations in determining debt ratings and creditworthiness.

- The effect of a capital program on debt requirements and structures is considered
- The effect of capital spending on revenues, cash flow and liquidity is considered
- The lower the rating, which is in part related to the higher risks associated with non-core and non-revenue generating investments, the higher the cost of debt for a port

Recommended Approach to Responding to Challenges

Collectively, the forgoing structural changes and trends pose both opportunities and risks to the HD's container line of business, i.e. the line of business most critical to the HD's strategic, commercial, and financial success as well as to the success of the City of Los Angeles and regional economies. Aligning the HD's container terminal real estate strategy with these ongoing changes is important to successfully addressing these changes, pursuing associated opportunities and minimizing associated risks.

RECOMMENDATION 2:

The HD should consider enhancing its container terminal pricing strategy by including charges to the marine cargo terminal tenants, separate charges to the container shipping lines and evaluate the feasibility of instituting a transportation infrastructure investment fee to sustain the HD's ability to fund the extensive road, rail, security and communications infrastructure required to sustain the HD's and the SPB's competitive positions.

Implementation Action Plan

The HD's revenues, as previously noted, are driven by wharfage and land rentals. For FY17 these two revenue sources generated \$420 million or 89 percent of the HD's total operating revenue. Wharfage is paid by the marine cargo tenants whereas land rental is paid by tenants of facilities other than marine terminals. As noted, the marine terminal tenants in most cases, particularly container terminals, increasingly do no control or influence the cargo routing decision.

Also, as noted, the HD no longer has direct contractually-based financial relationships with the container shipping lines, i.e. the entities that do control/influence the cargo routing decision. The container shipping lines, together with their customers (the BCOs) are also the entities that most benefit from the many non-revenue generating capital investments required to support the HD container line of business. A pricing structure which includes charges to the container shipping lines and to the cargo terminal tenants provides a potential opportunity to address the misalignment of the HD's pricing



strategy, its tenants, the container shipping lines and capital investment program.

Conceptually, the system would include charges to the marine cargo terminal tenant and separate charges to the container shipping lines.

- ♦ **Marine cargo terminal tenants:** could include a land rent component and a variable throughput component, such as:
 - Land rent based on the HD's target rates of return on invested capital "inside" the marine terminal footprint.
 - Variable throughput fee to cover a portion of HD's target rates of return on invested capital "outside" the terminal footprint that benefit the tenants, e.g. transportation and security related investments.
 - Continuation of the MAG concept with the MAG tied to the land rent component.
- ♦ **Shipping lines:** a per TEU fee based on the HD's target rate of return on invested capital on that portion of "outside" the fence capital investments not allocated to the marine cargo

terminal tenants. The shipping line charge should include three key components:

- Minimum annual volume guarantees related to discretionary cargo.
- Minimum service levels, e.g. minimum number of first port in services, minimum percentage of capacity deployed on the Transpacific trade, etc.
- Volume and or service level discounts designed to incent shipping lines to route more cargo in general and discretionary cargo in particular through the HD's facilities.
- ♦ Evaluate the feasibility (commercial, competitive, regulatory, administration, etc.) of implementing a transportation infrastructure fee to support the HD's extensive investment in the development, maintenance and long-term enhancement of the rail, road, security, communications and information technology assets that are and will increasingly be required to sustain the HD's strategic and competitive positioning.



The recommended pricing strategy provides several potential benefits to the HD:

1. Establishes a direct, contractually based, financial relationship between the HD and the entities that control/influence the cargo routing decision.
2. Provides a direct mechanism for incenting shipping lines to route more cargo in general and discretionary cargo in particular through the HD's facilities.
3. More clearly aligns the HD's capital investments and most importantly the recovery of those capital investments with the parties that benefit most from the associated investments.
4. Reduces the HD's strategic, commercial and financial risk.
5. Sustains and enhances the HD's ability to continue to invest and generate significant economic and environmental benefits to the City and regional economies and their citizens

RECOMMENDATION 3:

The HD should consider incorporating additional provisions into marine cargo terminal leases/use permits.

It is recommended the HD consider including the following additional provisions in its marine cargo terminal/user permits:

- ♦ **Change of control:** any change in the ownership of a marine terminal greater than 10 percent requires the HD's approval. The HD may assess a fee in return for its approval of a change of control.

The HD should consider developing policies related to:

- The information the tenant must provide the HD to support its "change of control" review and approval process.
- The HD reserves the right to amend or restate the use permit/lease agreement based on the change in ownership and information provided by the tenant to support the requested change of control.
- The HD should consider what stipulations and disclosures are required to support a change of control in tenant ownership.



- ♦ **Tenant ownership:** A qualified operator must own a minimum 35 percent of any tenant and have documented control of all commercial, operating and capital investment decisions.
- ♦ **Minimum annual guarantees based on ROI targets:** Tenants' MAGS should enable the HD to achieve at least 75 percent of its Return on Investment targets. The remaining 25 percent represents a risk sharing on the part of the HD. The variable throughput fee is designed to recover the remaining 25 percent. (Note the actual percentages should be based on a detailed financial analysis and modeling of alternative scenarios involving throughput volumes, capital investment levels, return requirements and associated risk factors.)
- ♦ **Uniform escalations:** consistent with industry practice, all use permits (lease agreements) should include an annual rate escalation clause. The annual escalation should be based on a Consumer Price Index for the LA Basin. This annual escalation is in addition to the five-year reset of financial terms which is already included in the HD's container terminal use permits (leases).

Implementation Action Plan

The HD will face two significant challenges in implementing the marine terminal pricing recommendations: the staggered timeframes and the varying financial terms of each of its major marine cargo terminal use permits.

The HD's seven container cargo terminal use permits have staggered expiration terms (excluding option periods). These expirations range from 2021 to 2043. The staggering of use permit expirations was designed to reduce the HD's financial risk associated with a failure of a tenant to renew a use permit. The HD's financial risk would be significantly greater if all leases expired in the same year.

The financial terms of each use permit reflect the differences in the physical capabilities and condition of each terminal, the HD's investments

in the terminal, and the "market conditions" in place at the time the lease was negotiated. While the financial terms vary, each of the container terminal use permits includes a reset of the financial terms every five years. The five-year anniversaries are based on the effective date of each use permit. Consequently, just like the expiration dates the financial reset dates vary.

While these factors effectively accomplish their design, i.e. the reduction in HD financial risk, they pose significant challenges to implementing structural changes to each use permit. Consequently, it is difficult for the HD to implement uniform, across the board changes in use permits other than during the financial resets or at the termination of a use permit term. Even these dates can have limitations depending on



the specific terms and conditions of each use permit.

These challenges relate to implementing modifications to the current container terminal use permits. Implementation of carrier specific charges would not face these challenges since we understand there currently are no agreements between the HD and the carriers.

Recognizing these challenges, the HD should take the following steps to implement the recommended changes to its pricing and marine cargo use permit strategies:

1. Confirm the financial reset dates and expiration dates of each marine cargo terminal use permit.
2. Confirm the scope of the HD's ability to make structural changes to each use permit during the five-year resets
 - a. Structure of the financial terms
 - b. Basics structure of the lease, i.e. the recommended provisions

3. Based on the results of #2, develop an implementation schedule for the changes. For example, assuming the HD has the ability to change the structure of the financial terms, the HD could change the terms to become effective when the changes have been made to all seven of the terminal use permits.
4. Regarding the carrier charge, the HD will need to confirm the most expedient, effective means for implementing the charge. One option would be to institute the charge through the tariff and include incentive breakpoints based on MAGs, service and volume guarantees.



Business Diversification Opportunities

Revenue growth is essential to the HD's business strategy and long-term success. Historically, cargo growth in general and container cargo growth in particular have driven the HD's revenue growth. Periodic price increases, predominantly the five-year resets of financial terms in the container terminal use permits, have been a contributor to revenue growth. Collectively, cargo related revenue (shipping services) accounted for an estimated 84 percent of total FY17 operating revenue and 84 percent of revenue growth over the past 10 years.

As part of the IEA Survey effort, the consultants were asked to assess the opportunity to diversify the HD's business and revenues. The advantages of diversification can include expansion of overall revenues from entering new lines of business, reduction in financial risk assuming the businesses entered have different risk factors (industry, company, country, currency, political, environmental, etc.) and the overall risk profile of the new business is less than the existing portfolio.

Key Recommendation

Continue to pursue pragmatic diversification opportunities that enhance supply chain velocity and improve utilization of existing industrial cargo properties.

The consulting team pursued a three-step approach to evaluating diversification opportunities potentially available to the HD:

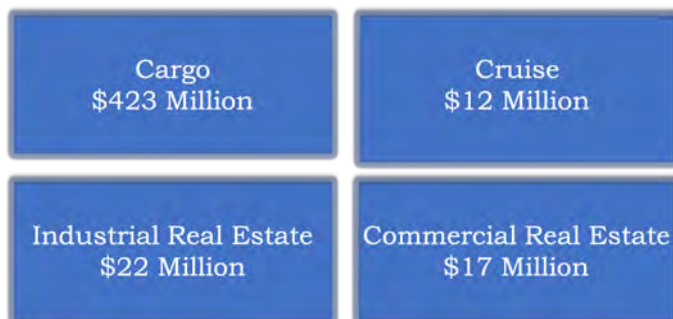
1. Reviewed the current situation, i.e. the HD's current portfolio of businesses, revenue drivers, and available property assets and their capabilities and the HD's current diversification initiatives.
2. Reviewed a range of diversification opportunities typically found within the port industry.
3. Assessed the potential for the HD to diversify, expand and enhance the future growth of its revenues.



Harbor Department Current Business Portfolio

The diversity of the HD's business portfolio is above average by port industry standards and is in four major segments as shown in the following exhibit.

Exhibit 8: Harbor Department Estimated Operating Revenue Distributed by Line of Business



Note: Operating revenue estimates based on Capstan analysis of HD financial information. Industrial and commercial real estate revenues are rental revenues. Port industry practice includes liquid cargo revenues under cargo and cruise revenues as its own line of business. The above table conforms to this practice. However, liquid bulk terminals and cruise terminal revenues are also shown under commercial real estate since these areas are organizationally assigned to the Waterfront and Commercial Real Estate Division.

The cargo line dominates the HD's business portfolio. It utilizes the majority of the HD's cargo and terminal real estate holdings with an estimated 2,124 acres or 72 percent of the HD's total 2,951 acres of cargo and terminal acreage. The cargo line of business accounts for the overwhelming majority of the HD's 2,060 (FY17) vessel calls, generates an estimated 89 percent of the HD revenue and generates virtually all of the HD's cash flow.

- ♦ **Container cargo:** The container line of business, as previously noted, dominates the cargo business. The HD manages the largest

container port in the Western Hemisphere based on volume, acres of container terminals and related infrastructure. The HD's container terminals occupy an estimated 1,704 acres or 59 percent of the HD's cargo real estate and terminal acreage. It serves all of the largest global container shipping alliances and carriers.

The HD's other cargo lines of business are significantly smaller.

- ♦ **Breakbulk/Multipurpose General Cargo:** In FY17 the HD handled an estimated 0.6 million revenue tons of breakbulk general cargo. Breakbulk/multipurpose marine cargo facilities occupy an estimated 235 acres or eight percent of the HD's cargo and terminal acreage. They handle a diverse range of commodities including automobiles, steel, and refrigerated cargoes. The HD's and SPBP's comparatively small volumes of breakbulk cargoes reflect both the high degree of container penetration on the Transpacific general cargo trades and the comparative lack of indigenous breakbulk markets in the SPB. Today most general cargoes move in containers vs the breakbulk handling mode.
- ♦ **Bulk cargo:** In FY17 the HD handled approximately 0.6 million tons of dry bulk general cargo. Dry bulk terminals occupy an estimated 27 acres or one percent of the HD's cargo real estate and terminal acres. The HD's relative minor participation in the dry bulk trades reflects the comparative lack of indigenous dry bulk markets (coal, grain products, minerals, ores, etc.), the dominance of proprietary private dry bulk facilities in the



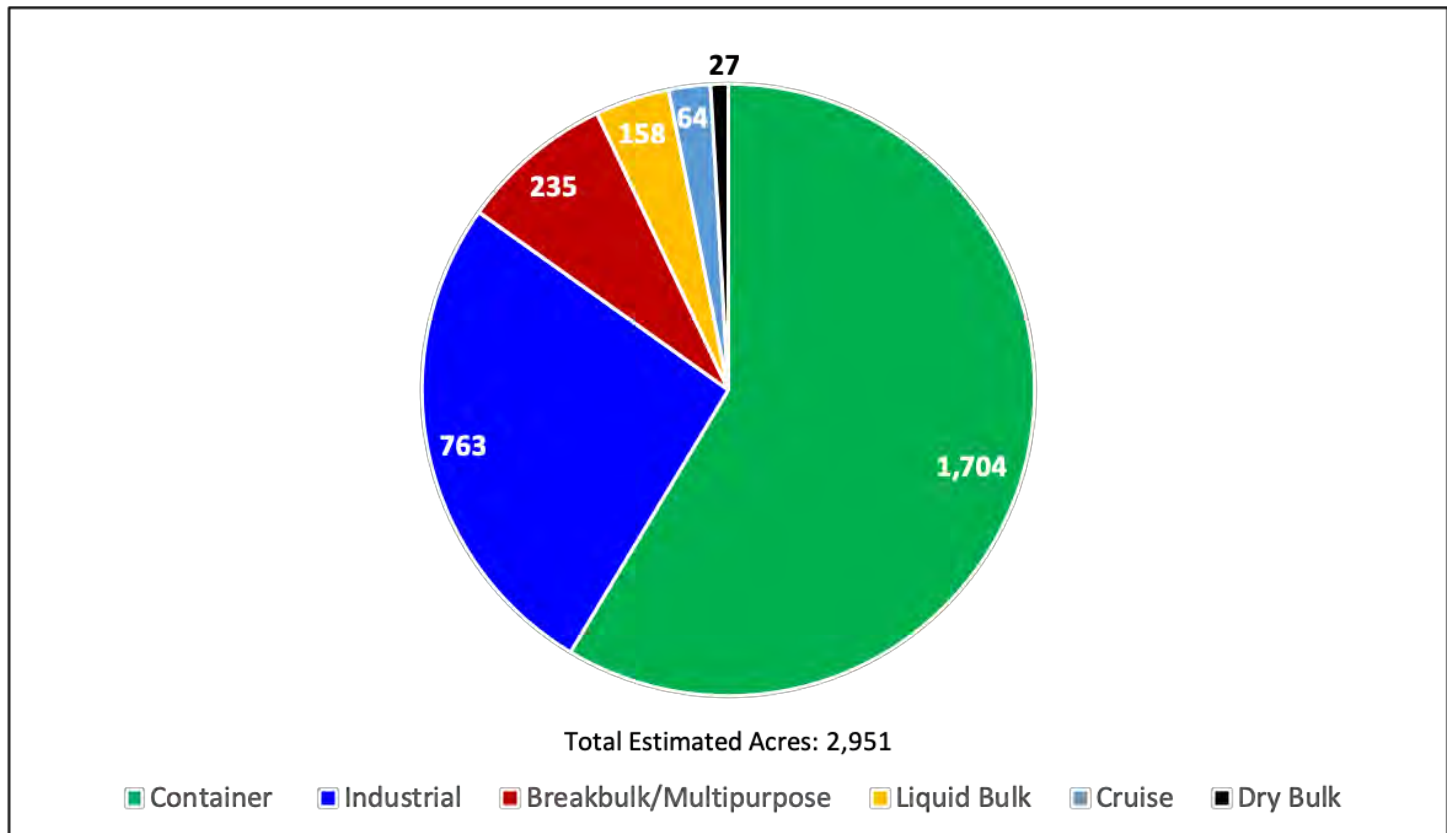
international dry bulk trades and the structure of the Southern California economy.

- ♦ **Liquid bulk:** In FY17 the HD handled a reported 13.2 million metric revenue tons of mostly petroleum-based cargoes. Liquid bulk terminals occupy an estimated 158 acres or five percent of the HD's cargo and terminal real estate acreage. The HD's significant volume of liquid bulk cargo reflects the significant demand for gasoline, diesel oil, chemicals and fuel oil in the SPB due to its large population base and transportation requirements.
- ♦ **Cruise:** in FY2017, the HD handled 529,031 cruise passengers, a reduction from the 676,744 cruise passengers in FY2016. The HD's cruise terminal facilities occupy an estimated 64 acres or two percent of the HD's cargo and terminal real estate. The geographic location of the SPBP poses a significant challenge to expanding their cruise business. The majority of the cruise products offered by the international cruise industry range in duration from 2 to 7 day cruises. The West Coast of Mexico is the market that can be effectively served from the SPBP ports. This market is comparatively small in size, has faced significant economic and intermittent safety challenges over the years and therefore is significantly less attractive relative to the Caribbean Basin, Mediterranean, and Alaskan cruise markets.

