September 4, 2026

Honorable Members of the Los Angeles City Council
Los Angeles Board of Harbor Commissioners

RE: Los Angeles City Harbor Department 2026 Industrial, Economic, and Administrative (IEA) Survey

Under City Charter Section 266(a), the City Controller, Mayor, and City Council shall regularly conduct an Industrial, Economic and Administrative (IEA) Survey of the Harbor Department, which manages the Port of Los Angeles. The City Charter requires the selection of an independent and qualified organization to conduct the survey.

The 2026 IEA Survey of the Harbor Department, administered by representatives from the Office of the Controller, Office of the Mayor, and the City Council, was prepared by KPMG. The IEA Survey examines progress the Harbor Department has made since the last survey, and immediate and long-term challenges facing the department.

This survey focuses on risks and opportunities in the areas of infrastructure, information technology, environmental sustainability, financial health, and workforce development. The Harbor Department must continue to innovate, modernize infrastructure, and implement sound business practices to ensure the Port of Los Angeles remains competitive while protecting jobs, and a thriving economic engine for the Los Angeles region.

Sincerely,

KENNETH MEJIA
Controller

KAREN BASS
Mayor

MARQUEECE HARRIS-DAWSON
Council President, Eighth District

cc: Honorable Hydee Feldstein Soto, City Attorney
Eugene Seroka, Executive Director, Port of Los Angeles
Matthew Szabo, City Administrative Officer
Sharon Tso, Chief Legislative Analyst
Patrice Lattimore, City Clerk
Mitch Kamin, Chief of Staff, Office of the Mayor

Los Angeles City Harbor Department

2026 Industrial, Economic, and Administrative (IEA) Survey

Final Report | August 2026



Submitted by: KPMG LLP, BCA Watson Rice, LLP

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Executive Summary

As required by the Los Angeles City Charter, this report provides an independent five-year review of the Harbor Department's (HD) strategic and operational progress, conducted as part of the Industrial, Economic, and Administrative (IEA) Survey. The central finding is that the HD has successfully evolved into a more resilient and strategically focused organization since the last IEA Survey was conducted in 2018. It has not only implemented the spirit of past recommendations but has also begun to proactively address emerging challenges in global trade, supply chain resilience, decarbonization, and workforce development.

The key findings and forward-looking recommendations are organized around four interconnected pillars:

Fiscal Health, Competitiveness, and Capital Delivery. The HD is actively strengthening its revenue base through strategic lease management and trade diversification while refining competitive performance metrics. It is developing innovative capital strategies, including Public-Private Partnerships to fund future mega-projects, and strengthening project delivery oversight to promote long-term fiscal stability. The HD has also modernized and standardized lease economics, escalation mechanisms, and performance-tied incentive programs, while advancing an allotted $415 million Public Access Investment Plan to measure and expand public access to the Historic Los Angeles Waterfront.

Energy Transition and Community Health. The HD has already achieved a 90% reduction in diesel particulate emissions since 2005, delivering measurable health benefits to neighboring communities. It is now building a comprehensive decarbonization strategy that addresses the full energy ecosystem—from grid resilience and alternative fuel supply chains to supporting tenants through high fuel costs and regulatory uncertainty—while continuing to integrate the Port with surrounding neighborhoods through public waterfront access, transparent communication, and proactive safety planning for emerging technologies.

Digital Transformation. Cybersecurity, risk management, and operational oversight have continued to advance since the last survey. The focus now is on leveraging technology as a core driver of competitiveness and resilience. This involves not only integrating data systems for cross-functional insights but also harnessing a broader suite of digital tools—from data analytics and smart infrastructure—to optimize operations and enhance supply chain visibility.

Workforce Development and Technological Readiness. Recognizing that technological change is creating demand for new skills, the HD is solidifying its role as a facilitator between industry, labor, and educational partners. The focus is on formalizing workforce development programs, modernizing civil service classifications to attract advanced technical talent, and building institutional mechanisms that keep the workforce pipeline aligned with a rapidly evolving port.

The 24 recommendations contained in this report (Chapter 6) build on this strong foundation and are organized in the four strategic pillars above to provide a set of integrated recommendations for the HD's continued success and leadership as a world-class seaport. A summary of these recommendations is provided below.

These recommendations are further organized by level of priority (High, Medium, Low) and categorized as near-term actions and long-term strategies as defined:

- **Near-Term Actions:** Recommendations that can be implemented within a short-term window (e.g., within 6-12 months). These involve activities such as launching a task force, conducting a review, or developing a specific deliverable. Some near-term actions also serve as the foundational first steps of a longer-term strategy.
- **Long-Term Strategies:** Broader and ongoing initiatives requiring sustained effort, institutional change, or a multi-year transformation. These often cannot be "completed" in a traditional sense, but rather mature over time. They may begin with near-term actions that set them in motion.

Pillar 1: Fiscal Health, Competitiveness, and Capital Delivery

The HD enters this review period from a position of exceptional financial strength with investment-grade credit ratings from all three major agencies (S&P AA+, Moody's Aa2, Fitch AA) and stable outlooks across the board. Liquidity is robust, with Days Cash on Hand projected to remain above the industry standard of 500 through the forecast period, and the Debt Service Coverage Ratio has more than doubled since 2019 through a deliberate deleveraging strategy—far exceeding the internal 2.0x policy target. However, the 10-year forecast reveals a structural margin squeeze as operating expenses—particularly salaries and city service costs—are projected to grow steadily while revenues remain relatively flat. Three of seven key container terminal leases expire by 2030, creating both risk and a critical opportunity to strengthen the guaranteed revenue base. Trade diversification away from China has been successful but has shifted concentration risk toward Vietnam, which now accounts for nearly all net import growth during this period. On the capital side, the coming generation of mega-projects—Pier

500, and and Outer Harbor Cruise—will exceed the traditional self-funded model, and the capital project oversight systems need enhanced transparency and data governance to match the scale of investment ahead.

Recommendation	Description	Priority
1.1 Fortify the Core Revenue Base Through Proactive De-Risking.	Launch a Lease Renewal Task Force and formalize a Trade Lane Diversification Strategy with specific targets for emerging markets. (near-term)	High
1.2 Optimize Capital Strategy and Embrace Innovative Delivery.	Establish an Alternative Delivery Center of Excellence and conduct a strategic review of the federal Maritime Action Plan to fund future mega-projects. (near-term)	High
1.3 Enhance Project Delivery, Labor Oversight, and Expense Transparency.	Mandate dual-baseline reporting, implement cause-coding for project changes, and improve City cost-sharing standardization. (long-term)	Medium
1.4 Continue Evolving the Container Terminal Pricing Strategy.	Refine performance-based pricing within tenant agreements to drive cargo velocity and increase the share of guaranteed revenue. (long-term)	Medium
1.5 Refocus Collaboration on High-Impact Regional Initiatives.	Continue to strengthen coordination with the Port of Long Beach on non-competitive initiatives that enhance the San Pedro Bay gateway's collective performance. (long-term)	Medium
1.6 Refine KPIs for Gateway Competitiveness.	Develop a comprehensive, public-facing supply chain velocity metric, benchmarked against leading global ports, to guide investment decisions and strengthen the Port's competitive positioning. (near-term)	Low
1.7 Mitigate Execution Risk for Major Waterfront Projects.	Maintain strong project management and stakeholder coordination as Wilmington and San Pedro Waterfront initiatives move into construction. (long-term)	Low
1.8 Develop Standardized Lease Templates for Visitor-Serving Tenancies.	Formalize the growing body of precedent from recent visitor-serving leases that appropriately reflects the risk profiles and	Low

Recommendation	Description	Priority
	business realities of non-industrial waterfront tenants. (near-term)	
1.9 Further Develop KPIs for Public Access Investments.	Refine performance indicators to evaluate the economic, community, and operational outcomes of the Port's waterfront development. (near-term)	Low

Pillar 2: Energy Transition and Community Health

The HD has achieved a 21% reduction in greenhouse gas emissions from the 1990 baseline despite a roughly 500% increase in cargo volume—a significant decoupling of economic growth from emissions. Diesel particulate matter is down 90% since 2005, and the Port achieved its best ever year for emissions per container in 2024. However, the next phase of reductions is fundamentally more complex. The transition is constrained by insufficient electrical grid capacity (an estimated $500 million in upgrades needed from LADWP), the absence of alternative fuel infrastructure at scale, zero-emission technology that cannot yet match all heavy-duty cycles, and equipment costs two to four times the diesel equivalent. The HD's near-term targets focus on Zero-Emission Cargo Handling Equipment (ZE CHE) by 2030 and drayage trucks by 2035, but a broader strategy encompassing ships, harbor crafts, and locomotives is needed. Regulatory uncertainty, multi-agency permitting complexity, and community concerns about emerging technologies such as hydrogen add further friction. These recommendations aim to close the infrastructure and fuel gaps, broaden the strategic aperture, support operators through the financial burden of transition, and resolve regulatory barriers—all while maintaining the community trust built over two decades of measurable air quality improvements.

Recommendation	Description	Priority
2.1 Expand Near-Term Focus on ZE CHE to a Broader Long-Term Strategy.	Begin planning a post-grid-upgrade multi-fuel energy hub and establish clear goals for zero-emission vessels, locomotives, and harbor craft. (near-term & seeds long-term)	High
2.2 Address the Gap Between Vehicle	Work with energy providers to develop a holistic alternative fuel strategy and	High

Recommendation	Description	Priority
Technology and Fuel Supply.	advocate for policies that incentivize regional green fuel production. (long-term)	
2.3 Enhance Grid Resilience.	Promote on-site generation at LADWP's receiving station and facilitate tenant collaboration on microgrid projects with solar, fuel cell, and battery storage technologies. (long-term)	Medium
2.4 Resolve Regulatory Uncertainty for Clean Technologies.	Establish formal working groups with key agencies to create clear approval pathways and advocate for fast-track lanes for zero-emission projects. (near-term)	Medium
2.5 Address High Dependency on Grant Funding for ZE CHE.	Support tenants in identifying alternative financing options, including utility incentives, public-private partnerships, and tax credits. (near-term)	Medium
2.6 Enhance Community Education on Alternative Fuels.	Co-develop standardized safety protocols for alternative fuels and implement a sustained public engagement campaign highlighting community benefits. (near-term & seeds long-term)	Low
2.7 Formalize Planning for Bulk Fuel Infrastructure for Vessels.	Facilitate energy provider collaboration on property needs, permitting, and regulatory compliance for vessel bunkering operations. (near-term)	Low
2.8 Support Operators Through High Clean Fuel Prices.	Monitor low or no carbon fuel subsidy programs, continue implementing green lanes for clean trucks, and investigate preferential appointment systems. (long-term)	Low

Pillar 3: Digital Transformation

Enterprise data and systems integration remains an area with improvement opportunities since the 2018 survey. The HD uses the City's Workday platform for payroll, HR, and certain financial functions, but key capabilities—including procurement, invoicing, capital project management and operational systems like the Port Optimizer—remain on separate department-specific platforms with limited connectivity. This

fragmentation constrains the HD's ability to link financial, operational, and project data for enterprise wide analysis. Cybersecurity has been a clear success: the HD's Cybersecurity Operations Center was the first port facility in the nation to achieve ISO 27001 certification, and the Cyber Resilience Center now serves as a port complex wide threat intelligence hub. Enterprise risk management is actively practiced across the division in a coordinated manner but has not yet been formalized under a unified framework that provides leadership with a consolidated view of the risk landscape. These recommendations focus on closing the data integration gap, formalizing risk governance, sustaining cybersecurity momentum, and strengthening data stewardship practices that underpin reliable capital project reporting.

Recommendation	Description	Priority
3.1 Advance Enterprise Data and Systems Integration.	Prioritize key linkages across City-managed and Harbor-managed systems to enable cross-functional insights and enterprise-wide decision-making. (near-term)	High
3.2 Continue Maturing the Cyber Resilience Center.	Expand CRC participation by engaging additional tenants and supply chain stakeholders to strengthen collaborative threat detection across the port ecosystem. (long-term)	Medium
3.3 Strengthen Enterprise Risk Management Integration.	Enhance enterprise-wide visibility of key risks and formalize how risks are communicated to leadership. (long-term)	Low

Pillar 4: Workforce Development and Technological Readiness

The zero-emission transition, terminal automation, and the growth of data-driven port operations are creating demand for an entirely new set of workforce skills. The HD is investing $145 million in the Goods Movement Workforce Training Facility—a first of its kind in the nation—to prepare its regional labor workforce for these changes. But the facility's success depends on forward visibility into what skills will actually be needed, clear pathways connecting training to careers, and shared metrics that allow the HD and its partners to measure progress. At the same time, outdated civil service job classifications are one of the most concrete barriers to building in-house digital capability. Roles such as data analysts, software developers, and platform engineers do not exist within the current classification structure, forcing the HD to rely on external

consultants for critical digital product projects. The City of Los Angeles Personnel Department is currently leading efforts to reform the civil service system, presenting a near-term window of opportunity for the HD to advocate for modernized classifications. These recommendations focus on establishing the governance pathways, classification reforms, and measurement frameworks needed to ensure their workforce investment delivers on its promise.

Recommendation	Description	Priority
4.1 Continue Acting as a Strategic Convener for Workforce Development.	Establish a Workforce Council to aggregate terminal-level insights, coordinate planning for the Goods Movement Workforce Training Facility, and ensure alignment with LA City workforce development efforts. (long-term)	High
4.2 Civil Service Classification Modernization.	Conduct a formal review with the City to propose modern technical roles such as data analysts and software developers for HD operations. (near-term)	High
4.3 Improve Visibility and Pathways for Advanced Technical Talent.	Strengthen a Port-Tech career pathway framework and align messaging across AltaSea, the Training Facility, and education partners. (near-term)	Medium
4.4 Improve Data, Metrics, and Transparency to Support Workforce and Infrastructure Readiness.	Develop a shared performance framework with clear, measurable metrics (e.g., training program completion rates, number of apprentices placed) for workforce pipelines and infrastructure. (near-term)	Low

Chapter 1: Introduction

1.1 | 2026 IEA Survey Focus Areas Overview

The Harbor Department (HD) manages the nation's premier seaport, the Port of Los Angeles, a critical engine for the regional economy and a central node in the global supply chain. To help ensure this vital asset operates with maximum efficiency and economy, the Los Angeles City Charter mandates that the HD undergo an Industrial, Economic, and Administrative (IEA) Survey every five years.

This report presents the findings of the 2026 IEA Survey, administered by the Offices of the Controller, Mayor, and Chief Legislative Analyst. Building on the foundation of the 2018 survey, this cycle examines four key focus areas defined in the scope of work:

2026 IEA Focus Area	Scope
Chapter 2: Retrospective Review of the 2018 IEA Survey	An assessment of the HD's progress towards implementing each recommendation from the 2019 report. This should also include an evaluation to identify recommendations that may no longer be pertinent to HD's goals.
Chapter 3: Environmental and Sustainability Initiatives	An evaluation of the HD's progress towards meeting their stated zero emissions goals. This evaluation should consider the HD's plans to increase its use of clean and sustainable alternative fuel sources (and mitigation efforts).
Chapter 4: Fiscal Health	An evaluation of the department's current fiscal outlook, potential risks to its fiscal health, and its five-year financial plan. This should include consideration of the HD's plans after the expiration of the IIJA in 2026, as well as the capital program and procurement.
Chapter 5: Technological Changes and the Workforce	An assessment of the HD's plans for technological advances that will affect its ability to stay competitive. This should include an assessment of the HD's role in regional efforts to navigate technological changes in the ocean-going vessel industry.

The resulting analysis underpins the recommendations in Chapter 6, which are intended to guide the HD's continued success.

1.2 | Key Terms and Definitions

The following definitions clarify the primary entities discussed throughout this report:

- **Los Angeles Harbor Department (HD):** the government agency and department of the City of Los Angeles responsible for the management, operation, and oversight of the Port of Los Angeles.
- **The Port of Los Angeles (POLA or 'Port'):** the physical seaport complex itself, including all terminals, wharves, and waterways. It is the primary asset managed by the HD.
- **San Pedro Bay Port Complex (or 'port complex'):** The collective term for the Port of Los Angeles and the Port of Long Beach combined. Together, they form the busiest container gateway in North America and a critical engine for the national economy, serving as a primary node for trade between the United States and Asia.

A comprehensive glossary of all other key terms and acronyms is provided below for reference.

Table 1 – Key Terms and Definitions

Term/Acronym	Definition
AAPA	American Association of Port Authorities; a trade association representing ports throughout the Americas.
ACTA	Alameda Corridor Transportation Authority; the agency responsible for managing the crucial rail cargo network connecting the ports to the transcontinental rail system.
CAO	City Administrative Officer; the chief financial advisor to the Mayor and City Council of Los Angeles.
CAAP	Clean Air Action Plan; the landmark joint strategy between the Ports of Los Angeles and Long Beach to reduce air pollution and greenhouse gas emissions from port-related operations.
CARB	California Air Resources Board; the state agency responsible for air quality regulation.
CEQA	California Environmental Quality Act; a state law requiring agencies to identify and mitigate the significant environmental impacts of their projects.
CRC	Cyber Resilience Center; a collaborative facility launched by the HD to act as a port-wide information sharing and threat analysis hub for tenants and supply chain partners.

Term/Acronym	Definition
CSOC	Cybersecurity Operations Center; the HD's internal, dedicated center for monitoring and responding to cybersecurity threats.
CTF	The Clean Truck Fund (CTF) is a key part of the San Pedro Bay Ports' Clean Air Action Plan, designed to accelerate the transition to a zero-emissions (ZE) truck fleet by 2035. The CTF Rate is a fee collected on drayage trucks serving the ports, used to fund the transition to cleaner vehicles.
DSCR	Debt Service Coverage Ratio, a measure of an agency's ability to cover its debt obligations with its operating income. It is calculated by dividing the sum of Net Operating Income and Non-Operating Revenues by Total Debt Service.
ERM	Enterprise Risk Management; a methodology for managing risk across an entire organization, integrating financial, operational, and technological domains.
GRI	General Rate Increase; a mechanism allowing the Port to adjust lease rates to address periods of inflation.
IEA Survey	Industrial, Economic, and Administrative Survey; a comprehensive review of the HD's operations, mandated by the Los Angeles City Charter every five years.
KPI	Key Performance Indicator; a quantifiable measure used to evaluate performance against strategic objectives.
MAG	Minimum Annual Guarantee; a contractual clause in tenant leases that ensures the Port receives a baseline level of revenue, regardless of cargo volume volatility.
MAP	Maritime Action Plan; a federal roadmap that outlines national investment priorities for the maritime sector.
MOU	Memorandum of Understanding; a formal agreement between parties. In this report, it often refers to the 1997 agreement between the HD and the City of Los Angeles for cost-sharing.
OGV	Ocean-Going Vessel; large ships used for international trade, a key focus for decarbonization efforts.
P3	Public-Private Partnership; a long-term agreement between a public agency and a private-sector entity to deliver a public asset or service, often used for large infrastructure projects.
PICS	Project Information and Control System; the internal system used by the HD to track the status of its capital projects.

Term/Acronym	Definition
POLB	Port of Long Beach; the neighboring seaport that collaborates with POLA on regional initiatives.
RACI Model	Responsible, Accountable, Consulted, and Informed; a management model used to clarify roles and responsibilities in projects and processes.
SCAQMD	South Coast Air Quality Management District; the regional agency responsible for monitoring and regulating air pollution in the Los Angeles area.
TEU	Twenty-foot Equivalent Unit; the standard unit for quantifying container cargo capacity, based on a 20-foot long shipping container.
ZE / NZE	Zero and Near-Zero Emission; terms used to describe vehicles, equipment, and technologies that produce no or very few harmful emissions.
ZE CHE	Zero-Emission Cargo Handling Equipment; terminal machinery (like yard tractors and forklifts) that has been converted to produce no tailpipe emissions.

1.3 | 2018 IEA Survey Context and Background

The 2018 IEA Survey produced twelve key recommendations across operational, financial, and strategic domains. These ranged from improving coordination with the Port of Long Beach and reforming lease and pricing structures to strengthening risk management and advancing digital infrastructure from an enterprise viewpoint, and were ranked as low to high priority for implementation (see Appendix A).[1] In May 2019, the HD formally responded to the recommendations in correspondence to the City Council's Trade, Travel and Tourism Committee, concurring with the overall direction and identifying ongoing or planned initiatives, most notably the 2050 Capital Development Plan, the Public Access Investment Plan, and expansion of the Port Optimizer and related digital modernization efforts.[2]

Since 2018, the HD has operated within a dramatically altered environment shaped by pandemic era cargo disruption, evolving trade policies and tariffs, decarbonization

[1] BCA Watson Rice, LLP, Los Angeles Harbor Department Industrial, Economic, and Administrative (IEA) Survey Final Report. January 2019.

[2] Los Angeles Habor Department, Response to Motion CF 19-0088 - IEA Survey. May 2019.

mandates, and advancements in industrial automation. These developments have reinforced the enduring objectives of the 2018 IEA Survey: sustaining regional competitiveness, advancing terminal modernization, optimizing the economic return of the LA Waterfront portfolio, expanding technology capability, and embedding stronger fiscal and risk management practices. The 2026 IEA Retrospective evaluates progress in these areas and whether the recommendations from 2018 are still applicable for 2026 and beyond. It also identifies continuing challenges influencing HD performance and identifies recommendations for consideration by the Joint Administrators and the HD, both for the continuation of existing recommendations and the identification of new ones.

Chapter 2: 2026 IEA Retrospective Assessment

2.1 | Key Themes for 2026 Retrospective

The 2018 IEA Survey recommendations are organized into three thematic groupings that are mapped to the areas from the 2018 survey *(shown in parentheses)*:

- **Theme 1:** Gateway Competitiveness and Regional Collaboration *(Cargo Real Estate and Terminals)*
- **Theme 2:** Waterfront Development and Community Access *(Commercial Real Estate)*
- **Theme 3:** Enterprise Modernization *(HD Management)*

Theme 1 - Gateway Competitiveness and Regional Collaboration

(Reviews 2018 Survey Recommendations 1-3)

Focus: Cargo forecasting, shared infrastructure, pricing modernization, and diversification of cargo uses.

This theme encompasses the HD's efforts to sustain long-term cargo growth and competitiveness through coordinated planning with the Port of Long Beach, shared infrastructure investment, and modernization of container terminal pricing strategies. Together, these actions strengthen the San Pedro Bay Gateway as a unified, resilient gateway for global trade.

Theme 2 - Waterfront Development and Community Access

(Reviews 2018 Survey Recommendations 4-8)

Focus: Diversification, development planning, community access, and commercial leasing.

This set of recommendations examines the HD's process for transforming the LA Waterfront from a historically dormant, underutilized asset into a dynamic commercial and recreational district. It includes diversification of commercial uses, strategic waterfront planning, the assessment of public access impacts, and modernization of commercial real estate management. These efforts balance economic development and cargo side priorities with community benefit and public access.

Theme 3 - Enterprise Modernization

(Reviews 2018 Survey Recommendations 9-12)

Focus: Cybersecurity posture, IT modernization, enterprise resource systems, interdepartmental financial relationships and enterprise-wide risk coordination.

This theme explores the HD's investments in technology, specifically its strengthened cybersecurity framework and the implementation of modern enterprise resource planning systems. It highlights growing organizational awareness of technology risk, the creation of a well-staffed cyber security operations center, the ongoing need for holistic systemwide IT governance and data-integration, financial management, and its evolving enterprise risk management (ERM) framework.

2.2 | Status and Progress by Theme

This section provides a detailed status by theme and by recommendation, citing relevant supporting evidence.

2.2.1 Gateway Competitiveness and Regional Collaboration

This theme applies to 2018 IEA recommendations 1-3.

2018 IEA Recommendation 1: *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.*

The 2018 IEA encouraged the HD to strengthen its collaboration with the Port of Long Beach across shared environmental, security, and infrastructure programs within the San Pedro Bay Ports complex. Since then, inter-port coordination has deepened through the

Clean Air Action Plan (CAAP), joint grant applications for regional programs, and coordinated management of key assets such as the Alameda Corridor Transportation Authority. Specific supporting evidence includes:

ENVIRONMENTAL COLLABORATION – CLEAN AIR ACTION PLAN

The 2017 Clean Air Action Plan (CAAP) Update, jointly administered by both ports, remains the foundation for zero-emission transition and regional air quality improvement in San Pedro Bay.

This collaboration was further formalized through a cooperative agreement between the Port of Los Angeles, Port of Long Beach, and the South Coast Air Quality Management District (AQMD), signed in late 2025. The agreement represented the culmination of over a decade of work which resulted in additional CAAP+ measures focused on emissions reductions and infrastructure for zero-emission equipment. Key collaboration efforts include:

- The HD co-chairs the CAAP Implementation Working Group, holding quarterly CAAP stakeholder community meetings.
- Since 2007, the ports and their partners have invested over $431 million in their grants and technology advancement programs.[3]
- Partnering with the Port of Long Beach on the Los Angeles Marine Emission Reduction (LA MER) Project.[4]
- In collaboration with ports across the state via the California Containerized Port Interoperability Grant Program, over $15 million has been allocated to the San Pedro Bay Ports improve data analytics and data governance.[5]
- The Clean Truck Program works to transition San Pedro Bay drayage trucks under the 2035 zero-emission commitment. Since the program's establishment in 2008, it has reduced air pollution by more than 90%.[6]

Collaboration extends to multi-agency funding and construction efforts, such as rail efficiency and grade separation projects, including planning for the Pier B On Dock Rail

[3] Ports of Long Beach and Los Angeles, 2024 Annual Report Clean Air Action Plan. May 2025.

[4] Los Angeles Environmental Management, California Air Resources Board Grant Acceptance. January 2025.

[5] California Governor's Office of Business and Economic Development, California Containerized Ports Interoperability. July 2024.

[6] Port of Los Angeles, Clean Truck Program. September 2025.

Support Facility and related Alameda Corridor North connections.[7] Additional details on these initiatives are provided below.

ACTA MANAGEMENT AND REFINANCING

The Alameda Corridor Transportation Authority (ACTA) is a keystone of the HD's rail cargo network. Since 2018, the HD and the Port of Long Beach have cooperated on debt service restructuring and refinancing, improving ACTA's financial sustainability and freeing capital for corridor maintenance and technology upgrades. Specifically, the HD participates in joint oversight to promote consistent safety, security, and operational standards along the corridor.

PUBLIC SAFETY AND EMERGENCY MANAGEMENT

The Harbor Department (HD) Port Police operate on the foundational principle that public safety is built through sustained relationships forged long before an incident occurs. This philosophy—cultivated deliberately over more than a decade—permeates every dimension of operations, from daily inter-agency coordination to large-scale emergency response.

On a daily basis, Port Police coordinates with a broad coalition of local, state, and federal partners, including the U.S. Coast Guard, FBI, Customs and Border Protection, and regional law enforcement. These partnerships span counterterrorism, hazardous cargo management, and maritime rescues. Critically, these are not transactional relationships activated only in crisis; they are living partnerships maintained through shared training and deliberate cultural investment at every level of the organization.

DEPARTMENT OPERATIONS CENTER

A cornerstone of the HD's emergency management infrastructure is the Department Operations Center (DOC). Located at Port Police Headquarters, the DOC functions as a full-service incident command post and unified command facility, integrating seamlessly with the City of Los Angeles Emergency Management Department.

The U.S. Coast Guard and other federal partners regularly utilize the DOC during major incidents, drawn by its modern facilities and operational connectivity. This unified command model was recently validated during the November 2024 Henry Hudson ship

[7] Port of Long Beach, New Pier B On-Dock Rail Support Facility Is On Track. (May 2022); Los Angeles Goods Movement MOA for POLA Pier B On-Dock Rail Support Facility – Locomotive Facility Turnout Project. June 2024.

fire, where the DOC facilitated a rapid, multi-agency response—involving local, state, and federal entities—to safely relocate and control a burning vessel without loss of life or significant disruption to the harbor. The HD Port Police also utilizes the Joint Command and Control Center (JCC) on the Port of Long Beach complex when warranted for bay-wide coordination, reflecting the collaborative approach that defines operations across San Pedro Bay.

MARITIME LAW ENFORCEMENT TRAINING CENTER

Established in 2009, the Maritime Law Enforcement Training Center (MLETC) is the nation's first port-based training facility of its kind and the only government-operated program outside of the Federal Law Enforcement Training Center in Georgia. It is the only facility on the West Coast that is both Peace Officer Standards and Training (POST) certified and federally recognized as a Regional Maritime Law Enforcement Training Center.

The Harbor Department views the MLETC as a strategic investment to train local, state, and federal agencies in specialized maritime tactics—including vessel boarding, counterterrorism, and underwater detection. This training capacity serves as a force multiplier, enabling a functional unified command during major events like the upcoming Olympics.

SHORT LINE RAIL OPERATIONAL COORDINATION

The HD continues joint coordination with the Pacific Harbor Line (PHL) and the Port of Long Beach for short line and yard switching operations.[8] Key efforts include:

- Collaborative planning has supported the rollout of Tier 4 and battery electric locomotives, co-funded under CAAP grants.
- Regular coordination meetings address scheduling, rail yard efficiency, and shared track maintenance throughout the harbor complex.

