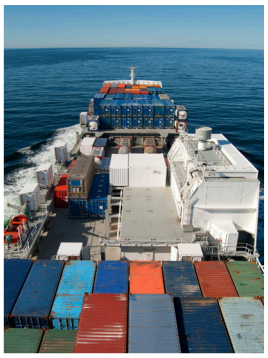
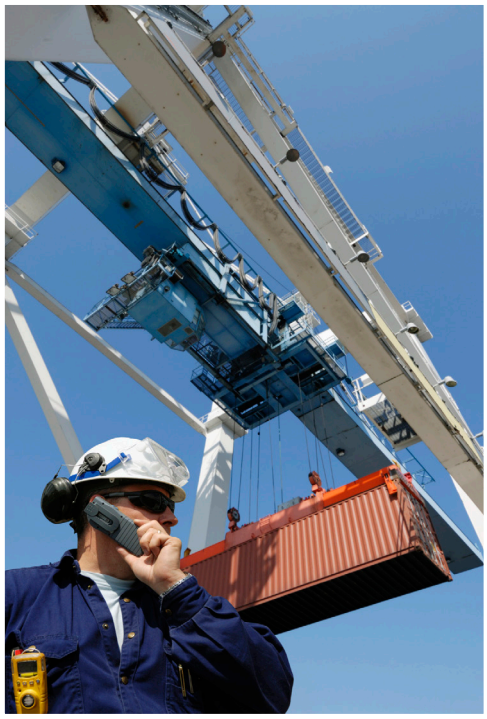
Port Planning and Investment Toolkit
Appendices





U.S. Department of Transportation

Maritime Administration

AAPA American Association of Port Authorities

Alliance of the Ports of Canada, the Caribbean, Latin America and the United States

APPENDIX A Glossary of Terms

Additional Bonds Test - The financial test, sometimes referred to as a "parity test," that must be satisfied under the bond contract securing outstanding revenue bonds or other types of bonds as a condition to issuing additional bonds. Typically, the test would require that historical revenues (plus, in some cases, future estimated revenues) exceed projected debt service requirements for both the outstanding issue and the proposed issue by a certain ratio.[1]

Advance Refunding - For purposes of certain tax and securities laws and regulations, a refunding in which the refunded issue remains outstanding for a period of more than 90 days after the issuance of the refunding issue.[1]

Alternative Minimum Tax (AMT) - Taxation based on an alternative method of calculating federal income tax under the Internal Revenue Code. Interest on certain private activity bonds is subject to the AMT.[1]

Amortization - The process of paying the principal amount of an issue of securities by periodic payments either directly to bondholders or to a sinking fund for the benefit of bondholders.[1]

Arbitrage Rebate - A payment made by an issuer to the federal government in connection with an issue of tax-exempt or other federally tax-advantaged bonds. The payment represents the amount, if any, of arbitrage earnings on bond proceeds and certain other related funds, except for earnings that are not required to be rebated under limited exemptions provided under the Internal Revenue Code. An issuer generally is required to calculate, once every five years during the life of its bonds, whether or not an arbitrage rebate payment must be made.[1]

Asset - Any item of economic value, either physical in nature (such as land) or a right to ownership, expressed in cost or some other value, which an individual or entity owns. [2]

Asset-Backed Debt - Debt having hard asset security such as a crane lease or property mortgage, in addition to the security of pledged revenues.

Availability Payment - A means of compensating a private concessionaire for its responsibility to design, construct, operate, and/or maintain an infrastructure facility for a set period of time. These payments are made by a public project sponsor (a port authority, for example) based on particular project milestones or facility performance standards.[2]

Best and Final Offers (BAFO) - In government contracting, a vendor's response to a contracting officer's request that vendors submit their last and most attractive bids to secure a contract for a particular project. Best and final offers are submitted during the final round of negotiations.[3]

Bond Indenture - A contract between the issuer of municipal securities and a trustee for the benefit of the bondholders. The trustee administers the funds or property specified in the indenture in a fiduciary capacity on behalf of the bondholders. The indenture, which is generally part of the bond contract, establishes the rights, duties, responsibilities and remedies of the issuer and trustee and determines the exact nature of the security for the bonds. The trustee is generally empowered to enforce the terms of the indenture on behalf of the bondholders.[1]

Call Date - The date on which bonds may be called for redemption as specified by the bond contract. [1]

Capacity (Maximum Practical) - Throughput volume which, if exceeded, would cause a disproportionate increase in unit operating cost or business delay, within the context of a facility's land use, layout, and uncontrollable commercial drivers.