- ♦ **Industrial:** The HD's industrial real estate occupies an estimated 763 acres of the HD's cargo terminal and real estate acreage. In FY2017, industrial real estate uses generated an estimated \$22 million in operating revenue. The HD's industrial tenants comprise a diversified mix of companies involved in the production of Sulphur, seafood products and industrial gas products, maritime services and the provision of rail and water transportation service. The HD's cargo real estate managers reported as of the end of FY17 the HD has approximately 130+ acres of industrial property under Letters of Intent (LOI). Its remaining vacant property inventory approximates 23 parcels comprising a total of 11 acres, most of which are located in Wilmington.



Exhibit 9: Harbor Department Estimated Cargo Real Estate and Terminal Property Uses by Line of Business (Acres)



Source: Capstan analysis of Harbor Department cargo real estate & terminal information.

Note: Includes maritime support uses, HD and City uses and the ICTF but excludes the Alameda Corridor and multiple small (typically less than an acres) parcels in Wilmington. Traditionally liquid bulk terminals and operations are considered part of cargo lines of business in the port industry. Similarly, cruise terminals and operations are considered separate lines of business. These are shown here even though the HD includes them under commercial real estate.

Overview of Typical Port Diversification Initiatives

The traditional port industry core lines of business are cargo and cruise. Cargo lines of business are container, non-containerized general cargo which is often time referred to as breakbulk, dry and liquid bulk cargoes. The cruise line of business can include homeport operations, where cruise vessels originate and terminate their cruises, and port of call

operations. Homeport operations typically generate larger, more sustainable revenues given the fact these operations tend to be longer in duration, require more facilities and services, and handle significantly higher volumes of passengers.

The global and North American port industries are engaged in a wide range of other lines of business. Broadly speaking, these other businesses include:



- ♦ Manufacturing and or processing industries: salient examples include pipe fabrication facilities to support the oil and gas industry, fertilizer manufacturing facilities, oil refineries, cement plants, construction materials facilities such as wall board manufacturing plants, agricultural product bagging plants, etc.
- ♦ Industrial uses: industrial parks, warehousing (dry or temperature controlled), distribution, shipbuilding and or repair facilities, office parks, equipment repair facilities, equipment storage facilities, rail yards and support facilities, and offshore oil support facilities
- ♦ Commercial uses: hotels, restaurants, office parks and marinas
- ♦ Tourism: festival market places, shops, museums, tour boats

The section of this report on HD Commercial Real Estate addresses the HD's position, opportunities and challenges in pursuing commercial real estate and tourism diversification opportunities.

Successful port industrial diversification is predicated on a number of important factors including:

- ♦ **Financial strength**, i.e. sufficient financial cash flows and reserves to support extended diversification planning, marketing, and investment/development lead times.
- ♦ **Surplus properties**: available, sizeable, industrially zoned parcels with good transportation access and segregated from incompatible uses.

- ♦ **Demand**: established and ideally expanding demand for the diversified uses, e.g. logistics facilities and services, industrial and or manufactured products, semi-processed materials for input to finished industrial products, etc.

It is also important to note that a number of port diversification initiatives have been borne out of necessity, i.e. declines in traditional core businesses or inability to compete with neighboring ports for traditional core businesses. These trends have necessitated ports look well beyond traditional core businesses in order to sustain their existence and fulfill their missions.

Financial Strength

While the HD is an industry leader in terms of financial performance (revenue growth, operating income and cash flow generation), it also faces numerous, large scale, and comparatively unique investment challenges including continuing to develop and expand big ship capable navigation and container terminal infrastructure, maintaining and enhancing one of the largest port rail complexes in North America, and implementation of the Clean Air Action Plan (CAAP).

As noted in previous sections, the SPBP potentially face upwards \$8-\$11 billion in capital investment needs by 2030 to successfully pursue both identified opportunities and challenges. The foregoing investments are to support the SPBP's core businesses including current commercial real estate initiatives. The HD will be challenged to generate the cash flows required to support the requisite investments in its core businesses all-the-while sustaining the strategic and



competitive positioning of the Gateway. Consequently, it is unlikely to have significant, surplus financial resources to devote to new diversification initiatives, especially those requiring long lead times and “seed money” investments.

Surplus Properties

The SPBP face significant challenges in accommodating projected growth in their core business, marine cargo terminals in general and container cargo terminals in particular. The SPBP container cargo throughput is projected to double by 58-70 percent by 2030 under the Base Forecast scenarios. The SPBP, together with their tenants, will either need to increase productivity and terminal utilization in excess of 75-85 percent or add upwards of 1,500 acres or more of property to accommodate this growth. It is neither practical nor reasonable to assume the SPBP could create anywhere near this amount of additional acreage. Regardless of what combination of productivity and acreage expansion occurs, it will be costly. The SPBP will not have surplus property to redevelop into diversified uses.

As noted previously, the HD currently has an estimated 23 parcels totaling 11 acres available for development. Most manufacturing and industrial developments require a minimum of 10-15 acres for small scale development and probably 25 acres or more of a moderate scale project. Consequently, it is unlikely the HD will have sufficient surplus property to support a significant diversification effort that will have a material, positive effect on the HD's revenues, operating income and cash flows.

Demand

There is significant, sustained demand for consumer and related products in the SPB. There is also significant, sustained demand for logistics related infrastructure and services. The SPB is one of the largest warehousing/distribution center complexes in the Western Hemisphere. There is reportedly more than 200 million square feet of warehousing/distribution facilities in the SPB. A modern warehouse/distribution center typically requires 500,000+ square feet or 11.5 acres. When loading/unloading areas, parking and staging areas are considered the total footprint increases significantly beyond the building footprint. Given both the amount of SPB warehousing and distribution center infrastructure and the minimum acreage requirements, it is highly unlikely the HD could play a meaningful, competitive role or achieve a meaningful diversification of its revenue base by diversifying into warehousing and distribution.

Similarly, there does not appear to be a growing or unmet demand for most manufacturing and processing facilities. Further, property values, air quality and environmental regulations have a significant effect on demand for these types of facilities. In addition, many of these facilities are not water-dependent. Allocating already scarce waterfront property for diversification into non water-dependent uses is neither strategically nor financially in the HD's best interest.



RECOMMENDATION 4:

Continue to pursue diversification opportunities that enhance supply chain velocity and enhanced utilization of existing industrial cargo properties.

Practically speaking the HD does not have sufficient property (pending successful conclusion of current lease negotiations with two major industrial tenants) to support any meaningful diversification into new lines of business. The HD cargo real estate division reports they have 23 parcels which collectively total 11 acres.

A major strategic initiative of the HD is supply chain velocity. The ultimate purpose of this initiative is to expedite the efficiency and effectiveness of moving cargo through the SPBP complex. Major elements of this initiative include:

- ♦ The joint venture with GE and the Port of Long Beach to develop a secure port information portal to integrate information regarding the status and movement of cargoes through the SPBP complex. The Harbor Department is spearheading the use of the latest technology to bring together disparate participants in the ocean freight supply chain. The advantage to the Port in terms of efficiency and throughput, as well as information that will improve planning and facility utilization are clear cut.
- ♦ In a joint initiative with the private sector, creating the Harbor Performance Enhancement Center (HPEC) on the former Los Angeles Export Terminal (former coal export terminal site). The HPEC will provide chassis and interim container storage facilities at centralized location for truckers to pick up and drop off chassis and empty

containers. This will enable the container terminals to more efficiently use their container storage yards for transferring containers between ships, rail and trucks, thereby increasing the efficiency and velocity of moving containers through the SPBP complex.

- ♦ The ability of the HD and the SPBP to significantly increase supply chain velocity and asset utilization is critical to their long-term financial viability and continued success, i.e. accommodating growth, implementing the CAAP, revitalizing its commercial real estate strategy, revitalizing the San Pedro waterfront and generating significant economic impacts to the SPB.
- ♦ Given the HD's future growth opportunities, significant capital investment program and lack of available property, it is critical it continues to focus on sustaining its core cargo businesses. Successfully implementing its supply chain velocity initiative is an essential element of sustaining the HD's core cargo business. Consequently, it needs to remain the primary focus of the HD's business and industrial real estate diversification efforts.



Potential Business Disruptors

The Joint Administrators requested that the IEA Survey team consider potential changes or innovations that might occur over the next few decades that could potentially have a significant effect on the business and operations of the HD and the Port of Los Angeles. The IEA Survey team identified several disruptive innovations that could potentially have such an impact.

Disruptive innovation is innovation that creates a new market and value network and eventually disrupts an existing market and value network, displacing established market leading firms, products, and alliances. The following sections describe changes and disruptive innovations potentially related to the Harbor Department, and how they might disrupt their business.

Potential Tariffs and Trade War

On March 31, 2018 President Trump ordered the Office of US Trade Representative to publish proposed tariff increases on over 1,300 products the US imports from China. The proposed tariff increases were to be published by April 7th. The process going forward from April 7th involves two major steps:

- ♦ A public comment period which closes on May 1, 2018
- ♦ A Congressional Hearing currently scheduled for May 11, 2018

Pending the outcome of the Congressional Hearing, the tariffs could go into effect, in part, in whole or with significant amendments.

Key Recommendation

Monitor changes and innovations that could potentially disrupt the business model, operations and revenues of the Port and make adjustments as needed and feasible.

The US Bureau of the Census reports the US imported an estimated \$506 billion of goods and services from China in 2017. The estimated value of the approximately 1,300 products targeted for tariff increases are estimated to approximate \$50-\$60 billion or 10-12 percent of total US imports from China.

The Journal of Commerce (JOC) has estimated the Chinese import products targeted for tariff increases approximate 0.7 million TEUs or an estimated 6.6 percent of total US-China imports of 10.7 million TEUs. The JOC further estimates the Port of Los Angeles (POLA) handles 0.2 million TEUs or 29 percent of the China import TEUs targeted for potential tariff increases. The 0.2 million TEUs represents an estimated four percent of POLA's 2017 imports of 4.7 million loaded TEUs and two percent of POLA's total (loaded and empty) TEUs.

The US Bureau of the Census also reports the US exported an estimated \$130 billion of goods and services to China during 2017. These goods were predominantly agricultural products such as



fruits, vegetables, and grains, chemicals and aerospace products. China has targeted approximately 160 US products for tariff increases in response to President Trump's order. These products total an estimated \$50 billion or 39 percent of total US exports to China. The JOC estimates the TEU equivalent volume to approximate 0.2 million TEUs or 7 percent of total estimated US TEU exports to Chinese of 2.7 million TEUs.

Neither the US nor China have established a definitive time table for when their respective tariff increases would go into effect.

Under a worst-case scenario, the Harbor Department could experience a short-term loss of 0.2-0.3 million TEUs. This assumes tariff increases are imposed on all 1,300 targeted import products and the Harbor Department loses 100 percent of the volume currently moving through the Harbor Department's facilities. In 2017, HD container volumes grew by 0.5 million TEUs or 5.7 percent. The SPBP Long-Term Container Forecast-Base Case projects the SPBP gateway's growth to approximate 4.9 percent or 0.8 million TEUs. Assuming the HD

retains its current market share, this projection implies the HD container volume would grow by approximately 440,000 TEUs. Thus, under a worst-case scenario the HD would experience approximately 220,000 TEUs of growth or 2.4 percent growth. Strategically, this worst-case scenario would not have a "material effect" on the HD's performance.

More importantly, there is a high degree of uncertainty as to what the final outcome of the current politically-driven, proposed tariff initiatives will be. It is likely to be the end of May before a decision is taken. The decision is likely to be made within the broader context of the US's overall Asia and China specific foreign trade policies. Finally, it is important to note historically most US tariff initiatives have been very focused in terms of products (typically a few commodities, e.g. iron and steel) and short-term in duration. While any all US trade policy initiative needs to be carefully and fully considered, at this early stage the US's proposed "trade war" with China would not appear to present a significant, sustained, strategic threat to the HD's core container line of business.

Hyperloop Transportation Technology

Hyperloop is a transportation technology targeted for both passengers and freight cargo. Like a train, a hyperloop system follows a set track, however instead of cars on rails, hyperloop uses capsules in tubes. Within the tube, the capsules sit in near vacuum using magnetic levitation and electromagnetic propulsion. The minimal air resistance allows capsules to move extremely fast and very efficiently. Hyperloop

capsules are projected to have the potential to efficiently travel at airline speeds with estimated maximum speeds close to 700mph for passenger and light cargo capsules.

There are two companies leading the development of hyperloop technology:

- ♦ **Virgin Hyperloop One (VHO):** Their goal is to have three systems operational by 2021.



Hyperloop One built a full-size test track and has successfully completed multiple tests. VHO announced in February 2018 India's intent to build a hyperloop route beginning with an operational demonstration track. Specific to the port industry, Hyperloop One signed an agreement with DP World in 2016 to study the potential of using a hyperloop route at the port of Jebel Ali. VHO is also collaborating with Dubai's Roads and Transport Authority and is a part of feasibility studies throughout the world including the US. In the US, VHO issued a challenge to governments, engineers, innovators, etc. to propose origin/destination partnerships with VHO. Respondents VHO has selected to work with include: Cheyenne – Denver – Pueblo, Miami – Orlando, Dallas – Laredo – Houston, Chicago – Columbus – Pittsburgh

- ♦ **Hyperloop Transportation Technologies (HyperloopTT):** On April 12, 2018, HyperloopTT announced the arrival of their first full-scale tubes for use at their R&D facility in France. These tubes have an interior diameter of 4m allowing the system to move both passengers and containers. Like Hyperloop One, HyperloopTT has also signed an agreement with an Indian state to develop a hyperloop transportation system. HyperloopTT has also signed agreements to develop hyperloop with the Republic of Korea, Indonesia, Czech Republic, France, Abu Dhabi, and Slovakia, and has signed a public private partnership agreement with the Northeast Ohio Areawide Coordinating Agency (NOACA) regarding the proposed Great Lakes Hyperloop connecting Cleveland to Chicago. As part of this agreement, both

parties will produce a regional feasibility study over the next six to nine months.

If successful, the Hyperloop Technology could significantly change transportation. Depending on the ultimate price of a system (i.e. an origin-destination hyperloop including right of way, design, permitting, construction, maintenance, operating costs, financing), it could in theory eliminate or dramatically reduce the need for airports, rail lines (freight and passenger) and interstate highways connecting the origin-destination points. In the case of the HD, it could in theory eliminate the need for the Alameda Corridor (unless the corridor was used for the hyperloop right of way), intermodal rail yards, and a portion of the SPBP highway network. Conversely, there would be a need to construct a hyperloop terminal or terminals. The need for "big ship" capable navigation channels, berths, container cranes and storages yards (unless a "feeder network" of tubes connecting marine terminals to the main hyperloop system were constructed) would likely remain. How such a "feeder network" would function operationally and safely in an integrated system is unknown.

It is also unclear as to whether one system would handle both passengers and freight. Issues related to handling hazardous freight in a system also handling passengers would need to be addressed as well as overall security of the system. Finally, unless the hyperloop system is able to share (via lease or rent) existing rail or highway rights of way, the process for acquiring (identifying a preferred route, complying with all environmental regulations, addressing public concerns, purchasing the right of way, securing the right of way) the requisite right of way could be both time consuming and costly.



3D Printing or Additive Manufacturing

3D printing refers to processes in which material is joined or solidified under computer control to create a three-dimensional object, with material being added together (such as liquid molecules or powder grains being fused together). 3D printing is used in both rapid prototyping and additive manufacturing (AM). Objects can be of almost any shape or geometry and typically are produced using digital model data from a 3D model or another electronic data source.

3D printing has entered the world of clothing, with fashion designers experimenting with 3D-printed bikinis, shoes, and dresses. In commercial production Nike is using 3D printing to prototype and manufacture the 2012 Vapor Laser Talon football shoe for players of American football, and New Balance is 3D manufacturing custom-fit shoes for athletes. 3D printing has come to the point where companies are printing consumer grade eyewear with on-demand custom fit and styling.

In cars, trucks, and aircraft, AM is beginning to transform both unibody and fuselage design and

The following excerpt from an article on 3D printing and its impact on manufacturing and the supply chain is informative:

In conclusion, this paper has demonstrated that in little over 25-years, since the concept of additive manufacturing first took shape, the technology has found applications across the supply chain, from concept design to mass production. We have shown how the technology has found applications within the tool making industry for the

production and powertrain design and production. For example:

- ♦ In early 2014, Swedish supercar manufacturer Koenigsegg announced the One:1, a supercar that utilizes many components that were 3D printed.
- ♦ In 2014, Local Motors debuted Strati, a functioning vehicle that was entirely 3D Printed using ABS plastic and carbon fiber, except the powertrain.
- ♦ In May 2015 Airbus announced that its new Airbus A350 XWB included over 1000 components manufactured by 3D printing.
- ♦ In 2015, a Royal Air Force Eurofighter Typhoon fighter jet flew with printed parts. The United States Air Force has begun to work with 3D printers, and the Israeli Air Force has also purchased a 3D printer to print spare parts.
- ♦ In 2017, GE Aviation revealed that it had used design for additive manufacturing to create a helicopter engine with 16 parts instead of 900, with great potential impact on reducing the complexity of supply chains.

production of tool inserts with conformal heating and cooling channels, an application driven by reduced cycle times and increased product quality. On reflection, it is unlikely that this application will have a significant impact in the current tool making or CNC machining sectors. More significant however will be the potential threat of both direct



metallic additive manufacturing on the CNC machining community and direct polymeric part manufacture on both the tool making and moulding communities.