ONGOING POLICY ALIGNMENT

Standing inter-port committees harmonize rules affecting marine terminal operators and trucking firms. Key progress includes aligned truck registry databases, consistent gate hour reporting, and standardized safety compliance requirements, reducing

[8] Anacostia, Pacific Habor Line (PHL). September 2025.

administrative complexity for carriers and logistics providers. Key policy alignment efforts include:

- Both ports jointly administer the Clean Truck Fund (CTF) Rate program, introduced in the 2017 CAAP, which applies a $10 per twenty-foot equivalent unit (TEU) charge on loaded containers moved by drayage trucks. The program's revenues fund zero-emission-truck incentives and charging-infrastructure grants, reinforcing the 2025 zero-emission drayage target.[9]
- The HD and the Port of Long Beach coordinate regularly on tariff amendments, fee collection procedures, and rulemaking to help ensure consistent application of the CAAP related drayage standards across the San Pedro Bay Ports complex.

LONG-TERM CARGO FORECASTS AND ECONOMIC IMPACT ANALYSIS

The HD and the Port of Long Beach jointly maintain an integrated forecasting and analytical framework for cargo and economic modeling. Both ports utilize Standard & Poor's (S&P) global trade and macro-economic model to assess container-volume.[10] These macro forecasts are complemented by the Tioga Group's port level throughput model, which integrates terminal capacity assumptions, hinterland demand, and modal share projections to produce ten- and twenty-year cargo forecasts for San Pedro Bay.[11]

The combined S&P Tioga approach allows the HD to align infrastructure investment, labor force planning, and emission modeling with realistic cargo-growth trajectories rather than static historical averages. These unified models provide a consistent analytical baseline for each port's independent Capital Improvement Programs (CIPs) and strengthen their credibility with investors, bond rating agencies, and the State Lands Commission.

Recommendation 1 – Implementation Level Since 2018: The 2018 IEA Survey called for a single, long-term, market-driven investment and financing plan for the entire San Pedro Bay Gateway. However, this objective is fundamentally constrained by the competitive relationship between the HD and the Port of Long Beach, as well as by Federal Maritime Commission (FMC) restrictions that prohibit collaboration on pricing and terms. Given these structural barriers, the HD has successfully implemented the recommendation within their span of control.

[9] Port of Los Angeles, Clean Truck Program: Clean Truck Fund Rate. March 2022.

[10] United States Department of Transportation, Port Performance Freight Statistics. January 2024.

[11] Tioga Group, San Pedro Bay Cargo Forecast. December 2007.

Inter-port coordination has become institutionalized across all domains—environmental, operational, and strategic. Through shared forecasting models (S&P Global and Tioga Group), integrated economic impact analyses, coordinated funding for shared assets, and synchronized environmental policy and initiatives via the CAAP, the two agencies now operate as a coordinated gateway, advancing regional efficiency, sustainability, and economic resilience. The HD effectively maximized its collaborative efforts within the boundaries of what was legally and commercially viable.

***2018 IEA Recommendation 2**: 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.*

The HD has made meaningful progress toward modernizing its pricing and revenue structure, focusing on targeted incentive programs, standardized escalation mechanisms, and improved contractual discipline. While the 2018 IEA called for a structural reform that would allow direct charges to shipping lines or a broad "infrastructure investment fee," the Port's landlord-tenant model and existing lease provisions continue to prevent full implementation of such a mechanism. Nevertheless, the HD has advanced several complementary strategies that achieve many of the same financial and operational outcomes. Further supporting evidence and gaps are described in the following sections.

REFINED INCENTIVE PROGRAMS AND LEASE STRUCTURES

The HD has evolved its approach through two main areas:

Approach 1: Incentive Programs Tied to Performance and Throughput

- **Ocean Common Carrier (OCC) Incentive Program.** This program rewards ocean carriers for incremental TEU growth above prior year baselines, with per container rebates structured by terminal and service type.[12] Over the last several fiscal years, the HD has allocated several million dollars annually to this initiative, directly linking revenue to market share recovery and encouraging early return of volumes lost during the 2020-22 congestion period.
- **Container Terminal Truck Turn-Time Incentive Program.** Container Terminals achieving sustained gate turn efficiency below a defined threshold qualify for financial

[12] Port of Los Angeles, Tariff No. 4. April 2014.

incentives. The program, which mirrors a performance-based fee structure, has measurably improved truck velocity and reduced gate queueing, supporting both customer satisfaction and environmental goals.[13]

Approach 2: Standardization of Lease Economics and Escalation Mechanisms

Although direct billing of shipping lines remains impractical, the HD has strengthened its pricing position through modernized lease economics including:

- **Sliding Scale Pricing and Minimum Annual Guarantees (MAGs):** All new or renewed terminal permits now include clearly defined MAGs, ensuring a baseline revenue floor regardless of throughput volatility. This increases the share of guaranteed revenue, with a long-term goal of reaching 80-85% of total terminal revenue. Many agreements also include sliding scale pricing, where higher throughput volumes result in lower per-unit rates for tenants.
- **Consumer Price Index (CPI) escalators:** Across most container terminal and non-container terminal leases, annual CPI adjustments are now standardized and automatically triggered, preserving real-term value. Furthermore, a General Rate Increase (GRI) mechanism has been consistently implemented in recent years, allowing the Port to adjust rates during periods of high inflation that exceed contractual CPI escalators.
- **Terminal "reset" clauses:** Long-term leases include periodic financial resets, typically every five to ten years, allowing rates to be realigned with current market conditions and cargo volumes.

CONTINUED EVALUATION OF AN INFRASTRUCTURE INVESTMENT CHARGE

Discussions regarding a more formal Infrastructure Investment Fee remain active but limited by constraints. The Los Angeles City Charter and Tidelands Trust restrict the HD's ability to levy generalized fees not directly tied to property use. Any such instrument would likely require joint Harbor Commission and City Council approval and coordination with the Federal Maritime Commission to help ensure compliance with maritime rate regulations. The HD continues to study analogous fee structures at peer ports (e.g., Oakland, Houston, New York/New Jersey) to identify legally viable approaches.

[13] Port of Los Angeles, Port of Los Angeles To Reward Container Terminals for Higher Truck Productivity. January 2020.

ALIGNMENT WITH THE PORT OF LONG BEACH

Parallel incentive frameworks at the Port of Long Beach help maintain the San Pedro Bay's overall competitiveness against other major port complexes in the Pacific Northwest, Gulf Coast, and East Coast. Joint forecasting and clean truck funding mechanisms further reinforce a consistent operating environment for ocean carriers and supply chain partners operating at both facilities.

Collectively, these programs have strengthened the HD's competitiveness and ability to attract discretionary cargo, link incentives to measurable operational outcomes, and establish market-aligned escalation for tenants.

Recommendation 2 – Implementation Level Since 2018: Progress was achieved via incentive programs and standardized lease escalators. However, structural constraints prevent direct fees on shipping lines, and the strategy must still carefully manage the delicate balance between revenue generation and regional competitiveness to avoid diverting cargo to other port regions.

2018 IEA Recommendation 3: *Continue to pursue pragmatic diversification opportunities that enhance supply chain velocity and enhance utilization of existing industrial cargo properties.*

Since 2018, the HD has markedly diversified its cargo portfolio while improving overall supply chain velocity. With approximately 1,650 acres of container terminal property, HD management has focused on maximizing throughput and operational efficiency rather than physical expansion. Velocity has become the defining measure of success: moving more cargo across a fixed footprint through faster turn times, real-time visibility, and higher utilization rates.

To measure supply chain velocity, the HD uses proxies to gain insight into the operational efficiency of its terminals. These metrics primarily apply to container operations, which represent approximately 80–85% of port activity, as standardizing metrics is more complex for other cargo types like automobiles and breakbulk due to varying operational constraints. One of the most important internal indicators is TEUs per acre, which measures terminal efficiency by reflecting berth productivity, truck turn times, and cargo dwell time.

Another key proxy used for high-level monitoring is "Berth Productivity," a measure created by the Journal of Commerce, which calculates the number of boxes moved over the wharf (both inbound and outbound) divided by the number of hours a vessel is tied up

at berth. This metric, while valuable, is not suitable for benchmarking the HD against other ports. Port calls differ significantly; for example, a vessel making multiple stops on the East Coast to drop off small volumes will have shorter stays compared to a vessel at the Port of Los Angeles that turns over its entire cargo load during a multi-day stay. This extended stay naturally includes unproductive hours each evening, unless the terminal operates three shifts, which can skew direct comparisons.

While not used for external benchmarking, Berth Productivity is a useful tool for comparing the HD's own month-to-month performance at an aggregate level. The HD cannot directly affect this metric, as it is not the agent hiring labor or planning how vessels are worked. However, it provides a crucial, high-level view of how well the terminals are operating collectively. In general, the HD's goal is to see a monthly average berth productivity of at least 55 moves per hour.

As shown in the table below, the Port has surpassed this target in six of the eight months examined in 2025.

Table 2 – Berth Productivity in 2025

Month	Boxes/Hour
Jan-25	59.3
Feb-25	59.2
Mar-25	58.6
Apr-25	54.7
May-25	58.7
Jun-25	61.1
Jul-25	53.7
Aug-25	58.5

Source: HD Planning and Strategy

Further supporting evidence of the HD's progress on enhancing supply chain velocity and property utilization includes:

INCENTIVES AND THROUGHPUT PERFORMANCE MONITORING

- **Truck Turn-Time Incentive Program:** Terminal operators now receive performance-based payments for maintaining truck turn times below defined thresholds. This program directly links operational efficiency to financial incentives and has reduced gate congestion while cutting emissions associated with idling trucks.
- **Port Optimizer digital platform:** Developed jointly with GE Transportation, this platform now provides predictive cargo availability data to shipping lines, terminals, and drayage carriers. Port Optimizer has increased cargo visibility and improved dwell-

time management, directly supporting velocity gains across terminals and intermodal connectors.[14]

ACTIVATION AND REDEVELOPMENT OF INDUSTRIAL ASSETS

To complement terminal efficiency, the HD has strategically re-purposed and activated underutilized industrial parcels for higher-value, cargo-supporting uses:

- **80-acre transload facility activation:** Since 2018, HD has reactivated an 80-plus-acre property for a new transload and logistics operation, increasing rental revenue by roughly 60 percent over the prior use while strengthening intermodal integration between marine terminals and regional distribution centers.
- **Break-bulk diversification:** The HD has renewed a key break bulk lease and added another specialized facility, ensuring continued handling capacity for project cargo, steel, and other non-containerized commodities important for maintaining cargo diversity and resilience against container-market volatility.
- **Maritime support operations:** Multiple sites have been reactivated for chassis storage, drayage yards, and equipment-maintenance facilities, creating essential "back-of-port" capacity that supports both container and non-container activities.
- **Emerging clean-energy uses:** An unutilized parcel was recently tendered for a zero-emission (EV) charging facility, expected to generate more than $1 million in annual revenue while providing critical charging infrastructure for drayage fleets and advancing the HD's zero-emission goals.

PRE-DEVELOPMENT OF PIER 500

The HD recently issued a request for proposals from interested parties to participate in the pre-development of a new container terminal to future-proof supply chain demand. As proposed, Pier 500 would be a 200-acre site with two new berths and approximately 3,000 linear feet of new available wharf. The project site would greatly increase cargo efficiency, as it would allow for larger next generation cargo vessels.[15]

BALANCING DIVERSIFICATION AND COMPETITIVENESS

Diversification efforts are driven not only by the pursuit of revenue but also by the need to maintain the HD's ability to handle cargo reliably during market shifts. New transload and break-bulk operations broaden the cargo base and support yard activations and clean energy infrastructure improve service reliability for core container customers. Together,

[14] Port of Los Angeles, Port Optimizer. September 2025.

[15] https://www.portoflosangeles.org/references/2025-news-releases/news_100125_pier_500_rfp

these initiatives and future development of Pier 500 enable the HD to accommodate growth within the existing port complex, aligning operational diversification with sustainability and land-use efficiency.

Recommendation 3 – Implementation Level Since 2018: The HD has successfully diversified its portfolio with a clear focus on cargo-supporting uses (transload, break-bulk, maritime support) and improving property utilization. While the HD uses comprehensive internal metrics like TEUs per acre to drive efficiency, refining a comprehensive, public-facing metric for measuring supply chain velocity remains an ongoing opportunity.

2.2.2 Waterfront Development and Community Access

This theme applies to 2018 IEA recommendations 4-8.

2018 IEA Recommendation 4: *Identify future development opportunities compatible with existing developments and begin the planning process.*

The HD has continued to deliver on its commitments across its LA Waterfront Plan, improving public access and activating underutilized land assets into community-oriented destinations that are compatible with port operations. Each project has been deliberately structured to remain compatible with adjacent maritime operations, preserve cargo-handling efficiency, and meet the requirements of the California Coastal Act and Tidelands Trust.

Specific supporting evidence of the HD's progress on this recommendation is presented below and organized into two primary development master plans (1) Wilmington Waterfront Projects and (2) San Pedro Waterfront Projects.

WILMINGTON WATERFRONT PROJECTS

On the Wilmington side, the HD is implementing an integrated Avalon Corridor and Wilmington Waterfront revitalization program to reconnect the community with the harbor and stimulate small business development. The Avalon Promenade and Gateway Project is a $152 million project featuring a pedestrian bridge and gateway plaza slated for completion in Summer 2028. It will link Avalon Boulevard directly to the water's edge.[16]

[16] Port of Los Angeles, Avalon Pedestrian Bridge and Promenade Gateway. September 2025.

This effort complements the recently completed, $77.3 million Wilmington Waterfront Promenade, an nine-acre public open space that opened in February 2024 with landscaping, lighting, seating, and recreation areas.[17] Both projects were shaped through extensive outreach with the Wilmington Neighborhood Council, the Wilmington Chamber of Commerce, and multiple public workshops facilitated by the Waterfront and Commercial Real Estate, Engineering, and Community Relations Divisions. Both projects were also facilitated through a creative land swap transaction with the Los Angeles Department of Water and Power that was structured to allow the projects to move forward before the burdensome land swap process was finalized.

Wilmington Waterfront Development Plan



Source: Wilmington Community Update Meeting (September 2023) [18]

SAN PEDRO WATERFRONT PROJECTS

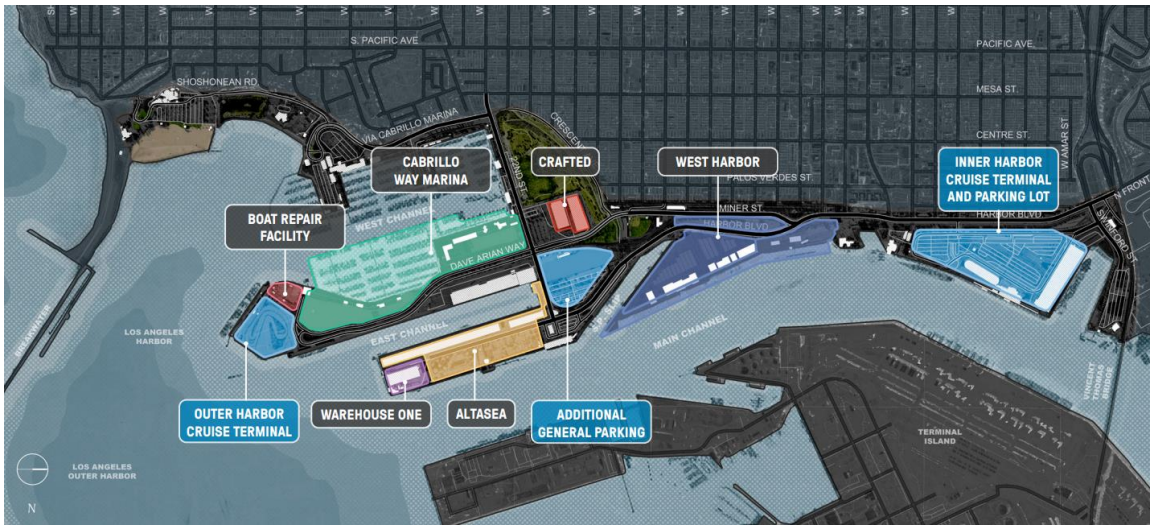
The San Pedro Waterfront includes a series of major redevelopment efforts by the HD to revitalize the historic waterfront and strengthen its connection to the surrounding

[17] Port of Los Angeles, Wilmington Waterfront Promenade at the Port Of Los Angeles Officially Opens to the Public. February 2024.

[18] Wilmington Community Update Meeting – LA Waterfront Updates. September 2023.

community. Centered along Harbor Boulevard and the Main Channel, the projects' focus on transforming former industrial assets and existing mixed use developments into vibrant public spaces for recreation, dining, and entertainment. Major developments include West Habor, the Outer Harbor Cruise Terminal, and AltaSea. These efforts along with new promenades, parks, and pedestrian improvements—such as the San Pedro Promenade and Town Square and Front Street Beautification projects—are designed to make the San Pedro Waterfront more accessible and inviting while celebrating the maritime heritage. In 2024, The HD's Waterfront and Commercial Real Estate Division completed the San Pedro Waterfront Connectivity Plan ('Connectivity Plan') to ensure there is a cohesive and integrated development and connectivity approach for the entire San Pedro Waterfront, adjacent Downtown and greater San Pedro community. The Connectivity Plan catalogued historical waterfront studies and built on the past work and current developments to create a long-term plan to address multimodal mobility, parking, arts and culture and implementation strategies. The Connectivity Plan has been instrumental in creating an integrated approach for public access investments to connect individual development projects into a cohesive district strategy.

San Pedro Waterfront Connectivity Plan



Source: San Pedro's Waterfront Connectivity Plan (December 2023)[19]

WEST HARBOR

The West Harbor redevelopment, located on the site of the former Ports O' Call Village, represents the centerpiece of the HD's commercial real estate transformation and the

[19] San Pedro's Waterfront Connectivity Plan. December 2023.

culmination of more than a decade of planning and public engagement. Developed through a joint venture between San Pedro Public Market LLC, a partnership of the Ratkovich Company and Jerico Development, the 42-acre project will deliver a vibrant mixed-use destination featuring restaurants, retail, a 6,200 seat amphitheater, and a continuous waterfront promenade and pathways that connects directly to the San Pedro Waterfront Promenade, Downtown San Pedro, the World Cruise Terminal, USS Iowa, AltaSea and Cabrillo Way Marina. Initially approved in May 2016, the construction of improvements started in November 2022 and is anticipated to be completed in 2026.[20] [21]

OUTER HARBOR CRUISE TERMINAL AND ADJACENT DEVELOPMENT

At the southern end of the LA Waterfront, the HD continues to advance planning for the Outer Harbor Cruise Terminal and adjacent visitor serving development. In June 2024, the HD issued a request for proposals (RFP) for the construction and operation of a new Outer Harbor Cruise Terminal and redevelopment and operation of the existing World Cruise Center.[22] This long-term initiative envisions a new two berth cruise facility capable of accommodating next-generation vessels and expanding regional cruise industry capacity. Preliminary environmental studies and site assessments have been completed, and the HD selected Pacific Cruise Terminals through the aforementioned RFP to deliver a modern, sustainable facility featuring shore-power connections, parking infrastructure, and operational integration with nearby cargo and recreational facilities. Following the completion of further environmental assessments and the LA28 Olympics, construction is expected to start in the Fall of 2028 with a completion date in 2031.

ALTASEA AND INNOVATION CORRIDOR

Alongside these large-scale redevelopment projects, AltaSea—a public-private institute at the Port dedicated to ocean-based science, research, and the blue economy—continues to emerge as a cornerstone of the HD's workforce development and innovation-based growth strategy. The 35-acre campus at Berths 58-60 has evolved into a hub for ocean research, clean technology incubation, and workforce development. Recent investments include a 2.1-Megawatt solar array and tenant expansions in aquaculture, robotics, and renewable-energy research. In May 2024, AltaSea opened its Center for Innovation, the largest research and development facility dedicated to ocean solutions to

[20] Port of Los Angeles, Los Angeles Board of Harbor Commissioners Approves 50-Year Lease for New San Pedro Public Market. May 2016.

[21] Los Angeles Waterfront, Current Projects. November 2025.

[22] Port of Los Angeles, Port Of Los Angeles Solicits Proposals to Develop and Operate Cruise Terminals. June 2024.

climate change in the world.[23] Construction of the Center for Education and Engagement is currently underway and expected to be completed by 2027.[24] AltaSea exemplifies how the HD is cultivating new economic opportunities that are both compatible with maritime activity and aligned with California's broader sustainability and workforce goals.

FUTURE REDEVELOPMENT OPPORTUNITIES

Since 2019, the Waterfront and Commercial Real Estate Division has issued competitive solicitations and selected developers for land side development and disposition of the Cabrillo Way Marina and development of a modern boat yard facility. Business term negotiations for these projects have been completed. Establishing a sales price for the marina business and assets and ongoing site restoration are next steps to move these respective developments forward. These collective developments opportunities have also motivated additional boater and visitor amenity investments from adjacent marinas in the San Pedro marina complex. Looking ahead, the HD is currently evaluating proposals of interest for the redevelopment of the historic Warehouse No. 1. Potential uses will include creative office, hospitality, dining, entertainment, education, and other marine-related or visitor-serving adaptive commercial spaces.[25]

PUBLIC ACCESS INVESTMENT PLAN PROGRESS

The following table provides an overview of the status of the Public Access Investment Plan projects along the LA Waterfront since 2015. As of August 2025, the Wilmington Waterfront Projects are estimated to be 32% complete and the San Pedro Waterfront Projects are 69% complete[26]. Collectively, the LA Waterfront projects funded by the Public Access Investment Plan are 47% complete.[27]

[23] AltaSea, Our History. November 2025.

[24] AltaSea, Our Campus. November 2025.

[25] Port of Los Angeles Issues Request for Interest to Redevelop Historic Warehouse No. 1 Property | News | Port of Los Angeles

[26] Completion percentages were calculated based on the weight of project budgets and completion status as of August 2025.

[27] Port of Los Angeles, Public Access Investment Plan Update. August 2025.

Table 3 – LA Waterfront Projects Progress to Date (2015 – Present)

Location	Project Title	Project Budget ($ in Millions) *	Project Construction Completion Date
Wilmington Waterfront Projects	Wilmington Waterfront Promenade	$77.30	Sep 2023
	Avalon Pedestrian Bridge and Promenade Gateway • Site Characterization • DWP Marine Tank Farm Coordination	$153.00	Aug 2028
	Wilmington Youth Aquatic Center	$4.60	TBD
	Wilmington Waterfront Park West End Restrooms and Site Restoration	$6.90	Jun 2027
	Wilmington Waterfront Projects (Total): $241.80		
San Pedro Waterfront Projects	Sampson Way Roadway Improvements - 7th Street and Harbor Blvd Intersection	$15.60	Aug 2018
	Harbor Boulevard from Miner St to SP Slip	$7.98	Jun 2021
	Harbor Boulevard from SP Slip To 22nd St. Roadway Improvements	$22.00	Nov 2027
	22nd Street Parking Lot Improvements	$31.80	Nov 2027
	Promenade & Town Square – Phase I • Floating Docks • Restroom Facility • Electrical Utility Service	$57.02	Sept 2021
	Promenade & Town Square – Phase II • West Harbor City Improvements • West Harbor Soil Testing, Removal & Unforeseen Conditions	$34.65	Dec 2024
	Harbor Boulevard Parkway Removals - 1st St To 3rd St	$1.31	Apr 2022
	San Pedro Connectivity Plan	$0.54	Dec 2023
	Cabrillo Marine Aquarium Life Support System	$2.40	Sept 2025
	San Pedro Waterfront Projects (Total): $173.30		
PUBLIC ACCESS INVESTMENT PLAN (TOTAL)		**$415.10 Million**	

**As of April 2026*

INTEGRATED APPROACH

Across all redevelopment zones, the HD has maintained close coordination with the California State Lands Commission and local stakeholders to help ensure that new land uses remain "visitor serving" and "maritime supportive." Each project incorporates LEED construction standards, workforce participation requirements under Project Labor Agreement where applicable, and commitments to resiliency and habitat protection.

In addition, the San Pedro Connectivity Plan has served as the integrating framework for the HD's public access investments—tying individual developments together into a cohesive district strategy rather than a collection of standalone projects and creating an implementation approach informed by both community input and professional urban planning principles. This plan provides an integrated approach connecting all developments and a companion Connectivity Plan was recently prioritized through the Public Access Investment Plan for Wilmington to provide the same approach in each community. This will ensure the same integrated, district-level planning approach is applied across both the San Pedro and Wilmington waterfronts.

Recommendation 4 – Implementation Level Since 2018: The HD is successfully advancing its 2018 vision through a portfolio of waterfront investments anchored by four flagship capital projects—West Harbor, Avalon Corridor/Wilmington, the Outer Harbor Cruise Terminal, and AltaSea—while simultaneously delivering complementary projects including the World Cruise Center Redevelopment, the San Pedro Promenade and Town Square, Front Street Beautification, and the Wilmington Waterfront Promenade, that together span over 400 acres and 8 miles of coastline. These projects exemplify a strategic shift to balance world-class goods movement with enhanced public access, preserving the integrity of the nation's busiest seaport and differentiating the LA Waterfront from other waterfront development in Southern California.

2018 IEA Recommendation 5: *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.*

Since 2018, the HD-led by its Waterfront and Commercial Real Estate Division has advanced a targeted development strategy that prioritizes visitor-serving and maritime supportive uses consistent with the California State Tidelands Trust, which limits residential and non-maritime office development. Within these constraints, the HD has focused on feasible, market-aligned approaches, including approximately 320,000 square

feet of new development on the Waterfront that has leveraged more than $250 million in private investment. Highlights of this development include:

- **Innovation-Oriented Development at AltaSea:** Adaptive reuse and small-scale R&D space supporting maritime, logistics, and ocean-tech tenants within permissible land uses. AltaSea represents a significant example of how the HD has cultivated new economic opportunities compatible with its maritime mission.
- **Entertainment and Visitor Core (San Pedro / West Harbor):** Concentration of restaurant, retail, and entertainment uses aligned with cruise and marina activity to drive foot traffic and tourism.
- **Neighborhood Interface Zones (Wilmington / Avalon Corridor):** Workforce-supporting uses, including training facilities and light industrial or hybrid spaces that align with both community needs and port operations.

While the original recommendation emphasized expanding into mixed-use residential and broader creative office development, these pathways remain constrained by Tidelands Trust requirements, market feasibility, and the Port's core mission as an industrial and maritime gateway. The creative office market in particular—which was showing appreciation when the original report was issued—has experienced a significant post-COVID decline across Los Angeles. However, the shift in office market conditions does not diminish the HD's broader progress on this recommendation. The HD has appropriately shifted focus toward incremental, compliant development that supports economic activation without conflicting with regulatory or operational realities. The San Pedro Waterfront Connectivity Plan has been instrumental in tying these individual projects together into a cohesive district-wide strategy.

It is also important to note that the California State Lands Commission—rather than the Coastal Commission—plays the more significant regulatory role for the HD's waterfront development activities. Because the HD operates under a master plan approved by the Coastal Commission, many land-use approvals are already in place, and the State Lands Commission's oversight is the more directly relevant regulatory consideration for ongoing development.

Recommendation 5 – Implementation Level Since 2018: The HD has made significant progress on the intent of this recommendation by delivering large-scale visitor serving and innovation-oriented development across LA Waterfront. While the specific vehicle of creative office development has been impacted by market conditions beyond the HD's control, the HD has successfully identified and pursued compatible development opportunities, attracted substantial private investment, and advanced projects that

activate underutilized waterfront assets—consistent with the strategic direction outlined in the HD's strategic plans.

2018 IEA Recommendation 6: *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.*

In 2018, the IEA recommended that the HD re-evaluate its commercial leasing and pricing framework for waterfront properties to better align with regional market conditions and private-sector practices.

Since 2018, the HD has taken meaningful steps to modernize and add flexibility to its leasing and pricing practices for visitor serving and waterfront properties, while operating within the structural parameters of its role as a public entity under the California State Tidelands Trust.

A key milestone was the Board-approved Waterfront and Commercial Leasing Guidelines, adopted in 2017 and updated as recently as last year to address hotel-specific leasing considerations. These guidelines replaced the previous approach which had relied on a standard 10% rate-of-return methodology that was not well-suited to visitor-serving properties—with a framework that provides the HD significantly more flexibility in how it values land and structures lease terms for waterfront commercial tenants. This directly addressed one of the structural constraints identified in the prior IEA survey.

In practice, the HD has exercised this flexibility through creative pricing strategies on individual leases, including the use of rent credits, concessionary rent periods, and flexible tenant-improvement allowances to attract and retain tenants in spaces that require significant investment. These tools often associated with private-sector landlords have been employed by the HD on a case-by-case basis with Board approval.

The primary remaining challenge relates to lease templates. The HD's standard lease documents were originally developed for industrial and cargo-related tenancies and include provisions around insurance, indemnification, and risk allocation that are not well-suited to visitor-serving uses such as restaurants, retail, and hospitality. Adapting these provisions for each new waterfront tenant requires significant time and negotiation, as the risk profile of a restaurant or small retail operator differs substantially from that of a cargo terminal operator. The HD is building a growing body of precedent

leases for visitor-serving tenancies, which over time will streamline this process and reduce the timeline for executing new waterfront leases.

Recommendation 6 – Implementation Level Since 2018: The HD has made substantial progress on this recommendation by adopting Board-approved leasing guidelines that provide meaningful pricing flexibility, implementing creative deal structures on individual waterfront leases, and actively building a library of precedent lease terms for visitor-serving tenancies. The remaining area of continued focus—modernizing standard lease templates to better reflect the needs of non-industrial tenants—is an ongoing operational improvement that the HD is addressing through accumulated precedent.