Capital Expenditure (CapEx) - Expenditure on capital items either at the commencement of the project or the cost of their renewal and replacement ("R&R") over the life of the project.

Capital Appreciation Bonds (CABs) - A municipal security on which the investment return on an initial principal amount is reinvested at a stated compounded rate until maturity. At maturity the investor receives a single payment (the "maturity value") representing both the initial principal amount and the total investment return. CABs typically are sold at a deeply discounted price with maturity values in multiples of $5,000.[1]

Capital Improvement Program (CIP) - A schedule, typically covering a period of less than ten years, which outlines expenditures for capital projects on an annual basis and corresponding funding sources.

Capital Structure - The mix of an issuer's or a project's short and long-term debt and equity, including the terms of such financing and repayment requirements.

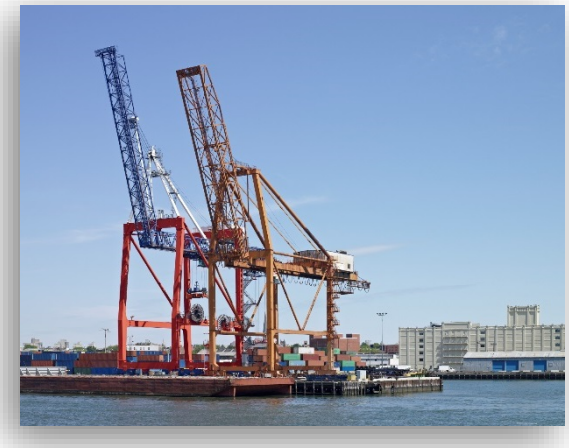
Capitalized Interest - A portion of the proceeds of an issue that is set aside to pay interest on the securities for a specified period of time. Interest is commonly capitalized for the construction period of a revenue-producing project, and sometimes for a period thereafter, so that debt service expense does not begin until the project is expected to be operational and producing revenues.[1]

Concession - An alternative method for a public sector entity to deliver a public- purpose project through long-term contracting with a private sector entity. A concession agreement typically covers the objectives of the asset concession, compensation, and duration of concession. A port concession is a contractual agreement in which a port owner conveys specific operating rights of its facility to a private entity for a specified period of time.

Convertible Capital Appreciation Bonds (CCABs) - CABs with a convertibility feature at a future date to CIBs. CCABs can be used to defer interest and principal payments, with conversion to Current Interest Bonds so that debt service requirements begin, thus reducing the cost of funds relative to traditional, non-convertible CABs.

Coupon - The periodic rate of interest, usually calculated as an annual rate payable on a security expressed as a percentage of the principal amount. The coupon rate, sometimes referred to as the "nominal interest rate," does not take into account any discount or premium in the purchase price of the security.[1]

Covenants - Contractual obligations set forth in a bond contract. Covenants commonly made in connection with a bond issue may include covenants to charge fees sufficient to provide required pledged revenues (called a "rate covenant"); to maintain casualty insurance on the project; to complete, maintain and operate the project; not to sell or encumber the project; not to issue parity bonds or other indebtedness unless certain tests are met ("additional bonds" or "additional indebtedness" covenant); and not to take actions that would cause tax-exempt interest on the bonds to become taxable or otherwise become arbitrage bonds ("tax covenants").[1]



Credit Rating - An opinion by a rating agency of the credit-worthiness of a bond.[1]

Current Interest Bonds (CIBs) - A bond on which interest payments are made to the bondholders on a periodic basis. This term is most often used in the context of an issue of bonds that includes both CABs and CIBs.[1]

Current Refunding - A refunding transaction where the municipal securities being refunded will all mature or be redeemed within 90 days or less from the date of issuance of the refunding issue.[1]

Debt Profile - A detailed description of an issuer's overall debt portfolio and credit profile that is updated as changes in capital structure occur. A debt profile typically includes all of the relevant information about an issuer's debt including but not limited to current ratings, debt service requirements, debt service coverage ratios and eligibility for refunding.