There will always be a place for high volume polymeric and metallic part manufacture, which will be supported by traditional moulding and casting processes. However, with the advent of the internet and the increase in consumer trends towards customized and personalized products, there is also a clear business case for additive manufacturing. This business case is further justified if we take into consideration material utilization and efficiency, transportation costs and carbon footprint. Although it is some way into the future, the promise of home based manufacture will have significant implications on the traditional factory and supply chain concept.

Although many people believe that home based manufacture is little more than a

dream for the future, it is worth putting the concept into context. On 22nd June 2009, Kodak stopped production of its iconic Kodachrome film. The reason being the almost exponential decline in the number of people using film based cameras compared to digital cameras. The knock on effect of this transition has also been the shift towards home based photographic printing, as opposed to laboratory based printing. In the case of Kodak, the driver to change was the digital camera. In the case of the traditional supply chain, the driver to change could well be additive manufacturing.²

As 3D printing or additive manufacturing becomes more prevalent and more economical it could have a major disruptive impact on the supply chain and the need to transport finished products. The ability to locally produce items, and the concept of “just-in-time” manufacturing could potentially reduce the amount of goods transported through the Port of Los Angeles, the need for cargo handling facilities, and the revenues generated by these facilities.

RECOMMENDATION 5:

Monitor changes and innovations that could potentially disrupt the business model, operations and revenues of the Port and make adjustments as needed and feasible.

² Reeves, Dr. Philip, "Additive Manufacturing: A supply chain wide response to economic uncertainty and environmental sustainability" January 2014.



Section 2: Commercial Real Estate

The HD's commercial real estate currently generates approximately \$50 million in annual revenue, about 10% of the HD's total operating revenues. The largest percentage of commercial real estate revenues are from fuel terminal operations (58%) and cruise terminal operations (22%). The remaining commercial real estate revenues are generated by marinas (11%), Ports of Call (6.3%) and properties in the outer harbor (3.4%).

Overview of Harbor Department Commercial Real Estate

The Port of Los Angeles includes a substantial commercial waterfront. This waterfront consists of a 400-acre area at the water's edge in the communities of San Pedro and Wilmington (LA Waterfront). Businesses on the LA Waterfront include a cruise ship terminal, commercial fishing, sport fishing and marinas; fuel terminals; restaurants and retail space; museums; and a wide variety of educational and community-serving non-profit uses. The LA Waterfront is connected with pedestrian walkways, bike paths, numerous parks and plazas.

The Port of Los Angeles (Port), together with the Port of Long Beach is the largest and busiest port in the United States. The large land area covered by the Port, along with its transportation infrastructure dominates the landmass west of the 110 freeway to the Pacific Ocean. This creates a significant barrier for the region to access the HD's commercial real estate on the waterfront.

A key focus of the IEA survey was the Harbor Department's Business Model. The Joint Administrators, in collaboration with the IEA Survey Team, defined specific topics to be included in the review of the HD's business model relative to commercial real estate, with each discussed in the following sections:

1. Commercial Real Estate Development Activity and Potential
2. Commercial Real Estate Leasing and Pricing
3. Waterfront Event Development and Marketing
4. Management of Commercial Real Estate Assets



Commercial Real Estate Development Activity and Potential

Key Recommendations

- ◆ Identify future development opportunities compatible with existing developments and begin the planning process.
- ◆ Explore the feasibility of new market-driven development and leasing opportunities that are compatible with the requirements of California State Tidelands Trust.
- ◆ Evaluate potential options for overcoming development obstacles for creative office space and mixed-use development in the Warehouse 1 Historic building.

In 2015 the HD adopted the Public Access Investment Plan (Public Access Plan). This plan commits the HD to invest 10% of the Port's operating income allocated on an annual basis. This commitment provides an additional \$400 million over 10 years for development and operations of the LA Waterfront.

Significant Development Due to the Waterfront Public Access Investment Plan

Through the Public Access Plan commitment, the HD has completed renovation of the World Cruise Center, promenade, and Fanfare fountains; infrastructure improvements to Harbor Boulevard; relocation of the USS Iowa; park improvements and the public Cabrillo Marina in San Pedro's Outer Harbor; and the Wilmington Waterfront Park and Marina Parkway. These new public infrastructure projects directly link to supporting private investment and redevelopment of key LA Waterfront development projects such as the San Pedro Public Market and AltaSea and "sets the table" for future project development. Funding through the Public Access Plan has allocated approximately \$200 million to new public infrastructure projects and \$200 million to maintain existing and new projects as well as provide Port related waterfront events, economic development, and educational programs.

The projects were determined as a result of broad community outreach in meetings with the public and community-based organizations. The projects were studied in the Wilmington and San Pedro Waterfront Project Environmental Impact Reports environmental assessment of the proposed development of the LA Waterfront. As part of the plan, the Port will strive to utilize outside funding sources in addition to Port-allocated funding. Mitigation projects and existing contracts are not eligible for funding through the Public Access Investment Plan.



Picture 16: San Pedro Waterfront Downtown Harbor

The following exhibit shows the projects planned over the next ten years as part of the HD's Public Access Plan.

Exhibit 10: 10-Year Public Access Plan Projects and Implementation Status

PROJECT	YEAR COMPLETE	COST
Sampson Way/7th St. Intersection, San Pedro	2018/19 (Year 4)	\$13.6 M
Town Square/6th St, San Pedro	2019/20 (Year 5)	\$4.1 M
Ports O'Call Promenade/Parking, San Pedro	2019/20 (Year 5)	\$34.5 M
Wilmington Waterfront Promenade/Demo or repurpose of Catalina Freight Building	2020/21 (Year 6)	\$52.7 M
Wilmington Waterfront Pedestrian Bridge	2023/24 (Year 8)	\$14.9 M
Harry Bridges Blvd Beautification/Island Ave and Avalon Blvd., Wilmington	2024/25 (Year 10)	\$17.4 M
Total		\$137.2 M



Picture 17: Wilmington Waterfront Park

Wilmington Waterfront Park is the location of numerous community events at the LA Waterfront, including a summer concert series. Waterfront Commercial is issuing a Request for Proposals for a permanent concert promoter for the LA Waterfront.

Where the Department Makes or Loses Money on Commercial Real Estate

The HD manages approximately 149 commercial real estate agreements. The following exhibit shows the more important agreements (excludes easements, rights of way, and miscellaneous minor non-revenue producing agreements):

Exhibit 11: Use Types and Related Permits, Leases and Agreements

USE TYPE	PERMITS, LEASES, AGREEMENTS
Cruise & Parking	Two (2) including Catalina Express
Fish Processing	Four (4)
Marinas, yacht clubs, related tenants and Water Transportation	Seventeen (17) marinas with 4,171 slips (including 600-slip Port-owned Cabrillo Way Marina), yacht clubs and 4 water transportations tenants
Fuel terminals and fuel dock	Eleven (11) terminals and Jankovich fuel dock
Non-Profits	Seventeen (17) (Little League; Boy Scouts; Community services and development groups, USC Boathouse and others)



USE TYPE	PERMITS, LEASES, AGREEMENTS
Education and Museums	Pacific Battleship USS Iowa, US Merchant Marine Veterans WWII Museum, LA Maritime Institute
High Tech and Blue Tech Innovation and Arts	Alta Sea; SpaceX, Port Tech LA, Crafted
City of Los Angeles Facilities	City of LA Marine Cabrillo Aquarium; LA School District; Cabrillo Beach Fishing Pier; Maritime Museum
Retail and Restaurants	Thirty-five (35) includes direct leases at former 100,000 square-foot Ports O'Call; Crafted; 8 restaurants including San Pedro Fish Market. Crusty Crab, Acapulco, Brewjui West, 22 nd Street Landing, Catalina Express, Fisherman's Seafood, and Pan Pacific.



Picture 18: Cabrillo Way Marina

The Cabrillo Way Marina is a 600-slip marina owned and operated by the Harbor Department with a third-party manager.



Revenues from Commercial Real Estate Leases are Increasing

As the following exhibit shows, the total revenues from HD commercial real estate leases has been increasing over the past several years.

Exhibit 12: Waterfront Commercial Real Estate Total Revenues

CALENDAR YEAR	CRUISE	MARINA	OUTER HARBOR	PORTS OF CALL	FUEL TERMINALS	TOTAL
2014	\$7,842,030	\$3,614,616	\$790,435	\$1,602,453	\$20,623,312	\$34,727,565
2015	\$8,417,211	\$4,723,886	\$1,130,525	\$1,846,122	\$23,582,458	\$39,700,202
2016	\$9,221,019	\$4,575,684	\$1,095,848	\$2,933,824	\$25,440,139	\$43,266,514
2017	\$10,531,359	\$5,445,809	\$2,716,847	\$4,218,142	\$27,123,611	\$50,035,768
% Total	22%	11%	3.4%	6.3%	58%	

Note: Cruise and Fuel Terminals are included in Cargo Real Estate section of this report because these lines of business are generally considered a part of cargo in the port industry. They are included in the Commercial Real Estate section because organizationally they are the responsibility of the Waterfront Commercial Real Estate Division.

Overall commercial real estate revenues are likely to grow at an increasing rate after 2020, based on development projects in process and new recommended projects:

- ♦ The Port's cruise business is privately operated and comprises 22% of the HD's LA Waterfront business. The 2018 cruise calendar has 133 planned calls, with a 23% increase to 163 calls scheduled for 2019. Cruise revenues could exceed \$14 million by 2019. As the number of commercial venues, attractions, and events increase, the LA Waterfront could become a more attractive overnight destination, which should positively impact commercial revenues and developer interest in another hotel project.
- ♦ Marina slip construction increased over the last five years, with the LA Waterfront producing the largest number of new slips. Slip vacancy rates are slowly decreasing. The marinas are setting aside revenues for modernization projects, which should result in increased revenues over the next 10 years, assuming the general economy remains stable or improves.
- ♦ The Outer Harbor area includes the Aquarium, Doubletree Hotel, AltaSea, and LA Maritime Museum. This is the most underutilized and lowest revenue producing area of the LA Waterfront, generating 3.4% of total revenues, but also has the most commercial potential. The HD should focus on creating new revenue producing development opportunities, such as the adaptive reuse of the LA Maritime Museum property; developing synergistic uses with



AltaSea; assessing the feasibility of developing a mixed-use project with creative office uses in Warehouse 1; and increasing the productivity of non-profit uses in valuable locations, such as the Boy Scout leasehold.

- ♦ New high-tech research, development and manufacturing uses such as SpaceX on Terminal Island will create more demand for new innovative scientific uses. This will in turn create demand for housing at different levels and create a significant number of new jobs in San Pedro and Wilmington.
- ♦ Ports O'Call revenues have increased greatly due to the Port taking over management of

Ports O'Call and directly collecting sub-tenant revenue. Revenues are expected to decline during the two-year construction of the San Pedro Public Market and then experience growth exceeding 2017 levels when the property reaches economic stabilization.

- ♦ Marine fuel terminals (Motems) account for more than half of the HD's commercial revenue and are also the largest land area of usage. Motems are also the highest revenue producer for the Harbor Department's commercial property on a per acre basis.

Exhibit 13: Waterfront Commercial Real Estate Acres and Revenues

CALENDAR YEAR (Acres)	CRUISE (64)	MARINA (208)	OUTER HARBOR (116)	PORTS O'CALL (35)	FUEL TERMINALS (158)
2014	\$122,382	\$17,365	\$6,800	\$45,589	\$130,334
2015	\$131,358	\$22,695	\$9,727	\$52,521	\$149,035
2016	\$143,902	\$21,983	\$9,429	\$83,466	\$160,775
2017	\$164,351	\$26,163	\$23,376	\$120,005	\$171,414
Revenue Average/Acre	\$140,498	\$22,052	\$12,333	\$75,395	\$152,890

Note: Cruise and Fuel Terminals are included in Cargo Real Estate section of this report because these lines of business are generally considered a part of cargo in the port industry. They are included in the Commercial Real Estate section because organizationally they are the responsibility of the Waterfront Commercial Real Estate Division.



Picture 19: Crafted

Crafted, AltaSea and SpaceX are innovative uses that have the potential to grow and be a unique draw to the LA Waterfront.

Crafted leases 130,000 square feet in two warehouse buildings. Crafted's original proposal to develop a craft marketplace with over 550 vendors became a lease in December 2011. Crafted expected to invest \$5.6 million and receive \$4.8 million in revenues by 2015, growing to \$10.5 million in revenue in 2018. Revenues to Crafted were severely over budgeted and were just \$431,931 in 2015 and the facility contains about 60 craft vendors.

The lease was restructured in 2013 to reset rent to \$17,500 annually. Between 2015 -2020, Crafted pays 6.5% over \$5 million annual sales. In 2020, minimum rent increases to \$50,000 annually against percentage rent of 3.5% up to \$5 million in annual sales and 6.5% thereafter. Crafted subleases part of its space to a large brewery operation called Brouwerij West, which pays Crafted fixed rent of \$251,000 annually for the first four years, after which percentage rents are due. The brewery has invested \$2.3 million.

The restructured lease with Crafted also granted approval of a sublease with PermaCity for solar roof facilities which pays rent of \$30,000 annually on a 20-year lease. Crafted revenues were \$2.8 million in 2017 and are now projected to reach \$3 million in 2018.



Picture 20: Crafted



AltaSea is envisioned to be a modern oceanographic research, business, and educational facility based on the premise that the ocean has a tremendously underutilized and environmentally threatened economic value. The ocean's value is currently estimated to contribute \$2.5 trillion annually to the global economy, far below the ocean's potential because pollution, overfishing, and climate change are straining marine ecosystems. AltaSea is dedicated to solving these problems by bringing leading ocean-oriented facilities together to collaborate and facilitate development of ocean-related assets.



Picture 21: Perma City Sublease at Crafted

AltaSea is the master developer with a lease covering 35.62 acres of land, including 180,000 square feet of warehouse space at Berth 58-60 and adjacent 4,510 linear feet of wharf and water areas for vessel berthing. AltaSea receives a 90% discount on monetary rent to the Port in exchange for producing a robust curriculum of educational opportunities ranging from elementary school through university doctoral

programs. The remaining market rent is paid through rent credits that are banked after AltaSea completes specific capital improvements to buildings or new public infrastructure. The benefits derived from AltaSea's operations is significant as it will bring together leaders in science, business and education to promote interest in finding new ways to responsibly capitalize on, and preserve marine resources, while stimulating economic growth on a local and regional scale.

AltaSea's financial plan is dependent on fundraising from individuals, foundations, corporations, program related investments and special event revenue. AltaSea projects it will raise \$15 million before 2020 to fund development of infrastructure investments. AltaSea has completed public access and education space for Berths 58-60. AltaSea is expected to establish a new Southern California Marine Institute (SCMI) headquarters facility at Berth 57 and invest approximately \$105 million in capital projects that will create 180,000 square feet of water dependent subtenant space at Warehouse 58-60, the Wharf

Plaza and Educational Pavilion at Berth 57.5, and an Engagement Center at Berth 56 that will provide a new publicly accessible attraction on the LA Waterfront. In the same time frame, the Harbor Department is expected to invest approximately \$37 million in street improvement projects, sea wall repair, and site remediation.

Under its agreement for engagement as a non-profit, educational facility, the lease has detailed



requirements for annual reporting regarding employment, sub-tenant employment, detailed breakdown of student participation and coordinated events. The engagement center must be free and open to the public 40 hours, five days per week and achieve minimum thresholds of educational program and numbers of students.

SpaceX recently leased almost 11 acres of Terminal Island backland containing an 80,000 square-foot warehouse, wharf and water area. SpaceX's new lease provides for private investment of over \$29 million in facilities creating construction and technical jobs for the Port of Los Angeles area. Under the new ten-year lease, SpaceX has two options to renew for ten years each for a total thirty-year term.



Picture 22: SpaceX Falcon Rocket at the Port of LA

During that term, SpaceX has the right to add another nine acres of land to the lease with the promise of an additional investment of \$15 million, bringing the total potential investment commitment to over \$44 million. Under the terms of the agreement, up to \$44 million in SpaceX investment is eligible for rent credits against the

base rent of \$1.4 million annually. The base rent is subject to annual increases in based on the consumer price index and five-year rent resets.

SpaceX will be using the land leased from the Harbor Department for the construction of new research and development facilities, the design and manufacture of aerospace vehicles, and water dependent recovery and transportation operations. SpaceX is expected to create demand for new residential housing at all levels, and along with AltaSea to spur the development of an innovation district for high tech and blue tech start-ups for scientific research on Harbor Department lands in San Pedro and Wilmington. SpaceX is expected to create over 700 new jobs in the area.

San Pedro Public Market should create a new critical mass of restaurants, retail and entertainment space.

In September 2009, the Board of Harbor Commissioners approved the Environmental Impact Report assessing redevelopment of the Ports O'Call site in San Pedro. The proposed scope of development under the lease for the San Pedro Public Market (SPPM) includes 300,000 square feet of restaurant, retail, and entertainment space in two phases and a 30-foot-wide public continuous promenade on the water's edge. Phase 1 includes approximately 168,000 square feet of new buildings, including 100,000 square feet of restaurants, 38,600 square feet of retail and 30,000 square feet of office. Phase 1 is scheduled to start construction at a cost exceeding \$85 million in 2018 and be complete in 2020. The lease is 50 years, including a 42-month option period covering design and construction.



