

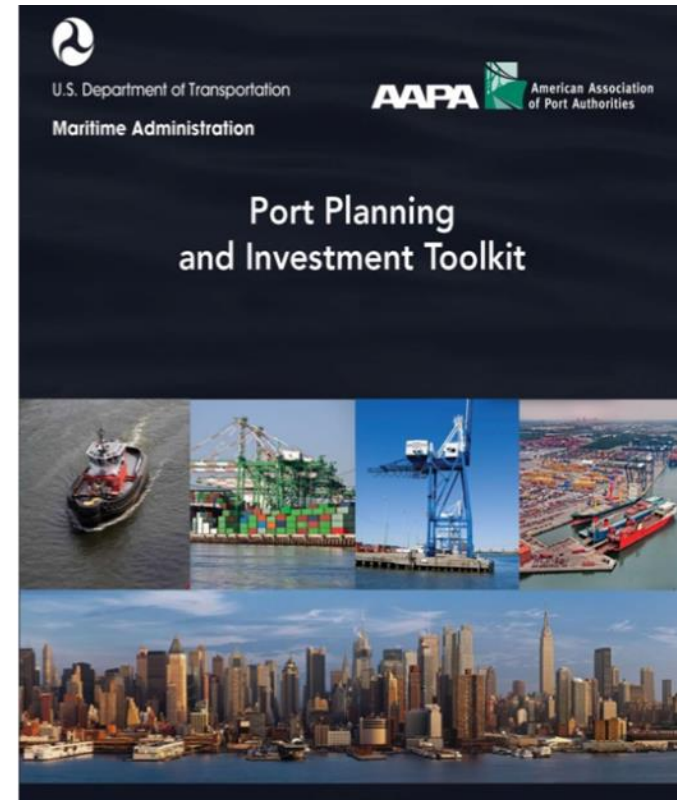


U.S. Department of Transportation

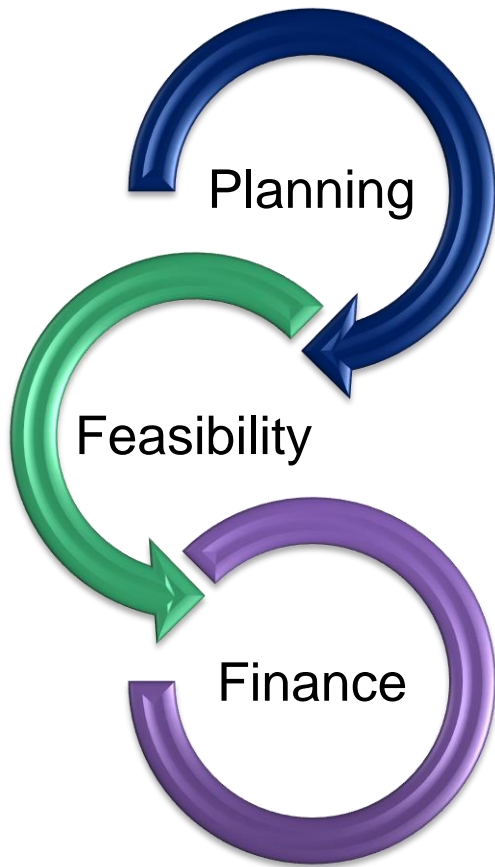
Maritime Administration



Port Planning and Investment Toolkit



Port Planning and Investment Toolkit (PPIT)

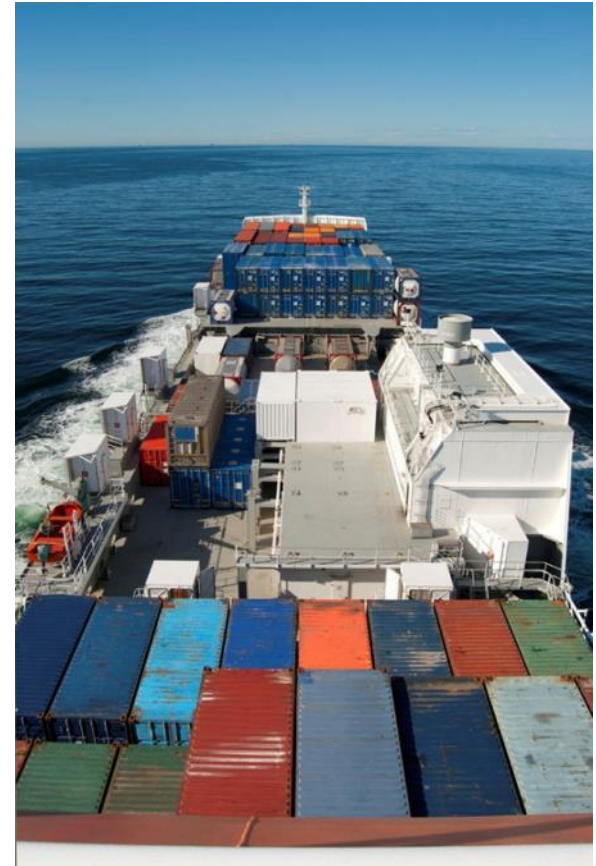


- Develop capital plans that clearly identify future needs;
- Determine the most cost-effective, sustainable and efficient solutions to port challenges;
- Position port projects for federal funding such as TIGER, FASTLANE and MPO grants; and
- Get port infrastructure projects into MPO and state transportation programs to qualify for other government funding;
- Obtain private sector funding to support their infrastructure projects.

The possible applications of the Toolkit are broad!

PPIT Working Groups

- Initial Pool of Volunteers
 - Led by:
 - Jean Godwin – AAPA
 - Lauren Brand – MARAD
 - Stephen Shafer - MARAD
 - 64 Port Staff & Consultant Volunteers
 - Port Staff, Consultants, PPMs and PPM Candidates
- Table of Contents Working Group
 - 14 Volunteers
 - Multiple areas of expertise
- Finance Module Working Group
 - 16 Volunteers
 - Primarily finance, legal and accounting experts
- Planning & Feasibility Modules Working Group
 - 9 Volunteers
 - Primarily engineering/planning, marketing and economic experts



PPIT Structure



- The Toolkit can be used to lead a port through a logical and thorough step-by-step process to make sound investment decisions
- The key is that planning, feasibility and finance decisions can be made based on certain thought processes, and adapted to specific and changing circumstances of each port project under consideration