Debt Service Coverage Ratio - The ratio of available revenues available annually to pay debt service over the annual debt service requirement. This ratio is one indication of the availability of revenues for payment of debt service.[1]

Debt Service Reserve - A fund in which funds are placed to be applied to pay debt service if pledged revenues are insufficient to satisfy the debt service requirements. The debt service reserve fund may be entirely funded with bond proceeds at the time of issuance, may be funded over time through the accumulation of pledged revenues, may be funded with a surety or other type of guaranty policy (described below), or may be funded only upon the occurrence of a specified event (e.g. upon failure to comply with a covenant in the bond contract) (a "springing reserve"). Issuers may sometimes authorize the provision of a surety bond or letter of credit to satisfy the debt service reserve fund requirement in lieu of cash. If the debt service reserve fund is used in whole or part to pay debt service, the issuer usually is required to replenish the fund from the first available revenues, or in periodic repayments over a specified period of time.

Defeasance - Termination of certain of the rights and interests of the bondholders and of their lien on the pledged revenues or other security in accordance with the terms of the bond contract for an issue of securities. This is sometimes referred to as a "legal defeasance." Defeasance usually occurs in connection with the refunding of an outstanding issue after provision has been made for future payment of all obligations related to the outstanding bonds, sometimes from funds provided by the issuance of a new series of bonds. In some cases, particularly where the bond contract does not provide a procedure for termination of these rights, interests and lien other than through payment of all outstanding debt in full, funds deposited for future payment of the debt may make the pledged revenues available for other purposes without effecting a legal defeasance. This is sometimes referred to as an "economic defeasance" or "financial defeasance." If for some reason the funds deposited in an economic or financial defeasance prove insufficient to make future payment of the outstanding debt, the issuer would continue to be legally obligated to make payment on such debt from the pledged revenues.[1]

Demand & Revenue Study - A professionally prepared forecast and report of the market demand for a port's cargo, and the ensuing revenue as a result of charging rates/fees for such cargo moving through a port. Demand & revenue data is used as input in developing plans of finance and evaluating investment opportunities.

Design-Build (DB) - A project delivery method that combines two, usually separate services into a single contract. With design-build procurements, owners execute a single, fixed- fee contract for both architectural/engineering services and construction. The design-build entity may be a single firm, a consortium, joint venture or other organization assembled for a particular project.[4]

Design-Build-Finance-Operate-Maintain (DBFOM) - A method of project delivery in which the responsibilities for designing, building, financing and operating are bundled together and transferred to private sector partners.[4]

Design-Build-Operate-Maintain (DBOM) - An integrated partnership that combines the design and construction responsibilities of design-build procurements with operations and maintenance. These project components are procured from the private sector in a single contract with financing secured by the public sector.[4]

Enabling Act – Legislation by which port authorities and other governmental agencies are created and granted powers to carry out certain actions. While enabling acts for port authorities vary widely; key aspects generally include establishment of the port entity; governance and procedures; powers such as ability to enter into contracts, construct projects, transact business, and enter into financing agreements; and reporting requirements.

Equity - A funding contribution to a project having an order of repayment occurring after debt holders in a flow of funds per the bond indenture securing such funding contribution.