SPPM was approved in July 2015, prior to the Board's approval of the Harbor Department's Waterfront Commercial Real Estate Division Commercial Leasing Guidelines. The lease approval required making findings that twelve areas of the proposed lease diverted from the existing Harbor Department leasing policy and were justified, including deviations from the Board-adopted policies regarding rates of return; security deposits; indemnity; insurance; tariff; force majeure; assignments; sublease; environmental; and option periods. A review of the lease verifies that these deviations are for the most part in line with standard commercial leasing and development practices. This is an example of the benefit in crafting a more flexible waterfront commercial leasing policy, more in line with the commercial development market which will benefit the Port in making its waterfront more attractive to private development in the future.



Picture 23: San Pedro Public Marketplace Main Entrance

In support of the SPPM, the Harbor Department is investing approximately \$50 million in public infrastructure projects, including intersection improvements at Sampson Way and 7th Street, the Town Square at 6th Street, and the thirty-foot-wide promenade and parking improvements. The Harbor Department is further obligated to fund a portion of the cost of any environmental remediation and pay the developer \$4 million if the Harbor Department fails to deliver the required infrastructure improvements by a certain date. If the developer fails to exercise its option, it will pay the Harbor Department the difference between \$2 million and documented development costs incurred after July 9, 2015. Rent for SPPM is 3% of gross rental receipts collected by the property. Potential revenues to the property in the first five operating years start at \$7.4 million year one and stabilize at \$17.7 million in year five. After five years of operations, minimum rent will be 50% of the average base rent paid over the preceding five years and adjusted every subsequent five years. After SPPM developer reaches a 12% return on invested capital, the base rent to the Port will increase to 33% of gross receipts.



Picture 24: San Pedro Public Marketplace Waterside



The San Pedro Public Marketplace Project is Comparable to Developments by Other Ports

The SPPM transaction structure was compared to the Ferry Building in San Francisco and the Old Police Headquarters in San Diego. The two comparable projects are historic structures which required significant investment by the developers and necessitate subsidies by the ports to incentivize private investment.

The Old Police Headquarters lease at the Port of San Diego (POSD) commenced in 2012 for a development of up to 100,000 square feet of restaurants, retail and entertainment space for a rent term of 40 years, divided into ten-year rental periods. The POSD will receive 5% of gross revenue for the property starting in 2022; 7.5% starting in 2032; and 10% starting in 2042. In addition, the POSD will receive participation rent of 50% of net operating cash flow before debt

service and taxes, but after the tenant receives a preferred return with a running balance. Participation rent to the POSD applies to sales and encumbrances. The developer spent approximately \$47 million to renovate the building with no direct investment by the POSD.

The Ferry Building lease for 66 years at the Port of San Francisco (POSF) commenced in 2004 after the terms of the Disposition and Development Agreement with the City/County of San Francisco were satisfied. The Ferry Building provides 175,000 square feet of office and 65,000 square feet of retail space. Minimum rent is currently approximately \$1.6 million annually, adjusted every 5 years in accordance with the CPI to the extent the rent increase is available from total income. The POSF also is entitled to participation rent of 50% of net operating revenues after a number of expenses paying all returns unless the port elects to 30% share in the net transfer proceeds on sale.

Exhibit 14: Comparison of Other Port Commercial Real Estate Projects

	SAN PEDRO PUBLIC MARKET ESTIMATED 2020	SAN FRANCISCO FERRY BUILDING 2004	SAN DIEGO OLD POLICE HEADQUARTERS 2012	LONG BEACH PIKE AT RAINBOW HARBOR
Project size	300,000 square feet in 2 phases; Phase 1 is 168,000 square feet	65,000 square feet of retail and 175,000 square feet office	100,000 square feet of restaurants and shops adjacent to Seaport Village (80,000 square feet)	350,000 square feet
Lease Term	50 years	66 years	40 years	67 years
Landlord contribution	\$50 million in on and off site public improvements	Historic Building, Pier, and improvements on Embarcadero	Historic Building	Unknown
Tenant capital invested	Phase 1 - \$86 million	Building renovation	\$47 million historic renovation	Unknown



	SAN PEDRO PUBLIC MARKET ESTIMATED 2020	SAN FRANCISCO FERRY BUILDING 2004	SAN DIEGO OLD POLICE HEADQUARTERS 2012	LONG BEACH PIKE AT RAINBOW HARBOR
Minimum rent	Years 6-10: 50% of average until developer reaches 12% return	Currently \$1.6 million annually adjusted by 5-year CPI	None	Currently \$1,598,625 with 50% offset of rent credits
Percentage rent	Years 1-5 operations: 3% gross rental receipts	None	5% of rental receipts starting in 2022; 7% of rental receipts starting in 2032; 7% of rental receipts starting in 2042	None
Participation rent	None	50% of NOI after all returns paid to developer unless POSF shares 30% in sale proceeds. Leasehold interest currently for sale at \$300 million	50% of NOI after developer receives preferred return	None

RECOMMENDATION 6:

The HD should continue to identify future development opportunities compatible with existing developments and begin the planning process now.

Implementation Action Plan

The following specific actions are recommended to identify future development opportunities:

- ◆ Identify sites for future development and develop a work plan to engage in the planning process regarding potential site uses.
- ◆ The work assignment for an event planner should include temporary recreational uses that may bring more people to the waterfront on a regular basis.
- ◆ Consider adding several staff with program management, development, and negotiation skills to handle complex transactions and

ensure that revenue growth continues to improve.

- ◆ Leverage staff time by dedicating a staff position to develop the functions of the Klein system through development and management of reports and analytic tools.
- ◆ Develop strategies to improve the performance of Crafted.



Non-Profit Leases Contribute to LA Waterfront Community

One of the many ways the HD contributes to the LA Waterfront community is through its accommodation of a significant number of non-profit community organizations. The largest of

Angeles Parks and Recreation controls approximately 1,310,525 square feet of land - more than one third of the non-profit leased facilities. The HD benefits in leasing facilities to non-profit agencies because they often are willing to lease less desirable locations.

However, the HD does not receive revenue and



Picture 25: USS Iowa

these includes the Los Angeles Maritime Institute (LAMI), the Boys and Girls Club, Little League, the Boy Scouts of America, and facilities operated by Los Angeles Parks and Recreation. Currently there are 22 non-profit leases occupying 3,167,021 square feet of land and water area, including many Port-owned buildings, representing nearly 20% of the Port's LA Waterfront area.

These non-profit uses include important education facilities such as LAMI, AltaSea, SpaceX, and the Los Angeles City Aquarium. Los

in many cases bears responsibility for capital repairs and maintenance of buildings or pays for services. Newer non-profit leases, such as AltaSea, are an example of the HD's improvement in creating beneficial non-monetary terms for tenant leases. In exchange for receiving land and buildings, tenants use sublease rental revenue for operations and maintenance; actively fundraise to support capital improvement programs; and report to the HD on the results of quantifiable

education programs and other community benefits. This is also the case with leases to LAMI and the Boys and Girls Club. Including these compensation terms in non-profit leases is the current standard. Older leases with non-profits do not include these terms. These terms should be included as these leases are renewed or renegotiated.



RECOMMENDATION 7:

The HD should provide incentives for non-profit tenants with older leases to invest in the growth and success of prime locations leased to non-profit tenants as they renew or are renegotiated.

Implementation Action Plan

The following specific actions are recommended:

- ♦ Amend the Waterfront Commercial Real Estate Leasing Guidelines to cover policy considerations for non-profit tenants including events, place-making, community benefit plans, and continued investment in facilities in exchange for leasing.
- ♦ Before entering into or renewing a non-profit lease, consider identifying the organization's non-monetary commitment to providing community benefits along the lines of the reporting required by the AltaSea lease.
- ♦ Conduct an audit of all non-profit leases to determine the costs to the Port and the non-monetary community benefits currently being received from leases.
- ♦ Identify alternative locations where non-profit uses could be relocated if an alternate use were identified for the property.

Potential to Increase Current Revenues and Identify New Opportunities

Mixed use residential and creative office development could fuel more interest in waterfront commercial development. However, obstacles to mixed use and creative office development including conflicts with port

industrial uses, environmental requirements, and the Tidelands Trust would first need to be investigated.

The HD lands are subject to the restrictions of the California State Tidelands Trust. The Tidelands Trust area is the portion of the shore up to the historic mean high tide line, which is the area covered and uncovered by the daily ebb and flow of the tides. Permissible uses in the Tidelands Trust area are generally interpreted to mean maritime (water dependent) and visitor-serving uses, which include parks, hotels, retail, restaurants and other commercial uses.

The Tidelands Trust generally excludes residential uses and non-marine-related office businesses. It also limits the duration of ground leases. In some places such as San Francisco, the Port has been able to work with the State Lands Commission and Legislature to obtain longer ground leases and a broader range of uses for specific waterfront development projects. The California State Lands Commission (SLC) administers public trust lands not granted to local agencies and oversees the activities of local grantees. The use, transfer, and leasing of public trust lands are governed by a broad set of rules and determinations under Common law, the California Constitution, and the California Legislature.



The SLC stated that: “Uses of trust lands, whether granted to a local agency or administered by the State directly, are generally limited to those that are water dependent or related, and include commerce, fisheries and navigation, environmental preservation and recreation. Public trust uses include, among others, ports, marinas, docks and wharves, buoys, hunting, commercial and sport fishing, bathing, swimming and boating. Public trust lands may also be kept in their natural state for habitat, wildlife refuges, scientific study, or open space. Ancillary or incidental uses, that is, uses that directly promote trust uses, are directly supportive and necessary for trust uses, or that accommodate the public’s enjoyment of trust lands, are also permitted.”

Trust law generally recognizes restaurants, hotels, and visitor-serving retail as appropriate ancillary uses that further public enjoyment of waterfront areas. Generally, local-serving uses (such as a grocery store) that do not require a waterfront location and private uses such as housing are prohibited on public trust property.

Port of San Francisco Examples of Potential Tidelands Development Exceptions

The Port of San Francisco (POSF) is creating opportunities for waterfront development that support public access and also help subsidize the substantial capital investments required to maintain its seawall and piers. All of the projects that have been approved and completed represent individual projects with unique conditions and circumstances. Some of these individual projects have been granted the opportunity to incorporate land uses outside of

the typical tidelands-permitted (including general office and residential uses) along with substantially longer ground lease terms.

POSF evaluated the role that longer ground leases could play in supporting substantial investments in the historic finger piers, bulkhead buildings, and other critical infrastructure investments. Such investments could help ensure the integrity of the waterfront, but also address other issues, such as sea-level rise and resiliency. In 2007, Senate Bill 815 found that Seawall Lot 330, having been cut off from San Francisco Bay by the Embarcadero roadway was no longer suitable for trust purposes. It removed the trust and Burton Act requirements from the property through 2094 and authorized POSF to enter into 75-year leases for the property. Pier 70, another major development project on the San Francisco waterfront involving the adaptive reuse of a number of historic buildings, was also covered by special legislation, and allows for a 99-year ground lease. Planned uses include 1,500 and 3,000 housing units, substantial office/R&D space, and significant investments in public spaces and other community benefits.

Opportunities to Optimize Property Use and Expand Public Private Partnerships

In December 2016, Economic Planning Systems (EPS) prepared the LA Waterfront Site Development Feasibility Analysis Report on behalf of the City of Los Angeles. According to the report, developments underway along the LA Waterfront total over \$1 billion in public and private investment since 2003, with about \$330 million from public sources. AltaSea, SpaceX, and the San Pedro Public Market are the new and most significant privately funded projects in



the LA Waterfront and are expected to attract more private investment.

EPS studied 16 properties owned by the HD, City, County and State comprising about 60 acres in Wilmington and San Pedro. The properties include potential development on Harbor Department-owned Outer Harbor area and the historically designated Warehouse #1 totaling 40.6 acres; small properties in San Pedro totaling 6.2 acres; the 3.1 acres Cruise Center Caltrans Park and Ride; and 3.7 acres of properties in Wilmington near the proposed Wilmington Harbor Promenade redevelopment.

Complementing the AltaSea and San Pedro Public Market projects, Cabrillo Marine Aquarium and the Cabrillo Beach Youth Water Center, the Outer Harbor Port sites are expected to attract new hotels, office, and recreational uses and could develop within the next 10 years or sooner if publicly subsidized. AltaSea, SpaceX, the San Pedro Public Market and other LA Waterfront amenities could also help create demand for creative office space. EPS quoted the LA Weekly as calling San Pedro an “emerging artists’ mecca” with a growing community of artists and galleries. The LA Waterfront’s Crafted project could benefit from this synergy and expand its uses to include incubator space for artists. The Caltrans Park and Ride lot is near the cruise terminal, Vincent Thomas Bridge, and 110 Highway and has potential for a hotel and commercial uses as the cruise market grows and the LA Waterfront develops successfully. The Wilmington properties could be developed over the long term with complimentary commercial employment generating uses.

According to EPS, real estate market conditions in these areas are improving and the LA Waterfront projects are spurring confidence in private developers and owners to invest in new residential development and redevelopment of older buildings. Developers, of hotel, commercial, and creative office uses will need both public land and subsidies to initiate development, especially on properties with regulatory and historic constraints. San Pedro Public Market, AltaSea, SpaceX, and Crafted exemplify the willingness of developers to invest when they are in a supportive regulatory environment and have the benefit of public subsidies to support development.

Hotel Market

According to the EPS study, hotel demand in San Pedro is a portion of demand generated by Long Beach and the Port’s cruise business. In 2015, 560,000 cruise passengers used the cruise terminal, a decline from the 2005 peak of 1.22 million passengers. The declining Mexican cruise market has had a significant impact on Southern California cruise ports and it is not likely to be made up with other cruise destinations. If the cruise market grows, the Outer Harbor could be an auxiliary berth location and have room for a small destination hotel. The San Pedro Public Market, SpaceX, and AltaSea may generate additional hotel demand by adding over 2 million new annual visitors and increasing San Pedro’s overnight business and leisure hotel room demand.

Creative Office Market

Although San Pedro is a bedroom community without many jobs, EPS identified the Cabrillo



Marina Parking lots and Warehouse 1 as having some potential for development of creative office space based on new residential growth in the San Pedro community, attractiveness of the waterfront, and development of AltaSea and San Pedro Public Market. The AltaSea build-out is expected to be complete by 2022 and is expected to generate significant visitors and new jobs as well as serve as a blue-tech business incubator for maritime related businesses. San Pedro may benefit from the trend of companies leasing creative office space in communities such as San Pedro. Recently the 11-story, 289,000 square foot Topaz building was renovated and should attract tenants interested in low rent in a first class building as the area develops. The HD has investigated the physical feasibility of renovating Warehouse 1 and should conduct further studies on the building's development and leasing demand and values. Waterfront Commercial should work with SLC to determine if creative office uses may be appropriate use and justify renovation of this historic asset.

Warehouse 1 is a 500,000 square-foot, 6-story structure originally constructed in 1917. The building is located at the southerly edge of the east channel on Signal Street on a fill site. The HD has investigated potential reuse opportunities for the iconic historic structure and believes there is a potential for development of creative office space for lease. The cost of structural improvements is estimated at almost \$21 million.



Picture 26: Warehouse 1



Industrial Market

The available properties in Wilmington are longer term industrial redevelopment opportunities. The proposed Wilmington Waterfront promenade and Triangle Park should help attract development by assemblage of parcels to a larger property. In 2017, the Urban Land Institute conducted a Technical Assistance Panel to study the Wilmington area of the LA Waterfront to

determine what it would take to secure a quality waterfront restaurant along the Wilmington Waterfront Promenade and how the HD could use its properties to generate demand for development. The study suggests that the HD should partner with the LA Department of Water and Power to create opportunities for development. In addition, the HD could enact a

Community Facilities District as a funding mechanism and attract a combination of new development and reuse of existing buildings. The study recommends development of a jobs training center and parking structure located nearby at Avalon and Harry Bridges Blvd to support a development strategy on the waterfront at the Triangle Park. The study also recommends that the HD initiate a master planning effort on the three blocks west of Marine Avenue to determine appropriate development and a strategy for disposing of the property.



Picture 27: Warehouse 1

RECOMMENDATION 8:

The HD should explore the feasibility of new market-driven development and leasing opportunities that are compatible with the requirements of California State Tidelands Trust.

Implementation Action Plan

The following specific actions are recommended to explore the feasibility of new market-driven development and leasing opportunities:

- ♦ Evaluate potential options for overcoming development obstacles for creative office

space and mixed-use development in the Warehouse 1 Historic building.

- ♦ Prepare a study to identify the extent of market demand and timeline for absorption for both Tidelands Trust uses and Non-Tidelands Trust uses, potential tenants, and the rents that those tenants may be willing to



pay for an adaptive reuse project in the historic Warehouse 1 building.