PPIT is User-Friendly, Comprehensive Help

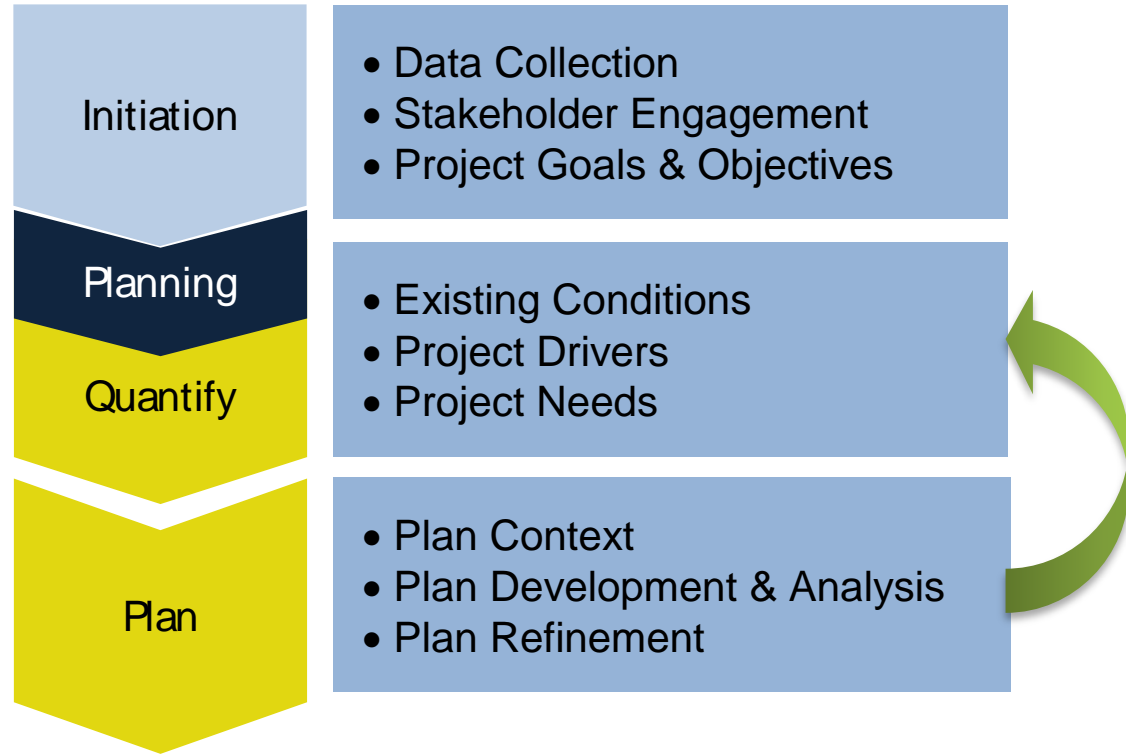
- The Toolkit contains numerous tables, graphics, and examples to help users quickly identify information relevant to their specific situation

Category	Asset Inventory Items
Site Characteristics	Boundaries, topography, bathymetry, geometry
Utility infrastructure	Installations, routes, access, and capacities for water, power, sewer, data, drainage
Waterside access	Berth characteristics, channel depth and geometry, turning basins, anchorages, distance to channel, air draft
Landside connectivity	Truck and rail access areas, connecting highway and roadways, height/width restrictions, estimated capacity and service level of each rail and roadway segment, road weight limitations, safe operating speeds, identifiable bottlenecks, nearby intermodal yards, airport locations, pipelines, etc.
Facility configurations and conditions	Gates, buildings, operating areas, parking areas, storage units, goods handling facilities, support facilities
Equipment types and characteristics	Operating equipment, cargo and/or passenger handling equipment
Environmental setting	Air quality, noise, light pollution, water quality, wetlands, pre-existing pollutants, cultural resources



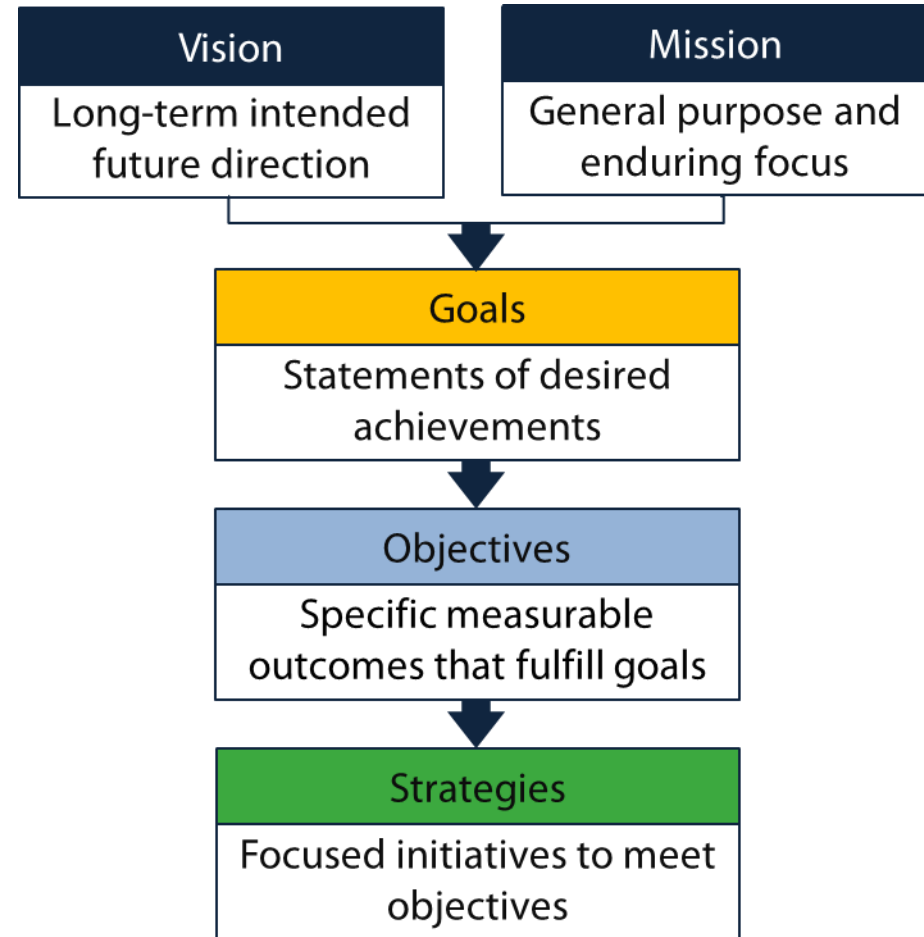
Planning Module 1

- *Planning Module* clearly defines the planning road map required for successful project financing and funding
- Guides users through a common set of planning concepts and methods to maintain a highest and best use strategy for port resources with regard to market, community, environment, land-use, economic, and financial considerations



Planning Module 1 - Initiation

- Every project begins with an initiation effort that involves developing a thorough understanding of the port's needs that led to the project
 - Data Collection
 - Stakeholder Engagement
 - Project Goals and Objectives