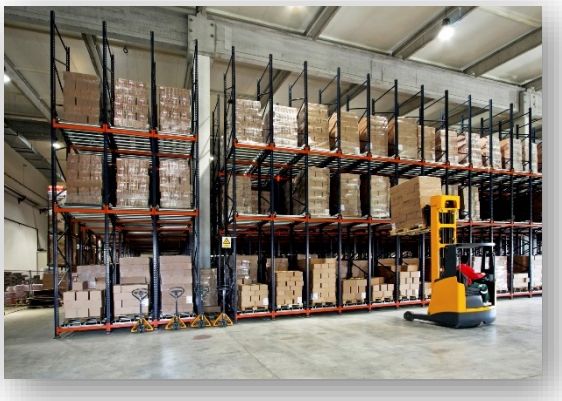
Escrow - A fund established to hold funds pledged and to be used solely for a designated purpose, typically to pay debt service on an outstanding issue in an advance refunding.[1]

Flow of Funds - The order and priority of handling, depositing and disbursing pledged revenues, as set forth in the bond contract. Generally, pledged revenues are deposited, as received, into a general collection account or revenue fund established under the bond contract for disbursement into the other accounts established under the bond contract. Such other accounts generally provide for payment of the costs of debt service, debt service reserve deposits, operation and maintenance costs, renewal and replacement and other required amounts.[1]

Forward Refunding - An agreement, usually between an issuer and the underwriter, whereby the issuer agrees to issue bonds on a specified future date and an underwriter agrees to purchase such bonds on such date. The proceeds of such bonds, when issued, will be used to refund the issuer's outstanding bonds. Typically, a forward refunding is used where the bonds to be refunded are not permitted to be advance refunded on a tax-exempt basis under the Internal Revenue Code. In such a case, the issuer agrees to issue, and the underwriter agrees to purchase, the new issue of bonds on a future date that would effect a current refunding.[1]

Independent Utility - A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility. (72 FR 47, p. 11196).

Intelligent Transportation Systems (ITS) - An operational system of various technologies that, when combined and managed, improve the operating capabilities of the overall system.

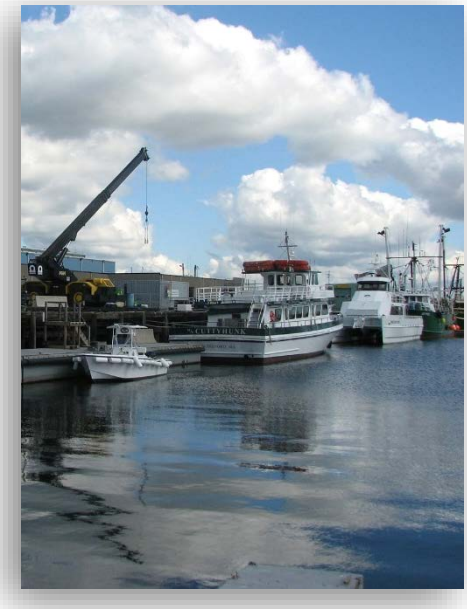


Interest Rate Swap - A specific derivative contract entered into by an issuer or obligor with a swap provider to exchange periodic interest payments. Typically, one party agrees to make payments to the other based upon a fixed rate of interest in exchange for payments based upon a variable rate. The swap contract may provide that the issuer will pay to the swap counter-party a fixed rate of interest in exchange for the counter-party making variable payments equal to the amount payable on the variable rate debt.[1]

Internal Rate of Return (IRR) - The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake the project.[3]

Investment-Grade - A security that, in the opinion of the rating agency, has a relatively low risk of default.[1] Alternatively, the level of comprehensiveness and market readiness for investment-grade security issuance in referring to a demand & revenue report or engineering report supporting such security issuance.

Letter of Credit - An irrevocable commitment, usually made by a commercial bank, to honor demands for payment of a debt upon compliance with conditions and/or the occurrence of certain events specified under the terms of the letter of credit and any associated reimbursement agreement. A letter of credit is frequently used to provide credit and liquidity support for variable rate demand obligations and other types of securities. Bank letters of credit are sometimes used as additional sources of security for issues of municipal notes, commercial paper or bonds, with the bank issuing the letter of credit committing to pay principal of and interest on the securities in the event that the issuer is unable to do so.[1]



Liquidated Damages - Present in certain legal contracts, this provision allows for the payment of a specified sum should one of the parties be in breach of contract.[3]

Liquidity - In the context project finance, the build-up of cash reserve balances which are viewed favorably given the ability to use such reserves to cover debt service and other obligations under a bond indenture should expected project cash flows not materialize for any given period.