2018 IEA Recommendation 7: *Assess the impact on the number of visitors on current investments in public access infrastructure improvements to target investments.*

The HD has made sustained investments in public access infrastructure, visitor programming, and event activation along the LA Waterfront, which has enhanced community engagement and supported the regional visitor economy. Over 10 years, more than $400 million dollars have been invested through the Public Access Investment Plan.[28] As of February 2026, the HD has allocated $278 million towards the Public Access Investment Plan, 39% higher than the initial estimate of $200 million.[29]

The LA Waterfront redevelopment spans more than 400 acres and eight miles of shoreline across San Pedro and Wilmington. While the scale is significant, much of the work remains in early implementation. As a result, projected increases in visitors and economic activity are not yet reflected in current HD performance data.

The HD tracks visitor engagement through metrics such as event attendance estimates, parking counts, gross receipts, and spend at select tenant locations (Table 4 & 5).

As shown in Table 4, total visitor numbers (1.8 million in 2024) have declined since the 2018 IEA Survey, which observed that the LA Waterfront drew 2.4 million visitors in 2016. This decline is a result of the HD closing down the former Ports O' Call development in

[28] Port of Los Angeles, Public Access Investment Plan. 2019.

[29] Port of Los Angeles, Public Access Investment Plan Update. February 2026.

2022 (in preparation for West Harbor development) which was the primary source of visitor activity.

Table 4 – LA Waterfront 2024 Visitor Count

TENANTS	VISITOR COUNT
USS IOWA	206,816
TRANI'S RESTAURANT	30,822
SP FISH MARKET	333,333
OTHER EVENTS	164,500
DOUBLE TREE HOTEL	43,374
CRUISE PASSENGERS	556,446
CATALINA EXPRESS	103,871
CABRILLO BEACH AQUARIUM	250,000
22ND STREET RESTAURANT (SEAFOOD GRILL AND BAR)	97,806
22ND STREET LANDING (SPORTFISHING)	48,909
TOTAL	1,835,878

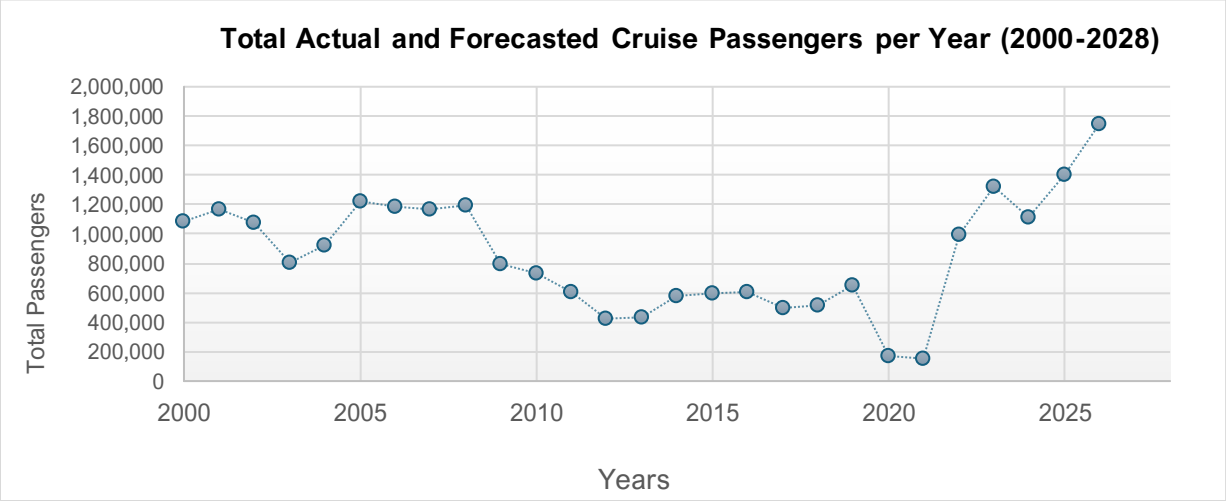
Table 5 – LA Waterfront 2024 Visitor Spend Sample

TENANTS	GROSS RECEIPTS	PER CAPITA SPEND
TRANI'S RESTAURANT	$1,541,088.00	$50.00
SP FISH MARKET	$10,000,000.00	$30.00
DOUBLE TREE HOTEL	$6,506,129.00	$150.00
22ND STREET RESTAURANT (SEAFOOD GRILL AND BAR)	$3,912,243.00	$40.00
22ND STREET LANDING (SPORTFISHING)	$4,890,931.00	$100.00

Source for Table 4 & 5: HD Waterfront and Commercial Real Estate Division

The upcoming 2028 Olympic and Paralympic Games are expected to create an additional surge in visitation and cruise-related travel, including the Croatia House and Sailing events. As shown in the chart below, total cruise passengers per year has significantly increased since the COVID pandemic. In addition, following the HD's issuance of a request

for proposals for the construction and operation of a new Outer Harbor Cruise Terminal, as of November 2025, a partner has been selected, and negotiations are underway.[30]



Source: HD Waterfront and Commercial Real Estate Division

The HD's Public Access Investment Plan continues to guide capital and programming decisions, ensuring that projects balance tourism, community use, and fiscal stewardship. Major infrastructure and redevelopment efforts since 2018 include completion of the Wilmington Waterfront Promenade, and ongoing efforts with the Avalon Gateway, and improved parking and street improvements benefiting West Harbor and AltaSea. Together, these public access projects are expected to sustainably increase waterfront tourism.

The HD is actively working to establish related KPIs, such as for public space utilization, the economic impact of events and tenants, and visitor satisfaction and the tracking of repeat visits.

Recommendation 7 – Implementation Level Since 2018: Over the past five years, the HD has made significant progress on planning efforts and impact measurement through the Public Access Investment Plan, the LA Waterfront Plan, and the San Pedro Waterfront Connectivity Plan.

The HD has implemented a structured framework for public-access investments and visitor programming and is actively working to establish formal KPIs. With more than $400 million invested through the PAIP and major projects like West Harbor anticipated to significantly increase visitor volume, the continued development of robust impact

[30] Port of Los Angeles, Development Opportunities. November 2025.

measurement and forecasting tools remains a key area of ongoing focus.

2018 IEA Recommendation 8: *The Waterfront Commercial Real Estate Division should continue to direct and manage the Department's commercial real estate assets.*

In 2015, the HD created the Waterfront and Commercial Real Estate Division, consolidating all non-cargo real estate management under a single unit and formally separating the Waterfront from cargo real estate assets. Prior to its establishment, the LA Waterfront was largely an inactive asset, with limited coordination between leasing, planning, and community development functions. By the time the 2018 IEA Survey was performed, the separation was already 3-4 years old, and the focus on the recommendation was about continuing this separation so that the Waterfront can be developed to the fullest. The HD has continued to implement this recommendation.

The division now manages a portfolio of waterfront and visitor-serving properties spanning retail, cultural, and mixed-use sites in both San Pedro and Wilmington. Since the division's creation, the HD has seen a marked increase in the quantity and quality of private investment, lease activity, tenant and public engagement, and community interest in the waterfront. Leadership stability and a professional asset management approach have transformed the area from a historically dormant asset into a much more actively managed portfolio with clear stewardship and public access goals.

Recommendation 8 – Implementation Level Since 2018: Since 2015, the HD has successfully implemented the structure, staffing, and asset management strategy necessary to manage its visitor-serving properties as a cohesive enterprise supporting both fiscal stewardship and public benefit. As a result, the recommendation is no longer needed.

2.2.3 Enterprise Modernization

This theme applies to 2018 IEA recommendations 9 and 12.

2018 IEA Recommendation 9: *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.*

Since 2018, the HD has made significant and sustained progress in building a comprehensive cybersecurity and information security framework. Awareness of cyber

risk across the organization has matured substantially, reflecting lessons learned from global port disruptions, the increasing digitization of maritime logistics, and the HD's own modernization of enterprise systems and operational technologies.

CYBER SECURITY OPERATIONS CENTER

The HD maintains a dedicated Cybersecurity Operations Center (CSOC). The CSOC provides continuous (24/7) monitoring through deployed cybersecurity tools and technologies. The CSOC was established in 2014, making the HD the first city department and port in the nation to achieve ISO 27001 information security management certification.[31]

CYBER RESILIENCE CENTER

In 2021, the HD launched its Cyber Resilience Center (CRC), a first of its kind collaborative cybersecurity facility designed to protect the HD and their tenants. The CRC expands on the CSOC by creating a port wide information sharing and threat analysis platform that integrates the port infrastructure owners with public and private sector partners. The CRC operates in partnership with IBM Security and acts as a 24/7 threat intelligence and incident-response hub connecting terminal operators, shipping lines, trucking and rail companies, utilities, and local law enforcement that operate at the HD.[32]

The CRC stakeholder committee meets quarterly, and holds stakeholder working sessions to continue expanding tenant participation, maintain established incident notification procedures, and run tabletop readiness exercises.

Together, the CSOC and CRC have strengthened the HD's ability to detect, isolate, and mitigate cyber threats before they affect core operations across the port complex.

COLLABORATION AND PARTNERSHIPS

The CSOC and CRC are complimented by collaboration efforts: [33]

- Globally, the HD co-leads the chainPORT Cyber Resilience Working Group. Launched in 2018 by the Hamburg Port Authority and the Port of Los Angeles, chainPORT is a global alliance of leading ports aimed at exchanging innovations, strategies, and best practices.

[31] Cybersecurity | Business | Port of Los Angeles | Port of Los Angeles

[32] Cybersecurity | Business | Port of Los Angeles | Port of Los Angeles

[33] Cybersecurity | Business | Port of Los Angeles | Port of Los Angeles

- Nationally, the HD heads the American Association of Port Authorities (AAPA) Cybersecurity Committee to facilitate collaboration with U.S. ports and federal agencies.
- At the local level, the HD and Port of Los Angeles Police Department (Port Police) works alongside law enforcement and other Los Angeles city departments on cybersecurity initiatives. This includes the Los Angeles Police Department (LAPD), the Federal Bureau of Investigation (FBI) Los Angeles Field Office, U.S. Coast Guard, among others.

Recommendation 9 – Implementation Level Since 2018: The HD has successfully transformed its cybersecurity approach, moving it from a compliance requirement to an integrated, enterprise-level discipline that is fundamental to its operational, financial, and reputational integrity. This progress is marked by the expansion of cybersecurity from a purely internal function to a comprehensive, port complex-wide resilience framework that includes tenants and terminal operators. The CRC stands at the heart of this achievement, serving as a shared monitoring and coordination hub that enables real-time information sharing and joint incident response.

2018 IEA Recommendation 10: *Evaluate business process and system requirements across Divisions and develop a blueprint for data and systems requirements.*

The HD utilizes the City of Los Angeles' Workday platform for core administrative functions, such as payroll and human capital management, its proprietary functions—including procurement, invoicing, capital project management, and maritime operations—rely on a separate ecosystem of department-specific platforms.

As a result, financial, operational, and project data are maintained across multiple systems with differing ownership and governance structures. While these systems support core business functions, integration between City-managed and Harbor-managed platforms is limited, and data is not consistently aligned across systems. While certain tools—such as Port Optimizer—provide advanced operational visibility, they are not consistently integrated with financial and administrative systems, which can limit the ability to link operational performance with financial and project data to support enterprise-wide analysis and decision-making.

Recommendation 10 – Implementation Level Since 2018: The city-wide implementation of Workday—the City's Human Resources and Payroll system—was designed to achieve three primary objectives:

1 Implement a sustainable, long-term payroll solution;
2 Improve the City's ability to recruit, hire, develop, and compensate employees; and
3 Maximize opportunities to improve human resource (HR) processes while minimizing disruption.

The Workday solution replaced the City's 22-year legacy payroll system and was not intended to incorporate other departmental functions outside of these core administrative activities. However, although the system is technically operational, it has not yet stabilized, achieved proper configuration, or become fully reliable nearly two years after the Phase 2 go-live date.

Persistent configuration issues must be addressed by the Downtown Workday team, which has resulted in delayed fixes and errors in critical areas, such as vacation accruals. Consequently, staff must perform many functions manually outside the system. These system delays and configuration backlogs have led to several employee grievances and lawsuits.

Currently, the HD tracks nearly six dozen open system tickets that require resolution. To address this back-log, in January 2026, staff secured approval from the Board of Harbor Commissioners for an $816,000, one-year contract with Accenture. This contract retains a full-time Accenture consultant and adds a part-time consultant specifically dedicated to resolving the existing and anticipated Workday backlog.

Concurrently, the HD went live with the Oracle Cloud Fusion ERP system in October 2024. While this new system is still undergoing stabilization, it is strategically designed to improve financial functions and integrate several key workflows—most notably purchasing, procurement, project and grant reporting, and direct integration with Mainstar, the Department's Computerized Maintenance Management System. Through these concurrent system stabilizations, the HD continues to make strides toward improving cross-platform connectivity.

2018 IEA Recommendation 11: *Clearly identify the costs to be billed directly and indirectly for City services and document the rationale for billing those costs.*

The HD continues to operate under a cost-sharing and billing agreement dating back to 1997 (Memorandum of Understanding, MOU 1956), which governs reimbursements for City-provided services (e.g., fire and emergency services, parks maintenance and operations, personnel, legal, and administrative support). In the ensuing 29 years, this

MOU has not been updated to reflect current organizational structure, inflation, or service levels. Moreover, clarity appears to continue to be lacking with respect to City billing procedures (e.g., budgeted versus actual Vacancy and Standard Overtime Duty rates) which leaves the HD in a position to reimburse for city services received, but without the information or tools to verify the accuracy and reasonableness of these costs. While preliminary discussions have occurred with the City Administrative Officer (CAO), efforts to modify the framework face political sensitivities and governance complexity (given that the original MOU took approximately five years and litigation to finalize) and require City Council approval. For now, the HD continues to maintain existing mechanisms while monitoring costs through its annual budget process.

RECOMMENDATION INTENT AND KEY RISKS

At a strategic level, the intent of this recommendation is to strengthen financial transparency and accountability between the HD and the broader City enterprise. As a proprietary department operating largely on self-generated revenues, the HD must clearly demonstrate how shared costs—such as citywide administrative support, legal services, or public safety functions—are calculated, allocated, and reimbursed.

HD's internal audit function has indicated that the greatest risk is inconsistent application of cost-allocation principles and incomplete documentation supporting reimbursements. Clearer ownership between the HD and City administrative functions is needed regarding accounting and budget changes that will have significant monetary impact on the City department overhead cost allocations to the HD.

Recommendation 11 – Implementation Level Since 2018: The HD has instituted more disciplined internal review processes, but the full implementation requires a formal update to the master agreement—a complex undertaking outside the HD's sole control.

2018 IEA Recommendation 12: *Consider developing and implementing an Enterprise Risk Management (ERM) approach that expands the Department's consideration of risk in decision making and operations.*

Enterprise Risk Management (ERM) is a methodology that examines risk management holistically across an organization. The HD has embedded a collaborative risk management culture in which the Risk Management Division works directly with every division on contract initiation and oversight, assessing risk based on the scope of work, the operating environment, and the type of agreement (e.g., permits, IT contracts,

consulting engagements, etc.). This cross-divisional coordination ensures that risk is managed dynamically at all levels of the organization:

- The Risk Management Division centrally orchestrates and manages enterprise-level insurance risk, working directly with the principal business units.
- The Information Technology (IT) Division manages technical cybersecurity risks (e.g., phishing, malware, tool selection) through its Cyber Security Operations Center (CSOC), while the Risk Management Division maintains oversight of enterprise-level cybersecurity insurance and overall organizational cyber risk in collaboration with IT and the department's insurance broker.
- Within the Capital Projects area, dedicated risk registers are maintained for each major project throughout the project lifecycle.

This layered model is a highly collaborative, unified process that integrates operational, financial, and cyber risks, coordinated centrally by the Risk Management Division. The division works as a strategic partner with business units, legal, finance, and IT to proactively assess and mitigate risk.

For example, following the implementation of the Fusion enterprise resource planning system, Risk Management led a cross-divisional effort involving finance, purchasing, and affected divisions to address new triggers for one-time purchase orders. Additionally, the Risk Management Division transitioned the department to a self-insured model for auto liability in response to rising insurance costs and carriers exiting the California market. This decision was made collaboratively with stakeholders to balance cost, compliance, and risk protection.

The effectiveness of this decentralized, collaborative approach provides a robust foundation for the next stage of maturation. The key opportunity now is to enhance this strong existing framework by implementing a unified Enterprise Risk Management (ERM) system. Such a platform would not replace the effective, hands-on management already in place; rather, it would formalize it, providing leadership with a more cohesive, real-time view of the enterprise-wide risk landscape and further strengthening strategic decision-making.

Recommendation 12 – Implementation Level Since 2018: Risk is actively managed across divisions through a collaborative model coordinated by the Risk Management Division. The existing framework integrates operational, financial, and cyber risks through cross divisional engagement. The remaining opportunity is to formalize this coordination under an integrated ERM platform that would provide leadership with a consolidated, real-time view of the enterprise risk landscape.

Chapter 3: Environmental and Sustainability Initiatives

3.1 | Context and Background

The HD faces the dual mandate: powering economic activity as the nation's busiest cargo gateway while protecting the environmental health of its neighboring communities. This chapter evaluates performance against this mandate through two lenses—the pursuit of zero-emission goals for port-related mobile assets and the ongoing efforts to mitigate the direct environmental impacts on local communities.

3.2 | Key Findings: Decarbonization Efforts

3.2.1 Progress and Challenges Summary

Finding 1: The HD has successfully decoupled emissions from cargo growth, but the next phase of reductions faces significant interlocking obstacles.

The HD has set zero-emission targets for several categories of mobile assets. Heavy-duty drayage trucks are targeted for full zero-emission operation by 2035, and cargo handling equipment by 2030. For ocean-going vessels, harbor craft, and locomotives where the HD's direct control is more limited—formal targets have not been set, though active pilot programs and regulatory partnerships are underway for each category.

The results to date are significant. As of 2024, the HD has achieved a 21% reduction in greenhouse gas emissions from the 1990 baseline—an accomplishment made more striking by the roughly 500% increase in cargo volume over the same period. This successful decoupling of economic growth from emissions is one of the HD's most important achievements.

However, the current penetration rates illustrate the scale of the work that remains. In the 2024 feasibility assessment, of the 19,928 drayage trucks in the Port's registry, only 538 are zero-emission penetration rate of roughly 2.7%. Even when including near-zero-emission vehicles such as low-NOx and LNG/CNG trucks, the combined total reaches 1,554, or about 7.8% of the fleet. The vast majority—18,360 trucks—are 2010-or-newer diesel-compliant vehicles that, while meeting current standards, represent a significant barrier to fleet turnover. On the cargo handling side, 400 pieces of battery-electric zero-emission equipment and 183 hybrid units are now in service across the San Pedro Bay complex, out of approximately 3,725 total CHE units. These numbers reflect genuine

momentum, but the gap between current adoption and the 2030 and 2035 targets remains substantial.

The next phase of reductions presents a fundamentally different challenge. The path to the 2030 and 2050 targets is constrained by a trio of interlocking obstacles:

Technology readiness. Current zero-emission technology cannot yet match the demanding duty cycles of all heavy-duty port equipment. Manufacturers are struggling to scale production, parts and maintenance networks remain immature, and battery-electric systems cannot yet serve the longest drayage routes or the most energy-intensive cargo handling applications.

Infrastructure gaps and opportunities. The existing electrical grid lacks the capacity to power a fully electrified port, which will require an estimated $500 million in upgrades. While substantial, this figure represents a critical investment in modernization. This upgrade is not merely a cost but a strategic necessity to ensure long-term operational viability, meet escalating environmental regulations, and secure a competitive advantage by attracting clients who prioritize green supply chains.

Similarly, the infrastructure for alternative fuels like hydrogen and methanol is currently in its nascent stages. This creates a circular problem where producers are hesitant to invest without guaranteed demand, and operators will not commit to new vessels without a reliable fuel supply. However, this presents an opportunity for the Port to demonstrate leadership. By proactively forging partnerships and developing pilot programs, the Port can break this impasse and position itself as a pioneering hub for the next generation of sustainable shipping fuels.

Financial barriers. Zero-emission equipment can cost more than double its diesel counterpart. A zero-emission drayage truck runs $350,000 to $520,000 versus $125,000 to $150,000 for diesel trucks. For small owner-operators—the backbone of the drayage fleet—the transition to ZE trucks represents a prohibitive financial risk; while these operators typically rely on a secondary market where diesel trucks cost under $125K, a used market for ZE Class-8 vehicles is currently non-existent. This burden is further compounded by tax structures that require owners to pay the full sticker price tax even when using incentive programs like CTF, alongside higher insurance costs and limited resale opportunities.

Overlaying these issues are regulatory and permitting challenges. The slow, multi-agency approval process for new infrastructure can deter private investment, and the absence of national standards for emerging fuels creates additional uncertainty. Public

concerns about technologies like hydrogen must also be proactively managed to maintain community trust.

Given these interconnected obstacles, the path forward requires a strategic shift moving beyond asset-by-asset programs to adopt a unified, ecosystem-wide approach that simultaneously addresses technology, infrastructure, and economic viability across all port operations.

3.2.2 Progress by Asset Category

Finding 2: The HD's strategy relies on a dual approach of pursuing full zero-emission technology while deploying "bridge technologies" to achieve immediate air quality gains.

The HD maintains distinct frameworks for each category of mobile asset, supported by the Clean Air Action Plan, the Technology Advancement Program, and a range of grant-funded initiatives. Across all of them, the single greatest obstacle is the same: the sheer scale and cost of electrifying the port. A full transition would require an estimated $715 million in grid upgrades from the local utility, over 6,200 charging ports and 32 hydrogen refueling stations for regional infrastructure demand, and more than 2,000 new chargers for cargo handling equipment—infrastructure that LADWP has begun design and estimates will take four to five years to build. For operators, the financial burden is equally daunting: a zero-emission drayage truck costs two to four times its diesel equivalent, and zero-emission cargo handling equipment carries similar premiums with limited secondary markets and immature maintenance networks. These are the interlocking obstacles described above technology, infrastructure, and finance playing out in practice across every asset class.

Finding 3: Progress and primary challenges vary significantly across the five main asset categories, with heavy-duty trucks representing the largest source of emissions and a key focus of investment.

Because the full zero-emission transition will take years to deliver, the HD is simultaneously piloting bridge technologies that reduce emissions now while the ecosystem catches up. The Technology Advancement Program has funded demonstration projects for battery-electric and hydrogen-powered yard tractors, forklifts, and drayage trucks, testing their viability under real port duty cycles. For ocean-going vessels—where zero carbon propulsion does not yet exist at commercial scale—the HD launched a pilot in July 2024 to capture and filter exhaust from Roll-On/Roll-Off vessels that cannot connect to shore power. The system, powered by renewable diesel, removes

99% of diesel particulate matter and 95% of nitrogen oxide from vessel exhaust, releasing only a pollution-stripped mixture of CO2 and water vapor. The HD is also supporting fleet-wide adoption of renewable diesel as a transitional fuel for harbor craft and cargo handling equipment, and co-funded battery-electric and Tier 4 locomotive deployments with the Pacific Harbor Line. These interim measures are not substitutes for full electrification, but they are delivering measurable air quality gains today while the longer-term infrastructure and technology investments mature.

The table below summarizes the current state across all five asset categories; detailed asset-by-asset analysis, including emissions data and feasibility assessments, is provided in the appendix.

Asset Category	Share of Port Emissions	Key Progress	Primary Challenge
Heavy Duty Vehicles	48%	98% reduction in Diesel Particulate Matter (DPM) since 2005; Clean Truck Program operational	ZE trucks not yet viable for longest routes; 6,200+ chargers and 32 H2 stations needed
Cargo Handling Equipment	17%	11.3% of fleet now electric; grid-electric rubber tired gantry (RTG) cranes at 90% feasibility; $412M U.S. Environmental Protection Agency (EPA) grant secured	Grid upgrades in progress with LADWP (4-5 years); all fuel-cell models still pre-commercial
Ocean-Going Vessels	19%	42% GHG reduction since 2005; 97% VSR compliance; Green Shipping Corridors launched; RoRo Exhaust capture implemented	Zero-carbon propulsion not commercially available; requires international regulatory action
Harbor Craft	7%	$31M CARB-funded LA MER pilot underway; 82% of harbor craft energy came from Tier 2-4 engines	ZE propulsion unproven for high-power duty vehicles; no shoreside charging infrastructure
Locomotives	8%	13% GHG reduction; 52% of work by cleaner Tier 2-4 locomotives	National rail network limits local control; 30-40 year asset lifecycles slow fleet turnover

3.3 | Key Findings: Community Impacts

Finding 4: The HD has achieved dramatic improvements in local air quality, meeting a key public health target six years ahead of schedule.

The HD's most tangible environmental achievement has been the direct improvement in air quality for neighboring communities. The Clean Air Action Plan set a target of reducing population-weighted cancer risk from diesel particulate matter by 85% by 2020; the HD met that target in 2014, six years ahead of schedule. By 2024, DPM emissions had been reduced by 90% compared to 2005 levels. Sulfur oxides were down 98% and nitrogen oxides 73% over the same period. In 2024, the Port achieved its best-ever year for reducing emissions per container, even as container volume rose 19% year over year.

The HD's contribution to regional air pollution has also shrunk considerably. In 2005, port related activities accounted for over 9% of the South Coast Air Basin's diesel particulate emissions. By 2024, that share had fallen to 6.4%, despite a 38% increase in cargo throughput.

Finding 5: Beyond emissions reduction, the HD has successfully expanded its community integration strategy through public waterfront development.

Beyond emissions reduction, the HD has expanded its community integration strategy through the development of over ten miles of public waterfront promenades, new destination projects including West Harbor and the AltaSea research campus, and formalized public input processes. Additionally, since the adoption of the Cooperative Agreement, the HD has worked with POLB and AQMD to host community input meetings to inform implementation.

Looking ahead, the transition to new technologies will require continued transparent communication about emerging fuels and robust safety protocols to maintain the community trust that has been built over the past two decades.

Additional details are included in the appendix.

Chapter 4: Fiscal Health

4.1 | Context and Background

The HD is tasked with sustaining the long-term financial stability of one of the nation's most critical trade and supply chain hubs, the Port of Los Angeles. To achieve this stability, the HD must balance robust revenue generation with prudent investment in capital infrastructure. This delicate balance is shaped by the HD's unique municipal-enterprise structure under California's Tidelands Trust; it requires the Department to fund its own operations, capital expansions, and environmental mandates largely through lease revenues, cargo-based fees, and periodic external grant fund resources.

The Fiscal Health workstream of the 2025 IEA Survey builds on key themes highlighted by the 2018 IEA and subsequent stakeholder interviews. This evaluation provides:

- A thorough assessment of the HD's current fiscal outlook, including potential risks to its revenue base, debt position, and ability to fund large-scale projects.
- An in-depth review of the HD's five-year financial plan, ensuring it incorporates realistic projections of global market trends, potential economic disruptions, and the upcoming expiration of the Infrastructure Investment and Jobs Act (IIJA) in 2026.
- A high-level assessment of the HD's capital project management framework—verifying whether its processes, systems, and oversight controls are adequately designed to deliver on-time, on-budget projects.
- Analysis of billing and revenue collection practices to confirm that invoicing, write-offs, and tenant lease compliance are consistently managed.

Fiscal Health is a key pillar for the HD, given its responsibilities for financing extensive capital improvements and sustaining the day-to-day operations that sustain the ecosystem of the nation's largest freight gateway. As a municipal enterprise governed under California's Tidelands Trust, HD's revenue management, overhead cost controls, capital planning, and risk mitigation strategies are core to the successful delivery and mission of Department. While the HD recently realized record cargo volumes and maintained healthy liquidity, the scale of upcoming capital expenditures, potential drops in federal or state funding, global geopolitical uncertainty, and trade disruption necessitate a need for a contemporary and rigorous financial stewardship assessment.

As a testament to the strong financial grounding of the HD, the following ratings have been secured by the major credit rating agencies which evaluate the credit risk associated with the Port.

Rating Agency	Long-Term Rating	Outlook
S&P Global Ratings	AA+	Stable
Moody's Ratings	Aa2	Stable
Fitch Ratings	AA	Stable

The Port commands this positive composite market perspective through several reinforcing strengths:

Dominant Market Position. As the nation's largest container port, its essential role in the U.S. supply chain, and its modern infrastructure provide a fundamental and durable competitive advantage. The Port has further demonstrated strong liquidity, revenue stability and a reputation for conservative financial management. To facilitate the further analysis developed in this chapter, we have expanded these themes to analyze the key elements that drive financial health for the Port and allow its success in executing its capital and strategic plan initiatives.

Exceptional Financial Cushion. The Port's massive liquidity position ("extremely strong" per S&P) and very high debt service coverage ratios (DSCR) are consistently cited as a core strength, providing a powerful buffer against economic shocks.

Contractual Revenue Stability. The landlord business model, supported by long-term leases with Minimum Annual Guarantees (MAGs), is a key structural strength. The agencies view these contracts as a critical shock absorber that insulates a majority of the Port's revenue from cargo volume volatility.

Conservative Financial Management. The Port's track record of deleveraging, maintaining strong board-adopted financial policies (e.g., minimum DSCR and liquidity targets), and its ability to self-fund its capital program are viewed very favorably.

The detailed fiscal analysis supporting this chapter—including the current fiscal assessment, shipping services revenue analysis, enterprise risk profile, operating expense trends, balance sheet strength, revenue billing and collections, financial resilience outlook, and capital project delivery—is presented in the appendix. The sections below present the key findings from that analysis.

4.2 | Key Findings

The fiscal analysis contains more than 40 observations regarding the HD's fiscal health. These can be summarized by the following five overarching findings.

Finding 1: The Port's balance sheet is exceptionally strong, but its revenue base has areas of risk that require close monitoring.