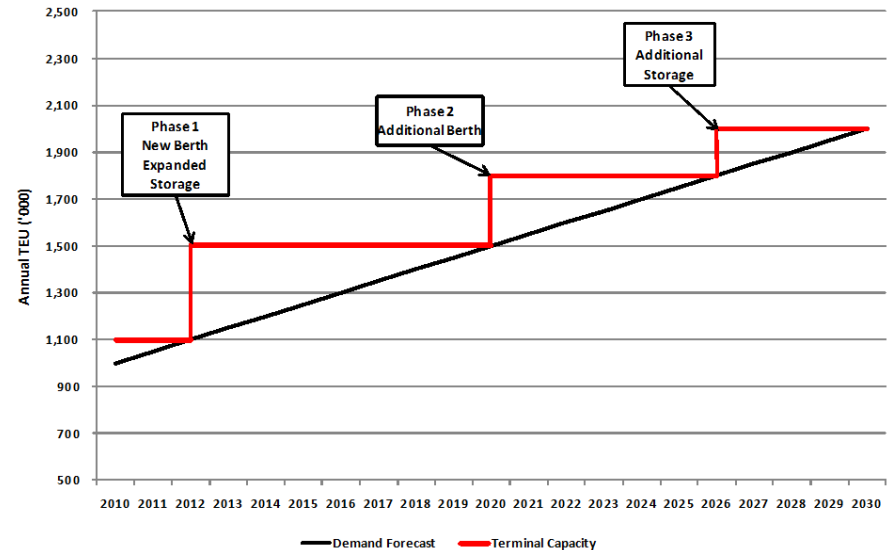
Planning Module 1 - Quantify

- Identify and quantify the Port's needs by comparing its current capabilities to its potential opportunities and requirements of stakeholders and the community

		Project Drivers			
		Market Dynamics	Market Forecast	Strategic Direction	Government/ Political Commitment
Existing Conditions	Assets	Deeper Berths, Larger Cranes	Densification, New Terminal	Lower Emissions Equipment	Electrification of Cranes
	Operations	Larger Stevedore Gang Size	Longer Gate Hours	Automated Storage	Safer Working Environment
	External Influences	New Foreign Trade Zone	Tax Increases	More Public Interaction	Stricter Trucker Credentials
	Volumes/ Trade Flows	Seasonal Peaking	Increasing Volumes	Broader Markets	Shifting More Freight to Rail
	Capacity	Labor Negotiations	Higher Capacity	Service Enhancement	Goods Movement Services
	Impacts	Productivity Enhancement	Revenue Enhancement	More Jobs	Waterfront Access
	Competitive Position	Deeper Channel	Distribution Center	Market Penetration	Financial Stabilization

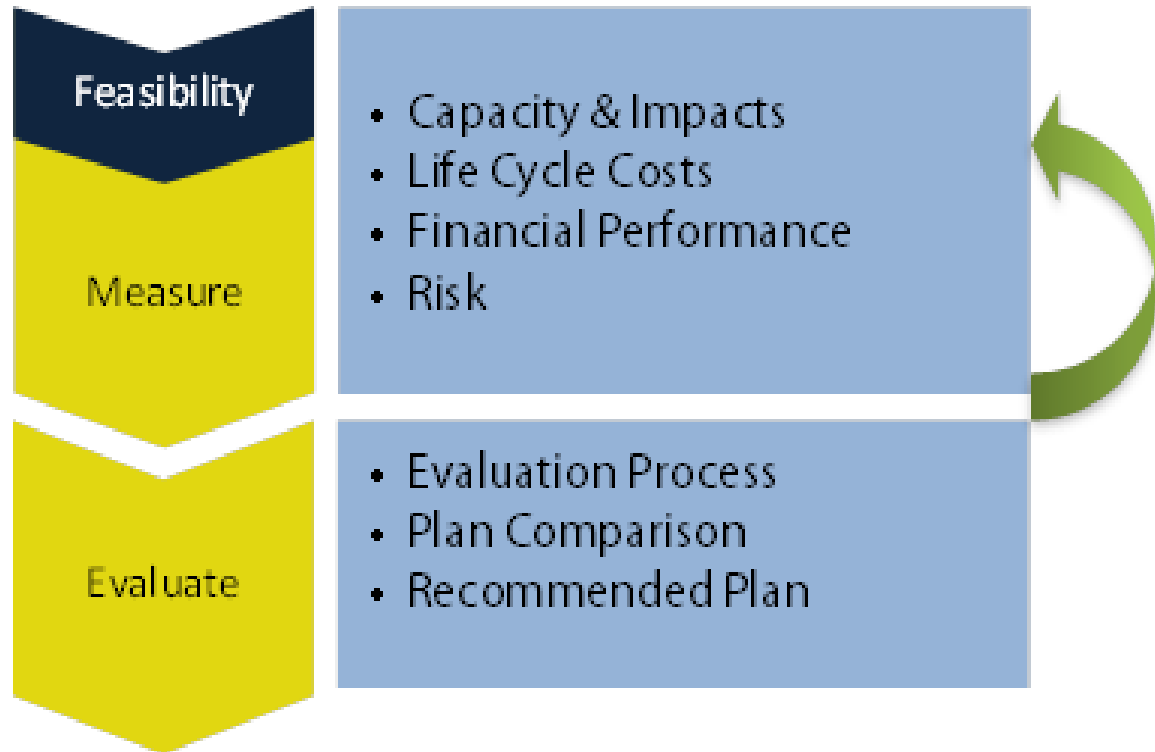
Planning Module 1 - Plan

- Plan Context
- Plan Development and Analysis
 - Plan Creation
 - Analysis of Capacities and Impacts
 - Plan Review
- Plan Refinement



Feasibility Module 2

- *Feasibility Module* describes how ports create financially feasible project plans that take into account all aspects of cost, risk, and reward.
- Identifies the metrics for the physical, commercial and financial components of project success and how the metrics can be measured and evaluated
- Focuses on performing feasibility analyses specific to a port's individual capabilities, markets, and competitive relationships