Long Range Transportation Plan (LRTP) - A document resulting from regional or statewide collaboration and consensus on a region or state's transportation system, and serving as the defining vision for the region's or state's transportation systems and services. In metropolitan areas, the plan indicates all of the transportation improvements scheduled for funding over the next 20 years. The plan must conform to regional air quality implementation plans and be financially constrained.[2, 4]

Major Project Financial Plan - Under U.S. Department of Transportation (USDOT) guidance, transportation projects are required to submit a Major Project Financial Plan if any of the following apply: 1) recipient of Federal financial assistance for a Title 23 project with a minimum cost of $500 million, 2) identified by the USDOT Secretary as a major project and 3) applying for TIFIA assistance.

Master/Land-Use Plan - Port documents that guides a port's planning, development and management of land, infrastructure and facilities, with the goal of accommodating future growth and supporting the regional economy. These plans often include information on port owners' goals and policies; survey of existing conditions/facilities; stakeholder outreach activities; land use data; environmental considerations; analysis of future

demand, capacity, and capacity requirements; CIP; and operating and financial performance of the port.

Maximum Annual Debt Service - Maximum annual debt service refers to the amount of debt service for the year in which the greatest amount of debt service payments are required and is often used in calculating required reserves and in additional debt tests.[1]

Negative Arbitrage - Investment of bond proceeds and other related funds at a rate below the bond yield.[1]

Net Present Value (NPV) - The difference between the present value of cash inflows and the present value of cash outflows. NPV is used in capital budgeting to analyze the profitability of an investment or project.[3]

Net Revenue - The amount of money available after subtracting from gross revenues such costs and expenses as may be provided for in the bond contract. The costs and expenses most often deducted are O&M expenses.[1]

Off-Balance Sheet - Assets or liabilities that do not appear on a company's balance sheet but that are nonetheless effectively assets or liabilities of the company. Assets or liabilities designated off balance sheet are typically ones that a company is not the recognized legal owner of, or in the case of a liability, does not have direct legal responsibility for. Off-balance-sheet financing may be used when a business is close to its borrowing limit and wants to purchase something, as a method of lowering borrowing rates, or as a way of managing risk. This type of financing may also be used for funding projects, subsidiaries or other assets in which the business has a minority claim. An operating lease, used in off balance sheet financing, is a good example of a common off balance sheet item.[3]

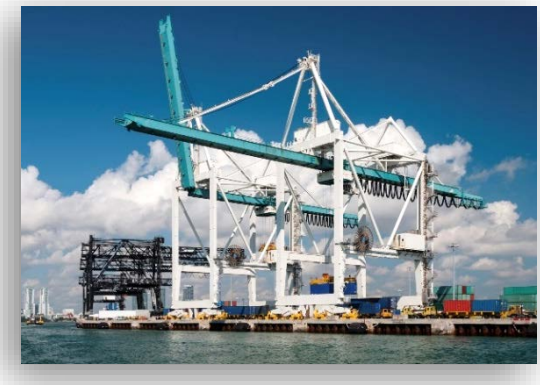
Operating & Use Lease Agreement - A contract that allows for the use of an asset, but does not convey rights of ownership of the asset. An operating lease is not capitalized; it is accounted for as a rental expense in what is known as "off balance sheet financing." For the lessor, the asset being leased is accounted for as an asset and is depreciated as such. Operating leases have tax incentives and do not result in assets or liabilities being recorded on the lessee's balance sheet, which can improve the lessee's financial ratios.[3]

Operating Expenditure (OpEx) - Expenditure on operating and routine maintenance costs.

Operations & Maintenance (O&M) - Refers to expenses incurred for operating and maintaining a project asset. O&M is a key input in determining project cash flows, often placed after gross revenues in the flow of funds of a bond indenture.

