

	Roadmap to Establish a Facility Information Exchange that Supports the One Port Vision										
	Phase 0 (2018-2019)	Phase 1 (2020-2021)	Phase 2 (2022-2023)	Phase 3 (2024-2025)	Phase 4 (2026-2027)	Phase 5 (2028-2030)					
	Standards and Processes	Prioritized Facility Migration	Legacy Facility Migration	Asset Management Integration	Life Cycle Optimization	Strategic Asset Life Cycle Management					
	 	  	  			Facility Information Benefits Reduce cost of ongoing and future capital construction projects Improved Project Management of ongoing Capital Projects requiring BIM	Improved collaboration and coordination of Port department activities Improved planning capabilities for long-term growth	Reduce operational expenses through improved labor productivity Improved accuracy of asset condition and inventory	Reduce operational and capital expenses through improved life cycle asset management. Improve service quality with enhanced collaboration/communication with airline, tenants and passengers Improved disaster and emergency response capabilities with enhanced collaboration/communication with external agencies	Ability to fully track asset costs from planning, design and installation through renewal/replacement. Utilize Lean Management practices to optimize work processes leveraging real-time, accurate facility information. Develop integrated port-wide (aviation, marine and real estate) asset and financial management system.	Leverage emerging technologies to radically reduce cost of planning, construction, operations and maintenance of all Port facilities. Port-Wide strategic asset life cycle management utilizing ISO-55000/Total Cost of Ownership best practices.
People/Organization											
Communication/Collaboration	Collaborating within each department Many individual facility information systems	Collaborating between departments Sharing individual facility information systems	Real-time Alignment of Departments within each Division Unified facility information systems	Collaboration between divisions	Real-time Alignment of all Divisions within the Port	Alignment of Port with Regional Agencies					
Staffing Needs	BIM Steering Committee	BIM Manager	BIM Designers Port Information Manager	Information Managers	Information Analyst & Developers	Information Innovation Manager					
Departments	Create "Centers of Expertise" Aviation F&I Marine Maintenance CDD	Strategic Initiatives AvM & F&I Marine Maintenance Planning ICT Survey Legal	Finance & Budget Environment & Sustainability Security & Preparedness	Port Information Department	Port-Wide	Regional Collaboration					
Training Education	Process and Standards	Facility Information Tools	Facility Information Management, Tools and Technology	Asset Life Cycle Processes & Knowledge Sharing	Knowledge Sharing between Divisions - Learning Organization	Knowledge Sharing with other regional and international agencies					
Culture	Task Excellence	Task Optimization	System & Process Optimization	Organizational Excellence	Organizational Optimization	Organizational International Best of Class Port					
Process/Life Cycle Management											
Standards	BIM Standards & Processes	DfM Processes	Asset Total Cost of Ownership (TCO)	Asset Life Cycle Management (ALCM)	One Port Asset Management System	ISO-55000 ALCM Processes					
Design for Maintainability (DfM)	BIM Contract Language	Asset Management Data Standards	Design for Sustainability		Lean PM/CM						
Policies/Contracts		Collaboration Tools and Processes									
Work Processes											
Information											
Data Acquisition	Priority Aviation	Secondary Aviation	All Aviation	Maintain Aviation	Maintain Aviation	Maintain All Asset Data					
Spatial Data		Priority Maritime	Secondary Maritime	All Maritime	Maintain Maritime						
Asset Data			Priority Economic Development	Secondary Economic Development	All Economic Development						
System Data											
Data Integration	Isolated, Separate Systems	BIM Server	BIM, GIS and Other Spatial Data	Spatial and CMMS Integration	Port-Wide CMSS System Integration	Regional Integration					
Data Accessibility	Workstation	Server-Based	Mobile Access	Integrated Mobile Access to CMMS	Integrated Mobile Access to Port-Wide CMMS	Regional Sharing					
		Limited Mobile Applications									
Technology											
BIM and BIM Uses	BIM Project Management	BIM Authoring	Predictive Maintenance	Automated Construction Testing/Trials	Automated Construction Optimization	AI-Based CMMS/iWMS					
GIS		BIM Analytics - Energy Analysis, Lighting and others	CMMS Full Integration		AI-Based CMMS Testing/Trials	AI-Based Management and Design of Port Facilities					
CMMS		BIM-GIS Integration	IWMS Full Integration		Generative Design to Optimize Port Facilities Testing/Trials						
iWMS		Enhanced Preventive Maintenance	AR/VR Apps for Maintenance								
Preventive Maintenance		IoT Pilot Implementation/BAS	AR Apps for Passenger Services								
Predictive Maintenance		CMMS/iWMS Testing/Trials									
Automated Construction		AR/VR Testing/Trials									
IoT/Building Automation Systems											
AI-Based Decision Making											
Generative Design											
Augmented Reality/Virtual Reality											