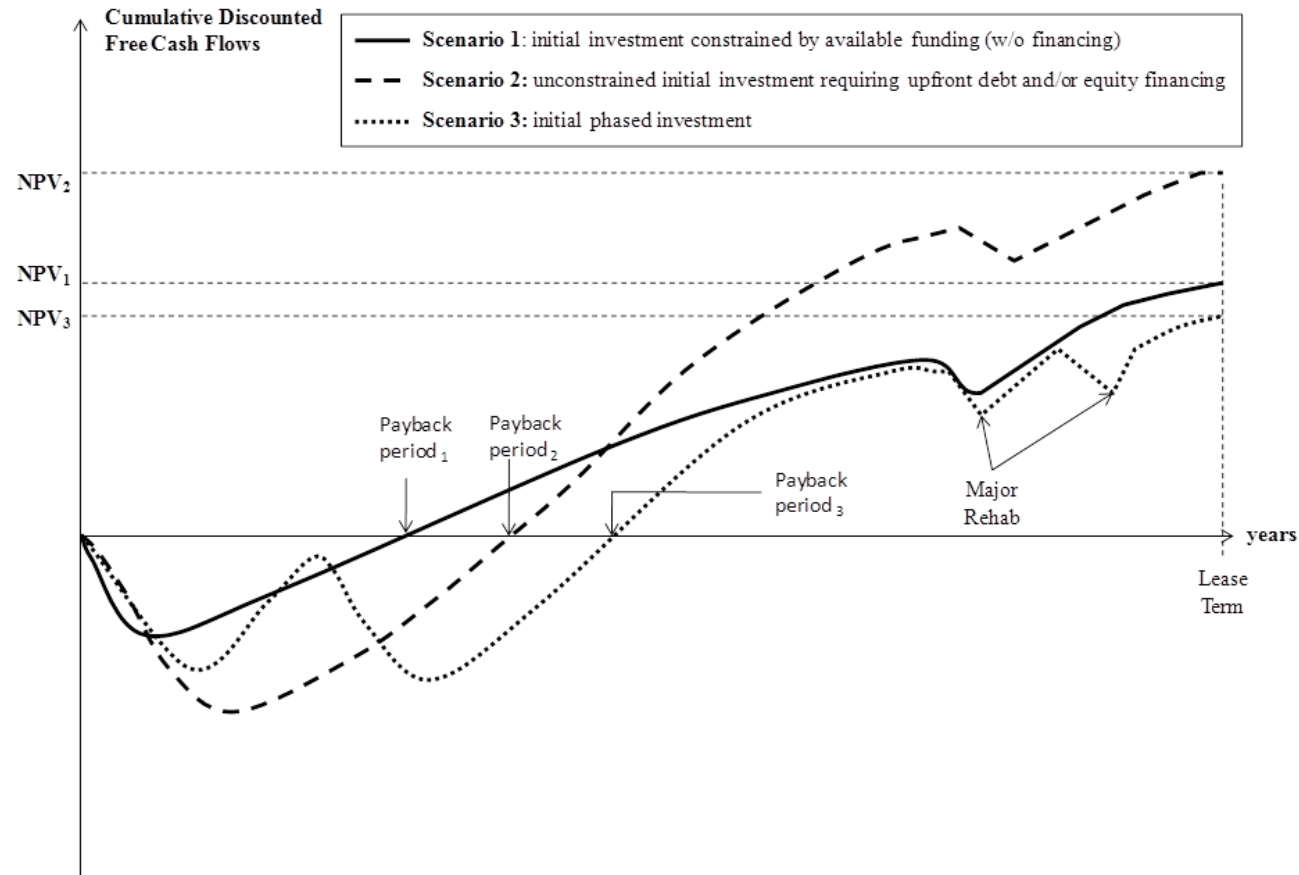


Feasibility Module 2

- **Physical Feasibility:** Will the project be able to physically support the forecasted demand?
- **Financial Feasibility:** Will the project generate sufficient net cash flow to cover debt service and provide an acceptable return of and return on the Port's invested capital?
- **Market Feasibility:** Will the project improve the port's competitive position and attract the forecasted demand?
- **Risk:** How will potential variances in projected conditions affect these feasibility elements?
 - A feasibility analysis of a project plan may lead to iterative adjustments to a project plan.

Feasibility Module 2 - Measure

- Business Strategy (asset development and revenue/cost schedules)
- Risk Assessment (register and mitigation strategy)
- Financial Performance (rate of return/NPV)
- Economic Impact (employment, benefit cost, local/state/national impacts)



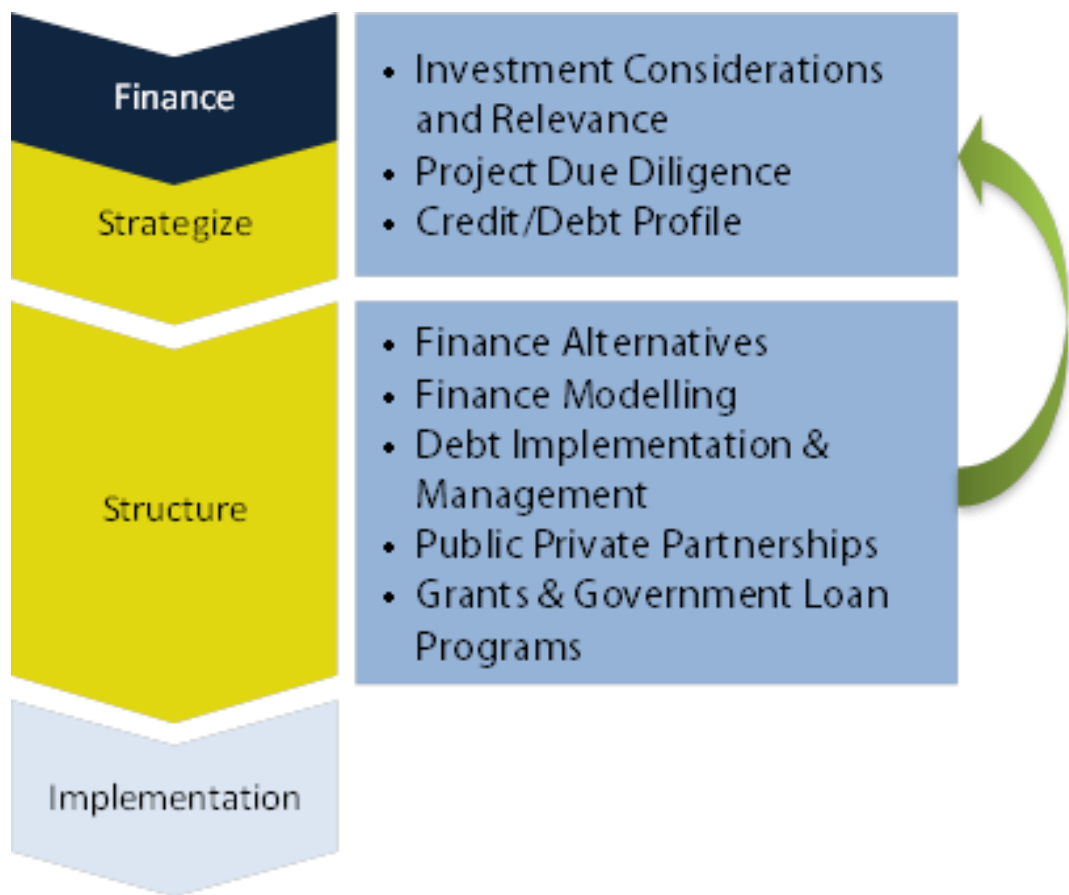
Feasibility Module 2 - Evaluate

- Quantitative and qualitative measures are used to evaluate project feasibility and to ultimately select a recommended project plan.
- Example criteria include:
 - Capital expenditures
 - Operating expenses
 - Capacity and revenue potential
 - Life-cycle cost per unit handled
 - Vessel service performance
 - Landside transport service performance
 - Environmental impact
 - Project risk