Payment Bond - Deposit or guaranty (usually 20 percent of the bid amount) submitted by a successful bidder as a surety that (upon contract completion) all sums owed by it to its employees, suppliers, subcontractors, and others creditors, will be paid on time and in full.[5]

Performance Bond - A written guaranty from a third party guarantor (usually a bank or an insurance company) submitted to a principal (client or customer) by a contractor on winning the bid. A performance bond ensures payment of a sum (not exceeding a stated maximum) of money in case the contractor fails in the full performance of the contract. Performance bonds usually cover 100 percent of the contract price and replace the bid bonds on award of the contract. Unlike a fidelity bond, a performance bond is not an insurance policy and (if cashed by the principal) the payment amount is recovered by the guarantor from the contractor.[5]



Port - A single- or multiple-facility entity that facilitates the transfer of cargo and/or passengers between logistically-linked transport modes.

Port Authority - State or local government that owns, operates, or otherwise provides wharf, dock, and other investments at ports.

Port Owner - Port authorities, terminal operators, private companies, and project sponsors that own and/or operate a port.

Price - The amount to be paid for a bond, usually expressed as a percentage of par value but also sometimes expressed as the yield that the purchaser will realize based on the dollar amount paid for the bond. The price of a municipal security moves inversely to the yield.[1]

Private Activity Bonds (PABs) - A municipal security of which the proceeds are used by one or more private entities. A municipal security is considered a PAB if it meets two sets of conditions set out in Section 141 of the Internal Revenue Code. A municipal security is a PAB if, with certain exceptions, more than 10 percent of the proceeds of the issue are used for any private business use (the "private business use test") and the payment of the principal of or interest on more than 10 percent of the proceeds of such issue is secured by or payable from property used for a private business use (the "private security or payment test"). A municipal security also is a PAB if, with certain exceptions, the amount of proceeds of the issue used to make loans to non-governmental borrowers exceeds the lesser of 5 percent of the proceeds or $5 million (the "private loan financing test"). Interest on private activity bonds is not excluded from gross income for federal income tax purposes unless the bonds fall within certain defined categories ("qualified bonds" or "qualified PABs"). Most categories of qualified PABs are subject to the AMT.[1]

Private Placement - A primary offering in which a placement agent sells a new issue of municipal securities on behalf of the issuer directly to investors on an agency basis rather than by purchasing the securities from the issuer and reselling them to investors. Investors purchasing privately placed securities often are required to agree to restrictions as to resale and are sometimes requested or required to provide a private placement letter to that effect. The term Private Placement is often used synonymously with the term "direct loan," which more specifically is a loan to a municipal issuer from a banking institution or another lender. Such obligations may constitute municipal securities.[1]

Project - A port owner's acquisition, development, expansion or renovation of a single site, facility, infrastructure element, or operational resource to meet an identified or emergent need.

Project Financing - A non-recourse or limited recourse financial structure where project debt and equity used to finance the project are paid back from the cash flow generated by the project. While the loan structure relies primarily on the project's cash flow for repayment; the project's assets, rights and interests are held as secondary security or collateral.[3]

Project Funding - A financial structure where internal reserves, user charges and/or government investments are used to finance the project without a direct requirement for repayment.

Project Sponsor - The entity that provides financial resources to support the project.

Public-Private Partnership (P3) - A generic term for a wide variety of financial arrangements whereby governmental entities agree to transfer any risk of, or substantial management control over, a governmental asset to the private entity in the port sector this is typically in exchange for upfront or ongoing payments though those may only be sufficient to pay for the capital improvement.[1]

Publicly Issued - The sale of bonds or other financial instruments by an organization to the public in order to raise funds for infrastructure expansion and investment (contrast with privately placed financial instruments including directly placed loans with a financial institution/lender).

Put Bond - A bond that allows the holder to force the issuer to repurchase the security at specified dates before maturity. The repurchase price is set at the time of issue, and is usually par value.[3]

Railroad Rehabilitation & Improvement Financing (RRIF) - Under this program the Federal Railroad Administration Administrator is authorized to provide direct loans and loan guarantees up to $35.0 billion to finance development of railroad infrastructure. Up to $7.0 billion is reserved for projects benefiting freight railroads other than Class I carriers. The funding may be used to (a) acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops; (b) refinance outstanding debt incurred for the purposes listed above; and (c) develop or establish new intermodal or railroad facilities. Direct loans can fund up to 100% of a railroad project with repayment periods of up to 35 years and interest rates equal to the cost of borrowing to the government. Eligible borrowers include railroads, state and local governments, government-sponsored authorities and corporations, joint ventures that include at least one railroad, and limited option freight shippers who intend to construct a new rail connection.[6]