The Port's financial position provides a high degree of stability, marked by high liquidity (Days Cash on Hand (DCOH) projected to remain above 500 days) and a low-risk debt profile (DSCR consistently in double digits). Operating revenue reached nearly $800 million in FY2025, a record high, with an operating margin above 56%. Total unrestricted cash has grown substantially from FY2019, and the current ratio has nearly doubled to 11.4x. The HD has simultaneously executed a deliberate deleveraging strategy, reducing total outstanding principal from $810.1 million as of July 2018 to $261.5 million as of August 2025, including a $103 million defeasance in FY2025.

While this financial position is a significant strength, the Port's revenue streams require careful monitoring:

Geopolitical and freight market exposure. The Port's revenue is highly concentrated in the Shipping Services sector and with a handful of key customers, creating exposure to macroeconomic, political, and trade disruption. The top five tenants account for roughly 52% of total revenue. Furthermore, approximately one-third of the Port's total cargo is discretionary and could be diverted to competing ports during a trade or operational disruption. The 2019-2025 period demonstrated this sensitivity vividly: ongoing trade tariffs, the pandemic-driven import surge to a record 10.7 million twenty-foot equivalent units (TEUs) in 2021, subsequent shipper flight to East and Gulf Coast ports during 2022-2023, and the 2025 acceleration of freight movements ahead of International Emergency Economic Powers Act (IEEPA) of 1977 tariffs. These risks appear to be adequately addressed in the HD's conservatively forecasted revenue.

Near-term lease renewal risk. Two of seven key container terminal leases expire within the next four years: Yusen (2026) and Terminal Investment Limited (2026). While the HD currently expects these leases to be renewed, its 10-year forecast conservatively excludes renewal income until contracts are executed. The primary risk is not vacancy but the terms of renewal: locking in higher MAGs will be critical to strengthening the long-term guaranteed revenue base. The Port's 10-year forecast shows a projected drop of over $60 million in guaranteed revenue between FY2026 and FY2027 as a direct result of these expirations.

Trade partner concentration. The Port's trade base still carries significant geopolitical risk, with China accounting for 53.6% of all import TEUs in FY2025. The HD has executed a successful strategic pivot, reducing China's share from 63.1% in 2019 while more than doubling volume from Vietnam (now 14.3% of imports). However, this diversification has also created a new secondary concentration risk: the 387,390 TEU increase from Vietnam alone accounts for approximately 99% of the Port's entire net import growth since 2019. Further diversification toward emerging nearshoring markets in Central and South America would strengthen the trade partner portfolio.

Finding 2: The Port's long-term financial resilience is under pressure from a structural financial contribution pressure.

While historical performance has been strong, the Port's 10-year forecast reveals that expense growth is set to outpace revenue growth, leading to a compression of operating margins.

Based on the Harbor Department's conservative forecasting, the Operating Margin is projected to fall from 56.6% in FY2025 to below 25% by FY2034. This financial contribution pressure is the central financial challenge facing the HD and may threaten to impact financial flexibility that currently defines its strength. The primary drivers are:

Expense drivers. The Port faces long-term structural challenges driven by non-discretionary expenses outside its direct control. Salaries and benefits, the largest expense, will see temporary increases of 11.6% in FY2026 and 14.3% in FY2027 due to recent labor agreements and proactive headcount budgeting, before stabilizing at a 5% annual growth rate. Additionally, city service costs—still tied to a 1997 memorandum—are projected to jump 22.8% in FY2026 as budgets account for full staffing. This fixed-cost growth is a core vulnerability; city services alone will hit $114 million by 2035. To safeguard against future global trade crises or economic downturns, strategic planning will be required to manage these costs without depleting cash reserves.

Revenue constraints. In contrast, revenues are conservatively—and prudently—projected to remain relatively flat, reflecting the uncertainty of global trade volumes. Total operating revenue is projected to dip roughly 10% in FY2026 and not return to FY2025 levels until approximately FY2034. This creates a structural imbalance where costs are rising while revenues are tied to volatile markets.

Potential understatements. Despite this margin pressure, the HD's balance sheet provides a powerful buffer. Unrestricted cash is projected to remain elevated throughout the forecast period, DCOH is expected to stay above 500+ days, and the DSCR is forecast to remain in double digits—far exceeding the internal 2.0x policy target. The

financial contribution pressure is a challenge to be actively managed, not a crisis to be survived.

Finding 3: Internal capital program systems and processes for oversight have not fully kept pace with the scale of investment.

The HD maintains a solid foundation of capital project delivery controls. Construction managers oversee day-to-day contractor performance, Harbor Engineering coordinates design and reporting under the Chief Harbor Engineer, and the Project Information and Control System (PICS) serves as the primary system of record for portfolio status and executive dashboards. A critical governance layer is provided by the Project Development Committee (PDC), reinforced by monthly PICS updates, bi-annual leadership project reviews, and bimonthly Audit Committee reporting.

However, two gaps in the framework limit transparency and predictability:

Performance transparency. Status indicators in PICS and CIP reporting are based on the currently authorized baseline. When the PDC approves a cost or schedule change, projects often revert to "green," which limits visibility into cumulative variance against the original baseline commitment. Viewers not intimately familiar with a project's history may misinterpret performance as on-track when it has, in fact, required significant change. Mandating that all capital project reports show performance against both the original and current baselines would increase accountability.

Data stewardship. Although PICS is the single source of record and its data management has improved through automated reminders and a dedicated Project Controls team, ensuring consistent, timely, and reconciled data updates remains a critical dependency for reliable portfolio reporting. The need for constant oversight to ensure complete and accurate data entry can undermine the reliability of executive dashboards and impede alignment between the various project management and financial systems.

Finding 4: The HD has several asset performance and labor stability risks to manage.

Asset performance and bottleneck risk. There is significant variance in the performance of the Port's core assets. While some terminals like Fenix Marine operate near capacity—creating a bottleneck risk where a single disruption could have an outsized impact—the Port's single largest revenue source, APM Terminal, represents a major untapped opportunity. Optimizing utilization and performance at this key terminal is one of the most direct paths to driving new revenue growth.

Labor stability risk. Labor relations represent a critical, and potentially underestimated execution risk. Fitch Ratings has explicitly identified this by assigning the HD a negative-impact Environmental, Social, and Governance (ESG) Relevance Score of '4' (out of 5) for Labor Relations & Practices. Multiple credit agencies highlight the Port's history of labor disruptions on the West Coast. A strike or slowdown by the ILWU does not just halt operations temporarily: it inflicts long-term damage on the Port's reputation for reliability and can cause permanent cargo diversion of discretionary cargo to Gulf and East Coast ports. The transient benefits the HD saw from East Coast labor uncertainty in FY2024 can easily be reversed. Labor stability is the bedrock of the HD's business model and must be considered a material financial risk that is explicitly managed and disclosed to stakeholders. Any prolonged labor dispute poses a direct threat to operations, revenues, and market share, and must be considered a possible financial risk.

Finding 5: The scale of future "mega-projects" will require a shift toward more innovative project delivery and funding models.

The HD has a strong and consistent track record of self-funding its capital program. Over the past seven years, it funded 85% of its $899 million in capital expenditures from operating cash flows or available cash position. The current five-year Capital Improvement Plan totals $1.3 billion, with spending peaking at roughly $400 million in FY2027, dominated by the Electrical Infrastructure Improvement Program ($188 million), the Terminal Island Maritime Support Facility ($186 million), and the Goods Movement Workforce Training Center (California State has committed $110 million and POLA is committed to funding the project at the amount that completes the facility). Terminal modernization and zero-emission enhancements together account for over 60% of the total planned budget.

Funding analysis shows that operating cash flow will generate a surplus in FY2025 but that shortfalls are projected during peak construction years from FY2026 through FY2029. The HD plans to cover these gaps through a combination of grants and draws on its substantial cash reserves; even at the peak drawdown, the cash position is projected to remain elevated.

However, beyond the current five-year plan, the HD has several ambitious mega-projects on the horizon-including the Pier 500 Terminal Expansion, TiL Terminal Rehabilitation, and additional waterfront redevelopment for the cruise business. The financial scale, technical complexity, and partnership requirements of these projects will likely exceed the practical limits of the HD's traditional self-funded delivery model. Attempting to self-fund these projects would require a drawdown of cash reserves so significant it could threaten the Port's balance sheet strength and potentially impact its credit rating.

This reality creates a strategic imperative for the HD to evolve its project delivery capabilities. It must proactively build the institutional expertise to explore and implement alternative models like Public-Private Partnerships (P3s), concession agreements, and other structures that can transfer specific construction and operational risks while leveraging private sector capital and expertise.

Additionally, the recently announced federal Maritime Action Plan (MAP), released in February 2026 pursuant to Executive Order 14269, presents a strategic opportunity for the HD to align underfunded capital projects with national investment priorities across shipbuilding, port infrastructure, and maritime workforce development. However, the most consequential MAP provisions — including the proposed Maritime Security Trust Fund, fees on foreign-built vessels, Maritime Prosperity Zones, and expanded federal financing tools — require congressional authorization to implement. As of April 2026, the Trump Administration has yet to transmit its legislative package to Congress, and neither of the two related bills introduced in the 119th Congress (the SHIPS for America Act and the Building Ships in America Act) has advanced to enactment. The HD should monitor legislative developments closely, as passage could materially alter the federal funding landscape for ports.

Chapter 5: Technological Changes and the Workforce

5.1 | Context and Background

Across this chapter, technological change is treated not as a discrete intervention, but as a system-wide evolution that reshapes governance, labor relations, workforce pipelines, and global competitiveness, in interconnected ways.

The HD is responsible for stewarding the long-term operational, economic, and community vitality of the port. Operating as a landlord port, the HD directly employs only a small portion of the port workforce, while most jobs are held by workers employed by terminal operators and other tenants under long-term lease agreements and governed by collective bargaining agreements.[34] As a result, the HD must balance its responsibility for internal workforce readiness with its role in aligning and convening tenants and regional partners around shared workforce priorities.

This chapter focuses on how technological change is reshaping work at the port and how the HD is positioned to respond. It examines two interconnected themes identified by the HD as priority focus areas—Workforce Development & Preparedness and Modernization & Job Creation—at a time when the HD is navigating technological transformation, demographic shifts, and competitive pressures in the global maritime industry. A central challenge within this context is managing the inherent tension between automation and labor stability.

THEMES SHAPING HD'S FUTURE

Workforce Development & Preparedness focuses on the systems, partnerships, and institutional mechanisms required to equip both the HD's internal workforce and the broader tenant-employed workforce with the skills needed to adapt to technological change.

Modernization & Job Creation examines how the adoption of advanced technologies reshapes job roles, skill requirements, and employment pathways across the port, recognizing that outcomes vary based on operating models and are shaped through collaboration among the HD, tenants, labor, and regional workforce partners.

KEY QUESTIONS

[34] The Port of Los Angeles employs nearly 1,000 Los Angeles Harbor Department employees representing more than 25 divisions grouped within five bureaus, but support 136,000 jobs across the port ecosystem. Facts and Figures | Statistics | Port of Los Angeles

The review assesses the HD's short- and long-term plans for modernization and other technological advances, evaluates the port's ability to prepare its workforce for these changes and considers the implications for job stability, workforce composition, and job creation. Key questions include:

Internal Workforce Questions

- What is the HD's approach to identifying, prioritizing, and integrating emerging technologies to enhance operational efficiency, manage risks, and create new value across the organization?
- How is the HD holistically adapting its workforce strategy—spanning talent acquisition, career development, and upskilling—to prepare for the job role shifts and new skill demands driven by technological change?

External Workforce Questions

- What is the HD's role in the management of workforce and technology opportunities and risks, especially where the HD is not the employer of record?
- What are the anticipated impacts of technological changes on job stability, workforce composition, and the creation of new roles?

THE GLOBAL PORT MODERNIZATION LANDSCAPE & BENCHMARKING INSIGHTS

Across ports globally, technology adoption – particularly in relation to automated cargo handling equipment, robotics, and artificial intelligence – is being explored as a means to drive efficiency, safety, and throughput. However, in 2024, adoption was limited to about 8.3% of the world's main container terminals being fully or partially automated and is not reported to have expanded significantly since then. [35] This reflects the high capital costs, long investment horizons, and site-specific operational constraints that shape modernization decisions across the maritime sector.

DIGITAL INTEGRATION AND SUSTAINABILITY INITIATIVES PRECEDE AUTOMATION

Rather than pursuing full automation, many ports are prioritizing foundational digital capabilities. These include enterprise data platforms and analytics, digital permitting and workflow systems, cybersecurity frameworks, and smart infrastructure and energy management technologies. Such investments are designed to improve visibility, coordination, regulatory responsiveness, and environmental performance even where

[35] Fully and Semi Automated Container Terminals, 2024 | Port Economics, Management and Policy

physical operations remain largely manual.[36] In parallel, global decarbonization efforts and tightening environmental regulations – such as zero-emission mandates for cargo handling equipment and vessels – are accelerating the deployment of cleaner technologies and electrified systems across port operations. [37] Based on peer benchmarking, examples of common sustainable tech include hydrogen refueling and the use of shore power.

STRATEGIC INSIGHTS FROM LEADING PORTS

Benchmarking against peer ports, both domestic and international, indicates that technology is increasingly embedded within core strategic, cybersecurity, and capital-planning processes rather than treated as a standalone support function. Leading ports are developing enterprise dashboards, digital command centers, and port information hubs to support data-driven governance and executive-level oversight. These platforms enhance situational awareness, performance monitoring, and investment prioritization. In more advanced environments, automation technologies—such as automated stacking cranes (ASCs), automated guided vehicles (AGVs) and remote-control systems enable terminals to operate 24/7 and are layered on top of these digital foundations to enable continuous operations, improve asset utilization, and reduce vessel turnaround times – as demonstrated in highly automated ports like Qingdao and Rotterdam.[38] These ports reflect unique governance, capital, and labor conditions that are not directly transferable to U.S. landlord ports, reinforcing that automation pathways are highly context-dependent.

INTEGRATING WORKFORCE DEVELOPMENT AND SUSTAINABILITY

In parallel, leading ports are explicitly linking modernization efforts to workforce development and sustainability objectives. While automation can improve safety by removing workers from hazardous environments, with ports such as Antwerp-Bruges retraining crane operators for remote-control and maintenance roles, and Brisbane reducing on-site personnel and accident rates, many ports are simultaneously investing in upskilling programs that support new roles in remote operations, data analysis, cybersecurity, and environmental management.[39] Additionally, many ports are also

[36] Chapter 3.2 – The Digital Transformation of Ports | Port Economics, Management and Policy

[37] Sener, Decarbonisation of Ports: Strategies and Technologies. November 2024.

[38] People's Daily Online, China Home to Most Automated Terminals Completed and Under Construction. January 2025; APM Terminals, APM Terminals Maasvlakte II. September 2025.

[39] Harbi-Akram.pdf ; Asian Journal of Shipping and Logistics, The effects of evolving port technology and process optimisation on operational performance: The case study of an Australian container terminal operator. December 2021.

investing in structured training initiatives exploring the intersection of technology modernization and workforce development. The Port of Hamburg's PortSkill 4.0 Initiative explores how digitalization and automation are reshaping seaport jobs.[40] Similarly, Antwerp-Burges operates a Port Training Center in partnership with the Flemish government.[41] There is also the British Columbia Maritime Employers Association's Waterfront Training Center, which delivers hands-on, simulator-based training to upskill longshore workers and has served as a model for the HD.[42] This integrated approach recognizes that digital transformation reshapes job functions even in the absence of full automation. Similarly, sustainability initiatives are increasingly aligned with workforce strategies, with "green technologies" and energy-management systems creating demand for new technical and operational competencies.

These global patterns closely mirror the HD's own modernization trajectory, reinforcing a strategic approach in which digital coordination, sustainability, and workforce readiness are treated as prerequisites—not byproducts—of a resilient, future-ready port.

5.2 | Key Findings

5.2.1 Workforce Development and Preparedness

Finding 1: The HD faces a complex workforce landscape, challenged by its landlord port model, regional talent competition, demographic shifts, and internal structural constraints. Leading ports, including the HD, are responding by investing in comprehensive workforce development programs, apprenticeships, and partnerships with educational institutions to build a resilient, future ready workforce that can thrive in a rapidly evolving maritime industry.[43]

STRUCTURAL AND REGIONAL CHALLENGES

Externally, the HD is grappling with a complex workforce landscape where it has little direct control over the automation initiatives driving technological change. These modernization efforts are implemented not by the HD itself, but by its terminal operator tenants. Furthermore, the broader labor supply is threatened by regional demographic shifts. Data from the Los Angeles Basin Planning Unit indicates a declining youth and

[40] Port of Hamburg | PortSkill 4.0: Successful project completion strengthens the future of port work
[41] APEC Port Training - Antwerp & Flanders Port Training Center
[42] Maritime Workforce | BCMEA Support & Development
[43] California Community Colleges, California Community Colleges Team up with the Port Of Los Angeles For Workforce Development | California Community Colleges Chancellor's Office. February 2025.

working-age population over the next decade, with notable increases in the cohort aged 80 years and over, posing significant challenges for succession planning.

Internally, efforts to build a highly skilled technological workforce are hindered by HD civil service job classifications that have not yet been updated to include modern, specialized roles like data analysts and coders. This structural barrier creates hiring difficulties and has forced a reliance on external consultants for critical digital projects. For example, because the necessary in-house roles do not currently exist, the Port Optimizer platform has been developed and maintained with consultant support since 2017. The Port Optimizer is a cloud-based platform that integrates real-time port and supply chain data to provide a reliable, shared source of operational insight, helping stakeholders plan better and improve efficiency.

Taken together, these distinct external and internal factors limit the HD's ability to internalize emerging digital capabilities at the same pace that technology adoption is reshaping port operations. Ultimately, this increases the department's reliance on external partners and heightens the importance of deeply coordinated workforce strategies.

PORT WORKFORCE COMPOSITION

For 26 consecutive years, the Port of Los Angeles has been the #1 container port by container volume in the Western Hemisphere, with 25 cargo terminals, and trading 10.3 million containers twenty-foot equivalent unit (TEUs) in 2024. Port-related activity supports one in eight jobs in Los Angeles County, accounting for approximately 136,000 jobs across the region.[44] While about 900 of these positions are direct employees of the HD, the vast majority are employed by businesses that operate at the HD under lease agreements such as shipping lines, terminal operators, logistics companies, and other service providers whose operations depend on the port's continued activity and growth.

While container operations represent the majority of activity and revenue, the HD's ecosystem is diverse. It encompasses cruise operations, multi-modal truck and rail interfaces, transload facilities, and industrial real estate tenants. Each of these business lines requires specialized skills and labor pools, creating a wide spectrum of workforce impacts across the region—from longshore labor and logistics professionals to hospitality, maintenance, and industrial trades. Recognizing this diversity is critical to operational readiness, guiding the HD's workforce development efforts.

[44] Port of Los Angeles, 2024 Port of Los Angeles Facts & Figures. January 2025.

5.2.2 Project Labor Agreements

Finding 2: Project Labor Agreements (PLAs) are a primary tool for the HD to influence workforce outcomes, but their impact is concentrated on construction rather than emerging digital roles.

To influence this broader ecosystem, the HD leverages its capital improvement projects as a key tool for workforce development. This is primarily achieved through Project Labor Agreements (PLAs), which set clear rules for labor relations and local hiring on construction projects.

From 2017 to 2027, across 27 major projects, local workers have completed 37% of total project hours, while local apprentices contributed 62% of all apprentice hours. Apprentices overall accounted for 20% of straight time hours, and disadvantaged or transitional workers performed 9% of total hours.[45] These outcomes reflect the commitments outlined in PLAs, which prioritize local hiring, apprenticeship opportunities, and pathways for disadvantaged workers.

The PLA governing 2017–2027 is a ten-year agreement between the HD and the Los Angeles/Orange Counties Building and Construction Trades Council. It sets clear rules for labor relations, dispute resolution, and workforce development. Key requirements include:

- **30% of work hours** by local residents from high-unemployment zip codes
- **10% of work hours** by transitional workers (e.g., veterans, formerly incarcerated)
- **20% of work hours** by apprentices, with half allocated to local residents

The agreement enforces strict non-discrimination and safety standards, includes provisions for wages, benefits, drug and alcohol testing, and compliance monitoring, and is overseen by a joint administrative committee. Its goal is to promote economic opportunity, workforce diversity, and labor harmony throughout the HD's capital improvement projects.

Since terminal workforce outcomes are largely determined by the collective bargaining agreement between the ILWU and PMA—including how new workers are brought on—PLAs represent one of the HD's most effective levers for shaping workforce outcomes, embedding equity, training, and local economic benefits into capital delivery.

[45] City of Los Angeles Department of Public Works, Bureau of Contract Administration Project Labor Agreements. September 2025.

While PLAs are an effective mechanism for shaping construction workforce outcomes, they are less directly suited to addressing emerging digital, data, and technology roles within port operations—reinforcing the need for complementary workforce strategies.

5.2.3 Workforce Preparedness Programs

Finding 3: The HD has developed a multi-layered workforce development strategy that leverages partnerships to build a talent pipeline at all levels.

GOODS MOVEMENT WORKFORCE TRAINING FACILITY

Central to the HD's investment in workforce preparedness is the forthcoming $150 million Goods Movement Workforce Training Facility, a landmark initiative representing the first comprehensive training hub in the United States for the entire goods movement ecosystem. Developed through a crucial partnership between the HD, State of California, the Pacific Maritime Association (PMA), the International Longshore & Warehouse Union (ILWU), and the California Workforce Development Board (CWDB), the campus is designed to address both current labor shortages and future industry needs by providing hands-on instruction for longshore, trucking, and warehousing workers. Training will cover essential equipment operation, maintenance, and repair, as well as advanced skills in areas like cranes. Critically, the campus will serve as the primary training ground for the transition to zero-emission technologies, ensuring workers are prepared to operate and maintain the battery-electric and hydrogen fuel cell equipment required to meet the Port's ambitious 2030 and 2035 environmental goals.[46] Importantly, the campus is designed to serve the broader port workforce—including longshore labor, tenant-employed workers, and future entrants—rather than the HD's internal workforce alone.

EDUCATIONAL AND INDUSTRY PARTNERSHIPS

In parallel with this major capital investment, the HD has launched POLA TEACH (Teaching Energy Advancement in Cargo Handling) to strengthen alignment between emerging port technologies and regional education providers. POLA TEACH convenes community colleges, school districts, training providers, and industry partners to ensure curriculum development keeps pace with the Port's accelerating transition to zero-emission cargo handling equipment. By providing educators with direct insight into evolving technical competencies — including battery-electric systems, hydrogen fuel technologies, and advanced equipment diagnostics — the initiative functions as a forward-looking workforce coordination mechanism. Together, the Goods Movement Workforce

[46] IS/NOP | Port of Los Angeles and Port of Long Beach Goods Movement Workforce Training Facility

Training Facility and POLA TEACH reflect a dual strategy: building hands-on training capacity while simultaneously shaping the upstream talent pipeline.[47]

These investments build on the HD's history of fostering collaboration with its tenants. For example, a 2017 initiative to improve lashing training, which resulted in a grant-funded program, demonstrated a successful partnership model, and set the stage for future collaboration between the HD and its tenants.

The HD's strategy also focuses on creating structured pathways into port-related careers. It actively promotes construction pre-apprenticeship programs like the Multi-Craft Core Curriculum (MC3) and collaborates with the Los Angeles Unified School District (LAUSD) on adult education initiatives.

Inclusive hiring and apprenticeship programs further strengthen workforce diversity, with targeted recruitment of local residents, transitional workers, and underrepresented groups.[48]

In late 2024, the California Community Colleges Chancellor's Office and the Port of Los Angeles (via the City of Los Angeles, HD) signed a Memorandum of Understanding (MOU) focused on workforce education, training, and career pathways in the goods movement and maritime sectors.

Beyond these flagship initiatives, Mayor Bass recently issued Executive Directive 20, Strengthening Second Chance Employment Through City Contracting. As part of this initiative, the City adopted workforce and local hire policies. Specifically, departments are expected to adhere to the First Source Hiring Ordinance, Fair Chance Initiative for Hiring Ordinance, the Targeted Local Hire Program, and the Local Business Preference Program. Unlike Project Labor Agreements, which are tied to capital construction, these citywide programs apply to ongoing procurement and operational hiring, providing additional levers to create career pathways and expand economic opportunity. As with all City Departments, the HD will incorporate these policies into our procurement documents and contracts to promote high-quality jobs.

[47] Port of Los Angeles (POLA) TEACH Inaugural Meeting (Virtual) - Los Angeles Regional Consortium (LARC)

[48] Center for Excellence for Labor Market Research, Global Commerce: Middle-Skill Jobs and Air and Sea Ports. February 2021.

Key points of that MOU include:

- Collaboration to expand workforce education and training opportunities related to the port and goods movement industry.
- Support for community college students in gaining skills aligned with industry demand (e.g., zero-emission cargo handling, decarbonization, environmental stewardship).
- Activities such as career center engagement, recruitment events, and exploration of apprenticeship opportunities.
- Data sharing to support workforce planning and workforce development strategies.

This agreement reflects a strategic partnership aimed at linking the state's community college system — the largest workforce educator in California — with one of the nation's busiest ports to strengthen career pathways and labor market alignment.[49]

Beyond the community college system, the HD has also expanded partnerships with research universities and innovation intermediaries. An MOU with the University of California, Los Angeles (UCLA) creates a framework for collaboration on sustainability research, environmental stewardship, and workforce development connected to port operations. This partnership supports student engagement, applied research, and potential career exposure in areas such as decarbonization, public health, and maritime innovation. [50]

Similarly, through its collaboration with AltaSea, the HD helps anchor a broader blue-economy and climate-technology ecosystem that integrates education, workforce training and applied research. AltaSea partners with academic institutions and industry to advance ocean-based innovation, clean technology, and maritime workforce pathways, expanding the port's role beyond traditional goods movement into emerging sectors.[51]

STUDENT EMPLOYMENT PIPELINES

In addition to formal MOUs, the HD operates multiple structured student employment pipelines that translate institutional partnerships into direct workforce entry points. The HD's 10-week Summer Internship program places undergraduate and graduate students in full-time paid roles across numerous divisions within the organization including, but not limited to engineering, environmental management, planning, finance, IT, communications, and public safety, providing hands-on exposure to HD operations. Complementing this is the year-round Student Worker Program, which offers part-time

[49] https://www.cccco.edu/-/media/CCCCO-Website/docs/mou/mou-port-of-la-arroyowest-a11y.pdf
[50] UCLA, Port of Los Angeles Partner to Advance Sustainability, Research and Healthier Communities | News | Port of Los Angeles
[51] Vision + Mission - AltaSea

paid roles that allow students to gain practical experience while continuing their academic studies.[52]

For technical disciplines, the Student Engineer and Architecture programs embed engineering and design students into active infrastructure and capital development projects, creating a direct bridge between classroom learning and large-scale maritime infrastructure delivery. The Port Police Cadet Program similarly provides a pathway for students pursuing careers in public safety.[53]

At the earliest stage of the pipeline, the EXP Internship Program introduces Southern California high school students to port careers through short-term summer placements, expanding awareness and access prior to college enrollment.[54]

Taken together, these layered initiatives—spanning high school exposure, community college workforce alignment, university research collaboration, and paid experiential employment—reflect a deliberate, multi-tiered strategy to cultivate both immediate workforce readiness and long-term talent development within the port ecosystem.

Together, PLAs and the HD's workforce initiatives have laid a strong foundation for local hiring, diversity, and technical training, so that both construction and operational roles benefit from structured pathways and skill development. However, as terminal modernization, digitalization, and advanced technologies reshape HD operations, these efforts must evolve to address emerging job classifications and future skill requirements. The next section explores how technological transformation is redefining work at the HD and what this means for job creation and workforce strategy.

5.2.4 Core Operational & Enabling Technologies

Finding 5: The HD's technology strategy prioritizes data coordination and cybersecurity over physical automation, positioning itself as an orchestrator for the port ecosystem.

CORE OPERATIONAL AND ENABLING TECHNOLOGIES

The HD has established a strong foundation of core operational and enabling technologies that support enterprise administration, situational awareness, and stakeholder coordination. Under the leadership of the Chief Information Officer, the HD's IT organization supports 47 team members through centralized management of computing infrastructure, networks, enterprise applications, and cybersecurity, using a

[52] Student Employment | Employment | Port of Los Angeles
[53] Student Employment | Employment | Port of Los Angeles
[54] Student Employment | Employment | Port of Los Angeles

hybrid model that combines in-house expertise with managed service providers. Key systems include Oracle Fusion ERP for financial management, PICS for capital portfolio management, Workday for human resources, Tidalis for port pilots, real estate, and billing, an enterprise GIS platform used across planning and construction functions, and specialized systems supporting Port Police operations (radio, dispatch). At the ecosystem level, the Port Optimizer serves as the primary data integration and analytics platform, aggregating information from terminals and shipping lines to enable cargo visibility, operational dashboards, and predictive planning. Complementing this is the Cyber Resilience Center, operated alongside vendors, which provides shared threat intelligence and incident response capabilities to voluntary industry participants and represents a globally distinctive, stakeholder-centered cybersecurity model. These systems increasingly shape workforce needs by elevating demand for cybersecurity, data integration, and systems-management skills across the port ecosystem.