Performance Element	Measure	Weight 1 to 10	Scores		
			Option 1	Option 2	Option 3
Operational Performance			271.7	275.1	273.5
Capacity at Site Buildout	M TEU/Year	8.4	84	84	83
Berth Productivity at Buildout	Net Lifts/Hr	9.0	90	77	77
Gate Truck Cycle Time	Min/Truck	7.3	60	73	73
Intermodal Service	Qualitative	6.1	38	40	40
Development			268.9	216.7	182.8
Suitability for Phased Implementation	Qualitative	6.9	62	53	46
Development Complexity	Qualitative	6.9	60	53	51
Risk of Delay: Infrastructure	Qualitative	7.6	66	56	46
Risk of Delay: Information Systems	Qualitative	8.7	81	55	40
Economics			288.0	264.7	274.9
Net Present Value of Costs (\$M)	NPV	8.3	77	78	83
Initial (5-year) Capital Outlay (\$M)	\$/ (2017-2021)	8.3	83	72	71
Unit Operating Cost	\$/Vessel Lift	7.9	52	65	79
Operating Cost Risk	Qualitative	8.3	75	50	42
Workforce			252.3	218.1	214.7
Worker Safety	Qualitative	8.0	51	67	75
Skilled Workforce Availability	Qualitative	7.1	59	52	57
Optimization of Workforce	FTE/Lift	7.5	43	60	70
Environmental Impact			212.3	247.2	250.2
Carbon Fuel Consumption	Gal/Lift	5.4	31	54	50
Noise Pollution	Qualitative	4.7	25	36	40
Light Pollution	Qualitative	4.2	23	32	37
Total Energy Consumption	GJ/Year	5.7	57	48	47
Land Utilization	TEU/Acre/Year	7.7	77	77	76
Commercial			198.6	214.1	230.2
Market Competitiveness	Qualitative	8.3	56	61	67
Terminal Modernization/Innovation	Qualitative	6.4	36	45	51
Security	Qualitative	6.2	46	50	54
Port Wide Strategy	Qualitative	8.0	61	59	59

Finance Module 3

- *Finance Module* provides a framework to help port professionals navigate a wide range of capital investment decisions, from simple to complex.
- Used for any number of capital investment activities including, but not limited to:
 - Asset-Backed and Lease Financing
 - Weighing Traditional vs. Alternative Financing
 - Project Finance Structuring
 - Evaluation and Implementation of Public-Private Partnerships
 - Procuring Government Loans and Grants



Finance Module 3 - Strategize

- Finance Module can be used to assist with the full range of finance strategies that are available to ports
- Doesn't Emphasize One Strategy Over Another

Finance Strategies

Public

Private

Pledged Security

Public Taxes

Port Facility Tariffs & User Fees

Facility Lease Revenues

Tenant Min Annual Guarantees

Tenant Balance Sheet

Financing Instruments

Public Tax-Exempt Debt

Net Operating Revenue PABs

Equipment Leases

Special Purpose Facility Bonds

Taxable Debt/Investor Equity

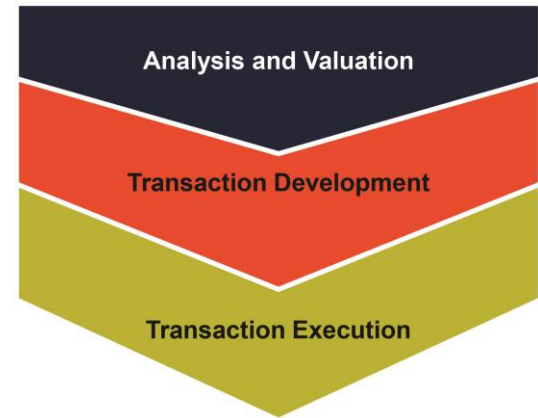
Finance Module 3 - Structure

- Aside from tax-backed bonds, there are four main security structures that a public port can use to issue operating revenue backed debt:
 - Port Net Operating Revenue Bonds
 - Port Asset Backed Debt
 - Port Special Purpose Facility Bonds, backed by lessee/concessionaire revenue and parent guarantee
 - Port Special Purpose Facility Bonds, backed by the net operating revenue of a single terminal concession, i.e. apart from the Port's "System"
- The chosen debt security structure is port and project specific, taking into consideration the unique operating and business characteristics of any given set of port facilities, lease arrangements, or P3.

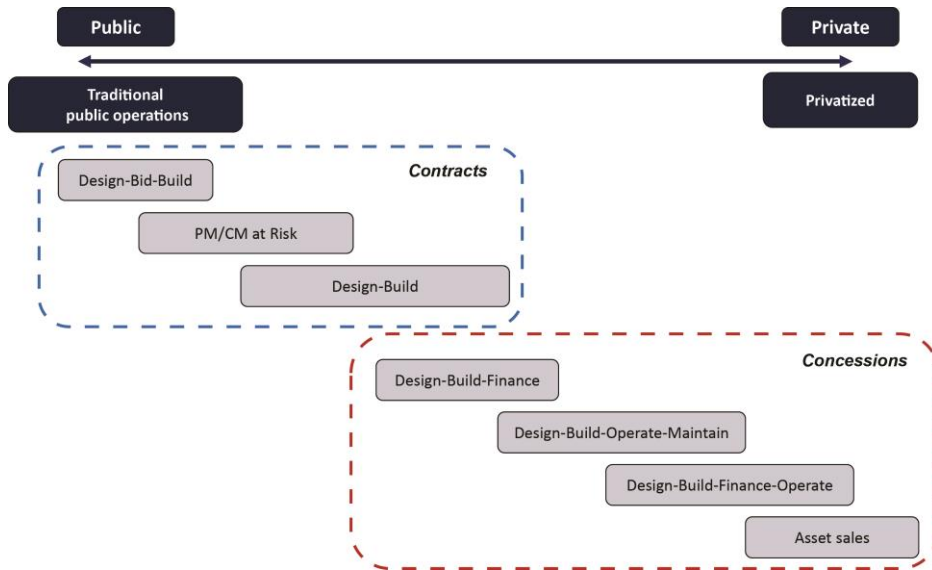
Finance Module 3 - Incorporates P3s

- The basic framework for project finance includes public-private partnerships
- *Finance Module* additionally provides a framework for modelling and evaluating P3s