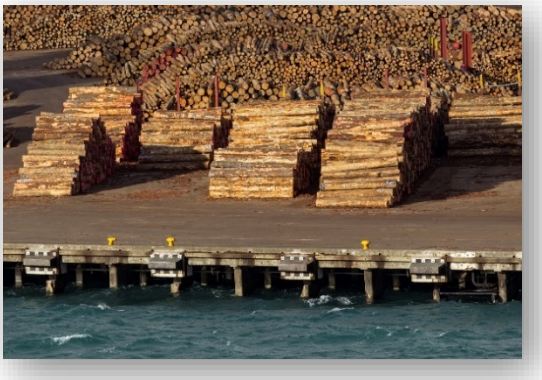
Rate Covenant - A covenant to charge fees sufficient to provide required pledged revenues.[1]

Renewal & Replacement (R&R) - Funds to cover anticipated expenses for major repairs of the issuer's facilities or a project whose revenues are pledged to the bonds or for R&R of related equipment.[1]

Return on Investment (ROI) – A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. ROI measures the amount of return on an investment relative to the investment's cost. To calculate ROI, the benefit (or return) of an investment is divided by the cost of the investment, and the result is expressed as a percentage or a ratio.[3]

Request for Letters of Intent (RLOI) - Document used to solicit Letters of Intent, an interim agreement that summarizes the main points of a proposed deal, or confirms that a certain course of action is going to be taken. Normally, it does not constitute a definitive contract but signifies a genuine interest in reaching the final agreement subject to due diligence, additional information, or fulfillment of certain conditions. The language used in writing a letter of intent is of vital importance, and determines whether it is only an expression of intent or an enforceable undertaking.[5]

Request for Proposals (RFP) - Document used in sealed-bid procurement procedures through which a purchaser advises the potential suppliers of (1) statement and scope of work, (2) specifications, (3) schedules or timelines, (4) contract type, (5) data requirements, (6) terms and conditions, (7) description of goods and/or services to be procured, (8) general criteria used in evaluation procedure, (9) special contractual requirements, (10) technical goals, (11) instructions for preparation of technical, management, and/or cost proposals or in the case of P3s, a full P3 contract. RFPs are publicly advertised and suppliers respond with a detailed proposal, not with only a price quotation. They provide for negotiations after sealed proposals are opened, and the award of contract may not necessarily go to the lowest bidder.[5]



Request for Qualifications (RFQ) - Document used in a procurement process to solicit qualifications of professional providers of goods or services for a given project. The objective of the RFQ is to pre-qualify bidding teams based on well- defined criteria.

Security for Debt - The specific revenue sources or assets of an issuer or borrower that are pledged or available for payment of debt service on a series of bonds, as well as the covenants or other legal provisions protecting the bondholders.[1]

Senior Lien Debt - Bonds having the priority claim against pledged revenues superior to the claim against such pledged revenues or security of other obligations.[1]

Special Purpose Facility Bonds - Bonds issued by a governmental entity to finance facilities supporting private sector activity, and secured by payments of special purpose rent received by the port or the trustee pursuant to an agreement with lessee/ concessionaire. Such bonds are issued by the governmental entity as the conduit issuer to achieve tax-exempt (or AMT) status on the bonds.

State Infrastructure Bank (SIB) - A state or multi-state revolving fund that provides loans, credit enhancement, and other forms of financial assistance to transportation infrastructure projects.[2]

State Transportation Improvement Program (STIP) - A short-term transportation planning document covering at least a three-year period and updated at least every two years. The STIP includes a priority list of projects to be carried out in each of the three years. Projects included in the STIP must be consistent with the long-term transportation plan, must conform to regional air quality implementation plans, and must be financially constrained (achievable within existing or reasonably anticipated funding sources). [2]

Strategic Plan - Port document outlining a port's market positioning and strategic direction. Strategic plans may include, among other topics, a competitive assessment relative to other ports; trends in regional, national and global economies; cargo/passenger analysis; growth strategies; and capital investment recommendations.