Building on this foundation, the port is actively enhancing existing platforms and advancing several emerging initiatives. Ongoing upgrades to Tidalis and the Port Optimizer are expanding billing functionality, mobile access, truck appointment systems, and carbon-intensity tracking, while grant-funded projects are supporting sustainability and operational efficiency goals. The HD is also pursuing a digital twin initiative—leveraging its mature GIS environment for three-dimensional infrastructure modeling and asset management. In parallel, the IT organization is cautiously piloting artificial intelligence tools for cybersecurity monitoring and staff productivity, emphasizing responsible adoption and formal vetting processes. These initiatives reflect a strategic focus on strengthening data integration, environmental analytics, and system interoperability as precursors to more advanced digital capabilities.

STRATEGIC FOCUS AND GOVERNANCE

From a governance and competitive perspective, the HD is widely aligned with leading global ports in treating technology as a core strategic asset, and in several areas remains at the forefront of industry practice. Early adoption of the Port Optimizer in 2016 and the development of the Cyber Resilience Center position the port as a recognized leader in data-driven coordination and collaborative cybersecurity. At the same time, the port's role in automation remains intentionally limited, reflecting its landlord governance model in which terminal operators independently determine investments in automated equipment and operating systems. The HD's primary contribution in this domain is as a data steward and systems integrator, not an implementer of automation technologies.

Looking forward, the port's principal areas for advancement lie in formalizing an enterprise-wide data strategy, expanding asset management and analytical capabilities through data lake and digital twin platforms, and deepening the integration of sustainability and emissions-management tools (Carbon Intensity Gateway Project). While the port is well aligned with peers in enterprise systems, cybersecurity, and digital coordination, it trails highly automated global hubs in physical automation and AI-enabled operational control, largely by design.[55] Workforce planning reflects this trajectory, with cybersecurity established as a near-term priority and data and analytics capabilities identified as an emerging area of need, consistent with a long-term shift toward digitally enabled, sustainability-oriented operations. Overall, the HD demonstrates strong maturity in enabling technologies and ecosystem governance, emerging leadership in digital modeling and environmental analytics, and a deliberate, measured approach to automation consistent with its institutional structure and stakeholder context.

Taken together, these capabilities position the HD less as an operator of automated systems and more as an orchestrator of data, standards, and interoperability across a complex, multi-employer ecosystem.

5.2.5 Modernization and Jobs Creation

Finding 6: Tenant-driven modernization, particularly automation, creates a significant labor stability risk that is being actively managed through training initiatives and negotiation.

Modernization and digital technologies are beginning to influence aspects of the HD's labor landscape, with impacts largely driven by terminal operator adoption rather than direct HD actions. This dynamic, however, introduces the significant labor stability risk identified in Chapter 4, as unilateral investments in automation by tenants can create friction with the port's unionized workforce. While some terminals have adopted autonomous cranes and vehicles to boost throughput and reduce congestion, the introduction of automation carries labor risk, and unilateral investment in these technologies can create friction with the port's workforce. A study underwritten by the ILWU found that automation resulted in job losses for longshore workers. [56] The study estimated that in 2020 and 2021, automation resulted in the elimination of 572 full-time-equivalent jobs annually at Long Beach Container Terminal (LBCT) at the Port of Long

[55] GAO-24-106498, PORT INFRASTRUCTURE: U.S. Ports Have Adopted Some Automation Technologies and Report Varied Effects
[56] Someone Else's Ocean: Dockworkers, Foreign Shippers and Economic Outcomes. June 2022.

Beach and Trans Pacific Container Service Corporation (TraPac) at the Port of Los Angeles. However, other studies suggest that automation changes will not eliminate jobs outright, but instead shift jobs to other areas, requiring ongoing workforce retraining and upskilling to prepare employees for emerging roles in automation, cybersecurity, and sustainable operations. [57] Initiatives like the Goods Movement Workforce Training Facility support this transition, ensuring longshore workers are equipped for evolving technical demands.

In a related initiative, the ILWU and the PMA recently opened a new $16.4 million Maintenance and Repair (M&R) training center on the port complex. This state-of-the-art facility is dedicated to up-skilling current mechanics and re-skilling other longshore workers to service and maintain the new and emerging technologies on the docks.[58]

Despite these efforts, automation remains a point of contention. Labor unions have raised concerns about job displacement, safety, and community impact, prompting negotiations that include protections such as retraining guarantees and early retirement options. This tension represents a critical challenge, as unresolved disputes carry the potential to disrupt port operations, with significant economic consequences for the region and the national supply chain.

Studies show mixed outcomes: while automated terminals have seen increased paid hours and higher productivity, stakeholders continue to debate whether automation delivers long-term economic and operational benefits over traditional methods.[59] At the same time, unions are negotiating stronger protections to safeguard existing jobs and secure fair transitions, as seen in recent agreements for the East and Gulf Coast that include new automation language and significant wage increases for longshore workers. [60] Ultimately, the HD's approach reflects a broader balancing act—leveraging technology to modernize port operations while investing in human capital to sustain equitable growth and resilience across the maritime workforce.

5.2.6 Terminal Modernization and Future Development

Finding 7: While terminal operators independently drive automation, the HD plays a critical enabling and convening role through infrastructure support and permitting.

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[57] Nacht_and_Henry_Automation_Report_FINAL_w_page_numbers.pdf

[58] ILWU-PMA Maintenance and Repair Training Center in the Port of Los Angeles opens - ILWU

[59] Automation-and-Dockwork-Report.pdf

[60] Labor Notes, Longshore Deal Secures New Automation Language and Big Pay Bump. January 2025.

The HD's stated policy emphasizes support for terminal modernization, digitalization, and infrastructure improvements; however, decisions related to automation are made by individual terminal operators and are subject to the terms of their respective collective bargaining agreements. Within the San Pedro Bay Ports complex, three terminals currently operate with varying degrees of automation—two located at the Port of Los Angeles and one at the Port of Long Beach. Notably, the TraPac terminal was redeveloped in the early 2000s as one of the first semi-automated facilities in the region, setting a precedent for future modernization efforts. APM Terminals, which operates Pier 400, the largest terminal by volume and employment, has recently undertaken electrification upgrades, including the installation of charging stations for its equipment. While terminal operators manage their own automation strategies, the HD plays a critical enabling role by providing infrastructure support and permitting, as seen in APM's collaboration with the port to install these charging stations.

In parallel, the HD is advancing plans for Pier 500—a proposed 200-acre stand-alone marine container terminal along the Pier 400 Channel. This project, expected to span approximately 10 years from pre-development to full build-out, represents the first new container terminal in a generation and underscores the HD's commitment to efficiency, sustainability, and job creation.

These upgrades are part of a broader capital program aimed at decarbonizing operations and modernizing terminal capabilities. As the HD continues to support terminal modernization, its role as a workforce convener and in coordinating infrastructure and permitting, will be critical to ensuring that automation enhances, rather than disrupts, the port's economic and employment ecosystem.

Chapter 6: Recommendations

This chapter presents the full set of recommendations for the 2026 IEA Survey.

Rather than separating retrospective and new recommendations, they are organized around four strategic pillars that align with the HD's forward-looking priorities. Where a recommendation builds on progress documented in the retrospective assessment (Chapter 2), this is noted. Collectively, these 24 recommendations are designed to leverage the HD's existing strengths and provide a strategic framework for navigating the next generation of challenges facing the Port of Los Angeles.

Additional details on estimated implementation timeline and level of priority are included in the Executive Summary.

Pillar 1 | Fiscal Health, Competitiveness, and Capital Delivery

These recommendations address the HD's revenue base, pricing strategy competitive positioning, and capital project execution—strengthening the financial foundation that underpins every other strategic priority.

Recommendation 1.1: Fortify the Core Revenue Base Through Proactive De-Risking. The HD's revenue foundation is exposed to concentration risk and near-term contractual risk from two key lease expirations by 2030. The HD should launch a proactive Lease Renewal Task Force to lock in higher Minimum Annual Guarantees, using the HD's strong 3.7% CAGR in MAGs since 2019 as a baseline. To create resilience in trade and macroeconomic disruptions, the HD should also consider formalizing a Trade Lane Diversification Strategy, establishing specific targets for increasing TEU volume from emerging markets in addition to Southeast Asia—with a particular focus on nearshoring opportunities in Central and South America—and setting diversification thresholds to ensure no single emerging trade partner accounts for a disproportionate share of import growth.

Recommendation 1.2: Optimize Capital Strategy and Embrace Innovative Delivery. The HD faces a dual challenge: a long-term financial contribution pressure eroding profitability while future mega-projects are too large for the traditional self-funding model. The HD should establish an Alternative Delivery Center of Excellence, developing a clear framework that defines the financial and operational thresholds that would trigger Public-Private Partnerships and other innovative delivery models. The HD should also conduct a Strategic Review of the federal Maritime Action Plan, creating a matrix that aligns the MAP's investment focus areas with the HD's unfunded mega-projects,

including Pier 500, workforce training, and decarbonization infrastructure. Much of MAP requires congressional action to implement which as of May 2026 has yet to occur. While the February 2026 Maritime Action Plan (MAP) offers the HD strategic opportunities to align capital projects with national priorities, its primary funding mechanisms remain contingent on pending congressional authorization, necessitating close monitoring of the SHIPS for America and Building Ships in America Acts.

Recommendation 1.3: Enhance Project Delivery, Labor Oversight, and Expense Transparency. The Harbor Department (HD) should mandate dual-baseline reporting for all capital projects, requiring status reports to display performance against both the original and current authorized baselines. This includes implementing cause coding for all baseline changes to improve accountability. Furthermore, the HD can formalize data stewardship for the PICS system with a clear RACI model. To ensure stability with labor partners, a Workforce and Labor Relations Resiliency Plan should be developed to quantify the financial impact of potential work stoppages. Transparency in the City cost-sharing approach could also be improved by establishing standardized invoice documentation requirements and updating the existing MOU with the City Administrative Officer's (CAO) office as a “good governance” initiative. This initiative would need to be led by the CAO.

Recommendation 1.4: Continue Evolving the Container Terminal Pricing Strategy. The HD should build on its landlord-tenant model by refining performance-based pricing structures within tenant agreements to drive cargo velocity and ensure fiscal stability, focusing on increasing the share of guaranteed revenue while balancing regional competitiveness. (Builds on 2018 retrospective.)

Recommendation 1.5: Refocus Collaboration on High-Impact Regional Initiatives. The Ports of Los Angeles and Long Beach have a long history of successful collaboration on shared environmental and security initiatives but face legal and antitrust constraints that prohibit joint investment planning or marketing strategies. The HD should continue strengthening coordination with the Port of Long Beach on initiatives that enhance the collective performance and resilience of the San Pedro Bay gateway—specifically in areas like infrastructure, public safety and emergency preparedness, and environmental initiatives such as the Clean Air Action Plan and AQMD—while avoiding activities that could create competitive or antitrust concerns. (Builds on 2018 retrospective.)

Recommendation 1.6: Refine KPIs for Gateway Competitiveness. The HD tracks several key operational metrics to monitor supply chain velocity, including

comprehensive internal indicators like TEUs per acre. The HD should continue to enhance Key Performance Indicators for core cargo operations, differentiated by cargo type where applicable, to provide a holistic view of terminal efficiency and guide investments that improve supply chain velocity. (Builds on 2018 retrospective.)

Recommendation 1.7: Mitigate Execution Risk for Major Waterfront Projects. Multiple large-scale, multi-year waterfront initiatives are advancing at different stages of execution. The San Pedro Waterfront Connectivity Plan has been instrumental in integrating individual projects into a cohesive district-wide strategy, and a comparable planning effort is underway for the Wilmington Waterfront through the Public Access Investment Plan. However, the HD should be attentive to cross-cutting execution risks: tariff-driven construction cost escalation, potential cargo revenue impacts on PAIP funding, CEQA timelines for projects not yet through environmental review, and the challenge of managing concurrent multi-year capital projects across both the San Pedro and Wilmington waterfronts. The HD should continue prioritizing strong project management, stakeholder coordination, and realistic public timeline-setting to ensure investments achieve their intended economic and community benefits. (Builds on 2018 retrospective.)

Recommendation 1.8: Develop Standardized Lease Templates for Visitor-Serving Tenancies. The HD's current lease templates are primarily designed for industrial and cargo-related tenancies, with provisions around insurance, indemnification, and risk allocation that are not well-suited to visitor-serving uses such as restaurants, retail, and hospitality. Adapting these templates on a case-by-case basis has added significant time to lease negotiations and can deter smaller operators. The HD should formalize the growing body of precedent from recent visitor-serving leases into standardized template language that appropriately reflects the risk profiles and business realities of non-industrial waterfront tenants, while maintaining necessary protections for the HD. (Builds on 2018 retrospective.)

Recommendation 1.9: Further Develop KPIs for Public Access Investments. The HD has made significant capital investments in public access infrastructure and has begun tracking visitor engagement through metrics such as event attendance estimates, parking counts, and gross receipts and per capita spend at select tenant locations. A more comprehensive formal framework for measuring returns is still evolving. The HD should continue to develop and refine performance indicators to evaluate the economic, community, and operational outcomes of waterfront and public access investments—including public space utilization, economic impact of events and tenants, visitor satisfaction, and repeat visitation—to guide the prioritization of future projects. With West

Harbor alone expected to draw over four million visitors annually, establishing robust impact measurement and forecasting tools will be increasingly important as major projects come online. (Builds on 2018 retrospective.)

Pillar 2 | Energy Transition and Community Health

These recommendations address the HD's decarbonization strategy, energy infrastructure, regulatory environment, and the community health and engagement commitments that are central to the Port's social license to operate.

Recommendation 2.1: Expand Near-Term Focus on Zero-Emission Cargo Handling Equipment to a Broader Long-Term Strategy. While intense focus on the 2030 ZE CHE Clean Air Action Plan goals is crucial, the HD should begin planning the next phase of the post-electrical grid upgrade. Expanding on the Green Shipping Corridors initiative, this project integrates previous research and new infrastructure plans to develop a multi-fuel energy hub for maritime and landside operations, slated for delivery between 2027 and 2029 under a cooperative agreement with SCAQMD. Clear goals should be established for zero and near-zero emission ocean-going vessels, locomotives, and harbor craft, and infrastructure plans for 2030/2035 should remain flexible enough to accommodate future solutions. Engaging tenants early on plans for OGVs, locomotives, and harbor craft can help clarify preliminary ideas and identify opportunities for collaboration, thus avoiding potential roadblocks.

Recommendation 2.2: Address the Gap Between Vehicle Technology and Fuel Supply. For hydrogen, vehicle technology is maturing faster than the fuel supply chain. The HD should support tenants in working with energy providers to develop a holistic approach to alternative fuel and advocate for policies that incentivize the production and distribution of green fuels in the region.

Recommendation 2.3: Enhance Grid Resilience. The move to dual-source power and switching stations is a major step forward. The HD should promote on-site generation at LADWP's receiving station as a core resilience component, complemented by facilitating tenant collaboration with LADWP on microgrid projects utilizing solar generation, fuel cell technology, battery storage, and advanced energy management. Diversifying renewable energy supply through partnerships with established providers and startups will enhance energy security.

Recommendation 2.4: Resolve Regulatory Uncertainty for Clean Technologies. Significant regulatory uncertainty is hindering project development and could add risk to the Port's decarbonization timeline. The HD should launch a targeted strategy to align

regulatory partners and shape a more favorable policy environment, including establishing formal working groups with key agencies to create clear approval pathways and actively advocating for fast-track lanes for zero-emission projects, including CEQA streamlining.

Recommendation 2.5: Address High Dependency on Grant Funding for ZE CHE. The transition to zero-emission equipment is heavily dependent on grant funding, and the loss of that funding may remove much of the impetus for tenants to pursue substantive changes. The HD should support tenants in identifying additional financing options, including utility-sponsored rebates and incentives, public-private partnerships, federal and state infrastructure funding, and tax credits to reduce the financial burden and accelerate sustainability efforts.

Recommendation 2.6: Enhance Community Education on Alternative Fuels. There is some community uncertainty regarding the safety and economic benefits of transitioning to alternative fuels. The HD should enlist experts to assess emerging job opportunities, collaborate with marine insurers and ship operators to co-develop standardized risk assessments and safety protocols, and implement a sustained public engagement campaign communicating comprehensive safety measures and community benefits.

Recommendation 2.7: Formalize Planning for Bulk Fuel Infrastructure for Vessels. Bunkering planning for ocean-going vessel decarbonization is still in early stages. The HD should facilitate energy provider collaboration by assessing property needs, reviewing vacant land inventories, streamlining permitting, and ensuring all permit holders and bunker suppliers adhere to safety and regulatory requirements.

Recommendation 2.8: Support Operators Through High Clean Fuel Prices. The availability and high cost of hydrogen and an underdeveloped supply chain are the primary barriers hindering adoption of hydrogen-fueled vehicles and equipment. The HD should monitor the Port of Long Beach's hydrogen subsidy program through the Clean Truck Fund, continue implementing green lanes and utilization incentives for clean trucks, and investigate virtual green lanes and preferential appointment systems.

Pillar 3 | Digital Transformation

These recommendations are designed to transform the HD's operational backbone by leveraging technology not just for resilience, but as a driver of competitive advantage. They focus on strengthening the entire port ecosystem's cybersecurity posture, building a data foundation for advanced analytics and AI, and creating an integrated, forward-looking view of enterprise risk.

Recommendation 3.1: Advance Enterprise Data and Systems Integration. The HD utilizes several distinct systems across administrative, financial, and operational functions that are not consistently integrated, limiting the ability to generate cross-functional insights. The HD should continue developing a practical, enterprise-wide approach to data and systems integration that prioritizes key linkages across City-managed and Harbor-managed systems, defining clear data flows, integration priorities, and governance to support decision-making. This data blueprint is essential to unlock advanced operational capabilities, from predictive analytics for cargo forecasting to AI-powered resource scheduling and asset management. (Builds on 2018 retrospective.)

Recommendation 3.2: Continue Maturing the Cyber Resilience Center. The CRC has been successfully established as a first-of-its-kind collaborative threat-sharing hub. The HD should continue expanding participation by engaging additional tenants and supply chain stakeholders across the port ecosystem, focusing on sustained outreach through established engagement channels—including annual open houses, Harbor Trucking Association meetings, and on-site tenant visits—and strengthening collaborative threat detection and information-sharing capabilities by incorporating AI-driven tools for predictive threat modeling and automated anomaly detection. (Builds on 2018 retrospective.)

Recommendation 3.3: Strengthen Enterprise Risk Management Integration. The HD has established a collaborative and cross-divisional approach to risk management that is functioning effectively. The Risk Management Division works directly with every division on contract initiation and oversight, coordinating with IT on cybersecurity risk, insurance brokers on coverage, and business units on operational exposures. As a longer-term opportunity following progress on enterprise data integration, the HD should enhance enterprise-wide visibility of key risks by formalizing its collaborative practices under a unified ERM platform, providing leadership with a consolidated, real-time view of the enterprise risk landscape. This platform should be designed to aggregate real-time data and leverage predictive models to dynamically assess risk, moving beyond static reporting to proactive risk management. (Builds on 2018 retrospective.)

Pillar 4 | Workforce Development & Technological Readiness

These recommendations address the HD's role as a workforce convener, the talent pipeline for advanced technical roles, and the institutional mechanisms needed to ensure the regional workforce keeps pace with technological change.

Recommendation 4.1: Continue Acting as a Strategic Convener for Workforce Development. As a landlord port, the HD does not control terminal-level modernization or hiring decisions, and training for ILWU-represented workers is governed by the ILWU-PMA collective bargaining agreement (CBA), which limits the scope for direct outside input. However, the broader goods movement ecosystem—spanning logistics, clean energy, cyber-physical systems, and port-adjacent industries—involves a much wider workforce that falls outside CBA boundaries. The HD should establish a Workforce Council to serve as a convening forum across this broader landscape, aggregating insights from across the goods movement industry, community colleges, workforce development boards, and industry partners to support coordinated planning for the Goods Movement Workforce Training Facility and the Los Angeles County High Road Training Partnership (HRTP) strategy. By focusing on the full range of port-dependent occupations—not only longshore work—the Council can drive earlier engagement on emerging workforce demand, stronger alignment between educational pathways and actual job opportunities, and proactive planning as technologies continue to evolve. This Council can also lead greater internal coordination with LA City Departments—including the Economic and Workforce Development Department (EWDD), Community Investment for Families Department (CIFCD), Public Works, and the Personnel Department—to align city-wide efforts on local hiring, career path development, and civil service modernization.

Recommendation 4.2: Civil Service Classification Modernization. Chapter 5 identifies outdated civil service job classifications as one of the most concrete barriers to building in-house digital capability. Roles such as data analysts, software developers, and platform engineers do not exist within the current classification structure, forcing the HD to rely on external consultants for critical digital projects—including the Port Optimizer platform since 2017. The HD should initiate a formal review of civil service classifications with the City, identify the modern technical roles most needed to support the HD's digital strategy. and propose new or updated classifications. This effort should be coordinated with the Workforce Council (Recommendation 4.1) to ensure alignment between emerging skill needs and institutional hiring capacity.

- **Current Progress on Recommendation:** The City of Los Angeles Personnel Department is currently leading the charge to reform the City's Charter and Civil Service System. Some changes are to increase the number of exempt positions allowed for proprietary departments, optimizing the speed in which talent can be brought into the City, modifying exam processes, and combining open and promotional lists. The Charter Reform discussion for the November 2026 ballot has concluded. Most of the civil service reforms were referred by the City Council to a to-be-formed Ad-Hoc Committee on Charter Reform for the 2028 ballot.

Recommendation 4.3: Improve Visibility and Pathways for Advanced Technical Talent. Internal port operations increasingly rely on advanced technical capabilities—data analytics, digital platforms, cyber-physical security, automation diagnostics, and energy systems management—that compete for talent with established technology and clean energy sectors. The HD should strengthen a Port-Tech career pathway framework that clarifies how applied technology skills are used across HD operations. This includes clarifying technology use cases to help education partners and students understand where advanced skills are deployed, aligning messaging across AltaSea, the Training Facility, and education partners, and engaging City stakeholders to inform future workforce and classification planning.

Recommendation 4.4: Improve Data, Metrics, and Transparency to Support Workforce and Infrastructure Readiness. Information related to workforce outcomes, infrastructure readiness, and technology adoption is distributed across initiatives and stakeholders, limiting the ability to assess progress or communicate system-wide readiness. Because the HD is not the employer of record for the port-area workforce, access to employer-held HR and labor market data will depend on voluntary participation and may be constrained by proprietary concerns. The HD should therefore develop a readiness framework anchored in data sources it can directly influence or access—including Training Facility enrollment and completion metrics, infrastructure investment tracking, and innovation activity across HD-affiliated initiatives. Where broader workforce indicators are needed, the HD should pursue aggregated, non-proprietary data through regional workforce boards, state labor databases, and willing industry partners. This framework should support regular reporting on progress and gaps, and align metrics across AltaSea, the Training Facility, and HD planning functions.

Conclusion

This report evaluates the HD's operational and financial performance, identifying key opportunities to build on its existing foundation to address upcoming strategic challenges. Building on progress since 2018, the HD's long-term stability requires structured discipline across four strategic pillars:

- **Fiscal Health, Competitiveness, and Capital Delivery.** This pillar prioritizes fortifying the HD's core revenue base through proactive lease management and trade diversification, strengthening competitive positioning through refined performance metrics, and optimizing capital strategy to prepare for future mega-projects through innovative delivery models and enhanced project oversight. Key initiatives from the retrospective include refinement of performance tied incentive programs, modernizing lease economics through mechanisms like sliding scale pricing and MAGs, CPI escalators, and waterfront development through the PAIP.
- **Energy Transition and Community Health.** Building on the HD's demonstrated track record including a 90% reduction in diesel particulate emissions since 2005 and measurable improvements in community health outcomes-these recommendations advance a comprehensive decarbonization strategy that addresses everything from grid resilience and alternative fuel supply chains to the regulatory and cost challenges facing tenants. Critically, they also formalize the community-facing commitments that have earned public trust.
- **Digital Transformation.** This pillar focuses on strengthening the enterprise-level disciplines fundamental to operational integrity, including maturing the port-wide cybersecurity framework and further integrating technology systems and enterprise risk management for data-driven decision-making. Together, these initiatives create the secure, data-rich environment necessary to harness advanced analytics and AI.
- **Workforce Development and Technological Readiness.** These recommendations formalize the HD's role as a central facilitator between labor, industry, and education, ensuring the regional workforce is prepared for the technological shifts shaping the maritime industry-and that the HD's own institutional capacity to hire and retain advanced technical talent keeps pace with the demands of a digitally enabled port.

By implementing the recommendations in this report, the HD can enhance its landlord port model to address emerging operational demands and secure its long-term financial stability and competitive positioning.

Appendices

The following appendices contain the detailed data tables, charts, and supporting analysis referenced throughout the main report. They are intended for readers who require the full evidentiary basis behind the narrative findings.

Appendix A | 2018 IEA Recommendations

The following table outlines the original 12 recommendations from the 2018 IEA Survey. It is important to note that several of these recommendations, particularly those concerning commercial real estate, were based on assumptions that have since been revised to sharpen the focus on the HD's core mission and economic return, as will be detailed in this report.

2018 IEA Survey Key Recommendation Details

#	Key Challenges and Opportunities	Key Recommendations	Priority
	Cargo Real Estate and Terminals		
1	The two ports (Ports of Los Angeles and Long Beach) 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.	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.	High
2	In the past twenty years, significant structural changes in the shipping industry have materially affected the leasing and pricing strategy of the 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	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.	High

#	Key Challenges and Opportunities	Key Recommendations	Priority
	decision. 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.		
3	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 and lack of available property, it is critical it continues to focus on sustaining its core cargo businesses.	Continue to pursue pragmatic diversification opportunities that enhance supply chain velocity and enhanced utilization of existing industrial properties.	High
	Commercial Real Estate		
4	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	Identify future development opportunities compatible with existing developments and begin the planning process.	High

#	Key Challenges and Opportunities	Key Recommendations	Priority
	demand for the waterfront's visitor-serving retail, restaurant and hotel development.		
5	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
6	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.	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.	Moderate

#	Key Challenges and Opportunities	Key Recommendations	Priority
7	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.	Assess the impact on the number of visitors of current investments in public access infrastructure improvements to target investments.	Moderate
8	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.	The Waterfront Commercial Real Estate Division should continue to direct and manage the Department's commercial real estate assets.	Moderate

	Harbor Department (HD) Management		
9	The vulnerability of the HD itself to incursions is low because the HD established a Cyber Security Operations Center (CSOC) 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
10	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
11	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
12	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

Appendix B | Fiscal Health Analysis Details

B.1 Current Fiscal Assessment

Previous IEA recommendations from 2018 stressed prudent management of the HD's lease revenues, overhead obligations, and growing capital portfolio. This section provides an analysis of the Port's recent historical and current financial performance.

Objective: The objective of this analysis is to assess the stability and risk profile of the Port's core revenue base by evaluating the performance, utilization, and financial strength of its key container terminal operators.

Methodology:

- Analyze historical terminal revenue, cost and balance data for fiscal years 2019 - 2025 to identify key risk factors and trends.

To provide insights into the current fiscal assessment, a review and analysis of the financial results and trends from 2019 through 2025 was performed to establish a historical performance baseline.

Port of Los Angeles Financial Metrics (2019-2025)[61]							
($ Millions)	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**
Shipping Services	$410.3	$369.6	$463.8	$485.8	$448.4	$512.5	$540.3
Rentals	$66.0	$73.1	$78.2	$86.8	$117.5	$116.7	$117.9
Royalties, Fees, Other	$30.1	$25.0	$27.7	$55.2	$90.5	$77.8	$140.5
Total Operating Revenues	**$506.4**	**$467.7**	**$569.7**	**$627.8**	**$656.4**	**$707.0**	**$798.7**
Total Operating Expenses (Before D&A)	$240.4	$273.6	$273.0	$253.9	$299.4	$290.5	$346.4
Operating Income (Before D&A)	**$266.0**	**$194.1**	**$296.7**	**$373.9**	**$357.0**	**$416.5**	**$452.3**
Operating Margin	**52.5%**	**41.5%**	**52.1%**	**59.6%**	**54.4%**	**58.9%**	**56.6%**

Observation 1: HD Showed Strong Resilience and Revenue Growth. The HD has demonstrated remarkable resilience and revenue growth, recovering strongly from the 2020 pandemic trade dip to reach a new high of nearly $800 million in operating revenue in FY2025. In the most recent two years (FY2024-2025), this strong top-line growth has outpaced the growth in operating expenses, leading to a very strong

[61] Source: Port of Los Angeles ACFR (2019-2025)

Operating Margin, which has remained above 56% for the past two years (58.9% in FY2024 and 56.6% in FY2025).

Observation 2: Revenue Concentration is Dominated by Shipping Services but has shown recent shifts driven by growth in non-shipping categories. While Shipping Services remain the largest component of revenue, its share of revenue has decreased from 81.0% in 2019 to 67.6% in 2025. This positive trend is driven by significant growth in "Rentals" and particularly "Royalties, Fees, and Other," which has almost tripled its share of the revenue pie, from 6% to almost 18%, due to higher recent Harbor Maintenance Tax receipts.