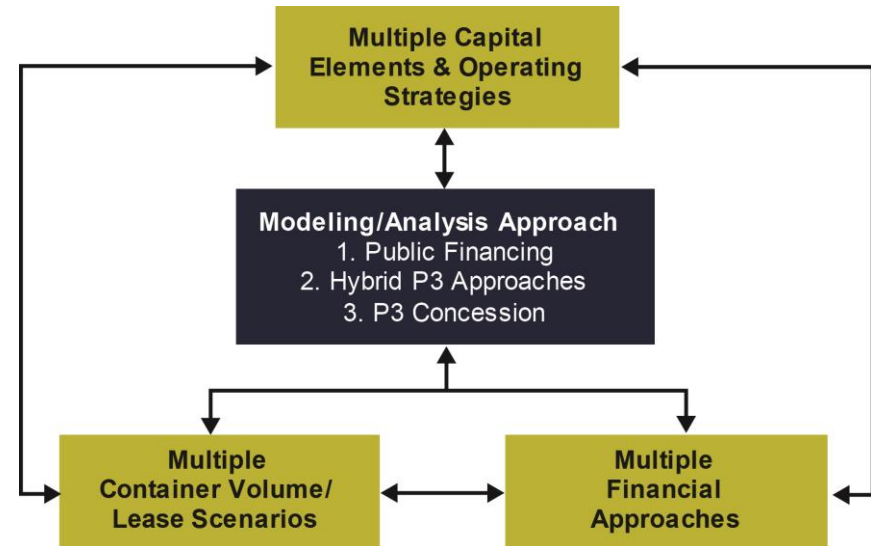
The P3 Process



Project Delivery Models

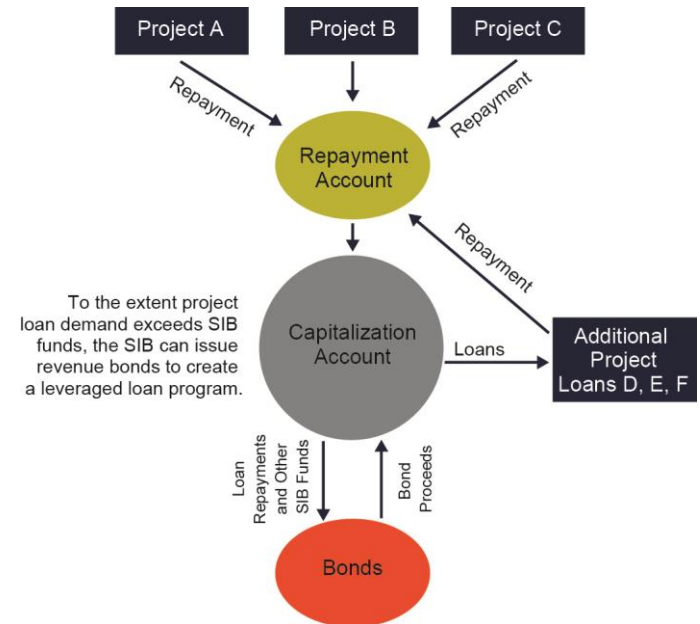
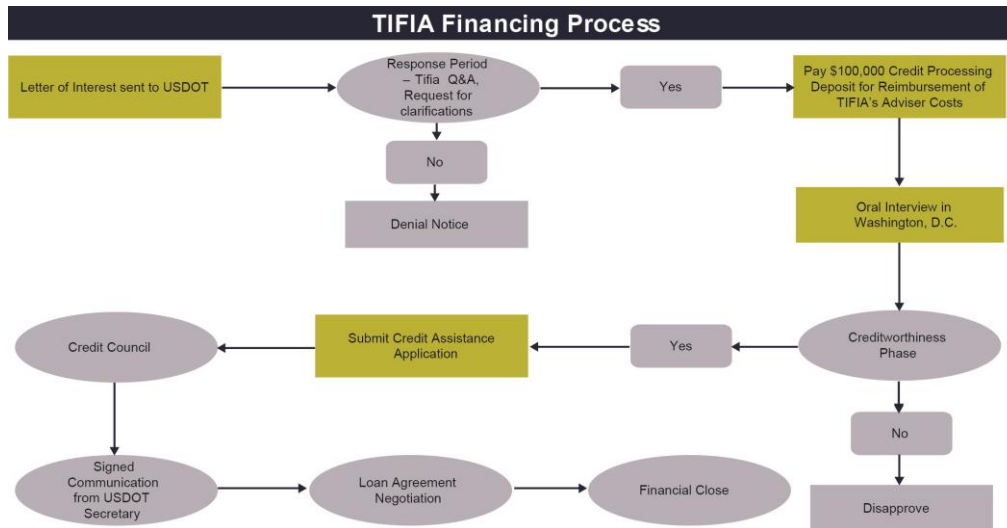


Modeling Approach



Finance Module 3 - Grants and Loans

- Grant funding continues to be a key factor for ports in meeting capital investment requirements
- Government loan programs, such as the USDOT TIFIA program and various SIB programs, have become very important tools for U.S. infrastructure financing
- *Finance Module* provides an approach to the funding process using various positioning strategies to effectively compete for limited government grants and loans



Appendices

- Project Profiles/Case Studies
- Toolkit Checklist
- Sample Financial Model
- Helpful Resources
 - Manuals and Guides
 - RFQs and Scopes of Service
 - Strategic/Master Plans
 - Feasibility Studies
 - EIS/EIR Documents
- Glossary of Terms