- ♦ Prepare a feasibility study (building on existing studies) to identify alternative project concepts, development costs for appropriate uses and the extent of subsidy required to attract a developer to an adaptive reuse project for the historic Warehouse 1 building.
- ♦ Start discussions with SLC regarding the necessary steps to adaptively reuse the historic Warehouse 1 building for non-trust purposes such as creative office space to support demand from new businesses to locate near other innovative maritime-dependent uses.
- ♦ Create an action plan for disposition of properties in Wilmington that may be redeveloped more quickly and efficiently by the private sector.
- ♦ Identify specific sites for hotel development near the cruise terminal and outer harbor area; and conduct an in-depth feasibility study to determine market timing for a range of conceptual hotel site development plans.
- ♦ For significant non-profit leases, determine HD costs and identify specific sites that may benefit from redevelopment, expansion, or additional uses; specifically, the Boy Scouts leasehold and the Maritime Museum.



Commercial Real Estate Leasing and Pricing Policy

The Port is an economic engine and environmental innovator and steward for the region. The HD has developed a long-term vision to develop specific waterfront properties for public access and visitor serving developments. These developments are subject to market and transaction considerations that are uniquely different from Port cargo terminal operations.

Periodic investments to upgrade or completely repurpose commercial developments to meet market demands are required to ensure long-term success of the Wilmington and San Pedro (LA Waterfront). The HD has attracted private developers to increase the value of these waterfront assets. The future success of the LA Waterfront as a visitor serving destination depends on on-going attraction of private development to leverage the public access infrastructure investments the Port is making.

The HD Waterfront Commercial Real Estate Division's Waterfront Commercial Leasing Guidelines (Guidelines) are intended to strategically address issues unique to attracting and financing private developments. The

Guidelines reflect the HD's understanding of the requirements necessary to create large scale and sustainable privately financed developments along the LA Waterfront.

The Guidelines were adopted January 26, 2017 after conducting outreach and discussions with the City of Los Angeles and a number of organizations and

documents, including the State Tidelands Trust Grant. The Guidelines build on the 2012-2017 Port of Los Angeles Strategic Plan 2014 Update, the 2015 Public Access Investment Plan, and the Port of Los Angeles Master Plan. The Guidelines integrate these key land use planning documents with real estate leasing goals and objectives.

The Guidelines generally cover procedures for both new developers and existing tenants to enter into lease negotiations with the Port, with new projects bid on a

competitive basis; guidelines for lease provisions, including lease term, percentage and flat rent lease provisions, rental adjustments and compensation resets, subleases, and assignments; and lease performance guidelines which include lease amendments and financing

Key Recommendations

The HD's Commercial Leasing and Pricing Guidelines should be modified to include:

- ♦ Tracking and adopting market percentage rental rates and ground lease terms.
- ♦ Assessing benefit created by new public infrastructure investments and developing cost sharing parameters with developers for future projects.
- ♦ Develop standard commercial lease provisions in line with other public agency commercial leases.



approvals. Some of the key lease provision Guidelines include the length of term to be related to the life expectancy of the improvements and amount of capital investment; options; and the expectation that the Port will receive market rent. Market rent may be determined by appraisal or a project economic performance economic model.

The HD's new Waterfront Commercial Leasing Policy benefits HD by:

- ♦ Providing a market driven approach to commercial development
- ♦ Creating a roadmap for developing commercial real estate at the HD
- ♦ Integrating the Policy and Strategic Planning Goals with projects that incentivize private developer investment

Comparison of Other Port Commercial Real Estate Portfolios and Leasing Policies

In order to better understand the challenges and opportunities in the investment and development of the LA Waterfront, the real estate portfolio of assets and Waterfront Commercial leasing policies were compared with the ports of San Francisco and San Diego and the City of Long Beach. These comparables are part of California's largest metropolitan areas and the commercial waterfronts are all subject to the significant use restrictions of the California State Tidelands Trust.

Port of San Francisco

The Port of San Francisco (POSF) is the premier example of an active waterfront that makes the most of its world class location. POSF's Retail Leasing Policy is similar to the HD's Guidelines in that it is a very general policy with broad parameters. The Policy includes provisions that new leasing opportunities are competitively bid, lease renewals are handled on a case-by-case basis with tenants that are in good standing and whose use is determined to be best for the property and consistent with the Master Plan. POSF has the right to approve lease assignments, sub-leases, and tenant financings. POSF also has the right to audit and obtain financial reports and collects fees on financings and proceeds from sales and transfers.

POSF is uniquely challenged with issues regarding its seawall and pier structures on filled tidelands supporting the Embarcadero, which are subject to severe inundation as a result of climate change and deferred maintenance for a large number of pier assets. With an unsustainable level of capital investment required for its piers and seawall. POSF piers are the focus of redevelopment efforts, with many piers containing warehouse facilities which are rented for adaptive reuses.

POSF has partnered with the City and County of San Francisco to implement public-private financing structures for projects to develop properties in exchange for developing substantial public infrastructure improvements and long-term revenue streams for maintenance of parks, streets, and other public facilities. Future developments that will have a major impact include the San Francisco Giants professional



baseball team's proposed Mission Rock project containing residential, office, parks and commercial uses located south of the baseball stadium; and Forest City Development's proposed redevelopment of Pier 70 which will include residential, office, parks and commercial uses as well as the reuse of historic industrial buildings and a shipyard.

POSF tenants reported almost \$274 million in sales for fiscal year 2017 with \$32.7 million in rents. The non-profit Exploratorium was San Francisco's No. 1 attraction in its category on Trip Advisor and generated \$200 million in revenues in 2015. POSF non-profits pay market rent; some may receive rent credits for capital improvements to pier infrastructure or handling maintenance of POSF-owned facilities.

Exhibit 15: Port of San Francisco Commercial Real Estate Portfolio

LOCATION	DETAILS
Fisherman's Wharf & Pier 39 (1980)	150,000 square feet of shops, restaurants, museums and attractions; rent is 8% up to \$10M; 9% to \$11M; 10% to \$13M; 11% to \$15M; 12% over \$15M. Area generates approximately \$174 million in total sales generates \$36M annual sales; currently pays approximately \$3.7 M annually.
Ferry Building 2004	Historic renovation Maritime related, transit serving facility of 65,000 square feet ground floor retail, 175,000 square feet upper floors office; rent is \$1.4M with CPI adjustments and participation rent of 50% of net proceeds; current flat rent is approximately \$1.5 million annually; Leasehold interest for sale at \$300 million.
Pier 1 1999	Historic renovation to provide 130,000 square feet office space; minimum rent of \$1.78M annually plus participation rent based on actual vs. projected rent with the port receiving 50% of the excess.
Giant's Ballpark	Port receives ground rent of \$1.8 million annually and parking revenues currently over \$6 million annually.
Cruise Ship Terminal, Marinas, Sport fishing and Boat Docks	Operated by POSF; James R. Herman cruise ship terminal on pier 27 built in 2014 includes 2.5-acre plaza; 77 cruise calls scheduled for 2018. Pier 39 has 300 slips; 640 slips at South Beach Harbor; 8 boating/yacht clubs and 6 dock'n'dine berths.
Arts Facilities	Noonan Building has low rents and arts tenants may be moved within Forest City redevelopment project – has temporary art exhibitions and festivals.
Non-Profits and Museums	Exploratorium (Piers 15-17 museum of science, art, and human perception developed through public/private partnership) pays \$1.5 M in rent offset by



LOCATION	DETAILS
	rent credits; Bay Institute Aquarium; San Francisco Maritime National Park; San Francisco Museum and Historical Society. Non-profits pay market rent for land and may have rent credits for pier structural improvements except for Eco Center, which is owned by POSF and operated by Bay Institute Aquarium.

San Diego Unified Port District

The San Diego Unified Port District (POSD) includes the tidelands within five-member cities in San Diego County with 60% of the commercial assets in San Diego including the Convention Center, USS Midway Aircraft Carrier Museum, and two cruise ship terminals. POSD rents from commercial tenants exceed \$95 million annually. Comparable commercial and non-profit assets to

the LA Waterfront include Seaport Village, The Old Police Headquarters, and the USS Midway Museum. Of the ports surveyed, the leasehold value of POSD is the largest of the four waterfronts, largely due to over 5,000 hotel rooms in high-rise structures on the waterfront and within close proximity to the convention center and downtown.

Exhibit 16: Port of San Diego Commercial Real Estate Portfolio (San Diego City Areas Only)

LOCATION	DETAILS
Seaport Village 1980	80,000 square feet of commercial/retail space; rent is 2%
The Headquarters 2014	100,000 square feet of commercial/retail space; rent abated until 2022 to recover rehabilitation costs of historic building; rent is 5% of property revenue from 2022-2032; 7.5% from 2032-2042; 10% from 2042-2052; participation rent of 50% of net cash flow including after 12% developer return
USS Midway	Over 1 million visitors annually; rent to POSD on food concession
Convention Center	1.6 million square feet; operated by City of SD
Cruise Ship Terminals, Marinas, Sportfishing, Harbor Excursions, Ferry, Water Taxi	POSD operates 3 berths and 100 calls in 2017/2018 one-year season; 5,300 marina slips port wide privately operated at 22% revenues to POSD; 4 private yacht clubs; 4 sportfishing operations, 2 major harbor tour operators, ferry and water taxi with 6% paid to POSD on ticket sales.



LOCATION	DETAILS
Hotels, Free standing Restaurants	14 hotels at 7% revenue to POSD, 7 free-standing restaurants at 3/5% revenues to POSD

City of Long Beach Tidelands

The City of Long Beach (Long Beach) administers commercial leasing and development in the Harbor and the Port of Long Beach administers port/cargo operations. Long Beach has a convention center, cruise ship terminal, several hotels, attractions including the Queen Mary, marinas and commercial activity centers. The city commercial developments include The Pike at Rainbow Harbor, Seaport Village and Shoreline Village. Long Beach previously managed its waterfront commercial real estate portfolio with the goal of increasing economic growth; however, it is moving towards a business model of market rent. Long Beach obtained funding from its Tidelands Operating Fund for investment in the Tidelands beachfront.

It is funded from Long Beach oil properties and from lease revenue. The money is used to pay for capital projects with a nexus to the waterfront. In 2014, Long Beach retained over \$46 million in oil properties funding for capital projects purposes. Since the early stages of development of the tidelands, Long Beach has invested heavily in subsidies and development of publicly run recreational facilities to develop the successful commercial waterfront that it has today. As a result, Long Beach is moving towards new development opportunities based on market rate transactions.

Exhibit 17: City of Long Beach Commercial Real Estate Development Portfolio

LOCATION	DETAILS
Seaport Village	50,000 square feet with restaurants and retail; base rent plus participation rent of 33.3%
The Pike at Rainbow Harbor	20 acres entertainment commercial center with over 350,000 square feet. Tenant pays fixed annual rent based on \$25 per square foot land value offset with a rent credit up to 50% based on the developer earning less than the expected return on capital. Current rent credits are at 50% of the fixed annual base rent.



LOCATION	DETAILS
Shoreline Village	37 retail shops and restaurants
Long Beach Aquarium and other non-profits	One of the nation's leading aquariums on 5 acres; Aquarium had \$29 million in revenues in 2016; managed as a non-profit; pays rent of approximately \$2 million annually to Long Beach which covers financing costs; Golden Shore Reserve is 6.4 acre tidal reserve that was developed as mitigation for the Aquarium.
Convention Center	350,000 square foot boutique convention center owned by City of Long Beach and operated by a vendor
Cruise Ship Terminal	Operated by Carnival; 146,000 square feet
Hotels	2- with 375 rooms; leases with prepaid rent based on \$25 per square foot land value
Queen Mary	Plans to redevelop are in process which would include a museum
City of Long Beach owned	Belmont Plaza Olympic Pool operated by LB Parks and Rec; Downtown Innovation Center
Marinas/RV Park	Alamitos Bay is a public marina with 1,624 slips run by Long Beach Parks & Rec; Golden Shore RV Park has 81 sites; Rainbow harbor has 87 slips;



The following exhibit shows a comparison of the respective policies and guidelines for commercial leasing at each of the selected comparable ports and cities tidelands:

Exhibit 18: Comparison of Port/City Commercial Leasing Policies, Procedures and Guidelines

LEASING POLICY ELEMENT	LOS ANGELES WATERFRONT	CITY OF LONG BEACH	PORT OF SAN FRANCISCO	PORT OF SAN DIEGO
Minimum Rent Concession Tenants	Economic model with minimum set at 75% but no less than 50% of prior 3 years	May be based on appraisal but may not have guaranteed minimum	Base rent is 75-85% prior years rent	No less than 75% of market rent determined by economic model
Percentage Rental Rates	Not defined	Not defined	Not defined	Board adopted rates included in policy
Minimum Flat Rent Tenants	Appraisal	Appraisal; but may not have guaranteed minimum	Appraisal	Appraisal
Rent Adjustment Timeframes	Five-year rent reviews and annual CPI	No requirement for rent adjustments except 66-year leases which require adjustment at year 55	No requirement to adjust rent	Concession tenants have 10-year rent review with mid-term CPI adjustment
Rate of Return	Not defined	8-8.5%	Market based depending on land use	Market based depending on land use
Lease Term	Not defined	Not defined	Maximum 66 years	Guidelines included; max is 66 years
Extending Lease Term	Not defined	May be considered if life of assets is extended and developer provides new investment	Term needed to amortize new improvements and improvements must serve a public purpose. Staff may extend terms for 3-5 years	Capital investment required excluding maintenance; payment or rent increase for deferral of reversionary interest



LEASING POLICY ELEMENT	LOS ANGELES WATERFRONT	CITY OF LONG BEACH	PORT OF SAN FRANCISCO	PORT OF SAN DIEGO
Consent to Financing	No Fee Board/City approval required	No fee	Tenant must reimburse attorney's fees and new leases have a fee based on amount of financing	Fee required and many may be staff approved; some leases allow rent adjustment to market
Assignment	No Fee Board/City approval required	No fee	Fee of 10-15% of net proceeds for assignment; may be waived	Fee required and some may be staff approved; may adjust rent to market
Leasehold Maintenance	By tenant however POLA maintains many buildings	By tenant except City handles dredging and public areas	By tenant except pier structural; tenant may receive rent credits for maintaining sub- structures	By tenant except dredging; newer leases require tenants to provide periodic property inspection reports and perform indicated maintenance
Non-Profits	Not addressed	Not addressed	Not addressed; however, rents are at market	Not addressed; however most do not pay significant rent
Public Improvement by Tenant	Not addressed	Tenant may receive rent credits for infrastructure	Tenant may receive rent credits for infrastructure	Tenant may reduce rent to cover cost of public infrastructure improvements to extent they benefit Port

It is important to note that the market for commercial real estate in the Los Angeles waterfront is significantly different than the examples listed and discussed above. These markets all include downtown districts with densified and mature residential and office developments directly adjacent to the tidelands. This is not the case for either the San Pedro or Wilmington waterfronts. These differences make it much more difficult to implement lease terms comparable to the examples above.



RECOMMENDATION 9:

The HD should modify its leasing and pricing policy and practices to be more consistent with market rates and standard commercial lease practices to the extent practical given the market realities of the San Pedro and Wilmington waterfronts.

Implementation Action Plan

The following specific actions are recommended to modify leasing and pricing policy and practices:

- ♦ Track and adopt market percentage rental rates and ground lease terms of comparable public agencies by use type for concession tenants to develop a standard by which to benchmark economic incentives.
- ♦ Assess benefit created by new public infrastructure investments and developing cost sharing parameters with developers for future projects.
- ♦ Prepare standard commercial lease provisions in line with other public agency commercial leases to add certainty to the leasing process for future developments.
- ♦ Review ground leases for similar projects from other public agencies to assess provisions in its current commercial lease that may not apply to the types of development that the LA Waterfront wants to attract.
- ♦ Require its tenants to take ownership of improvements during the lease term where appropriate and shift the responsibility for buildings to the master developer.
- ♦ Require tenants to submit periodic maintenance reports for building structures. This would shift the inspection burden from the landlord to the tenant.
- ♦ Encourage tenants to do capital repairs earlier in the lease term when there is adequate time to amortize the cost.
- ♦ Develop a benchmark for when tenants renegotiate existing leases and are asking for added lease term in exchange for doing capital improvements.



Waterfront Event Development and Marketing

Key Recommendation

Leverage tenants and public infrastructure investments to create and market major events on the LA Waterfront.

The HD markets, coordinates and manages public events to benefit the community and also handles coordination of privately sponsored events. Los Angeles County was on track to surpass 50 million tourists in 2016, according to the Los Angeles County Economic Development Corporation. The city's cultural and business attractions continue to exert a strong domestic and international pull, especially from China. The LA Waterfront captures a very small part of the overall tourism in Los Angeles.