Port of Los Angeles Revenue Category Mix (2019-2025)[62]				
Revenue Category	**FY 2019**	**FY 2021**	**FY 2023**	**FY 2025**
Shipping Services	81.0%	81.4%	68.3%	67.6%
Rentals	13.0%	13.7%	17.9%	14.8%
Royalties/Other	6.0%	4.9%	13.8%	17.6%

B.2 Shipping Services Revenue

"Shipping Services" revenue is largely derived from Wharfage which is charged for cargo moving over the Port's wharves. Shipping Services makes up nearly 68% of total revenue at the Port growing from $410.3 million in 2019 to $540.3 million in 2025 which represents a 4.7% compounded growth factor during this time. Shipping Services is the primary contribution to Port financial performance and obligations to POLA freight ecosystem. The nature of these revenue streams is bound through long-term lease agreements from terminal operators which provide payments which include Minimum Annual Guarantees (MAGs) and variable revenues that is tied to cargo volume performance at each terminal. Below we have outlined some key factors to review the strength of Shipping Services Revenues and observations that may be useful for consideration.

Objective: To assess the underlying stability of the Port's primary revenue base by analyzing the multi-year trends of the mix of revenue types that underpin Shipping Services Revenue.

Methodology:

- Review Shipping Services revenues for fiscal years 2019 through 2025 from the Port-provided financial analysis. The analysis helps us understand the risk associated with

[62] Source: Port of Los Angeles ACFR (2019-2025)

customer concentration, reliance on long-term contracts, macroeconomic impacts and payment security.

- **Observation 3: Variable Revenue Demonstrates Both Volatility and Significant Upside.** While the fixed (Minimum Guaranteed) revenue provides a stable floor, Variable Shipping & Rental Revenues are the key indicator of the Port's real-time performance and operating leverage. This is clearly demonstrated by its volatility during the pandemic. During the 2020 trade slowdown, variable revenue fell to less than 20% of Total Operating Revenues. Conversely, during the cargo surges of 2022, 2023 and 2025 as well as in years of high HMT receipts, variable revenues can approach and exceed 40% of Total Operating Revenues, showcasing the Port's ability to capture significant financial upside when trade is strong. This demonstrates that the Port's business model allows it to fully participate in the upside of strong cargo volumes, providing significant operating leverage on top of its stable, guaranteed revenue base.

Fixed vs Other Revenues[63]

$ in Millions	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025
Min. Guaranteed Revenue	$357.2	$374.5	$398.0	$367.6	$399.0	$435.6	$445.7
Variable Shipping & Rental Revenues	$119.1	$68.2	$144.0	$205.0	$166.9	$193.6	$212.5
Total Shipping & Rentals	$476.3	$442.7	$542.0	$572.6	$565.9	$629.2	$658.2
Other Operating Rev.	$30.1	$25.0	$27.7	$55.2	$90.5	$77.8	$140.5
Total Operating Revenues	$506.4	$467.7	$569.7	$627.8	$656.4	$707.0	$798.7
Guar. as a % of Shipping & Rentals	75.0%	84.6%	73.4%	64.2%	70.5%	69.2%	67.7%
Variable as a % of Shipping & Rentals	25.0%	15.4%	26.6%	35.8%	29.5%	30.8%	32.3%
Guar. as a % of Total	70.5%	80.1%	69.9%	58.6%	60.8%	61.6%	55.8%
Variable & Other as a % of Total	29.5%	19.9%	30.1%	41.4%	39.2%	38.4%	44.2%

Observation 4: The HD Maintains a Majority of its Operating Revenues in the "Shipping Services" category (67%) – Most of Which is Secured by Long-Term Lease Agreements with Terminal Operators.
However, a deeper look into this category reveals that this concentration risk is significantly mitigated by the structure of the revenue itself. Much of this revenue is derived from Wharfage fees charged for cargo moving over the Port's wharves. Crucially, these wharfage revenues are largely secured by long-term lease agreements with terminal operators, which include MAGs. These contractual guarantees ensure a stable and predictable revenue floor, insulating a large portion of the Port's primary revenue stream from short-term volatility in cargo volumes and providing a strong foundation for the Port's financial performance.

[63] Source: Port of Los Angeles Fixed vs Variable Rent Analysis.xlsx & Port of Los Angeles ACFR 2025

Observation 5: High Customer Concentration Risk is Mitigated by Long-Term Lease Structures.

The Port's revenue concentration is acute at the customer level. In FY2025, the top 5 tenants accounted for 52.1% of total revenue, and the top 10 for 70.4%. While this presents a risk, it is substantially mitigated by the Port's long-term lease agreements with these same operators. These contracts include Minimum Annual Guarantees (MAGs) that lock in most of the revenue from these key tenants, providing a critical layer of financial stability against potential disruption with a single operator.

Shipping Services Customer Concentration[64]	
Customer Group	**% of Total FY2025 Revenue**
Top 3	37.0%
Top 5	52.1%
Top 10	70.4%

Observation 6: The Port's Foundation of Guaranteed Revenue Shows Consistent and Strong Growth, Enhancing Financial Security.

While the mix between fixed and variable revenue has fluctuated with cargo volumes, a more important trend is the consistent growth of the Port's guaranteed revenue floor. This fixed revenue, secured by long-term tenant contracts, has grown from $357.2 million in 2019 to $445.7 million in 2025, representing a Compound Annual Growth Rate (CAGR) of 3.7%. This steady increase demonstrates that the Port has been successful in locking in higher minimum payments during lease negotiations, building an ever-stronger, predictable revenue base that provides a reliable cushion against global trade volatility.

Minimum Guaranteed Revenue (2019-2025)[65]		
Fiscal Year	**Minimum Guaranteed Revenue ($M)**	**Annual Growth Rate**
2019	$357.2	Not Available
2020	$374.5	+4.8%
2021	$398.0	+6.3%
2022	$367.6	-7.6%
2023	$399.0	+8.5%
2024	$435.6	+9.2%
2025	$445.7	+2.3%

Observation 7: Revenue Base is Secured by Large, Investment-Grade Terminal Operators.

[64] Source: Port of Los Angeles Terminal Data
[65] Source: Port of Los Angeles Fixed vs Variable Rent Analysis.xlsx

The HD's revenue from its container terminals is secured by a tenant base of exceptional credit quality. The majority of the key terminal operators are backed by parent companies with strong, investment-grade credit ratings from S&P, Moody's, and Fitch. Global leaders like A.P. Moller-Maersk, NYK Line, and COSCO Shipping all hold ratings in the 'A' to 'BBB' category, indicating a very low risk of default and a stable, reliable revenue stream for the HD.

Terminal Financial Ratings[66]				
Terminal	**Parent Company**	**S&P**	**Moody's**	**Fitch**
APMT	A.P. Moller-Maersk	BBB+	Baa1	A-
Fenix Marine	CMA CGM	BB+	Baa2	BB+
Yusen	NYK Line	A-	A3	A-
Everport	Evergreen Marine	Not Rated	A3	A
Trapac	MOL	A-	A3	A-
LA TiL Terminal	MSC	Not Rated	Not Rated	Not Rated
China Shipping	COSCO Shipping	A-	A3	A

B.3 Enterprise Risk Profile Analysis

This analysis reviews the critical role of the HD in the national and global supply chain and its competitive positioning. Geopolitical and Trade Risk is one of the most significant risks tempering the HD's credit profile. All three credit rating agencies explicitly cite vulnerability to international trade disputes, tariff policy, and supply chain shifts.

Objective: To analyze the Port's overall market position by first examining the external competitive landscape, including national and regional market share trends, and then

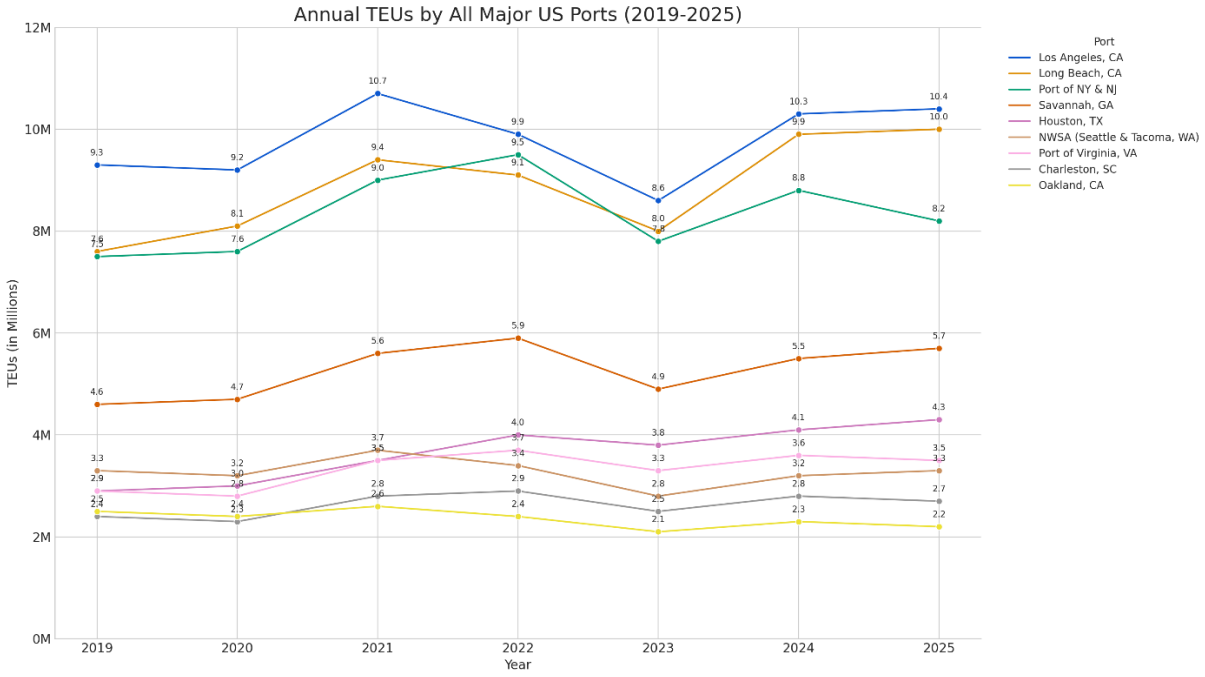
[66] Ratings provided from KPMG Desktop Research

evaluating internal revenue concentration and the strategic management of trade-lane diversification.

Methodology: Synthesize data from two primary sources. (external market trends were analyzed using twenty-foot equivalent unit (TEU) container volume data from the U.S. Department of Transportation).

Observation 8: The National Competitive Landscape from 2019 to 2025 was Reshaped by Overlapping Macro-Economic Shocks.

Ongoing trade tariffs, particularly on Chinese goods, had already begun to alter trade routes and incentivize supply chain diversification. This was followed by the COVID-19 pandemic, which drove a massive import surge that pushed the HD to a record 10.7 million TEUs in 2021. The resulting supply chain congestion, coupled with concerns over West Coast labor negotiations, then accelerated the shipper flight to East and Gulf Coast ports during 2022-2023. 2025 saw an acceleration of freight movements at the HD to avoid the International Emergency Economic Powers Act (IEEPA) Tariffs imposed by the Trump Administration. While during this analysis period, trade flows at the HD shows tremendous resilience, this volatile period proves that market share is highly sensitive to both geopolitical trade policy and acute supply chain disruptions which continue to be fluid as of the date of this report.

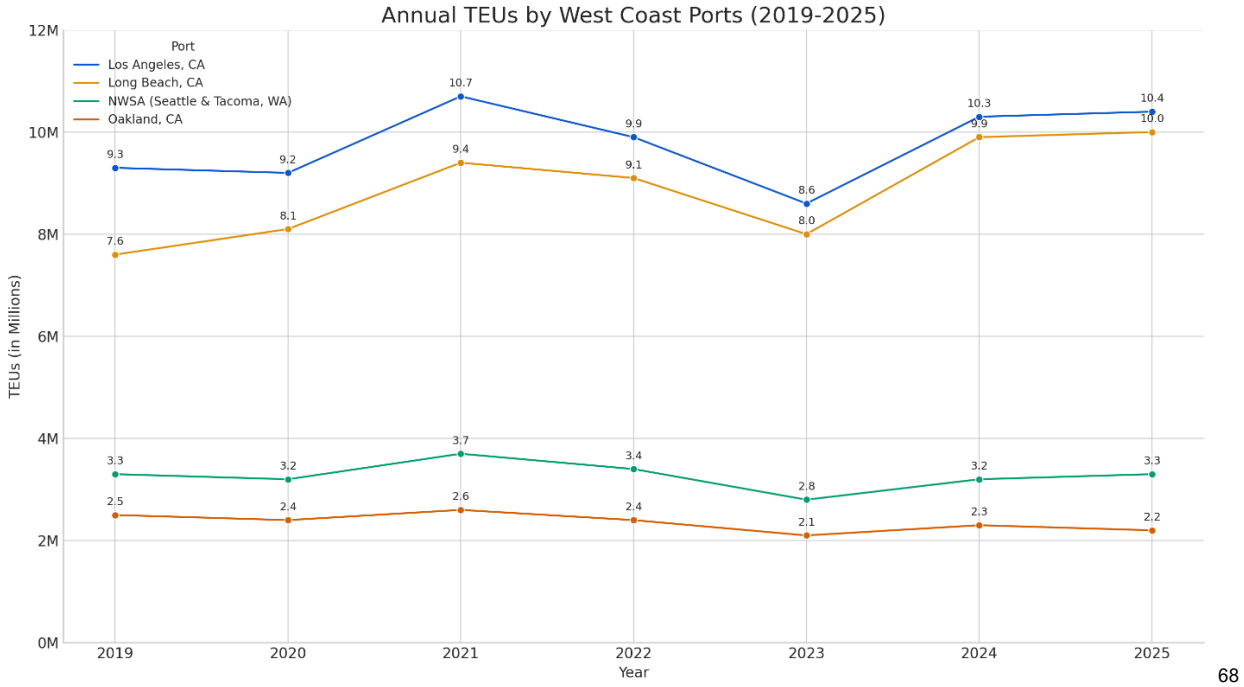


[67]

[67] TEU Volume Data provided from US DOT

Observation 9: The West Coast Competitive Landscape is Increasingly a Story of Cargo Volume Consolidating around the LA Area.

While the Port of Los Angeles and the Port of Long Beach have both shown significant growth since 2019, the other major West Coast ports have seen their volumes stagnate or decline. From 2019 to 2025, TEU volume at the Port of Oakland declined, while the Northwest Seaport Alliance (NWSA) remained flat. This demonstrates that Port of Los Angeles is successfully strengthening its position as the dominant freight gateway on the West Coast.



[68]

Objective: To quantify the risks to the revenue base by measuring its reliance on specific markets.

Methodology: Assess the Port's market risk and revenue concentration through a multi-source analysis. Data regarding the proportion of 'discretionary' cargo was sourced directly from the Management's Discussion and Analysis (MD&A) in the Port's financial statements. To analyze trade-lane diversification, a comparative analysis of import TEU volume by nation was performed using specific operational data provided by the HD for 2019 and 2025. This trade data was reconciled with the Port's Annual Comprehensive Financial Report (ACFR).

[68] TEU Volume Data provided from US DOT

Observation 10: A Significant Portion of Recent Cargo Surges was Driven by Temporary Factors, including Canal Disruptions and Shipper Concerns over East Coast and Gulf Coast Labor Negotiations.

While the Port is dominant in today's container shipping markets, long-term erosion of market share for "discretionary cargo" to competing ports on the U.S. Gulf and East Coasts is an area of focus for the Port to remain competitive to attract these volumes in the future. According to the Port's financial statement MD&A, it is noted that approximately 33% of its cargo is "discretionary" and at a higher risk of being diverted to competing ports. This underscores the importance of the HD's successful and ongoing strategic efforts to diversify its trade partners.

Observation 11: The HD has Successfully Mitigated Geopolitical Risk by Diversifying its Trade Sources During a Period of Overall Growth.

The HD has executed a successful strategic pivot to diversify its import sources and de-risk its exposure to a single trade partner. This was not a simple reshuffling of existing volume, but a realignment that occurred during a period of healthy growth, with total import TEU volume increasing by 8.2% from 2019 to 2025. Within that growth, the HD significantly reduced its reliance on China (whose share of imports dropped from 63.1% to 53.6%) while more than doubling its volume from other key Southeast Asian partners like Vietnam. This demonstrates a successful strategy to not only mitigate geopolitical risk but to also capture new growth from emerging markets simultaneously.

Observation 12: Diversification of Cargo Origin has Contributed to the Port's Overall Growth.

The TEU imports reveal that the growth in trade from Vietnam was not just a component of the Port's growth, it was effectively all of it. The 387,390 TEU increase from Vietnam alone accounts for approximately 99% of the Port's entire net import growth since 2019. This growth successfully offsets the volume decline from China and other regions. While this demonstrates the success of the diversification strategy, it also highlights a new, emerging concentration risk, where the Port's near-term growth is now highly dependent on the continued strength of this single, rapidly expanding trade lane.

TEU Imports by Nation (2019 & 2025)[69]

Country	2019 TEUs	Share % (2019)	2025 TEUs	Share % (2025)	Net Change TEUs	% Change (2019-2025)
China	3,015,339	63.1%	2,773,114	53.6%	(242,225)	(8.0%)
Vietnam	351,704	7.4%	739,094	14.3%	387,390	110.1%

[69] Revised POLA TEU by Country & Port of Los Angeles ACFR 2019, 2025

TEU Imports by Nation (2019 & 2025)[69]						
Country	2019 TEUs	Share % (2019)	2025 TEUs	Share % (2025)	Net Change TEUs	% Change (2019-2025)
Japan	208,925	4.4%	323,073	6.2%	114,148	54.6%
Taiwan	232,269	4.9%	270,078	5.2%	37,809	16.3%
South Korea	208,465	4.4%	267,806	5.2%	59,341	28.5%
Thailand	174,852	3.7%	188,534	3.6%	13,682	7.8%
Indonesia	136,010	2.8%	169,181	3.3%	33,171	24.4%
Malaysia	82,494	1.7%	97,336	1.9%	14,842	18.0%
India	60,563	1.3%	77,189	1.5%	16,626	27.5%
All Others	311,135	6.5%	267,806	5.2%	(43,329)	(13.9%)
Total	**4,781,756**	**100%**	**5,173,211**	**100%**	**391,455**	**8.2%**

RENTAL REVENUES

Rentals revenue provides the HD with a stable and highly reliable secondary income stream, representing 14.8% of total operating revenue in FY2025. This category consists of recurring income from long-term leases for a wide range of Port-owned properties, including land, buildings, warehouses, wharves, and sheds. According to the Port's financial reports, this revenue stream has demonstrated strong and consistent growth, increasing from $66.0 million in 2019 to $117.9 million in 2025, which represents a 10.2% compound annual growth rate. This reliable, contract-based revenue provides another point of diversification of the Port's revenue base.

ROYALTIES, FEES, AND OTHER REVENUE

The "Royalties, Fees, and Other Revenue" category accounts for 17.6% of the Port's total operating revenue in FY2025. This category has grown significantly from $30.1 million in 2019 to $140.4 million in 2025, representing a compound annual growth rate of 29.2%.

Two of its most significant components from FY2025 are not core commercial activities of the HD but rather include:

- **Harbor Maintenance Tax Revenue ($60.6M):** HD leadership confirmed that this was a one-time receipt resulting from a successful federal advocacy effort. Future receipts are expected to return to historical levels of approximately $7 million annually. Due to changes in HMT allocations, Donor ports are expected to receive a more substantial allocation like the $85 million expected in FY 27, however his allocations are to be appropriated annually and are subject to approval by congress.

Therefore, for future years, the Port will not include them in forecasts. Starting in FY 28, the budget will include $10 million in HMT funds.

- **Clean Truck Fund (CTF) Rate Revenue ($45.1M):** While recorded as operating revenue for accounting consistency, this cash is restricted to fund the clean truck program. There is a corresponding "operating expense" related cash disbursements for the clean truck program.

The remainder of this other revenue category is largely attributable to utility reimbursements.

Observation 13: The Cruise Business has Recovered Well and is a Highly Profitable Growth Segment.

The cruise business is a key growth segment and is one of the Port's most profitable business lines. Cruise is projected to operate at an exceptional 72.6% operating margin in FY2025. The cruise segment's recovery from the pandemic has been dramatic; after falling to just $3.3 million in revenue during the FY2021 shutdown, it is projected to surge to $35.8 million in FY2025; more than triple its pre-pandemic level. The recovery in profitability is even more pronounced, with operating income expected to grow from $5.5 million in FY2019 to $26.0 million in FY2025, a nearly five-fold increase. This operational and financial rebound is supported by the Port's strong commitment to the future contributions of the cruise sector, highlighted by the $53 million self-funded capital investment in the Outer Harbor Cruise Development. This project will enable the HD to accommodate the largest modern cruise vessels, positioning it to capture further market share and growth in this high-margin business.

Cruise Financial and Operational Data (2019-2025)[70]				
Revenue Category	**FY 2019 (Pre-Covid)**	**FY 2021 (Covid low)**	**FY 2023 (Recovery)**	**FY 2025 (Actual)**
Passenger Volume	588,190	152,720	1,323,313	1,617,320
Total Revenue	$11.4M	$3.3M	$28.0M	$35.8M
Operating Income	$5.5M	$0.8M	$19.0M	$26.0M

B.4 Operating Expenses

To support the growth of the Port of Los Angeles, a careful review of operating expense profile was performed to identify areas to monitor which may contribute to a decline in financial performance and the ability to absorb the costs and capital requirements that are necessary to keep the Port's ecosystem healthy and strong.

[70] Port of Los Angeles Cruise Terminal Expense & Revenue 2025 Update

Objective: To understand the historical drivers of the Port's operating costs and profitability by analyzing trends in major expense categories relative to revenue from FY2019 to FY2025.

Methodology: Analyze data from the Port's audited Annual Comprehensive Financial Reports (ACFR) from FY2019 through FY2025. The Operating Ratio (Total Operating Expenses / Total Operating Revenues) was calculated to measure efficiency, and the growth rates of the largest expense categories "Salaries & Benefits" and "City Services" were analyzed to identify the primary drivers of cost.

Observation 14: Historical Data Reveals the Onset of the " Financial Contribution Pressure," with a Sharp Decrease in Profitability at the Start of the Pandemic.

The Port's historical financials clearly show the beginning of the margin compression that is projected to continue into the forecast period. The Operating Margin, a key measure of profitability, dropped significantly from 52.5% in FY2019 to 41.5% in FY2020. This 11-percentage-point decrease occurred as the COVID-19 pandemic began to disrupt global trade, causing a drop in revenues while contractual expenses continued to climb. Although the margin recovered dramatically in the subsequent years on the back of the historic cargo surge, the underlying trend of operating expenses growing faster than revenues was established.

Operating Margin (2019-2025) [71]			
Fiscal Year	Operating Revenues	Operating Expenses	Operating Margin
2019	$506,427	$240,427	52.5%
2020	$467,666	$273,570	41.5%
2021	$569,713	$272,983	52.1%
2022	$627,842	$253,900	59.6%
2023	$656,400	$299,420	54.4%
2024	$707,040	$290,535	58.9%
2025	$798,686	$346,390	56.6%

Observation 15: A One-Time, 18.5% Surge in Salaries & Benefits in FY2020 Was a Primary Driver of the Historical Financial Contribution Pressure.

A deeper analysis of the Port's expenses reveals that the sharp decline in the Operating Margin in FY2020 was primarily caused by a significant, one-time spike in the Port's largest expense category "Salaries and Benefits." This expense category, jumped by

[71] Port of Los Angeles ACFR (2019-2025)

$22.8 million (18.5%) and accounted for over 68% of the total operating expense increase in FY2020 as a result of new and retroactive labor agreements.

Observation 16: Spikes in City Services Costs Were Driven by Higher Payments for Fire Department and Recreation and Parks Services, Consuming a Significant Portion of Operating Income During the Pandemic.

A detailed review of the Port's financials reveals the impact of "City Services" expenses on profitability. The significant 15.5% jump in FY2025, driven by higher allocated costs for LAFD services, is a recurring theme. This expense category proved particularly burdensome during the pandemic. In FY2020, "City Services" costs were $48.4 million while the expense decreased slightly to $45.9 million in FY2021, it still represented a material cost during a period of trade disruption and revenue uncertainty. This highlights how the Port's exposure to cost increases from other City departments is a recurring driver of its operating expense growth and a key factor in the long-term financial contribution pressure.

Forecasted Expense Growth by Category (2025-2035)[72]				
Fiscal Year	Salaries & Benefits	Salaries & Benefits Growth	City Services	City Services Growth
2025	$179.5	+9.3%	$57.3	+13.5%
2026	$200.4	+11.6%	$70.4	+22.8%
2027	$229.1	+14.3%	$77.1	+9.5%
2028	$240.6	+5.0%	$81.0	+5.0%
2029	$252.6	+5.0%	$85.0	+5.0%
2030	$265.2	+5.0%	$89.2	+5.0%
2031	$278.5	+5.0%	$93.7	+5.0%
2032	$292.4	+5.0%	$98.4	+5.0%
2033	$307.0	+5.0%	$103.3	+5.0%
2034	$322.4	+5.0%	$108.5	+5.0%
2035	$338.5	+5.0%	$113.9	+5.0%

B.5 Strength of Balance Sheet

The Port of Los Angeles maintains an exceptionally strong balance sheet, which provides a foundation for financial stability and flexibility to achieve the Port's strategic and operational needs. The following analysis will examine these components in detail, demonstrating the Port's robust capacity to absorb market shocks and meet its financial obligations.

[72] Port of Los Angeles 10 Year Forecast

Objective: To assess the overall financial strength of the Port, including its robust cash position, its capacity to withstand market fluctuations, its ability to service existing debt, and its power to self-fund critical capital infrastructure.

Methodology: Conduct a multi-faceted review of the Port's financial health, using its financial statements and long-range financial forecasts as a primary data source. Liquidity and key credit metrics such as Days Cash on Hand (DCOH) and the Debt Service Coverage Ratio (DSCR). The Port's operational processes for revenue billing, collection, and write-offs to assess policy position were also reviewed.

DEBT PROFILE

Since 2018, the Department has made notable headway refinancing debt at more favorable rates, modernizing lease terms for container terminals, and actively seeking grants for clean-energy initiatives. However, retrospective interviews suggest important issues remain unresolved, particularly related to overhead billing clarity and the absence of a formal enterprise risk framework that captures significant financial exposures.

Observation 17: The HD has Successfully Executed a Deliberate and Highly Effective Deleveraging Strategy over the Past Seven Years.

This is quantitatively demonstrated by the significant reduction in the total outstanding debt on the balance sheet, which has been reduced from $810.1 million in 2019 to $297.6 million in 2025. The Port's capacity to service its remaining obligations is exceptionally strong, as evidenced by a Debt Service Coverage Ratio (DSCR) that has more than doubled from 4.0x to a projected 8.3x over the same period.

Total Outstanding Debt & DSCR (2019-2025)[73]		
Fiscal Year	**Total Outstanding Debt (in millions)**	**DSCR**
2019	$810.1	4.0x
2020	$711.1	3.0x
2021	$665.7	4.0x
2022	$577.3	3.5x
2023	$537.1	6.0x
2024	$493.8	6.9x
2025	$297.6	3.4x[74]

Observation 18: The HD is in a Position Strength through the Repayment of Debt. HD Leadership Confirmed this is part of a Financial Strategy to Strengthen its Credit Profile, Highlighted by a $103 Million Debt Defeasance in 2025.

[73] Port of Los Angeles ACFR (2019-2025)
[74] The lower DSCR in FY2025 reflects a one-time $103 million debt defeasance. This payment increased the total debt service for that year only, temporarily lowering the ratio while reducing overall long-term debt.

This repayment of debt helps absorb the possible fluctuations and market risk, if the Port were to experience financial disruption. It should be noted that even though the HD is experiencing a lower than typical DSCR in FY 2025, it is driven by debt defeasance. As will be noted later in this report, liquidity is quite strong as a result of this debt defeasance and provides future financial flexibility to absorb possible operational and financial disruptions.

CASH POSITION TO SUPPORT HD GROWTH

Observation 19: Stable and Substantial Cash Position.

The Port uses its cash reserves to support the delivery of the capital plan, meet debt service requirements and covenants, cover operational cash flow needs, and manage financial variations. Financial statements show unrestricted cash and cash equivalents nearly doubled from at the end of FY2019 to the end of FY2025. This accumulation of liquid reserves over this period reflects the Port's strong operational performance and financial management practices.

Observation 20: The HD's Liquidity has Strengthened Dramatically over the Past Five Years.

The Current Ratio, a key measure of the ability to cover all short-term obligations, has almost doubled from 5.82x in 2019 to 11.39x in 2025, indicating an exceptionally strong capacity to meet its immediate financial commitments.

Current Ratio (2019-2025)[75]			
Fiscal Year	Total Current Assets ($M)	Total Current Liabilities ($M)	Current Ratio
2019	$896.3	$154.1	5.82x
2020	$968.1	$157.3	6.15x
2021	$1,076.8	$173.9	6.19x
2022	$1,192.6	$228.3	5.22x
2023	$1,164.7	$250.7	4.65x
2024	$1,708.0	$177.0	9.65x
2025	$1,975.5	$173.4	11.39x

B.6 Revenue Billing, Collection, and Write-Offs

Objective: To assess the effectiveness of the Port's revenue collection practices by quantifying the provision for uncollectible receivables.

[75] Port of Los Angeles ACFR (2019-2025)

Methodology:

- Review documentation and interview responses from the Port's accounting team regarding billing and collections controls.
- Extract the "Provision for Bad Debts" for FY2025 from the Port's official financial forecast to measure its financial impact relative to total revenue.

Observation 21: Revenue Collection is Highly Effective, with a Provision for Bad Debt Amounting to Less Than 0.15% of Total Revenue.