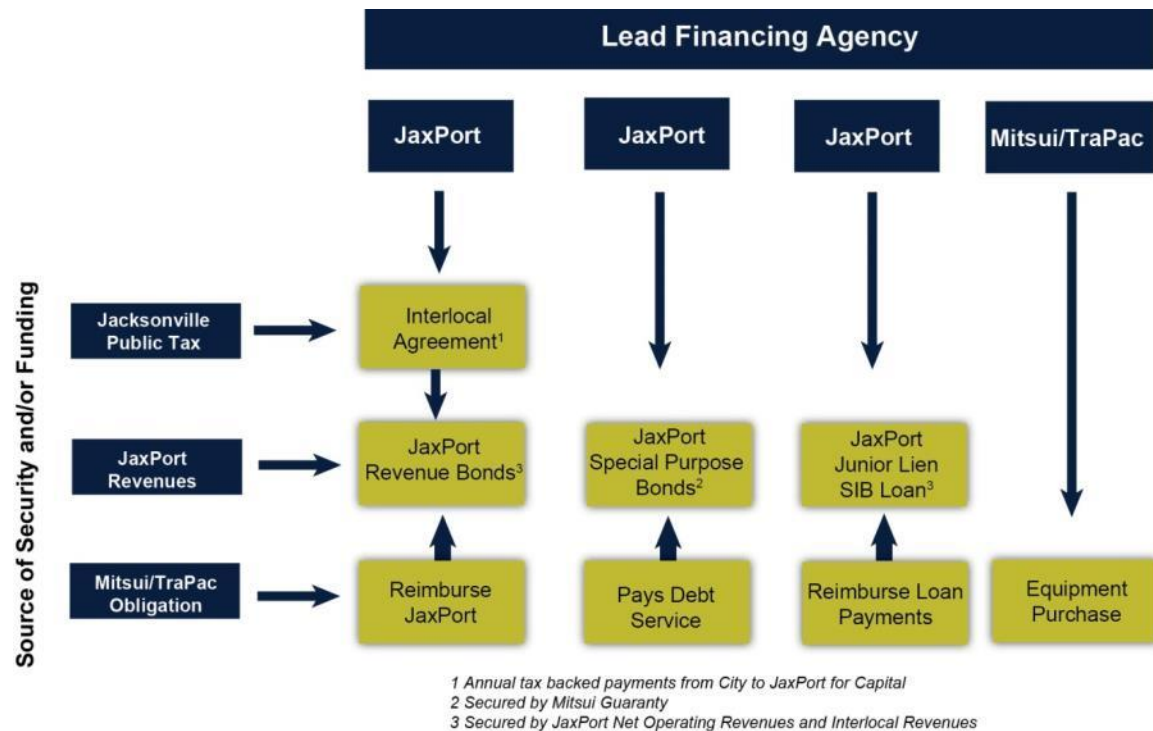
Resource Type	Title	Author	Sponsor	Sponsor Type	Year	Project Location	Project Type	Link
Strategic/Master Plans	Compilation of Data and Recommendations for Port of Fort Pierce Master Plan Update	AECOM	Florida Department of Transportation District Four	Public	2013	St. Lucie County, Florida	Port-wide	http://www.stlucieco.gov/pdfs/FPierce_Sept2013_final.pdf
Strategic/Master Plans	Jacksonville Port Authority: Strategic Master Plan	Martin Associates	Jacksonville Port Authority	Public	2013	Jacksonville, Florida	Port-wide	http://www.jaxport.com/sites/default/files/images/jaxport%20Strategic%20Plan%20Final.pdf
Strategic/Master Plans	Port of Longview Strategic Plan		Port of Longview	Public	2012	Port of Longview, Washington	Port-wide	http://www.portoflongview.com/Portals/0/Documents/Strategic%20Plan/FINAL%20ADOPTED%207-13-12.pdf
RFQs and Scopes of Service	RFQ: Professional Consulting Services for Strategic Planning Process and Strategic Business Plan Development		Oregon International Port of Coos Bay	Public	2013	Coos Bay, Oregon	Port-wide	http://portofcoosbay.com/rfq/rfqstratbizplan2013.pdf
RFQs and Scopes of Service	Scope of Services for Port of Fort Pierce Master Plan		Joint Center	Public	2001	St. Lucie County, Florida	Port-wide	http://www.stlucieco.gov/pdfs/port_scope.pdf
RFQs and Scopes of Service	Scope of Work 2014 Marine Hwy Feasibility Study for June 2015 to June 2016	USDA Rural Development	REAP Investment Fund, Inc.	Public	2015	Lake Sakakawea, North Dakota	Marine Highway Facility	http://reapmatters.org/wp-content/uploads/2015/05/Marine-Hwy-Scope-of-Work-FY-14.pdf
Manuals and Guides	Guidance on the Preparation of Port Master Plans	Department for Transport	Department for Transport	Public	2008	United Kingdom	Port-wide	http://infrastructure.planningportal.gov.uk/wp-content/uploads/projects/TR0301n7%20Master-Planning-Approaches-and-Future-Opportunities
Manuals and Guides	Leading Practice: Port Master Planning Approaches and Future Opportunities	Ports Australia with Sprott Planning and Environment Pty Ltd.	Ports Australia	Public	2013	Australia	Cruise Terminal	http://www.portsaustralia.com.au/assets/Publications/Master-Planning-Report-Final-Low-res.pdf?
Manuals and Guides	Comprehensive Plan Guideline for Washington's Public Ports	Transportation & Infrastructure Committee	Washington Public Ports Association	Public	2009 update	Washington	Port-wide	http://washingtonports.org/wp-content/uploads/2013/01/Comprehensive-Plan-Guidebook1.pdf
Feasibility Studies	Preliminary Feasibility Study for Container Terminal 10 at Southwest Tsing Yi	AECM Asia Co. Ltd.	Government of the Hong Kong Special Administrative Region	Public	2014	Hong Kong	Container Terminal	http://www.mic.gov.hk/docs/ASD1-1.5B%20EN%20(Final)%20Jan%202014.pdf
Feasibility Studies	Inland Port Feasibility Study	Tioga Group	Southern California Association of Governments	Public	2008	Southern California	Inland Port	http://tiogagroup.com/docs/Tioga_Group_SCAGInlandPortReport.pdf
Feasibility Studies	Study to Determine the Feasibility of a Cruise Ship Berthing Facility	Ports & Maritime Group, Int.	Catalina Island Chamber of Commerce		2011	Avalon, California	Cruise Terminal	http://www.catalinachamber.com/media/filming/whats-new/cruiseshipfacility
EIS/EIR Documents	Pier 5 Marine Terminal + Back Channel Improvements Project	AECOM	Port of Long Beach	Public	2012	Long Beach, California	Multi-use Terminal	http://www.polb.com/environment/docs.asp
EIS/EIR Documents	Eagle Rock Aggregate Terminal Project	Aspen Environmental Group	Port of Long Beach	Public	2013	Long Beach, California	Dry Bulk Terminal	http://www.polb.com/environment/docs.asp
EIS/EIR Documents	Jordan Cove Energy and Pacific Connector Gas Pipeline Project Draft EIS	Federal Energy Regulatory Commission	Jordan Cove Energy Project	Private	2014	Coos Bay, Oregon	Energy Improvement	https://www.ferc.gov/industries/gas/enviro/eis/2014/11-07-14-eis.asp

Project Profiles

- The Toolkit includes project profiles representing a range of port projects which have utilized various funding techniques to move those projects towards successful completion

- **New Container Terminal for a Dedicated Carrier**
- Single Marine Terminal Concession by Third Party Operator
- Crane Lease Financing
- CIP Funding with Port System Revenue Bonds and Grants
- Marine Terminal Expansion using State Port Fund Bonds
- Shorepower Installation at Cruise Ship Terminals
- Construction of Inset River Harbor