LA Waterfront tenants generated approximately 2.4 million visitors to tidelands in 2015. The largest visitor-attracting tenant was Ports O'Call, (1.4 million visitors); followed by cruise lines (560,000 visitors); and the Aquarium (300,000 visitors). The completion of San Pedro Public Market should help visitor traffic rebound and grow to 2.46 million visitors by 2020. Growth to 4.5 million visitors is predicted by 2025.³

A review of HD sponsored or coordinated public, non-profit and private events using tidelands locations accounted for an estimated additional 270,000 visitors to the LA Waterfront in 2017, which has grown substantially over the last five years as demonstrated below:

Exhibit 19: LA Waterfront Events and Attendance

EVENT TYPE	2013	2014	2015	2016	2017
Port-Sponsored	9	5	11	23	13
Non-Profit Sponsored	11	16	21	16	17
Private	6	7	8	7	12
Total Events	26	28	40	46	42
Attendance	63,425	85,500	143,186	298,431	270,311

³ LA Waterfront Site Development Feasibility Analysis, Economic Planning Systems, December 2016



The largest Port sponsored events include Fleet Week, Lobster Fest and Cars and Stripes. Examples of private events are the Conquer the Bridge Race and Red Bull Global Rally. While these numbers are relatively small, they are important indicators of the growth in visitors that will occur exponentially as new developments such as AltaSea and San Pedro Public Market are complete and reach economic stabilization.



Picture 28: LA Maritime Museum Building

The LA Maritime Museum property is an example of a well-located building that could present a redevelopment opportunity to generate both new revenue and another source of increased visitors. The HD should assess feasible uses that retain the LA Maritime Museum as a use; work with the City of LA to assume management of this asset; and seek developer ideas through a competitive proposal opportunity for adaptive re-use of this iconic building.

The HD should also consider engaging an experienced innovator and leader in development

and place-making of public waterfront spaces.

The following are the key elements for some successful commercial waterfronts as identified by one such innovator and leader:⁴

- ♦ “In great waterfronts, limits are placed on residential development because they are full of people, day and night and are the sites of festivals, markets, fireworks display, concerts, spontaneous celebrations and other high-energy gatherings;
- ♦ A high concentration of residential development undermines the diversity of waterfront use and creates pressure to prevent nighttime activity from flourishing;
- ♦ Public art is a great magnet for children of all ages to come together;
- ♦ Access is made easy by boat, bike and foot;



Picture 29: Pedestrian walkway and bike path at the LA Maritime Museum

⁴ How to Transform a Waterfront, Fred Kent, The Project for Public Spaces, 2009



- ♦ Local identity is showcased - the water itself is the greatest asset and should become the centerpiece for programming and activities;
- ♦ Traditional marine uses such as a ferry terminal or fishing port, which helps preserve a place's identity or water-taxis, boat tours, restaurants or bars on anchored boats;
- ♦ Thematic programming such as boat festivals, fish markets, bait and tackle shops, and performances on floating stages;
- ♦ Iconic buildings serve a variety of functions;
- ♦ Good management maintains community vision and is essential to ensure that a successful waterfront stays that way".



Picture 30: 22nd Street Park

Fanfare fountain at the LA Cruise terminal is an example of a public infrastructure improvement project that also serves to make the cruise terminal attractive for events and public gatherings.



Picture 31: Fanfare Fountain at LA Cruise Terminal



RECOMMENDATION 10:

Assess the impact of current investments in public access infrastructure improvements to determine increases in revenue.

Implementation Action Plan

The following specific actions are recommended to assess the investments in public access infrastructure improvements:

- ◆ Leverage tenants in implementation of public infrastructure investments that directly benefit the project in the planning, creating and marketing of major events on the LA Waterfront.
- ◆ Analyze the respective benefits of future public infrastructure investments and consider shifting portions of both cost and responsibility for implementation to private developers either with rent credits or as a cost of doing business.
- ◆ Leveraging property values and use public financing sources such as tenant participation in the existing Business Improvement District and use of Community Facilities Financing Districts to generate revenues for both infrastructure improvements and maintenance.
- ◆ Increase the number of visitors to the LA Waterfront by requiring existing tenants to market and produce events as part of a business plan through new lease and permit negotiations.
- ◆ Use the model in effect in the lease with AltaSea, which in lieu of monetary rent for non-profit tenants, requires tenants to actively create community-based activities and invest in facilities and infrastructure.
- ◆ Effectively partner with tenants to generate growth in visitors to the LA Waterfront through synergies with local and public events and private events during lease renewals for non-profit lease negotiations such as Boy Scouts and subsidized uses such as Crafted
- ◆ Require commercial developments to actively market the properties and report their activities.



RECOMMENDATION 11:

Maximize the use and potential of the iconic Maritime Museum building.

Implementation Action Plan

The following specific actions are recommended to maximize the use and potential of the Maritime Museum building.

- ♦ Work with the LA Department of Parks and Recreation to assess the operational cost of these facilities and the pros and cons of the current management model.
- ♦ Move toward direct management by the HD since it is in the best position to maximize use of the building and related properties.
- ♦ Operate the building and related properties efficiently and develop synergies between other waterfront uses and events.
- ♦ Manage and coordinate events within close proximity to these facilities.



Management of Commercial Real Estate Assets

The HD assumed direct management responsibility for a portion of Ports of Call Village in 2012 and assumed management of the balance of the project in 2016. Ports of Call Village is the HD's most significant commercial asset and in need of substantial redevelopment.

Subsequent to completion of environmental studies for redevelopment of Ports of Call and development of the 2014 Public Access Investment Plan (Public Access Plan), the Real Estate Division recognized the need for a dedicated department to effectively coordinate public infrastructure and private development with the focus of making the LA Waterfront a viable visitor serving destination.

Key Recommendation

The recently created Waterfront Commercial Real Estate Division of the HD should continue to direct and manage the development and management of the Department's commercial real estate assets.

Positive Changes in Commercial Real Estate Management

With the creation of the HD's Waterfront Commercial Real Estate Division there have been a number of positive changes in how these assets are managed including:

- ♦ Waterfront Access Plan – commits 10% of HD revenues and continued investment in infrastructure to support commercial real estate development.
- ♦ Rebranding the waterfront and increasing the value of the waterfront and surrounding communities as a destination through events and marketing.
- ♦ Improved public access and marketing attracted new tenants including Crafted, San Pedro Public Market and AltaSea.
- ♦ New Waterfront Commercial Real Estate Division is accelerating commercial development, improving negotiations and management, resulting in new revenues.



Historical Commercial Real Estate Business Model Had Limitations

Prior to 2015, the Real Estate Division was responsible for both HD cargo and commercial real estate. Commercial transactions were negotiated pursuant to the Real Estate Division Leasing Policies and Strategic Plan that were driven primarily by cargo real estate. With this approach, commercial leases were most often found to be inconsistent with the Real Estate Strategic Plan and Real Estate Leasing Policy and there was a general lack of marketing and investment to create successful commercial

waterfront development opportunities. This also required that staff make findings in multiple areas recommending the Board of Harbor Commissioners waive the policy to approve transactions that otherwise were market-driven when compared to other ports and commercial redevelopment areas.

The following exhibit provides a summary of the June 2011 Real Estate Division audit recommendations and status of implementation, which was one of the factors that led to a restructuring of the department and creation of Waterfront Commercial Real Estate Division:

Exhibit 20: Real Estate Division - Audit Recommendations and Implementation Status

2011 AUDIT RECOMMENDATION	IMPLEMENTATION STATUS
Define Real Estate Division roles and responsibilities	Implemented recommended changes and separated commercial real estate from Real Estate Division which focuses on terminal leasing
Establish property management “strike teams” by property type and define property management written procedures	Formed WCRED; separate teams for leasing and development projects and events; realigned staff to new functions
Develop procedures for site visits	Real Estate Division has property management procedures in place that WCRED can draw from; smaller group can more effectively prioritize property issues on 400-acre waterfront
Enforce permit provisions	New 2017 Commercial Waterfront Leasing Guidelines cover standards and procedures for issuing RFPs for leasing, development, appraisals and compensation resets
Develop written procedures for financial monitoring, including an asset management system, linking permits to receivables, and monitoring rent collections	Current AIM system is transitioning to Klein, which covers required functionality to link financial and asset management systems



2011 AUDIT RECOMMENDATION	IMPLEMENTATION STATUS
Develop holdover policies for expired permits and enforcement procedures	Commercial Waterfront Real Estate leases and permits have holdover provision

Organization of the Waterfront Commercial Real Estate Division

The HD's Waterfront Commercial Real Estate Division (WCRED) is responsible for asset management, development leasing, implementation of public access infrastructure projects in the Waterfront Public Access Plan, and event management on the LA Waterfront. The Public Access plan is directly tied to the redevelopment of key visitor-serving properties, including San Pedro Public Market (formerly Ports of Call Village) and AltaSea in San Pedro, and is expected to pave the way for future development opportunities in the Wilmington area of the LA Waterfront.

The Division has 14 people led by a Director and Deputy Director; with three functional areas with two support staff. Three real estate staff handle the San Pedro Waterfront; three are dedicated to Wilmington and Ports O'Call; and four staff are responsible for Economic Development and administrative functions required for LA Waterfront event coordination.

A review of the Division's Project Report dated November 2017 identifies completion in fiscal years 2016 and 2017 of 52 high priority and 28 medium and lower priority projects. Included in high priority projects were five Requests for Proposals; eight area development related feasibility studies, policies, and licenses; 21 compensation resets; with the balance being permit and lease related transactions.

Transactions included new permits and amendments for San Pedro Public Market; Mary Star Cruise Terminal; Jankovich; Kinder Morgan; commercial fish operations; Catalina Freight; SpaceX; and Crafted. The current project report for Waterfront Commercial Real Estate includes 26 on-going high priority projects, including term sheets and leases for development of Berths 191-194, eight Motems, renegotiations for the Doubletree Hotel, and several commercial seafood permits.

It is crucial that the HD's commercial real assets be managed to ensure that revenue optimization will continue through times of an economic challenge and downturn. Fuel terminal leases are the largest source of revenue and rent resets for these permits have been completed in the last several years. In addition to the redevelopment of Ports O'Call Village as San Pedro Public Market scheduled to start construction soon, WCRED re-negotiated the Crafted lease to add a major brewery operation and solar facilities to increase revenues; and through the AltaSea lease has fostered a new educational and economic driver.

These new leases for development should prove to be transformative over the next five years. Negotiations are also now successfully completed on many agreements that were overdue to reset compensation. WCRED



renegotiated marina leases to provide set-aside accounts for tenants and rent credits to ensure redevelopment of marina facilities. This is expected to encourage reinvestment and increase occupancy in the marinas, which include 4,171 slips. Overall the LA Waterfront was 24% vacant in 2015 due to completion of the Cabrillo Way Marina.

Commercial Real Estate Asset Management System

The HD's current AIM asset management system has very limited capability and is not linked to financial data. Revenue tracking and analysis is performed manually. Transfer of the system to the Klein revenue system is in process. In order to be effective for asset management, the new system should store, link, and perform the following functions:

- ♦ Production of a detailed rent roll on a monthly basis for all agreements
- ♦ Creation of detailed agreement abstracts with the ability to link documents including leases, amendments, permits, Board items, appraisals, administrative approvals and property assessments
- ♦ Agreement assignment tickler system and expiration schedule
- ♦ Monthly revenue reports by tenant
- ♦ Capability of performing analysis of revenues against budget, use category, land area, geographic area and other inputs
- ♦ Tracking and financial management and reporting



RECOMMENDATION 12:

The recently created Waterfront Commercial Real Estate Division of the HD should continue to direct and manage the development and management of the Department's commercial real estate assets.

Implementation Action Plan

The following specific actions are recommended to direct and manage HD commercial real estate assets:

- ♦ Manage commercial real assets to ensure that revenue optimization will continue through times of an economic challenge and downturn.
- ♦ Develop a new real estate asset management system that better meets management needs and performs all of the necessary analytic functions identified.
- ♦ As the department expands to meet the demand for new development, attract strategic thinkers capable of handling large complex projects and negotiations.
- ♦ Identify opportunities to relocate non-profit tenants to alternative sites and free up premier sites for redevelopment.
- ♦ Identify educational opportunities for current staff to expand capabilities and shore up weaknesses to add value to departmental functions.
- ♦ Reach out on a regular basis to other waterfronts with similar assets to identify areas of synergy and coordinate efforts to maximize success of events and recreational opportunities.



Section 3: Harbor Department Management

The Joint Administrators, in collaboration with the IEA Survey Team, defined specific review areas to be included in the assessment of the HD's overall management of the following areas:

1. Cyber Security of the Harbor Department and Port Complex
2. Use of Technology by the Harbor Department
3. Costs and Charges for City Provided Services
4. Enterprise Risk Management at the Harbor Department



Picture 31: Port of Los Angeles Complex



Cyber Security at the Harbor Department and Port Complex

“Cyber” is a term that refers to things of, relating to, or involving computers or computer networks. The *Cyber Environment* encompasses all aspects of information technology including hardware, operating system and application software, network/communications infrastructure, data storage equipment and resident data, and machines and equipment directly attached to the network for data acquisition or supervisory control.

Commercial and governmental organizations safeguard their physical assets by developing and maintaining rigorous physical security. As organizations depend more on computer-based business processes, and automated operations, security procedures in the “cyber” realm become as or more important than physical security.

Threats to the Cyber Environment take several forms and usually target the following:

- ♦ Data: information stored in the Cyber Environment
- ♦ Access: access to components within the Cyber Environment, physically or on-line
- ♦ Control: Ability to control computer or network components, or attached equipment

Key Recommendation

The HD should work with Port tenants to assess and strengthen cyber security within the Port Complex.



Common targets and the acts taken against them are as follows:

Exhibit 21: Threats to the Cyber Environment

TARGET ACTION

Data	Alter Content
	Steal Data
	Destroy Data or Media
Access	Block Access, e.g., Encryption
	Modify System Component
	Alter Access
	Deny Service
Control	Remotely Seize Control of Equipment
	Modify Software
	Destroy Equipment

Threats can originate from within the organization or from external sources. Employees and contractors can purposely damage the Cyber Environment by stealing data for career or monetary gain or destroying data to avenge an imagined slight. Damage can also be inadvertent, for example, providing network access to external agents by clicking on a link in an official-looking email and providing the requested credential information.

External agents or “hackers” can be individuals, criminal organizations, activists or state-sponsored groups. They can be motivated by monetary gain through extortion (e.g., holding data for ransom), or to make a political point through demonstration, or to disrupt operations as a means to interfere with economic activity.



Picture 32: Harbor Department Network Security Operations Center

The primary role of cyber security is to protect the Cyber Environment by reducing vulnerability to these and other threats. Cyber Security as a function consists of policies, procedures, processes, and personnel established to provide the necessary protection such as:

- ♦ Standard Operating Procedures (SOPs) for activities including adding and removing technology components, on- and off-boarding of employees and contractors, and safeguarding access to the Cyber Environment (i.e., password structure, two-factor authentication).
- ♦ Manual and automated tools to detect suspicious activity, non-compliant employee actions, and external intrusion attempts.
- ♦ Personnel staff trained in cybersecurity methods, established in a separate organization tasked with the protection of the Cyber Environment.

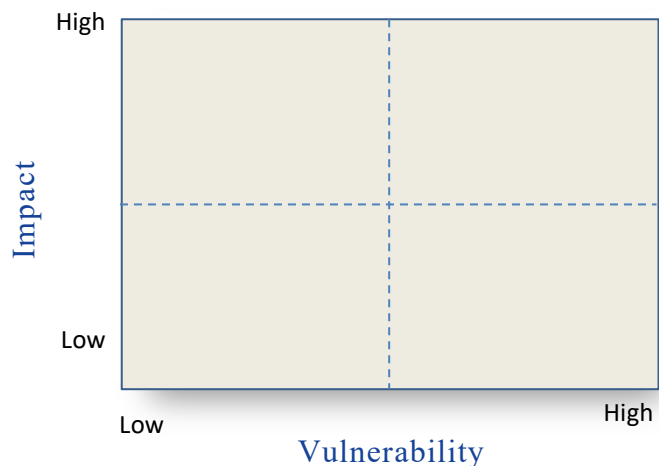
Cyber Security risk is the potential for loss, damage, or destruction within the Cyber Environment. There are two factors to consider in evaluating risk in this context:



- ♦ **Vulnerability** – which is a measure of the effectiveness of cyber security programs and processes.
- ♦ **Impact** – the potential loss operationally, financially or in terms of reputation brought about by a threat action that evaded preventative measures.

The two factors are combined into a risk assessment model. As illustrated, if the business impact of a threatened action is low, then risk is low without regard to the effectiveness of cyber security programs. As the potential business impact increases effectiveness of vulnerability-reducing efforts become more valuable.

Exhibit 22: Risk Assessment Model



Given the fact that, despite best efforts and strong protections, an event can occur, organizations should seek to lessen the business impact by having remedial programs in place, e.g., insurance or operational safeguards and alternatives.

For purposes of this survey we distinguish between the City of Los Angeles HD and the Port of Los Angeles. The HD is the administrative

organization that owns, maintains and leases property at the Los Angeles Harbor. HD has its own systems, policies, and procedures and is evaluated on that basis. The Port of Los Angeles comprises the cargo handling capabilities of tenants.

HD's role in the realm of cyber security differs in the two Cyber Environments. Within the HD the role is *Direct*. HD is directly responsible for establishing and maintaining security to safeguard HD's Cyber Environment.