The Port's revenue collection and credit management practices are confirmed to be highly effective. The FY2025 financial data shows a "Provision for Bad Debts" of $1.17 million. When compared against total operating revenues of $798.7 million for the same year, this provision accounts for just 0.14% of the total revenue. This extremely low figure is a strong quantitative indicator of two key strengths: the high credit quality of the Port's primary tenants and the effectiveness of the recently modernized billing and collection controls within the new Fusion ERP system. The financial risk from uncollectible receivables appears to be negligible.

B.7 Financial Resilience Outlook

A forward-looking analysis (2026-2035) projecting financial performance including revenues, expenses, profitability, and key credit metrics.

Objective: To evaluate the Port's long-term financial resilience by analyzing its 10-year forecast. This analysis will project trends in the Port's core revenue streams, operating expenses, and overall profitability. It will also assess the primary factors that underpin its financial strength, including its liquidity position (Days Cash on Hand) and credit capacity (Debt Service Coverage Ratio).

Methodology: Conduct a comprehensive analysis using the Port's official '10-Year Forecast' file (FY2025-2035). Detailed projections were developed for each major revenue and expense category to construct a pro forma income statement. Key credit and liquidity metrics, including the Debt Service Coverage Ratio (DSCR) and Days Cash on Hand (DCOH), were then calculated to assess long-term trends in profitability and financial stability.

Observation 22: **Pro-Forma Financial Forecasts Show Decreasing Revenues.**

The 10-year pro forma outlook projects that Total Operating Revenues will drop by approximately 10.5% in FY 2026, due primarily to perceived risks that persist in Shipping Services revenue tied to freight flows. The forecast shows a gradual growth uplift to reach total FY 2025 Operating Revenue levels again by FY 2034. This initial

decrease and stable planned growth presents a conservative approach to not expose the HD to high degrees of variability in the short and long-term planning needs of Port.

Port of Los Angeles Forecasted Financial Metrics (2025-2035)[76]											
(in millions)	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Shipping	$540.3	$518.2	$522.3	$530.1	$538.1	$546.1	$554.3	$562.6	$571.1	$579.6	$588.3
Rentals	$117.9	$119.2	$113.6	$118.2	$123.0	$127.8	$132.9	$138.3	$143.8	$149.5	$155.5
Royalties, Fees, Other	$140.5	$77.2	$80.8	$85.2	$83.6	$78.8	$73.8	$68.7	$63.4	$59.6	$55.7
Total Operating Revenues	**$798.7**	**$714.6**	**$716.7**	**$733.5**	**$744.5**	**$752.7**	**$761.1**	**$769.6**	**$778.3**	**$798.8**	**$799.6**
Total Operating Expenses (before D&A)	**$346.4**	**$418.9**	**$462.9**	**$485.9**	**$505.6**	**$532.1**	**$551.5**	**$569.7**	**$584.9**	**$600.6**	**$592.1**
Operating Income (Before Depreciation)	$452.3	$295.7	$253.8	$247.7	$238.9	$220.6	$209.6	$199.9	$193.4	$188.2	$207.5
Operating Margin	**56.6%**	**41.4%**	**35.4%**	**33.8%**	**32.1%**	**29.3%**	**27.5%**	**26.0%**	**24.8%**	**23.6%**	**26.0%**

Observation 23: Revenue Mix is Forecasted to Remain Stable, with Shipping Services Continuing to Dominate.

The Port's revenue mix is projected to remain highly stable over the next decade. Shipping Services will continue to be the primary revenue driver, consistently accounting for approximately 73-74% of total operating revenue. This forecast projects a steady-state where the Port's financial performance remains fundamentally tied to the health of its core cargo operations.

Forecasted Revenue Mix (2025-2030)[77]			
Revenue Category	**FY2025 (Actual)**	**FY2030**	**FY2035**
Shipping Services	67.7%	72.4%	73.6%
Rentals	14.8%	17.0%	19.5%
Royalties/Fees/Other	17.6%	10.6%	6.9%[78]

SHIPPING SERVICES REVENUE

"Shipping Services" revenue is forecasted to remain the Port's primary economic engine, growing from $540.3 million in FY2025 to a projected $588.3 million by FY2035, which represents a compound annual growth rate (CAGR) of 0.9%. The 10-year pro

[76] Port of Los Angeles 10 Year Forecast 2/11/2026
[77] Port of Los Angeles 10 Year Forecast 2/11/2026
[78] The forecasted decline in the "Royalties/Fees/Other" share is primarily due to the non-recurrence of the one-time Harbor Maintenance Tax receipt and the phasing out of the Clean Truck Fund Rate revenues.

forma outlook projects that Total Operating Revenues will drop by approximately 10.5% in FY 2026, due to significant risks that persist in freight flows and the fluid anomalies that IEEPA or other tariffs or other macroeconomic impacts which may impact import and export volumes. The modest but steady growth projection reflects an assumption of stable global trade conditions and expected continued success in managing core cargo operations.

Observation 24: Minimum Guaranteed Revenues are Important for Lease Renewal Priorities.

With key terminal lease renegotiations required in the coming few years, the Port's 10-year forecast shows some decreases to its guaranteed revenue base, with a projected drop of over $60 million between FY2026 and FY2027. This drop is a direct result of several major container terminal leases expiring in 2026. While the HD fully expects these tenants to re-sign new long-term leases, the forecast conservatively does not include the renewal income until new contracts are officially executed. Therefore, the primary financial risk is not one of vacancy, but of securing favorable terms which extend and expand minimum guaranteed revenues in the upcoming negotiations. The success of these renewals will be critical to locking in higher levels of MAG revenue to derisk the Port's long-term revenue foundation and risk of exposure.

Fiscal Year	Minimum Rental Income ($ in millions)[79]
2025	$445.7
2026	$447.3
2027	$384.7
2028	$376.2
2029	$379.8
2030	$383.4
2031	$407.3
2032	$407.3
2033	$407.3
2034	$407.3
2035	$407.3

Observation 25: Lease Expiration Timeline Presents Both Near-Term Risks and Long-Term Stability.

An analysis of the container terminal lease expiration schedule reveals a mixed but generally stable long-term outlook. While most tenants are secured under long-term agreements (e.g., Fenix Marine until 2043, APMT until 2032), providing a predictable

[79] Port of Los Angeles Fixed vs Variable Rent Analysis.xlsx

revenue base, several critical renewals are approaching. Two major tenants, Yusen and TiL, have leases expiring in late 2026**.** This creates a near-term concentration of renegotiation risk and highlights a key strategic dependency, particularly as the TiL renewal is reportedly contingent on a major capital investment.

Observation 26: Three Major Terminal Leases Expire Within the Next Five Years, Representing a Key Contractual Risk and Renewal Opportunity.

The analysis of the HD's lease portfolio reveals a concentration of near-term expirations. Three of the Port's seven key container terminal leases are set to expire by 2030. This includes Yusen and TiL (both expiring in 2026) and China Shipping (expiring in 2030). These three terminals collectively represent a significant portion of the HD's revenue and TEU volume. The upcoming expirations create both a risk of non-renewal and a critical opportunity to renegotiate terms, modernize revenue sources to enhance minimum guarantees, and secure long-term commitments and partnership and capital investment at the Port. The HD's strategy for managing these renewals will be a key factor in ensuring long-term financial stability.

Terminal Lease Expiration Date[80]		
Terminal	**Parent Company**	**Lease Expiration Date**
APMT	A.P. Moller-Maersk	2032
Fenix Marine	CMA CGM	2043
Yusen	NYK Line	**2026**
Everport	Evergreen Marine	2038
Trapac	MOL	2039
LA TiL Terminal	MSC	**2026**
China Shipping	COSCO Shipping	**2030**

[80] 2025 Terminal Detail provided by POLA

Observation 27: Successful Diversification Has Shifted Concentration Risk Amid a Volatile Macro-Environment.

The HD successfully diversified its import sources in response to a volatile macro-environment and trade tariffs, significantly reducing its reliance on China while more than doubling volume from trade partners such as Vietnam. However, this pivot has created a new concentration risk, as growth from Vietnam accounted for nearly all of the Port's net import growth since 2019. This highlights a strategic opportunity to further diversify by developing trade lanes with emerging nearshoring markets in Central and South America, which may offer opportunity for an even more resilient trade partner portfolio for the future.

Observation 28: Following a Projected 10% Post-Pandemic Surge in FY2025, Total TEU Volume is Forecasted to Grow at a Slow and Steady Pace.

After a significant 14.4% increase in FY2025 to 10.5 million TEUs, the Port's forecast projects a period of stabilization, with volumes dropping back to the 9.1 million TEU level in FY2026 and FY2027. From FY2028 onwards, the forecast shows a consistent and conservative growth trajectory, with TEU volumes projected to grow at an average of 1.5% annually through 2035. This steady, modest growth aligns with the flat revenue projections and highlights the Port's conservative stance on future trade volumes, a position HD leadership has confirmed is intentional given risks associated with potential tariffs and the broader macroeconomic environment.

Total TEU Forecast (2025-2035)[81]		
Fiscal Year	Total TEU Volume	Forecasted YoY Growth
2025	10,521.7	-
2026	9,100.0	-13.5%
2027	9,100.0	+0.0%
2028	9,236.5	+1.5%
2029	9,375.0	+1.5%
2030	9,515.7	+1.5%
2031	9,658.4	+1.5%
2032	9,803.3	+1.5%
2033	9,950.3	+1.5%
2034	10,099.6	+1.5%
2035	10,251.1	+1.5%

[81] Port of Los Angeles 10 Year Forecast 2/11/2026

RENTALS REVENUE

"Rentals" revenue is projected to continue its role as a stable and reliable secondary income stream, with forecasted growth from $117.9 million in FY2025 to $155.5 million by FY2035. This represents a 2.8% CAGR, underscoring the long-term, contract-based nature of this revenue. This steady, predictable revenue source provides an essential element to complement the more volatile revenues in the Port's portfolio, such as Shipping Services.

ROYALTIES, FEES, AND OTHER REVENUE

The "Royalties, Fees, and Other Revenue" category is forecasted to decrease from $140.5 million in FY2025 to $54.8 million by FY2035. This projected decline is a direct result of the non-recurrence of the one-time $60.6 million Harbor Maintenance Tax receipt and the gradual phasing out of the Clean Truck Fund Rate revenues in the forecast. The underlying core businesses within this category, such as the high-margin cruise operations, are expected to remain key strategic contributors.

Observation 29: The Cruise Business is Forecasted To Be a Powerful Driver of High-Margin Growth.

The Port's cruise business is projected to continue its dramatic recovery and enter a period of significant growth, solidifying its position as a key, high-margin revenue stream. Operating Income is forecasted to surge from $26.0 million in FY2025 to nearly $42.3 million by FY2030, a remarkable 62% increase. This growth is driven by a projected rise in passenger volume to over 2.1 million annually. Crucially, the business is expected to maintain its exceptional profitability, with the operating margin remaining consistently above 80%. This powerful financial performance is underpinned by the Port's strategic capital investments, including the $53 million self-funded Outer Harbor Cruise Development, designed to accommodate the largest modern cruise vessels and capture the most profitable segment of the market.

Forecasted Cruise Financials (2025-2030)[82]			
Revenue Category	**FY 2025 (Actual)**	**FY 2027 (Projected)**	**FY 2030 (Projected)**
Passenger Volume	1,617,320	1,995,000	2,150,000
Total Revenue	$35.8M	$46.3	$56.3M
Operating Income	$26.0M	$35.6M	$42.3M
Cruise Operating Margin	72.6%	76.9%	78.9%

[82] Port of Los Angeles Cruise Terminal Expense & Revenue 2025 Update

OPERATING EXPENSE GROWTH

Observation 30: The Port's Long-Term Forecast Reveals a Structural " Financial Contribution Pressure."

Long-Term Cost Pressures to monitor both: (1) the significant, unfunded capital investment required to meet environmental regulations and achieve decarbonization goals, and (2) rising operating costs (labor, city reimbursements) that could pressure profitability over the long term.

Total Operating Expenses are forecasted to grow steadily for most of the decade, while revenues are projected to remain relatively flat. The direct result of this dynamic is the financial contribution pressure. where Operating Income is projected to compress from a high of $452.3 million in FY 2025 to a low of $188.2 million by 2034. In relative terms, the Operating Margin is projected to fall from 56.6% to 23.9% over the same period. This highlights the central financial challenge for the HD over the next decade: managing expense growth in a stable revenue environment. However, the Port's financial resilience is secured by two powerful counterbalances: an exceptionally strong liquidity position and a conservative debt strategy.

Forecasted Operating Margin (2025-2035)[83]			
Fiscal Year	Operating Revenue	Operating Expenses	Operating Margin
2025	$798,685	$346,390	56.6%
2026	$714,604	$418,923	41.4%
2027	$716,700	$462,868	35.4%
2028	$733,520	$485,862	33.8%
2029	$744,549	$505,637	32.1%
2030	$752,725	$532,135	29.3%
2031	$761,066	$551,501	27.5%
2032	$769,579	$569,728	26.0%
2033	$778,271	$584,873	24.9%
2034	$788,797	$600,553	23.9%
2035	$799,565	$592,094	26.0%

Observation 31: Expense Growth is Heavily Front-Loaded, with Significant Spikes in the Initial Years of the Forecast Driving the " Financial Contribution Pressure."

An analysis of the year-over-year growth for the two primary expense drivers, "Salaries & Benefits" and "City Services," reveals that the incremental cost pressures are most severe in the initial years of the forecast. For "Salaries & Benefits," growth spikes to

[83] Port of Los Angeles 10 Year Forecast 2/11/2026

+11.6% in FY2026 and +14.3% in FY2027 before stabilizing at 5.0% annually for the remainder of the period. "City Services" experiences an even larger jump in expense expansion, with a projected increase of +22.8% in FY2026. This front-loading of expense growth is the fundamental driver of the margin compression seen in the Port's overall financial outlook.

Forecasted Expense Growth by Category (2025-2035)[84]				
Fiscal Year	Salaries & Benefits	Salaries & Benefits Growth	City Services	City Services Growth
2025	$179.5	+9.3%	$57.3	+13.5%
2026	$200.4	+11.6%	$70.4	+22.8%
2027	$229.1	+14.3%	$77.1	+9.5%
2028	$240.6	+5.0%	$81.0	+5.0%
2029	$252.6	+5.0%	$85.0	+5.0%
2030	$265.2	+5.0%	$89.2	+5.0%
2031	$278.5	+5.0%	$93.7	+5.0%
2032	$292.4	+5.0%	$98.4	+5.0%
2033	$307.0	+5.0%	$103.3	+5.0%
2034	$322.4	+5.0%	$108.5	+5.0%
2035	$338.5	+5.0%	$113.9	+5.0%

Observation 32: The Port's 10-Year Financial Forecast's Consistent Application of Inflation Adjustment May Understate Risks and Opportunities.

The 10-year forecast appears to use a non-inflated figures for many line items such as outside services and material/supplies. This approach could potentially understate potential future revenues while also underestimating the more likely long-term cost of the capital program. Incorporating multi-scenario inflation analysis would provide a more accurate financial picture to help manage both the core business and to better match the sources and uses to pay for the operations and capital plan of the Port.

BALANCE SHEET STRENGTH

Observation 34: High Levels of Cash are Expected to Support Strategic and Operational Needs.

Despite pressures on operating margins, the HD's long-range financial forecast indicates that its unrestricted cash position will be maintained and strong from FY 2025 and the cash position is projected to remain above FY 2025 level for the next decade.

[84] Port of Los Angeles 10 Year Forecast 2/11/2026

This level of liquidity allows the HD to self-fund its capital improvement program, absorb market shocks, and pursue strategic initiatives without relying on external financing.

Observation 35: Forecast shows Sustainable Cash Position and Credit Strength. Days Cash on Hand (DCOH) projected to remain above 500 days for the entire 10-year period.

Second, its debt position is exceptionally safe, with the Debt Service Coverage Ratio (DSCR) forecasted to stay in double digits, far exceeding the internal 2.0x policy target. Together, these strengths allow the HD to confidently manage the long-term profitability challenge while funding its strategic objectives.

DSCR 2025-2035[85]											
Credit Metric	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
DSCR	3.4x	10.1x	9.2x	14.8x	14.3x	13.5x	14.5x	14.3x	13.0x	12.8x	13.8x

B.8 Capital Project Delivery & Execution Capability

The Port's ability to successfully deliver its significant Capital Improvement Plan (CIP) is a core component of its long-term strategy to serve as the single largest destination gateway port in the United States. The CIP is built on a strong and flexible financial foundation, but its sheer scale and complexity, combined with the resources to adequately perform project oversight, creates a challenging delivery environment to execute and must be monitored with care and diligence.

Objective: To analyze the HD's historical execution of its Capital Improvement Plan (CIP) and to evaluate the financial feasibility and funding strategy for its future capital program.

Methodology: Conduct this analysis by synthesizing data from multiple sources. Historical capital spending and funding sources (FY2019-2025) were analyzed using the Port's audited Annual Comprehensive Financial Reports (ACFRs). The forward-looking analysis (FY2026-2030) was constructed using the Port's official '10-Year Forecast' file to create a 'Sources and Uses' model, projecting the Port's capacity to self-fund its future CIP.

[85] Port of Los Angeles 10 Year Forecast 2/11/2026

CAPITAL PLAN REVIEW

Observation 36: The HD has a Strong and Consistent Track Record of Self-Funding Its Capital Program.

A quantitative analysis of the Port's capital funding from FY2019 to FY2025 confirms its powerful self-funding capability. Over this period, the HD funded 85.1% of its total $899.2 million in capital expenditures from its own cash flow, with external grants accounting for the remainder. This model proved resilient even during the peak of the COVID-19 pandemic in FY2020 and FY2021 when operating incomes were down and the HD continued to self-fund over 94% of its capital program. This consistent ability to fund major infrastructure projects without relying on new debt issuance demonstrates exceptional financial strength and provides a significant degree of strategic flexibility.

Historical Capital Expenditure Funding Sources (2019-2025)[86]

Fiscal Year	Total Capital Spending	Funded by Grants	Funded by Port Cash	% Self-Funded
2019	$72.2	$5.3	$66.9	92.7%
2020	$104.3	$2.9	$101.4	97.2%
2021	$134.6	$7.4	$127.2	94.5%
2022	$97.5	$11.5	$86.0	88.2%
2023	$137.9	$37.6	$100.3	72.7%
2024	$180.9	$54.2	$126.7	70.0%
2025	$171.8	$14.9	$156.9	91.3%
Total	**$899.2**	**$133.8**	**$765.4**	**85.1%**

FIVE-YEAR CAPITAL IMPROVEMENT PLAN (2025-2030)

Observation 37: The Five-Year, $1.3 Billion CIP is Front-Loaded, with Spending Peaking in FY2027.

The Port's five-year, $1.3 billion Capital Improvement Plan is front-loaded, with spending projected to peak in FY2027 at $350 million. The plan is dominated by a few "mega-projects," with the Terminal Island Maritime Support Facility ($186.3M) and the Goods Movement Workforce Training Center ($145.0M) representing the largest single investments. While early spending in FY2025-2026 is focused on transportation projects like the SR-47 Interchange, the plan's peak in FY2027 is driven by a massive $105

[86] Port of Los Angeles ACFR (2019-2025)

million allocation for the Terminal Island Maritime Support Facility. Spending remains high in the later years, shifting focus to the community-oriented Goods Movement Workforce Training Center, which sees its peak investment in FY2028 and FY2029.

Select Major Upcoming Capital Projects (2026-2030) ($ millions)[87]						
Capital Project	**Total 5-Yr Budget**	**FY2026**	**FY2027**	**FY2028**	**FY2029**	**FY2030**
Electrical Infrastructure Improvement Program	**$188.3**	$8.6*	$16.2	$27.0*	$82.6*	$53.9*
Terminal Island Maritime Support Facility	**$186.3**	$4.3	$70.6*	$105.0*	$6.4*	-
Goods Movement Workforce Training Facility	**$145.0**	$2.6	$9.6	$70.9*	$58.9*	$3.0*
State Route 47/Vincent Thomas Bridge & Front St./Harbor Blvd Interchange Reconfiguration	**$71.2**	$47.6*	$21.3	$2.3	-	-
B. 302-305 On-Dock Railyard Expansion	**$69.6**	$26.3*	$42.7*	$0.5	-	-
Wilmington Waterfront Pedestrian Bridge	**$68.6**	$2.8	$23.5*	$38.0*	$4.0*	$0.2
Navy Way and Seaside Avenue Interchange Improvements	**$62.4**	$2.2	$2.6	$9.7	$31.7*	$16.2*
B. 49-51 Outer Harbor Cruise Terminal Development	**$53.4**	$4.0	$29.6*	$18.6	$1.1	-
Terminal Island Grade Separation	**$37.2**	$1.0	$14.0	$20.6*	$1.5	$0.1
B. 238-239 - MOTEMS - PBF Energy	**$33.4**	$18.3*	$14.4	$0.7	-	-
208 East 22nd Street Parking Lot Improvements	**$29.3**	$0.9	$26.5*	$2.0	-	-
Harbor Administration Building - HVAC Replacement	**$14.8**	$8.6*	$6.0	$0.2	-	-
B. 161 - Former Administration Building Renovation	**$7.5**	$0.3	$1.0	$1.9	$2.2	$2.0*
Wilmington Youth Aquatic Center	**$3.6**	$0.1	$0.1	$0.3	$2.0	$1.2*
Other CIP Projects	**$348.6**	$103.7	$125.8	$69.7	$23.2	$26.2
Total Annual CIP Budget	**$1,319.2**	**$231.3**	**$404**	**$367.5**	**$213.6**	**$102.8**

[87] Five Year Capital Expenditure Plan FY25-26

Capital Project	Total 5-YR Budget	Description[88]
Electrical Infrastructure Improvement Program	$188.3M	To support future power demands related to the Port's goal of 100% ZE cargo handling equipment by 2030, the HD and LADWP are set to begin a $501.0 million construction project to build a fourth rack at the LADWP power receiving station, as well as construct distribution lines and other electrical infrastructure.
Terminal Island Maritime Support Facility	$186.3M	This $194.6 million, 70-80 acre project will serve as a chassis support facility. It will involve grading, paving, power, lighting, fire protection, perimeter fencing, and a roadway connecting to the future rail grade separation project. Construction is expected to begin in June 2026.
Goods Movement Workforce Training Center	$145M	A $145 million training facility, which will be the first-of-its-kind in the U.S. dedicated to the goods movement industry. It will replicate environments like marine cargo terminals to provide a safe training environment for careers utilizing new and cleaner technologies.
SR-47 / V.T. Bridge Interchange	$71.2M	Will enhance access to the LA Waterfront, San Pedro, Terminal Island, and the West Basin Container Terminal, as well as improve traffic safety by replacing the existing westbound off-ramp on the south side of the Vincent Thomas Bridge with a new off-ramp on the north side.
B. 302-305 On-Dock Railyard Expansion	$69.6M	This project at the Fenix terminal will add approximately 16,200 linear feet of railroad track, five new loading tracks, and one tail track to improve the capacity of the existing on-dock railyard. Construction began in April 2025.

Observation 38: The Capital Plan is Front-Loaded, with Spending Dominated by Terminal Modernization and Zero-Emission Initiatives.

An analysis of the five-year Capital Improvement Plan by category reveals that spending is front-loaded, with peak investment of over $400 million projected for FY2027. The two largest areas of investment are "Terminals" ($449.2 million) and "Enhancements & Zero Emissions" ($352.9 million), which together account for over 60% of the total planned budget. The spending patterns for these categories reveal two different strategic approaches. "Terminals" and "Transportation" funding is concentrated in the early years of the plan, reflecting the timeline for specific large-scale construction projects. In contrast, spending on "Enhancements & Zero Emissions" remains consistently high over all five years, indicating that modernization and environmental initiatives are not a single project but an ongoing, core strategic priority for the Port.

Major Upcoming Capital Projects by Category (2026-2030) ($M)[89]						
Category	**FY2026**	**FY2027**	**FY2028**	**FY2029**	**FY2030**	**Total**
Terminals	$88.8	$211.0	$142.8	$10.7	$0.9	$449.2
Transportation	$53.0	$41.1	$42.7	$34.0	$16.3	$189.2
Security	$4.5	$3.1	$0.6	-	-	$8.3
Enhancements & Zero Emissions	$23.2	$92.7	$89.5	$92.1	$55.5	$352.9
Maritime Services	$66.8	$56.0	$91.8	$76.9	$30.0	$321.6
Forecasted CIP Total Cost 2026-2030	**$231.3**	**$404.0**	**$367.5**	**$213.6**	**$102.8**	**$1,319**

[88] Port of Los Angeles Adopted Annual Budget 2025/2026
[89] Port of Los Angeles Five Year Capital Expenditure Plan FY25-26

CAPITAL FUNDING ANALYSIS

Observation 39: The HD's Cash Position is Available to fund Capital Projects, Service Debt, or Offset Operational Shortfalls.

The HD's funding plan projects positive operating cash flow in FY2025 to initiate the 5-year capital plan. As capital spending increases, funding shortfalls are projected during the peak construction years of FY2026 through FY2029. HD leadership indicated these deficits will be covered by a combination of grants and existing cash reserves. If funding gaps are funded by the start of FY2030 and following a period of projected drawdowns, the residual cash position and potential future grant receipts appears to provide the fiscal capacity to manage the capital spending period.

Observation 40: The Port can augment its cash position with attractive debt terms to deliver targeted strategic elements of its Capital Plan.

The Port's investment-grade credit profile provides access to debt markets at favorable rates, supplementing its cash position for capital program delivery. Furthermore, all three major credit rating agencies have assigned the Port a "Stable" outlook, reflecting expectations that it can manage current obligations and near-term market fluctuations without impacting its credit rating.

Observation 41: Labor Relations and Operational Disruption Can Impact Credit Rating. Labor relations are not just an operational issue; Fitch has explicitly identified Labor Disruptions as a possible credit negative ESG risk.

Labor stability is a recurring concern. Multiple credit agencies highlight the Port's history of labor disruptions on the West Coast. Fitch's assignment of a negative-impact ESG score for "Labor Relations & Practices" elevates this from an operational issue to a material governance and financial risk in the eyes of the market. A strike or slowdown by the ILWU doesn't just halt operations temporarily; it inflicts long-term damage on the Port's reputation for reliability and can cause permanent cargo diversion of discretionary cargo to Gulf and East Coast ports.

The entire business model of the HD rests on the smooth, efficient flow of goods. Labor stability is the bedrock of that model. The fact that Fitch has assigned a specific, negative-impact score of '4' for this issue elevates it from a recurring operational challenge to a material financial risk that must be explicitly managed and disclosed to stakeholders. The transient benefits the HD saw from East Coast labor uncertainty in FY2024 can easily be reversed with trade that discretionary for shippers.

ANALYSIS OF FUNDING SOURCES AND THE IMPACT FROM IIJA EXPIRATION

To assess the HD's ability to fund its capital plan and model the impact of the 2026 expiration of the IIJA. The HD's grant summary was reviewed to differentiate between direct capital grants and passthrough grants. We then compared the direct capital grant amounts to the Port's "Net Operating Income" and the overall size of the Five-Year Capital Expenditure Plan (as indicated above).

Observation 42: The HD's Capital Program is Generally Self-Funded, with the Use of State and Federal Grants Acting as Occasional Strategic Program Accelerators.

A detailed review of the Port's grant portfolio reveals that the HD's capital program is quite self-reliant. The largest direct federal grant, the $411.7 million EPA Clean Ports Grant, is primarily a passthrough program to fund customer equipment, not the HD's own infrastructure. The direct federal capital grants for the HD's own projects total a much smaller $41.3 million. When compared to the $1.28 billion five-year capital plan, direct grants, while strategically important for accelerating specific projects (such as the Terminal Island Railyard), are not a primary enabler of the overall program. The CIP is fundamentally funded by the HD's own internally generated revenues, making the financial plan highly resilient to the 2026 IIJA expiration. Furthermore, the Port's healthy balance sheet provides significant funding flexibility, allowing it to either issue debt for high-impact projects or use its substantial cash reserves (pay-as-you-go) to deliver the program.

Observation 43: The HD is a Key Partner in Clean Energy Strategic Initiatives.

Transportation related to freight and logistics is a major contributor to carbon that is released into the atmosphere. Statewide policies and HD initiatives have increased the Port's urgency to participate in the transition to clean energy solutions for the long-term benefit of the HD ecosystem, community and customer requirements. In addition to key infrastructure investments, the IIJA included several Federally funded initiatives to support the transition to clean energy program. In addition to its direct capital grants, the HD was a key partner in the $1.2 billion ARCHES grant from the Department of Energy to develop a regional hydrogen hub. A recent policy shift at the Federal level has removed funding for this project. While these funds do not flow directly to the HD's capital budget, the initiative is an example critical to the Port's long-term strategy to participate in the transition to diverse and zero-carb/ energy and will require significant coordination and potential future investment in supporting infrastructure.

Observation 44: Alternatives are emerging for Evaluating Clean Transportation Fuel Production.

As an alternative to some of the IIJA funding, the recent issuance of proposed regulations for the §45Z Clean Transportation Fuel Production Credit makes it a newly actionable opportunity to work with partners to provide different opportunities to support the transition to clean energy. This recent guidance from the Treasury and IRS provides the specific rules needed for the HD or its partners to accurately evaluate the financial case for the production and use of clean transportation fuels, such as green hydrogen. By clarifying the path to qualification, these regulations create a possible near-term window (2026-2029) of opportunity for the HD or partners to de-risk a strategic investment into clean transportation fuel production, potentially creating a new revenue stream while serving the vast energy needs of its own transportation ecosystem.

FUTURE MEGA-PROJECTS & THE NEED FOR INNOVATIVE DELIVERY

Observation 45: The Scale of Future "Mega-Projects" Necessitates a Shift Towards Innovative Delivery and Funding Models.