JaxPort Funding Sources



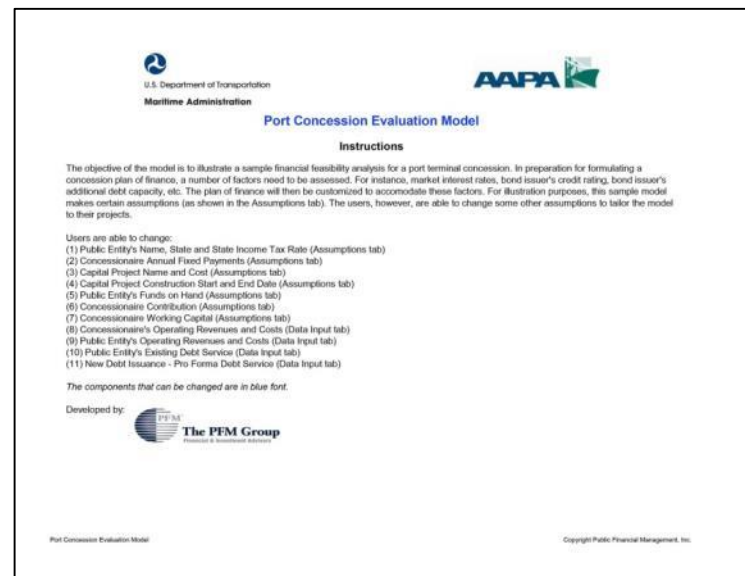
PPIT Checklist

- The PPIT Checklist is for both experienced and inexperienced port industry professionals alike for use as a general guide in making port capital investment decisions
 - The Checklist aims to enable port professionals to understand and navigate the capital funding process at a broad-based level
- References in the Checklist are included to enable users to quickly locate sections of the report where further background discussion on a particular topic can be found

Complete	Task	Toolkit Section Reference
1. Introduction		
_____	Investment Considerations and Relevance	1.2
_____	• Physical Facilities & Current Uses, Land for Development, and/or Master Plan	1.2
_____	• Existing Tenant Lease and Use Agreements	1.2
_____	• Historical Cargo Volumes and Revenues by Type	1.2
_____	• Trade Lanes Data	1.2
_____	• Market Cargo & Revenue Forecasts	1.2
_____	• Port Financial Market Environment	1.2
_____	• Port Operating Models	1.2
_____	• Port Business/Financial Models	1.2
_____	• Outstanding Bonded Indebtedness Amounts and Terms	1.2
_____	• Pro Forma Cash Flow Analysis	1.2
_____	• Financing Capacity to Address Capital Needs and New Business	1.2
_____	• Creditworthiness Assessment	1.2
_____	• Investor and Capital Markets Outreach	1.2
2. Port Profile		
_____	Information Sources	2.2
_____	• Enabling Act	2.2
_____	• Master Plan	2.2
_____	• Strategic Plan	2.2
_____	• Debt/Financing Policy	2.2
_____	• P3 Policy	2.2
_____	Due Diligence Factors	2.3
_____	• Organizational and Regulatory Documents	2.3
_____	• Financial	2.3
_____	• Material Contracts	2.3
_____	• Real Property	2.3
_____	• Labor Contracts	2.3
_____	• Legal	2.3

Sample Financial Model

- Both port system pro forma cash flow models and project finance models are user and project specific
 - Included with the Toolkit is a sample financial model for illustrative purposes
- For port system pro forma models, existing system net revenues can be augmented by off balance sheet project revenue streams, both of which factor into the port's system debt service coverage levels and fund balances
- For the project finance components of a model, as project revenues flow through the various operating, debt, and reserve requirements, the model should solve for the cash flows available for private partner payments, including the Internal Rate of Return



	New Terminal				Equity	Total
	AAPA Port Authority Funds on Hand	AAPA Port Authority Senior Lien Bonds (TE)	AAPA Port Authority Subordinate Lien Bonds (TE)	Concessionaire Bonds (PABs)		
Sources						
Current Interest Bonds		111,985,000		139,569,500		307,734,500
Capital Appreciation Bonds		31,063,986	56,180,000			31,063,986
Convertible Capital Appreciation Bonds		27,845,010				27,845,010
Bond Proceeds		170,893,997	56,180,000	139,569,500		366,643,497
Funds on Hand/Concessionaire Contribution	71,500,000				78,000,000	149,500,000
Total Sources	71,500,000	170,893,997	56,180,000	139,569,500	78,000,000	516,143,497
Uses						
Capital Project	71,500,000	126,429,439	36,741,720	102,328,841	68,000,000	405,000,000
Debt Service Reserve Fund		17,069,400	5,618,000	13,956,950		36,664,350
Capitalized Interest Fund		26,119,174	13,483,200	22,446,292		62,048,666
Cost of Issuance		1,025,364	337,080	837,417		2,199,861
Concessionaire Working Capital					10,000,000	10,000,000
Contingency/(Funding Gap)		230,620				230,620
Total Uses	71,500,000	170,893,997	56,180,000	139,569,500	78,000,000	516,143,497

Want to Know More?.....

- The processes outlined in the Toolkit are the very steps that have been undertaken in port project financings
 - The Toolkit steps have been successfully used to attract billions of investment dollars for public port and transportation enterprises...
 - ...and it's all available on the AAPA website at www.aapa-ports.org/toolkit

The screenshot displays the AAPA website interface. At the top, there is a navigation bar with links for 'Industry Services Directory', 'Register for an Event', 'Staff Directory', 'Join AAPA', 'Contact Us', 'Site Map', and 'En Español'. A search bar is located on the right side of the header. The main navigation menu includes 'Programs & Events', 'Publications & Resources', 'Committees & Networking', 'Classified Ads', 'Press Room', 'Issues & Advocacy', 'Port Industry Information', and 'About AAPA'. The 'Publications & Resources' section is highlighted in green and contains links to 'Knowledge Library', 'Past Presentations', 'AAPA-Related Articles & Interviews', 'ADVISORY Newsletter', 'ALERT Newsletter', 'PPM® Papers', 'Seaports of the Americas Directory', 'Seaports Magazine', 'Industry Reports & Surveys', and 'West Coast Ports Sustainable Design and Construction Guidelines'. The main content area features a dark blue banner with the text 'US EPA Criteria' and a list of criteria: 'Biodegradation', 'Aquatic Toxicity', and 'Bioaccumulation'. Below this, the 'Port Planning and Investment Toolkit' is introduced, explaining that it is a go-to guide for port officials to plan, fund, and execute critical repair and project upgrades. The toolkit is designed to help port officials navigate the complex process of bidding out a plan for repairs and upgrades needed to handle the immense demands currently and in the future.

AAPA Port Planning and Investment Toolkit



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Questions?