Within the Port, an issue is whether the HD has or should have an *Oversight* role: an institutional responsibility to ensure that tenants meet a minimum level of cyber security standards.

Each of these roles is evaluated in the following sections.

The evaluation of the effectiveness and appropriateness of cyber security is based on the following criteria.

- ♦ Preventative actions to protect the Cyber Environment against external intrusion
- ♦ The damage/loss that would occur if an attacker overcomes the protective measures
- ♦ Remediation: what steps can be taken to remedy/recover from loss or damage sustained within the Cyber Environment

Harbor Department is Effective in Securing its Internal Cyber Environment

In 2014, HD's Information Technology Division developed a five-year strategic plan. One goal of the plan was to enhance Information Technology (IT) security by continuing the development of the



department's Network Security Operations Center (NSOC) and recruiting a Chief Information Security Officer (CISO).

By the 2016 update to the strategic plan, both aspects had been successfully completed. The effectiveness of the NSOC is demonstrated by the ISO 27001 certification achieved in 2015. The Port of LA was the first port in the nation to achieve this certification. Additionally, the appointment of the CISO and supporting staff provides a strong program of cyber security protection against perimeter intrusion by external actors. Thus, the vulnerability of the HD to incursions is low.

As stated above, as strong as preventative measures are, there is always the possibility of incursion resulting, for example, from an employee or contractor responding to a malicious email, inadvertently revealing sign-on credentials. Hence, the other part of the evaluation is the potential impact of an attack or event affecting the HD's activities. The following table presents some possible events, the business impact, and possible remediation to speed recovery from that impact.





Exhibit 23: Possible Events, Business Impact, and Possible Remediation

EVENT	IMPACT	REMEDATION
♦ Loss or destruction of data	♦ Disruption of business processes	♦ Recover from backup
♦ Disclosure of personally identifiable information	♦ Compromise of employee data	♦ Cyber insurance
♦ Loss of system availability (e.g., blocked access)	♦ Disruption of business processes	♦ Revert to back-up ♦ Disaster recovery site
♦ Remote seizure of computer/ network equipment	♦ Disruption of business processes	♦ Disaster recovery site

A number of factors determine the potential severity of an event's impact. One factor is HD's business model. As landlord to the Port of Los Angeles, HD's internal activities revolve around administrative and accounting functions and maintenance of facilities and infrastructure, as opposed to cargo operations. A second factor is the organization's investment in, and adoption of, computer technology in supporting business processes. The deeper the penetration of technology into day-to-day activities, the larger

the "attack surface" and the greater the potential impact. As is discussed in detail in the later section on the Use of Technology within HD, technology penetration within operating groups is relatively low.

The combination of a strong Cyber Security program and the low business impact potential of a successful incursion indicates an overall low risk to the HD's activities of a cyber-related attack.

RECOMMENDATION 13:

Continue efforts to ensure the Harbor Department's internal cyber environment remains secure.



Cyber Security for the Port of Los Angeles

The Port of Los Angeles (POLA) for purposes of this evaluation comprises the cargo-handling operations within the Port. It consists of several tenants with varying levels of technical sophistication.

Of particular interest are container terminal operators, who operate computer-controlled or computer attached equipment. As noted earlier in this survey, there is an accelerating trend towards container terminal automation as a strategy for increasing productivity and capacity, and in the mid- to long-term reducing costs.

Port Tenants Cyber Attack Vulnerability is Unknown But May Have a Substantial Impact

HD at this point has no visibility into the cyber security practices of tenants. A complicating issue is that many terminal operators are subsidiaries of larger companies with their own IT and cyber environments that may be remote from the terminal locations. Thus, while subject to further refinement, an initial scope that is specific and localized, addresses interfaces to cargo-handling equipment that are computer-attached or directly controlled by computers.

An increasing concern in the marine community is the potential for interference with marine equipment that is connected to or controlled by computers. This concern includes maritime environments “beyond a standard littoral boundary,” as well as equipment resident in ports. A cyber-attack that cripples, diverts, or destroys equipment may have a major and prolonged impact on port operations as automated equipment becomes more wide-spread.

The HD has an interest in managing the risk and protecting the port complex from cyber-attacks and disruption. The HD has or should have an oversight role in the cyber security practices of certain tenants. Not all tenant operations are or should be subject to such potential HD oversight. One standard should be in cases where the Port is susceptible to a cyber-attack directed against a tenant that has the potential for a major impact on the Port itself. In this case, the HD has an institutional responsibility to ensure the safety of the port complex as memorialized in a Board action: “It is the policy of the Board that all port tenants should provide for a safe environment and follow homeland security rules and regulations.”

RECOMMENDATION 14:

Work with Port tenants to assess and strengthen cyber security within the Port Complex.



Implementation Action Plan

The following specific actions are recommended to strengthen cyber security within the Port Complex:

- ♦ Create and publish policies and standards for minimum levels of cyber security protection for tenants using computer-controlled equipment for cargo-handling operations. Such standards and protocols are necessary for a number of reasons: first, to provide tenants with notice about the standards and protocols that they are expected to meet, and second, to provide the criteria against which compliance can be measured in the future. HD, despite the skills of the security group within its own operations, lacks the domain knowledge necessary to develop standards and protocols for protecting computer attached and controlled equipment within the Port complex. Accordingly, HD should seek a third-party firm with the necessary credentials to be accepted by tenants.
- ♦ Consider offering, as a service, third-party independent audits that evaluate tenant cyber security procedures against the published standards and accepted best practices. Since security requires confidentiality, some reticence about discussing security policies and processes with outsiders is to be expected. The use of a third-party with credentials acceptable to tenants, and who are considered independent will serve the interest of HD as well as the tenant. The audit could be structured to provide a “pass/fail” notice to the HD, a detailed report to the tenant noting what remediation steps are required in case of a “fail,” and a follow-up audit to ensure compliance.
- ♦ Ensure that proposed physical services—5g services, filtered internet—conform to the published standards. HD in its roll-out of proposed physical services intended to enhance overall port security should position those services as conforming to, and potentially facilitating the adoption of, the proposed cyber security standards.



Use of Technology for the Harbor Department

The sensible use of technology is key to achieving cost efficiency and effective operations. Technology has evolved from a means to support back office operations to a vital ingredient in virtually all business operations and activities.

Key Recommendation

Evaluate business process and system requirements across Divisions and develop a blueprint for data and systems requirements.

The scope of this review is to gauge the current state of information technology within HD against current and emerging best practices. Such an evaluation must begin with an assessment of how well the Department meets present needs and how it is positioned to take advantage of technology in the future. This involves evaluating the overall systems portfolio; how new business requirements are determined; and how emerging technology is identified and leveraged to improve current business processes.

Harbor Department Business Operations Systems Have Not Kept Up With Requirements

The HD's operations are hampered by a lack of technology in operating areas. The resultant issues most often identified in interviews involved data and information, and the inconsistency of systems functions and business process support.

Data is often unavailable for several reasons including:

- ◆ Never created (i.e., contained in the minds of staff members)
- ◆ Irretrievable—unstructured text, paper documents, information not cataloged or indexed
- ◆ Poor quality—conflicting, different bases and time frames, differing formats
- ◆ Resident in different systems and not cross-referenced

The most serious shortcoming of the data-related issues is the inability of the organization to develop an integrated view of operations. Data defined on different bases; is in the form of unstructured text such as Word documents, PowerPoint presentations or email attachments; is only available in the form of paper; or is simply unknown, cannot be integrated.

Systems functions and business process support are inconsistent and spotty. There were several references to systems “to be” implemented because of inadequate support for business functions. A number of important support

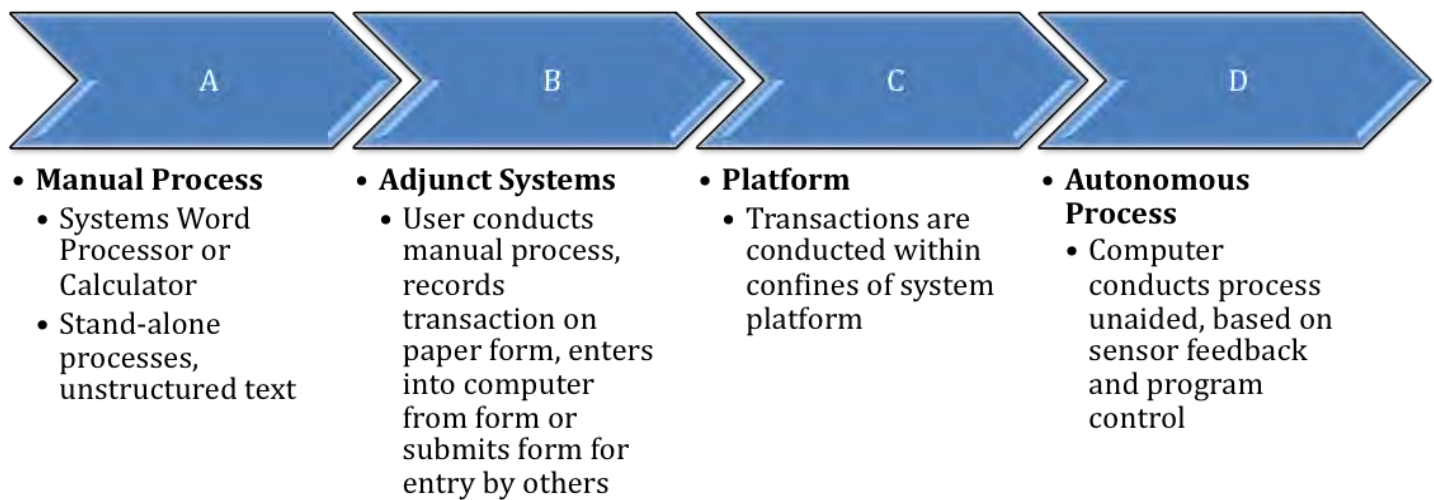


functions – Human Resources and Procurement – have no systems support. Moreover, the systems in place tend to be independent applications to support individual business processes.

Exhibit 23 below presents a continuum of systems sophistication moving from involvement in primarily manual processes (A), to applications

that are used to record the result of business processes—but not directly—and often after the fact (B), to systems that are transactional platforms in which all activity within a business process or set of business processes occur with the confines of the platform, that is, are executed on the platform (C), to fully autonomous and self-contained business processes, that are self-sustaining and self-executing (D).

Exhibit 24: System Sophistication Continuum



Several processes within HD, for example, creation of documents for administrative and executive purposes fall into the “A” category. The majority of applications are “B” applications. No applications are in the “C” category.

The systems and data issues identified have also been the subject of comments in recent external audits of specific processes and functions.

Each Business Group Independently Define Requirements

HD’s activities are conducted by several internal divisions that conduct the various operations of the Department. For discussion purposes the divisions can be categorized as “Line” or “Staff.”



Line divisions perform functions such as constructing facilities and roadways, maintaining existing facilities, roadways, and infrastructure, marketing the Port's advantages to potential lessees, and carrying out the functions necessary for the day to day operations of the

port complex. Staff divisions provide administrative support to the Line divisions, interact with the Department's various constituencies, and take a longer-term view in the form of planning and strategy. The Line and Staff divisions are as follows:

Exhibit 25: Line and Staff Functions

LINE		STAFF
♦ Engineering	♦ Environmental Management	♦ External Affairs
♦ Construction	♦ Commercial Real Estate	♦ Accounting & Finance
♦ Construction & Maintenance	♦ Wharfingers	♦ Contracts & Procurement
♦ Goods Movement	♦ Pilots	♦ Human Resources
♦ Cargo/Industrial Real Estate	♦ Port Police	♦ Information Technology
♦ Cargo Marketing		♦ Planning & Strategy

HD's Divisions are not independent operating areas that deal with different customers, create different products or serve different markets. They all serve the same end within different phases of definition, development, operation, and maintenance. The Division structure is for administration and management, not because their function necessarily differs in form or substance.

This takes on added importance when evaluating information systems. Each Division defines business and systems requirements and evaluates software as if they were independent operations. This leads to a limiting functional approach to requirements definition and software

selection; an approach that has serious limitations. Requirements are localized within a single Division even though the functions and business processes to be supported are similar across Divisions; and they are defined in terms of shortcomings within current applications.

Operating Divisions lack the knowledge of available and emerging technology and how such technology can enhance business processes making them more efficient. Without this knowledge, the tendency is to implement "better sameness:" to improve business technology incrementally instead of through a process of re-examination and innovation.



Each Division Individually Evaluates and Installs Software for Their Requirements

In discussions with senior managers and others there were several references to systems “to be” implemented to solve existing needs. These are summarized as follows:

Exhibit 26: Application Areas and Division with Need

APPLICATION AREA	DIVISION/GROUP IDENTIFYING NEED
♦ Project Management	♦ Engineering, Construction, Construction & Maintenance
♦ Asset Management	♦ Real Estate, Maintenance/Finance
♦ Maintenance Management	♦ Real Estate, Equipment, Construction & Maintenance
♦ Document Management	♦ Enterprise-wide
♦ Training	♦ Enterprise-wide

Under existing practices, each Division undertakes its own requirements definition and systems selection. But, these processes and systems should span Divisions. The function and operation of these processes are more similar than different in practice. They represent opportunities for coordinated efforts in which a continuous and uniform flow of data is created at each stage of the process and can be maintained on an integrated basis, e.g.:

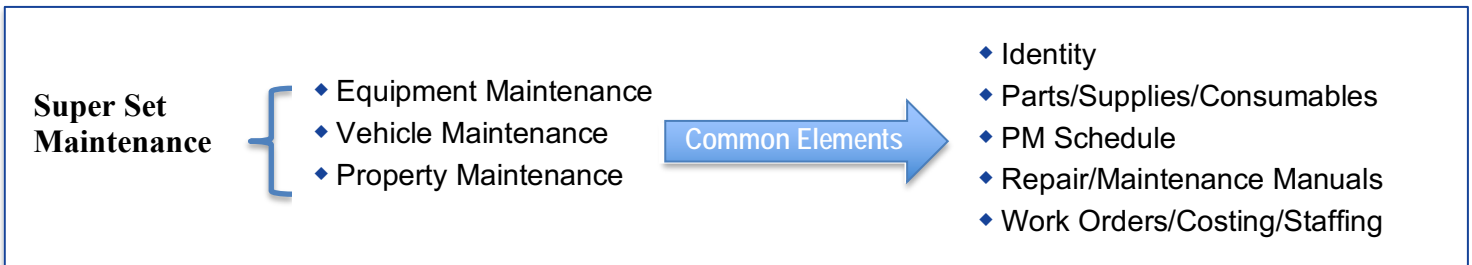
- ♦ **Project Management** defines the individual elements that eventually become assets;
- ♦ **Asset Management** establishes the identity for each component of the project and creates the database and master data that uniquely defines the asset and its components;

- ♦ The master data feeds the **maintenance management system** by creating the profile for the asset that requires maintenance;
- ♦ The Asset/Master data is used to compile the **leased asset** record.

Processes, i.e., the set of functions for an individual area, fall into a superset of functions that can span several business processes that may be otherwise loosely related. An example is maintenance systems as illustrated in the following exhibit.



Exhibit 27: Common Maintenance System Elements



The upshot is that a maintenance system should be able to deal with requirements across Divisions and would also facilitate a single interface to support systems such as costing, training, and staff scheduling.

A maintenance system is also an example of the benefits that can accrue to a “Platform” application. A real-time maintenance system would provide maintenance workers access to schematics and repair/maintenance manuals at the point of maintenance delivery using, for example, a hand-held device or a tablet. It would also serve to create and track work order elements such as time worked, parts installed, and consumables used. The system could also schedule preventative maintenance (PM) work based on the timing of the last PM service as recorded in the system.

No Mechanism to Facilitate a Unified Set of Business Processes and Systems Requirements

The Information Technology Division (ITD) is responsible for providing the technical infrastructure and giving technical guidance and support to the systems selection process. Business requirements definition and software selection is the province of the operations Divisions. This allocation of responsibility is

plainly set out in the Information Technology Strategic Plan.

This creates a void. There is no individual or group that has the remit to establish a set of department wide business systems requirements. In practice, then, there are no department requirements only Division requirement. Yet, the most pressing needs are expressed in terms of information integration, which can only be fulfilled at the Department level.

The HD is spearheading the use of the latest technology to bring together disparate participants in the ocean freight supply chain. The advantage to the Port in terms of efficiency and throughput, as well as information that will improve planning and facility utilization are clear cut.

Efforts to identify opportunities to take advantage of emerging technology within the Department’s internal operations are not as apparent. Utilizing emerging best practices requires a foundation that can be extended and built on. That foundation is not in place. Building that foundation requires an initiative that integrates technology within internal departments to achieve an objective similar to that of external initiatives.



RECOMMENDATION 15:

Evaluate business process and system requirement across Divisions and develop a blueprint for data and systems requirements.

Implementation Action Plan

The following specific actions are recommended to evaluate business process and system requirements across Divisions and develop a blueprint for data and systems requirements.