Beyond the five-year CIP, the HD and greater port complex has several ambitious "mega-projects" on the horizon, such as:

- Pier 500 Terminal Expansion,
- Berth 302-306 Expansion
- TiL Terminal Rehabilitation, and
- Additional Waterfront Redevelopment for the cruise business.

The financial scale, technical complexity and partnerships required of these projects will likely exceed the practical limits of the Port's traditional, self-funded delivery model. While these projects are not planned in the CIP, they are critical to the overall strategy and future of the Port.

This creates a strategic need to explore and implement emerging and new alternative models like Public-Private Partnerships (P3s) that can wrap capital program needs with a long-term lease or concession to transfer specific risks, leverage private sector capital instead of the Ports and operational know-how and expertise. These and other critical capital programs can also benefit from a review of strategic exploration around the recently announced Federal **Maritime Action Plan (MAP)** to identify areas of strategic focus and future opportunities for Federal investment at the Port.

B.9 Capital Project Delivery & Management

Objective: To assess the effectiveness of the HD's internal systems, processes, and controls for capital project delivery and management, and to identify opportunities to enhance predictability, transparency, and fiscal oversight.

Methodology: Review internal policy and governance documents, financial reports, and project status reports from the PICS system. This was supplemented by interviews with key personnel, including the Chief Harbor Engineer and leaders in finance, audit, and project controls.

Observation 46: The HD Maintains a Solid Foundation of Capital Project Delivery Controls.

Construction Managers oversee day-to-day contractor performance, in certain cases using the PMWeb™ project management system; Harbor Engineering and project managers coordinate design and reporting under the direction of the Chief Harbor Engineer (CHE); and the Project Information and Control System (PICS) serves as the primary system of record for portfolio status, executive dashboards, and Commission and Audit Committee reporting. A critical governance layer is provided by the Project Development Committee (PDC), which reviews all project variances, reauthorizations, and the use of unallocated capital funds. This is reinforced by monthly PICS updates, bi-annual leadership project reviews, and bimonthly Audit Committee reporting.

At the same time, several control challenges limit predictability and public-facing clarity. The primary challenge is that performance transparency is diluted when status indicators (green/yellow/red) reset after PDC reauthorizations. Standard portfolio reports in PICS and CIP reporting show project health based on the currently authorized status. When the PDC approves a cost or schedule change, projects often revert to "green," which limits visibility into the cumulative variance against the original baseline commitment. Viewers not intimately familiar with the project's history may misinterpret performance as being on-track when it has, in fact, required significant change.

This is compounded by challenges in data stewardship. Although PICS is the single source of record for project status, and its data management has improved through automated reminders and the support of a dedicated Project Controls team, ensuring consistent, timely, and reconciled data updates remains a critical dependency for reliable portfolio reporting. The need for constant oversight to ensure complete and accurate data entry can undermine the reliability of executive dashboards and decision-making, and it can impede alignment between the various project management and financial systems.

Appendix C | Sustainability Analysis Details

C.1 Zero Emissions: Supporting Frameworks / Activities

The HD has several frameworks and initiatives in place to support their emissions reduction targets across their mobile assets.

Table 6 – Emission Reduction Programs

Frameworks	Framework Target	Support Mechanisms / Activities
1. Clean Truck Program	Transition to 100% zero-emission (ZE) drayage truck fleet (CARB) by 2035	• Clean Air Action Plan • Port Drayage Truck Registry (DTR) • Clean Truck Fund • Partnerships with Manufacturers • Heavy-duty truck charging initiatives • Technology Feasibility Assessments • LADWP grid upgrades • Charging station buildout • Demonstration projects via Technology Advancement Program (TAP) • Shore to Store Project
2. Zero Emissions cargo handling equipment	Transition to 100% zero-emission terminal/cargo equipment by 2030	• Clean Air Action Plan • USEPA Clean Ports Grant for trucks and CHE • Feasibility Assessment Framework • Technology Advancement Program (TAP) • Infrastructure Upgrades • Renewable diesel strategy • Shore to Store Project • Hydrogen Cranes
3. Reduce emissions from ships calling at the ports	N/A	• Clean Air Action Plan • Environmental Ship Index (ESI) Incentive Program • Shore Power Program: Alternative Maritime Power® (AMP®) (CARB) • Green shipping corridors, e.g. with Shanghai and Singapore (Zero emissions by 2030) • Vessel Speed Reduction Program (Financial incentives for voluntary speed reductions to 12 knots or less within 20 or 40 nautical miles of Point Fermin) • Reduce Ocean going ship onboard incineration • Alternative marine fuels: Supporting LNG-powered container ships, engine repowers, and pilots for methanol and ammonia as future marine fuels

Frameworks	Framework Target	Support Mechanisms / Activities
4. Zero emissions Harbor Craft	N/A	• Clean Air Action Plan • LA Marine Emission Reduction (LA MER) Project (Catalina Express, Harbor Breeze Cruises partnership) supported through a $31 million from CARB • Testing on two harbor craft • California Commercial Harbor Craft Regulation requiring cleaner upgrades and newer technology
5. Reduce emissions of trains coming into the port	N/A	• Clean Air Action Plan • Zero-emissions switcher locomotive demonstration project • Alameda Corridor to reduce truck trips • Testing zero-emission locomotives (Pacific Harbor Line (PHL)) • On-dock rail network enhancements to reduce truck congestion and emissions (Pier 400) • CARB In-Use Locomotive Regulation

C.2 Zero Emissions: Analysis

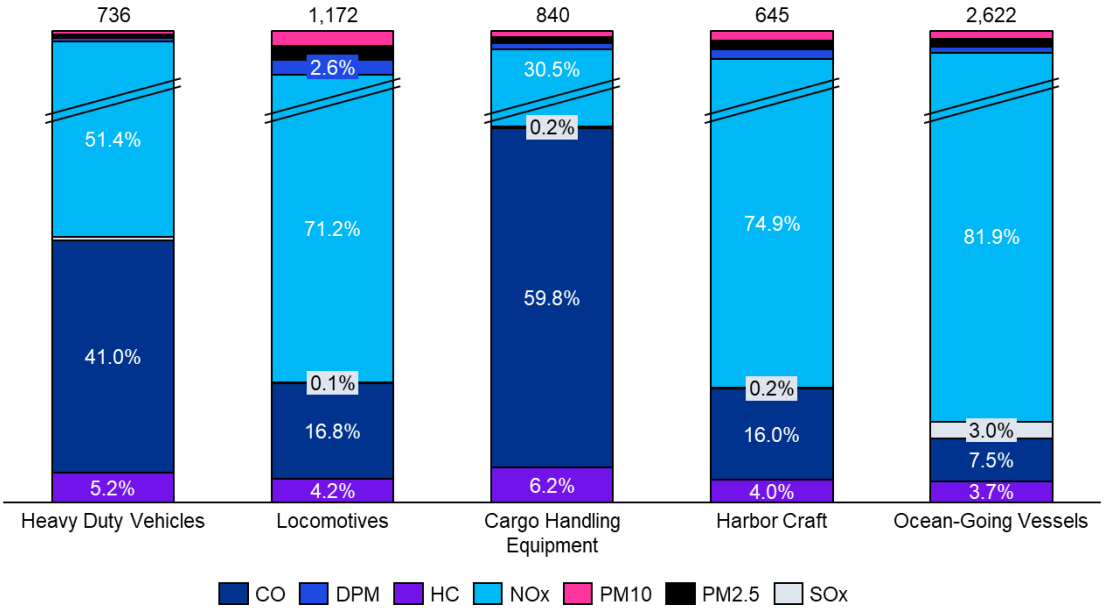


Figure 1 – Emission Summary (in tons) by Source Category (2024)

The HD tracks its emissions through two approaches: one that helps ensure compliance with the CARB's 1990-based targets for regulatory compliance, and a second that tracks

reductions against a 2005 baseline, which reflects the Port's operational starting point and supports tracking progress across tenants and supply chain stakeholders responsible for emissions reductions. As a result, while the HD has made considerable progress, reducing overall GHG emissions by 21% from the 1990 baseline despite a nearly 500% increase in cargo volume, achieving the ambitious 2030 and 2050 reduction targets is complex due to a few critical, interdependent challenges: a deficit in the required electrical and alternative fuel infrastructure (capacity and delivery), technology maturity for zero-emission and near-zero emission technology for heavy-duty operations, global and national regulations, and business feasibility for port operators and service providers to transition to zero emission (or near zero emission) mobile assets. The path forward requires a strategic shift from addressing individual equipment types to adopting a unified, ecosystem-wide approach that simultaneously addresses technology, infrastructure, and economic viability across all port operations. The following sections provide a detailed analysis of the specific successes and challenges port-wide and for each mobile asset.[90]

Port-Wide GHG Emissions Reduction

Port-Wide Targets: 40% emissions reduction by 2030 and 80% by 2050 based on 1990 levels. [91]

Port-Wide Successes:

- Achieved 21% reduction in CO2e emissions in 2024, compared to the 1990 baseline, despite a 38% increase in TEU throughput based on 2005[92], or 495% increase from 1990.
- HD has a significant number of initiatives and achievements in efforts to transition to ZE/NZE assets outlined by asset class in this report.

Port-Wide Challenges:

- **Technology Feasibility and Commercial Availability**
  - Slow Production Scale-Up: Manufacturers are struggling to scale up ZE equipment production in time for equipment to be commercially available at scale within the required timeframe.
  - Parts & Maintenance: Lack of readily available parts, secondhand market and specialized maintenance for new ZE equipment, which can lead to extended down time.

[90] Port of Los Angeles, Inventory of Air Emissions 2024

[91] Port of Los Angeles, Inventory of Air Emissions 2024

[92] Port of Los Angeles Inventory of Air Emissions 2024

  - Matching Duty Cycles: Current ZE technology (especially battery-electric) is not yet fully capable of matching the demanding duty cycles of all port equipment, such as top picks needing to sustain full shifts.
  - Larger Equipment Needs: Larger CHE and drayage trucks are often better suited for hydrogen fuel cells than batteries, but this technology is less mature.
- **Infrastructure Gap**
  - Grid Capacity: The existing electrical grid does not yet have the capacity to power a fully electrified port. LADWP would need to invest nearly $500 million in upgrades, including new receiving stations and substations, to deliver the required power (e.g., 20 MW per terminal).
  - Fueling Infrastructure: The HD will need to develop infrastructure for alternative fuels like hydrogen and methanol. Producers are hesitant to invest without guaranteed demand, creating a "chicken-and-egg" scenario where the lack of infrastructure limits adoption of these technologies, and vice versa.
- **Regulatory and Permitting**
  - Lack of Standards: The absence of national or state standards for some ZE fueling (e.g., methanol bunkering protocols) means the HD may need to consider developing its own interim guidelines and protocols in collaboration with stakeholders, creating additional work and potential for delays.
  - Coordination Challenges: While there's strong internal commitment, coordinating efforts across city departments and with external regulatory bodies remains complex.
  - Permitting & Regulatory Delays: Obtaining permits for new ZE infrastructure can be a slow and challenging process which can act as a deterrent to ZE investment by tenants.
  - Inspector Training & Familiarity: Inspectors may sometimes be less familiar with emerging zero-emission technologies, which can result in additional punch lists and potential delays.
  - Multi-Agency Coordination: Projects often require approval from multiple agencies (LADBS, US Coast Guard, Fire Department, Port Police, Coastal Commission), each with their own requirements.
- **Financial Costs & Investment Risk**
  - High Upfront Costs: ZE equipment types (e.g., electric drayage trucks costing ~$350k-$520k, hydrogen trucks ~$675k-$900k) are significantly more expensive than their non-ZE counterparts (~$125k - $150k)[93]

[93] Final 2024 Drayage Trucks Feasibility Assessment

- Execution Lag Time: There can be a lag between the allocation of grant funds and actual payouts due to project milestones and vehicle delivery times e.g., delivery of ZE vehicles can take approximately one year from the date of order.
- Uncertainty for Operators: Small owner-operators face high financial risk due to the cost, lack of secondary market, and higher insurance for ZE equipment.

- **Public Perception & Community Concerns**
  - Hydrogen Safety Concerns: Some public and environmental justice (EJ) community groups express fears about hydrogen technology.
  - "Dirty Generation": Community groups are concerned that even with ZE vehicles, the energy source still contributes to overall emissions.

Assets

Heavy Duty Vehicles (HDV)

Percentage of total port emissions: 48%

Goals: Transition to 100% zero-emission drayage truck fleet by 2035.

Successes: In 2024, GHG emissions dropped by 15% compared to 2005 levels, driven by stringent GHG emission standards and the implementation of the Clean Truck Program (CTP). In the same period, HDV emissions were reduced by 98% for Diesel Particulate Matter (DPM), 94% for Nitrogen Oxides (NOx), and 91% for Sulfur Oxides (SOx), 84% for Carbon Monoxide (CO) and 90% for Hydrocarbons (HC)[94]. The HD's success in this effort comes from executing a two-step strategy. First, the creation of the Clean Truck Fund (CTF) & Fleet Modernization and Drayage Truck Registry (DTR) to create a modern, uniformly clean diesel fleet, which achieved substantial air quality benefits. Now, the HD is leveraging that success and initiatives (DTR), and CTF which resulted in incentive vouchers for up to 350 ZE drayage trucks[95]) to drive the next, more challenging transition to a fully zero-emission fleet by 2035. To date the HD has achieved full compliance with 2010+ engine standards, and has secured substantial funding ($120M+ in fees from the CTF, $60M through the California HVIP program[96] in partnership with the Port of Long Beach, $412M EPA grant) for zero-emission trucks and chargers. It has smoothly rolled out multiple initiatives including early grid planning, partnering on a $135 million project

[94] Port of Los Angeles Inventory of Air Emissions 2024

[95] Port of Los Angeles Adopts Near-Term Clean Truck Spending Plan | News | Port of Los Angeles

[96] California HVIP

with the Port of Long Beach[97] and regional air quality agencies to install 207 heavy-duty truck charging units at eight sites around Southern California, assessment of grid and charging needs, funding 250 ZE heavy duty drayage trucks and 300 chargers via an EPA grant for the Clean Ports Program[98], and validating ZE truck performance in port operations through TAP pilots.

Challenges: Closing the final gap for drayage trucks (over 600 ZE trucks in the Drayage Truck Registry) requires the market to solve the most difficult edge cases: finding technologically viable solutions for the longest and heaviest routes, developing extensive and currently insufficient infrastructure, and de-risking the significant financial burden for small business owner-operators that service the port. Current ZE technology is not yet a one-for-one replacement for diesel, as today's battery-electric trucks are unable to service the longest drayage routes; their heavier weight reduces cargo capacity; heavier curb weights compared to traditional diesel trucks reduce payloads and impacts profitability. A full transition would require building out an estimated 6,200 charging ports and establishing a hydrogen fuel network with 32 hydrogen refueling stations for fuel cell electric trucks that currently does not yet exist[99]. This is compounded by the need for multi-year, large-scale upgrades to the electrical grid to handle the immense power demand. In addition, the upfront cost of a ZE truck can be more than double that of a new diesel truck, coupled with a lack of a mature secondary market and limited repair networks, creates a high-risk investment for operators that hinders the final-mile adoption needed to meet HD's ambitious goals.

Finally, operators' dependence on incentive programs and the potential for regulatory and market shifts could affect fleet electrification, timelines, and strategies.

Cargo Handling Equipment (CHE)

Percentage of total port emissions: 17%[100]

Goals: Transition to 100% ZE terminal/cargo equipment by 2030.

Successes: From 2005 to 2024, the share of electric CHE equipment increased by 7% (from 4.4% to 11.3%), reaching 225 electric units, which represent around 11.3% of the total equipment units in 2024. Compared to 2005 levels, emissions of DPM decreased by

[97] Port of Los Angeles | POLB truck charging

[98] Port of Los Angeles Awarded $412 Million Grant from U.S. EPA for Zero-Emission Transformation |News

[99] Trucks | Clean Air Action Plan

[100] Port of Los Angeles Inventory of Air Emissions 2024

79%, NOx by 82%, SOx by 82%, CO by 37% and HC by 50% in 2024[101]. The HD demonstrated the feasibility of grid-electric and hydrogen RTG cranes, enhanced deployments through strong stakeholder collaboration, initiated a pilot for hydrogen trucks under the Shore-to-Store (S2S) Project, supported the roll-out of hydrogen-powered cranes and the retrofitting and repowering of harbor craft and CHE. Several key types of ZE CHE have demonstrated high overall feasibility for port operations. The 2024 Zero-Emission Cargo Handling Equipment Feasibility Assessment reports that grid-electric RTG cranes lead at 90% feasibility, followed by battery-electric large-capacity forklifts (86%) and yard tractors (72%). This confirms that effective ZE solutions already exist for [102] the CHE fleet. The HD also secured funding [103] via an EPA grant for the Clean Ports Program.

Challenges: The total GHG emissions from CHE increased by 8% in 2024, compared to 2005, primarily due to a 12% increase in energy consumption over the same period[104]. The HD and port operators faces challenges including the need for significant grid upgrades, immature hydrogen infrastructure combined with high upfront costs, early zero-emission model issues such as software and thermal problems, the necessity for improved charging logistics and additional staff training, the mandate for diesel operations to cease by 2029 (MSF), increased costs for suppliers due to 100-150% tariffs on Chinese-made ship-to-shore cranes and other cargo-handling equipment, and the withdrawal of approximately $1.2 billion in federal funding for hydrogen hubs in California. The single largest obstacle is the lack of sufficient electrical infrastructure. The 2024 ZE CHE Feasibility Assessment states that a full transition will require over 2,000 new chargers and could increase the demand on the utility grid by more than three times[105]. While plans are in place to build this capacity, the HD and its utility partners project that these necessary upgrades may take approximately 4-5 years to complete[106]. Operational reliability is required for large-scale deployment, as some reliability issues still require manufacturer involvement and maintenance. For the most energy-intensive equipment, hydrogen is the preferred ZE alternative, but the technology is not yet mature. All fuel-cell

[101] Port of Los Angeles Inventory of Air Emissions 2024

[102] Cargo-Handling Equipment | Clean Air Action Plan

[103] Port of Los Angeles Awarded $412 Million Grant from U.S. EPA for Zero-Emission Transformation | News

[104] Port of Los Angeles Inventory of Air Emissions 2024

[105] Cargo-Handling Equipment | 2024 Draft Cargo Handling Equipment Feasibility Report

[106] Cargo-Handling Equipment | Clean Air Action Plan

CHE models are categorized as "pre-commercial" or "early commercial," with a limited number of manufacturers and deployments.[107]

Harbor Craft

Percentage of total port emissions: 7%[108]

Goals: No current target in place for Zero emissions but initiatives in place for emission reduction; not a primary contributor of GHG emissions.

Successes: The LA Marine Emission Reduction (LA MER) Project, a partnership between Catalina Express and Harbor Breeze Cruises, received $31 million in CARB funding and around $30 million in operator ($15 million each) matching. Supported by an additional $340,000 from the Port of Long Beach and $650,000 of HD funds[109], the project is testing emission reduction technologies on two types of harbor craft (passenger ferries and excursion boats). Regulatory-driven fleet modernization has resulted in measurable criteria pollutant reductions from harbor craft operations. In compliance with California's Harbor Craft Regulation, the entire fleet switched to renewable diesel. By 2024, 82% of harbor craft energy came from the newer Tier 2–4 engines. The 2024 Air Emissions Inventory reports that between 2005 and 2024, harbor craft emissions have been reduced by 68% for DPM, 32% for NOx, 87% for SOx, 51% for CO and 46% for HC[110].

Challenges: While past efforts have been successful, the next phase of transitioning to full zero-emission technology presents complex challenges, particularly regarding the readiness of ZE systems for diverse duty cycles and the need for new infrastructure. Harbor craft activity increased by 8% in 2024 compared to 2023 and 32% since 2005, leading to a 24% rise in total GHG emissions over the same period[111]. Although 82% of the harbor craft energy came from advanced Tier 2-4 engines, the majority are Tier 2 and Tier 3. Only 7% of the engines are Tier 4[112], the highest standard and closest to zero-emission performance, reflecting ongoing operational and technological constraints. A significant challenge is that ZE propulsion systems, whether battery-electric or fuel-cell, are not yet proven to be operationally or economically viable for all these specialized duty cycles, especially for high-power applications like assist tugs that require short bursts of

[107] Cargo-Handling Equipment | 2024 Draft Cargo Handling Equipment Feasibility Report

[108] Port of Los Angeles Inventory of Air Emissions 2024

[109] LA MER Project | News | Port of Los Angeles

[110] Port of Los Angeles Inventory of Air Emissions 2024

[111] Port of Los Angeles Inventory of Air Emissions 2024

[112] Port of Los Angeles Inventory of Air Emissions 2024

intense power. A full transition to ZE harbor craft would necessitate entirely new shoreside infrastructure. This includes high-capacity electrical systems for charging electric vessels and the development of production, storage, and distribution networks for alternative fuels like hydrogen or methanol, none of which currently exist at the required scale. The CAAP outlines a strategy to "develop and implement a feasible path to ZE" for harbor craft. A key challenge will be the process of defining what is "technically and financially feasible" for these vessels, which will require extensive studies, demonstration projects, and collaboration between the HD, regulators, and vessel operators to help ensure new rules do not compromise port operations.

Ocean-going Vessels (OGV)

Percentage of total port emissions: 19%[113]

Goals: OGVs represent primarily one of the three main contributors to GHG emissions, along with HDVs and CHEs. The HD has a target of demonstrating the feasibility of deploying zero-emissions container ships through its green corridors with Shanghai and Singapore by 2030.

Successes: The HD has achieved its most dramatic emission reductions (A 42% reduction in total GHG emissions, 94% in DPM, 59% in NOx, 98% in SOx, 54% in CO and 53% in HC in 2024, compared to 2005 levels[114]) from ocean-going vessels, driven by a combination of successful voluntary initiatives/international cooperation and improved fleet efficiencies. HD has improved efficiency by achieving a 34% reduction in container ship arrivals while increasing container volume by 38% since 2005. The HD is providing shore power to berths with a CARB goal of reaching 100% compliance with At-berth regulations by 2027. The HD is also promoting green and zero-emission fuels via the Green Shipping Corridors with 8 ports in Japan, China and Vietnam, and are achieving high voluntary participation in a vessel speed reduction (VSR) program. In addition, the HD utilizes the Port Optimizer tool to enhance efficiency and support the use of alternative emissions control technologies. The reductions in GHG emissions were driven by a few highly effective programs. In 2024, 97% of vessels complied with the VSR program within 20 nautical miles, and 64% of vessel calls utilized clean shore power while at berth.[115]

Challenges: While the HD has successfully controlled conventional pollutants, the challenge of eliminating greenhouse gas emissions is far more complex. The primary

[113] Port of Los Angeles Inventory of Air Emissions 2024

[114] Port of Los Angeles Inventory of Air Emissions 2024

[115] Port of Los Angeles Inventory of Air Emissions 2024

challenge is that scalable, zero-carbon propulsion technology for large ocean-going vessels does not yet exist on a commercial scale. Unlike the successful SOx reduction, which was mandated by an international agreement (ECA), there are currently no binding global regulations for a full transition to zero-emission shipping. The Port Master Plan notes the HD's objective is to "adapt to changing technology, cargo trends, and regulations," but for deep-sea shipping, these regulations must be international to be effective, creating a complex policy challenge that is largely outside the HD's direct control. A transition to fuels like green hydrogen or methanol requires a complete overhaul of global energy and port infrastructure. The capital investment required to build new ZE vessels and the infrastructure to support them is estimated to be in the trillions of dollars globally. Without clear international regulatory mandates and strong financial incentives, ship owners and fuel producers face enormous investment risk, slowing the transition.

Locomotives

Percentage of total port emissions: 8%[116]

Goals: No current target in place for Zero emissions from locomotives calling at the ports; not a primary contributor of GHG emissions.

Successes: Compared to 2005, the total GHG emissions decreased by 13%, and a reduction of 45% for DPM, 51% for NOx, 99% for SOx, 17% for CO and 44% for HC in 2024[117]**.** The most gains have come from cleaning up the local "switching" locomotives that operate exclusively within the port complex and the successful implementation of a landmark agreement with the major railroad companies. The HD has achieved reductions in locomotive emissions since 2005. Most local switching operations are handled by Pacific Harbor Line (PHL). The 2024 Air Emissions Inventory notes that PHL's fleet consists primarily of new, low-emitting locomotives specifically designed for this purpose, which has been a primary driver of the emission reductions. The HD's partnership with the BNSF and Union Pacific railroads has been highly effective. The MOU established targets for the railroads to bring newer, cleaner line-haul locomotives (Tier 2, 3, and 4) into the South Coast Air Basin. By 2024, this agreement had resulted in a fleet where over 52% of the work (measured in megawatt-hours) was performed by cleaner Tier 2, 3, and 4 locomotives[118]. The near-total reduction in SOx emissions is a direct result of the

[116] Port of Los Angeles Inventory of Air Emissions 2024

[117] Port of Los Angeles Inventory of Air Emissions 2024

[118] Port of Los Angeles Inventory of Air Emissions 2024

universal adoption of ultra-low sulfur diesel (ULSD), which contains only 15 parts per million (ppm) of sulfur.

Challenges: Unlike equipment that operates exclusively within the port complex, locomotives are part of a vast national network, which presents unique and complex challenges to achieving the final goal of zero or near zero emissions. Zero-emission locomotives capable of performing the demanding line-haul duties required to move thousands of tons of cargo across the country are still in testing and early deployment stages in the market. Developing, testing, and certifying ZE locomotives and the infrastructure to support them is a significant undertaking that will require a national, multi-decade strategy. The HD has no direct regulatory authority over the railroads. Progress is dependent on voluntary agreements like the MOU. Locomotives are extremely durable, high-value assets with service lives often exceeding 30-40 years. This slow rate of turnover means that even with strong regulations, it takes decades for the entire fleet to be replaced with newer, cleaner technology. While expanding the use of on-dock rail is a key strategy to reduce truck trips, it presents its own challenges. The Port Master Plan discusses the ongoing need for projects like the Terminal Island On-Dock Rail Facility, which involve complex construction, grade separations, and continuous roadway access adjustments, representing major, long-term infrastructure investments.

C.3 Community Impacts

The most recent community-related air emissions target set by HD was an 85% reduction in population-weighted cancer risk from DPM emissions by 2020[119].

HD exceeded its Clean Air Action Plan (CAAP) health target in 2014[120], years ahead of schedule. By 2024, HD achieved a 90% reduction in DPM emissions compared to the 2005 levels, surpassing the 2020 target[121]. Having significantly reduced port-related emissions and their direct impact on surrounding neighborhoods, HD is now focused on a long-term goal of zero emissions for all CHE and Drayage Trucks by 2030 and 2035 respectively.

HD has expanded its community focus beyond emissions mitigation to a broader strategy of proactive integration and support. This expanded scope is most visibly realized in the development of over ten miles of public waterfront promenades, which physically connect residential communities to the harbor and transform industrial boundaries into shared

[119] Port of Los Angeles Inventory of Air Emissions 2024

[120] Port of Los Angeles Inventory of Air Emissions 2014

[121] Port of Los Angeles Inventory of Air Emissions 2024

public assets. This effort is complemented by new destination projects including West Harbor dining, retail, and entertainment district, and the City Dock No. 1 marine research center, which are designed to increase public access, provide educational opportunities, and help ensure the Port can serve not only as an economic engine but as a valued and integrated member of the San Pedro and Wilmington communities.

C.4 Community Impacts: Supporting Frameworks / Activities

Successes: The HD has made measurable progress in reducing the health risks posed to surrounding communities by significantly cutting emissions. HD has successfully reduced emissions despite cargo growth and current and future programs are being implemented to continue this trend. The primary objective of the CAAP was to reduce the population-weighted cancer risk from port-related Diesel Particulate Matter (DPM) by 85% by 2020, which it met in 2014, well in advance of the deadline.

In 2024, the Port experienced a 19% year-over-year increase in container volume and achieved its best year ever for reducing emissions per container, as reported in the Port's latest Air Emissions Inventory[122]. Since 2005, the Port has reduced overall emissions of DPM by 90%, SOx by 98%, and NOx by 73%. Per 10,000 containers, emissions of DPM, SOx, and NOx have decreased by 93%, 99%, and 81%, respectively[123]

The HD's contribution to regional air pollution has considerably decreased. In 2005, port-related activities accounted for over 9% of the entire South Coast Air Basin's DPM emissions[124]. By 2024, that contribution had fallen to 6.4%, even as cargo throughput increased by 38% over the same period[125]. Additional success in relation to community impact is breaking down the barriers between the industrial port and the community by creating dedicated public spaces on the port complex, formalizing public input in the development process, providing educational and recreational facilities, and proactive communication and digital outreach.

Challenges: Even with mitigation measures in place, the HD's environmental review acknowledges that future growth and construction will have significant impacts on the community. Additional efforts are also needed to fully integrate the HD's industrial operations with the residential areas it borders. These impacts include air quality and greenhouse gas emissions from operations, as well as noise and traffic from construction

[122] Port of Los Angeles Inventory of Air Emissions 2024

[123] Port of Los Angeles | Air Emissions

[124] Port of Los Angeles Inventory of Air Emissions 2005

[125] Port of Los Angeles Inventory of Air Emissions 2024

activities. The transition to new, zero-emission technologies presents its own set of community concerns with some public hesitation surrounding the safety of new fuels like hydrogen and methanol. The HD will continue to address these concerns through transparent communication and robust safety protocols to gain community trust and acceptance.