- ♦ Create a cross-functional task force consisting of senior managers. The goal of the task force is to evaluate and compile the key business systems requirements across Divisional lines. This initial review should focus on joint information requirements.
- ♦ Form a Working Group of managers from each operating Division and Finance most familiar with the areas identified as most critical. The Working Group should analyze the business systems requirements to determine the most critical and highest value target areas. The Working Group should reach out for professional advice about available technology in areas similar to the working group's targets. The focus of this exploration should be how technology is integrated into, and/or changes the way the business processes are conducted. The advice sought is not the equivalent of talking to software vendors, who tend to short-circuit requirements definition and limit solutions to the feature set of their software.
- ♦ The deliverable of the Working Group should be a blueprint of technology use and systems to be implemented. The blueprint should identify:
 - Target areas
 - Divisions, groups, and functions affected
 - Business processes affected
 - Data and information provided
 - Expected benefits and cost savings
- ♦ Create a business systems groups within operations to lead implementation. Successful incorporation of technology requires an understanding of business processes and how technology can be applied to modify and improve these processes. This is especially important when needs cross business Division boundaries. What is needed is a dedicated business systems group within operations who provide an overall integrative perspective and are familiar enough with existing business processes to recognize when two requirements, although stated differently, are really the same. The business systems group should report through the line organization.



- ◆ The implementation of the blueprint developed by the Working Group will be a long-term, evolutionary process that requires continuity in execution. The initial scope of activity is as follows:
 - Beginning with the blueprint, manage the process of technology selection and implementation
 - Continue the process of defining new areas for introducing technology



Costs and Charges for City Provided Services

Key Recommendations

- ♦ The HD and City departments should clearly identify the costs to be billed directly and indirectly and document the rationale for billing those costs.
- ♦ Improve communications between City departments and the HD regarding accounting and budget changes that will have a significant monetary impact on City department overhead cost allocations to the HD.
- ♦ Revise procedures for estimating annual Fire Department charges to reduce true up adjustments that are currently made when actual costs are determined two years later.

When the State of California granted to the City of Los Angeles its rights to the property that is now the Port of Los Angeles, it required that all revenues derived from that property be used for the promotion and accommodation of “commerce, navigation and fishery”. In light of this requirement and the desire to fairly reimburse City Departments for services provided to preserve and maintain HD property, the HD and the City of Los Angeles entered into the MOU1956 agreement. Charges for services under this agreement totaled \$43 million for FY 2017, of which 80% or \$34 million was for services provided by the Fire Department and the Recreation and Parks Department. Thus, our survey assessment focused on the costs of services provided by these two City departments.

Since the signing of MOU1956 in June 1997, several service arrangements have changed that have impacted the level of service and hence the costs provided by the City to the HD, but no comprehensive study has been performed to ensure that the basic payment structure provided for by the MOU1956 agreement results in a reasonable and equitable reimbursement of City department costs.

RECOMMENDATION 16:

The City and HD should review and clarify costs to be paid by the HD to ensure an equitable allocation of City indirect and direct costs, and document in a new revised MOU.



Implementation Action Plan

The City and HD should discuss and come to an agreement on the level of City services required and the costs associated with the City services being provided and document the agreement in a revised MOU for each department.

The Fire Department's Method for Billing the HD Should be Clarified

The Fire Department's method of billing for its services is unclear.

The Fire Department uses a fully staffed model for billing its services. It computes the total salaries for this fully staffed model and adds fringe benefits and overhead costs at audited CAP rates. It also charges for overtime costs by applying a Standard Overtime Duty (SOD) rate to total salaries. SOD represents the overtime costs of backfilling for staff that have taken

Compensated Time Off (CTO), and for positions that are vacant.

When vacancies exist, the Fire Department model bills vacant positions at full time salary costs and applies applicable fringe benefit and overhead rates to those salaries. The Fire Department backfills those vacant positions with staff paid at overtime rates, but fringe benefit and overhead rates do not apply to overtime pay, and those rates exceed the overtime costs. Furthermore, the Fire Department billing model provides for reimbursement of overtime costs through the application of a SOD rate to total salaries billed. However, data on Fire Department vacancy and SOD rates are needed to verify and compute the costs of Fire Department services.

RECOMMENDATION 17:

The Fire Department should clarify its billing procedures to include the audit of Fire Department vacancy and SOD rates.



Fire Department Accounting and Budgeting Changes have Significantly Increased Costs to the HD Resulting in Substantial Unbudgeted Costs to the HD.

Fire Department allocated overhead costs to the HD have increased dramatically over the past 5 years. Central Services and Administrative and Support allocated costs grew by 118% and 264%, respectively.

The explanation provided by the City for such large increases were that several cost centers had been “added back” to the Central Services cost pool and that the Fire Department’s budget grew over \$80 million, with half of this growth in administrative costs.

As a result of these large cost increases, overhead costs allocated to the HD have more than doubled in the last 5 years. These large overhead cost increases cannot be budgeted for by the Harbor Department because as discussed below, actual overhead cost rates are not known for at least two years after the close of any given fiscal year.

Retroactive adjustments to actual costs have caused considerable challenges in the HD’s budgeting estimates. In FY13 and FY15, true up from prior years resulted in a negative adjustment to billed charges for Fire Department services of \$835K and \$736K, respectfully. In

FY16 and FY17, true up from prior years resulted in increased Fire Department billed charges of \$1.0 million and \$1.9 million, respectively.

The delayed effect of this true up is the result of budgeting procedures that rely on audited CAP fringe benefit and overhead rates and the delay between fiscal year end and the audit of actual CAP costs. To illustrate the effect of this delay, on October 25, 2013 the City submitted its estimated costs to the HD for FY13/14 based on CAP 35 (FY 2010/2011) audited rates. The audited rates for FY 2013/14 (CAP 38) were not available until April 14, 2016, about 2 ½ years after the FY 13/14 estimate. The audited CAP rates for CAP 38 were much higher than those used for the initial estimate, resulting in a \$1 million true up adjustment that the HD never budgeted for. This true up was added to the HD’s FY 15/16 budget estimated costs.

As illustrated above, the estimate for a given year is prepared well after the end of the prior fiscal year. While it is understandable that the City would not have an audited rate for that year, we believe that preliminary cost information should be made available earlier. We also believe that the use of this preliminary information and data on known budget changes could produce a more reliable billing estimate than one derived from 2 to 3 year old audited data.

RECOMMENDATION 18:

The City should provide the HD with advance notification of increases in Fire Department overhead charges due to budgeting and accounting changes. It should also develop and provide the HD more timely preliminary overhead cost data to allow the HD to better budget for anticipated cost increases/decreases in City allocated overhead costs.



Enterprise Risk Management at the Harbor Department

Enterprise Risk Management (ERM) is defined as the discipline by which an organization assesses, controls, exploits, finances, and monitors risks from all sources for the purpose of increasing the organization's short- and long-term value to its stakeholders.

Risk types and examples include:

- ♦ **Hazard risk** - Liability torts, Property damage, Natural catastrophe
- ♦ **Financial risk** - Pricing risk, Asset risk, Currency risk, Liquidity risk
- ♦ **Operational risk** - Customer satisfaction, Product failure, Integrity, Reputational risk; Internal Poaching; Knowledge drain
- ♦ **Strategic risks** - Competition, Social trend, Capital availability

The enterprise risk management process involves establishing context, identifying risks, analyzing and quantifying risks, integrating risks, assessing and prioritizing risks, treating or exploiting risks, and monitoring and reviewing risks.

It is important to note that the HD does have a comprehensive and well managed program for managing hazard risks at the HD and Port. This includes identifying and mitigating hazard risks. The HD's Risk Management Division plans, directs and coordinates the insurance programs

of the HD to control risk and loss. This includes the classification of risk, measurement of financial impacts of that risk, selection of techniques to manage loss, negotiations of insurance coverage and implementation of safety and loss prevention programs.

Overview of the Enterprise Risk Management Process

Key Recommendation

Develop and implement a limited approach to ERM that expands the HD's consideration of risk in decision making and operations.

Enterprise risk management (ERM) is the process of identifying and addressing methodically the potential events that represent risks to the achievement of strategic objectives, or to opportunities to gain competitive advantage. Risk management is an essential element of the strategic management of any organization and ideally should be embedded in the ongoing activities of the business.

The fundamental elements of ERM are the assessment of significant risks and the implementation of suitable risk

responses. Risk responses include: acceptance or tolerance of a risk; avoidance or termination of a risk; risk transfer or sharing via insurance, a joint venture or other arrangement; and reduction or mitigation of risk via internal control procedures or other risk prevention activities.

Other important ERM concepts include the risk philosophy or risk strategy, risk culture and risk appetite. These are expressions of the attitude to



risk in the organization, and of the amount of risk that the organization is willing to take. These are important elements of governance responsibility.

Management responsibilities include the risk architecture or infrastructure, documentation of

procedures or risk management protocols, training, monitoring and reporting on risks and risk management activities.

The following exhibit shows the key elements of the Enterprise Risk Management process.

Exhibit 28: Overview of the Enterprise Risk Management Process



Source: CGMA.org



Enterprise Risk Management Process at the Harbor Department

As part of the IEA Survey we evaluated the implementation of ERM at the HD. We did this evaluation using the RIMS Risk Maturity Model. This model was developed by the Risk and Insurance Management Society (RIMS), and non-profit organization dedicated to advancing risk management.

- ◆ RIMS developed the Risk Maturity Model to provide a tool for organizations to evaluate their implementation of ERM. The specific objective was to evaluate the adequacy and effectiveness of risk management including:
- ◆ Determine if risks arising from business strategies and activities are identified and prioritized.
- ◆ Ascertain if management and the audit committee have determined the level of acceptable risk.
- ◆ Ensure there is a process by which controls are designed to reduce or manage risks to levels deemed acceptable by management and the audit committee.

- ◆ Periodically monitor and reassess the organization's risk and the effectiveness of controls to manage it.
- ◆ Ensure managers responsible for risk management periodically provide the audit committee with reports on results of the risk management program.

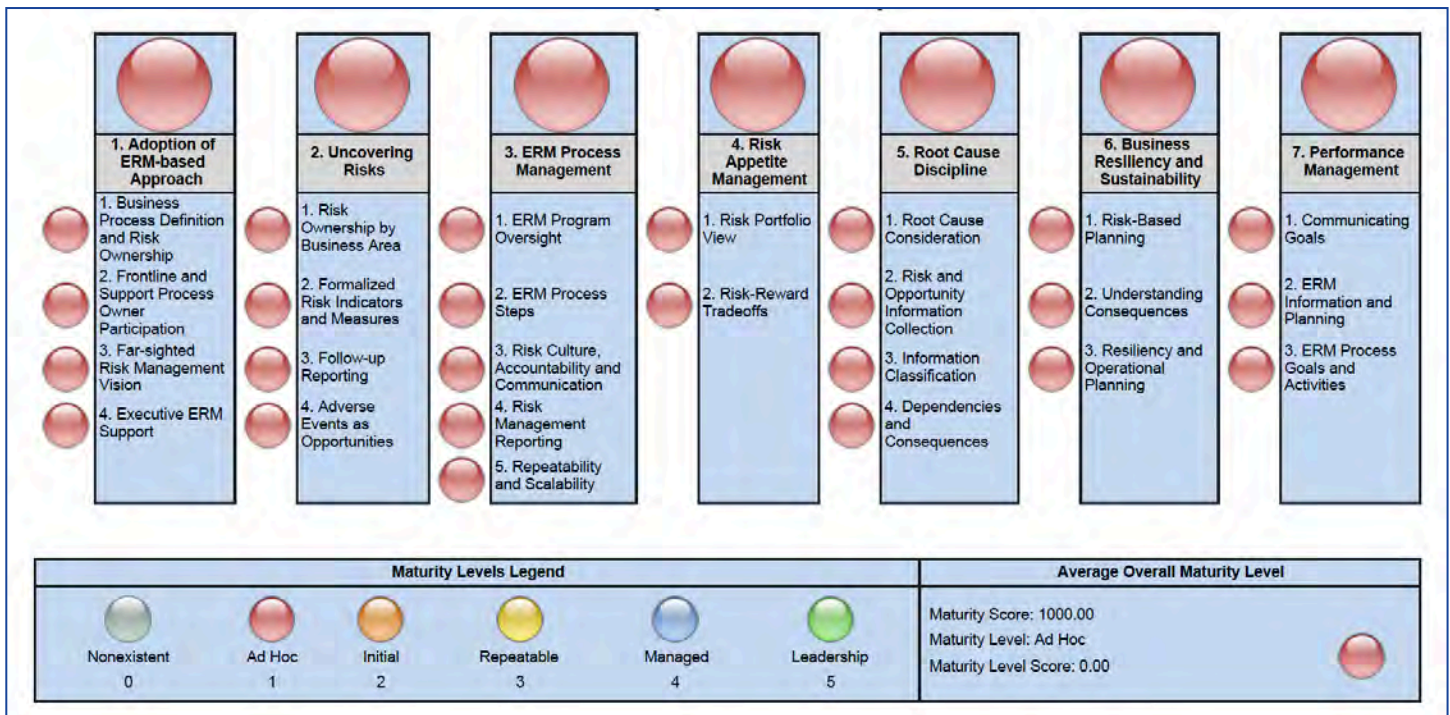
Since the HD has not decided to implement ERM it is not surprising that the results of our evaluation of ERM implementation shows it has not been implemented. ERM implementation at the HD was evaluated to be ad hoc based on the Risk Maturity Model. This means there is:

- ◆ No recognized need for an ERM Process and no formal responsibility for ERM.
- ◆ Internal audit, risk management, compliance and financial activities might exist but aren't integrated.
- ◆ Business processes and risk ownership aren't well defined.

The following exhibit shows the results of the evaluation of ERM at the HD using the RIMS Risk Maturity Model.



Exhibit 29: Harbor Department Enterprise Risk Management Maturity



Source: BCAWR Assessment of the maturity of the Harbor Department's Enterprise Risk Management System using the RIMS Risk Maturity Model



The following exhibit shows the key attributes and drivers evaluated by the Risk Maturity Model.

Exhibit 30: Risk Management Maturity Model Key Elements

MATURITY LEVELS					
Level 5: Leadership	Level 4: Managed	Level 3: Repeatable	Level 2: Initial	Level 1: Ad hoc	Nonexistent

ATTRIBUTES	
Adoption of ERM-based Approach	Key Drivers: Degree of... <ul style="list-style-type: none">◆ Support from senior management, Chief Risk Officer◆ Business process definition determining risk ownership◆ Assimilation into support area and front-office activities◆ Far-sighted orientation toward risk management◆ Risk culture's accountability, communication and pervasiveness
ERM Process Management	Key Drivers: Degree of... <ul style="list-style-type: none">◆ Each ERM Process step (see definition)◆ ERM Process's repeatability and scalability◆ ERM Process oversight including roles and responsibilities◆ Risk management reporting◆ Qualitative and quantitative measurement
Risk Appetite Management	Key Drivers: Degree of... <ul style="list-style-type: none">◆ Risk-reward tradeoffs◆ Risk-reward-based resource allocation◆ Analysis as risk portfolio collections to balance risk positions
Root Cause Discipline	Key Drivers: Degree of... <ul style="list-style-type: none">◆ Classification to manage risk and performance indicators◆ Flexibility to collect risk and opportunity information◆ Understanding dependencies and consequences◆ Consideration of people, relationships, external, process and system views
Uncovering Risks	Key Drivers: Degree of... <ul style="list-style-type: none">◆ Risk ownership by business areas◆ Formulation of risk indicators and measures◆ Reporting on follow-up activities



ATTRIBUTES	
	<ul style="list-style-type: none">♦ Transforming potentially adverse events into opportunities
Performance Management	Key Drivers: Degree of... <ul style="list-style-type: none">♦ ERM information integrated within planning♦ Communication of goals and measures♦ Examination of financial, customer, business process and learning♦ ERM process goals and activities
Business Resiliency and Sustainability	Key Drivers: Degree of... <ul style="list-style-type: none">♦ Integration of ERM within operational planning♦ Understanding of consequences of action or inaction♦ Planning based on scenario analysis

Source: Risk and Insurance Management Society, Inc. (RIMS.org)

Implementation of ERM could benefit the HD in a number of ways. ERM could provide a greater awareness of the risks facing the organization and its ability to respond effectively and enhanced confidence about the achievement of strategic objectives. It could also improve the overall efficiency and effectiveness of HD operations by providing a stronger and more rigorous strategic decision-making framework and process.

There are also a number of key considerations when implementing Enterprise Risk Management. These include:

- ♦ What are the main components or drivers of our business strategy?
- ♦ What internal factors or events could impede or derail each of these components?
- ♦ What external events could impede or derail each of the components?
- ♦ Do we have the right systems and processes in place to address these internal and external risks?

RECOMMENDATION 19:

The HD should consider developing and implementing an Enterprise Risk Management approach that expands the Department's consideration of risk in decision making and operations.



Implementation Action Plan

The following specific actions are recommended to develop and implement an Enterprise Risks Management approach at the HD:

- ♦ Gain support of top management and the Board
- ♦ Engage a broad base of managers and employees in the process
- ♦ Start with a few key risks and build ERM incrementally
- ♦ Use existing knowledge, skills and resources in management, internal audit, compliance etc.
- ♦ Embed ERM into the fabric of the organization
- ♦ Take a holistic, portfolio view of risks across the enterprise