Subordinate Lien Debt - Bonds that have a claim against pledged revenues or other security subordinate to the claim against such pledged revenues or security of other obligations.[1]

Terminal Operator - A port authority or private company that operates a port facility and manages the movement of cargo and/or passengers.

Transport Modes - For each mode, there are several means of transport. They are: a. inland surface transportation (rail, road, and inland waterway); b. sea transport (coastal and ocean); c. air transportation; and d. pipelines.

Transportation Improvement Program (TIP) - A short-term transportation planning document, approved at the local level, covering at least a four-year period for projects within the boundaries of a Metropolitan Planning Organization (MPO). The TIP must be developed in cooperation with state and public transit providers and must be financially constrained. The TIP includes a list of capital and non-capital surface transportation projects, bicycle and pedestrian facilities and other transportation enhancements. The TIP should include all regionally significant projects receiving FHWA or FTA funds, or for which FHWA or FTA approval is required, in addition to non-federally funded projects that are consistent with the MPO's LRTP.

Transportation Infrastructure Finance and Innovation Act (TIFIA) - The Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) authorized the USDOT to provide three forms of credit assistance - secured (direct) loans, loan guarantees and standby lines of credit - to surface transportation projects of national or regional significance. A specific goal of TIFIA is to leverage private co-investment. Because the program offers credit assistance, rather than grant funding, potential projects must be capable of generating revenue streams via user charges or have access to other dedicated funding sources. In general, a project's eligible costs must be reasonably anticipated to total at least $50 million. Credit assistance is available to: projects eligible for assistance under title 23 or chapter 53 of title 49; international bridges and tunnels; intercity passenger bus or rail facilities and vehicles, including those owned by Amtrak; public freight rail projects; private freight rail projects that provide public benefit for highway users by way of direct highway-rail freight interchange (a refinement of the SAFETEA-LU eligibility criterion); intermodal freight transfer facilities; projects providing access to, or improving the service of, the freight rail projects and transfer facilities described above; and surface transportation infrastructure modifications necessary to facilitate direct intermodal interchange, transfer and access into and out of a port. The TIFIA credit assistance is limited to 49 percent of eligible project costs.[4]

Transportation Investment Generating Economic Recovery (TIGER) - USDOT TIGER discretionary grants are awarded on a competitive basis for capital investments in surface transportation projects that will have a significant impact on the nation, a metropolitan area or a region.

Value for Money (VfM) - A technique used to evaluate and quantify project risks. VfM "prices" risk by producing a discounted net present value amount that represents the aggregate impact of various sensitivities applied to the variable inputs of a project. An assessment of VfM for P_3 procurements is a comparative concept, and as such most delivery agencies seek to use a "public sector comparator" approach to evaluating VfM.

Yield - The annual rate of return on an investment, based on the purchase price of the investment, its coupon rate and the length of time the investment is held. The yield of a municipal security moves inversely to the price.[1]

Yield Restriction - A general requirement under the Internal Revenue Code that proceeds of tax-exempt bonds not be used to make investments at a higher yield than the yield on the bonds. The Internal Revenue Code provides certain exceptions, such as for investment of bond proceeds for reasonable temporary periods pending expenditure and investments held in "reasonably required" debt service reserve funds.[1]

Note: Sources for the glossary include (1) www.msrb.org, (2) www.transportation-finance.org, (3) www.investopedia.com, (4) www.fhwa.dot.gov, (5) www.businessdictionary.com, and (6) www.fra.dot.gov.

APPENDIX B Project Profiles

These project profiles represent a range of port projects which have utilized various financing techniques to move projects towards successful completion. The profiles included are not meant to be an exhaustive list, rather a sampling of the myriad of port projects that have been implemented at ports across the U.S. While each project and port has unique attributes, the efforts and strategies used to perform planning, assess feasibility and acquire project funding follow the principles outlined in this Toolkit.

1. PORTMIAMI CRUISE TERMINAL D EXPANSION AND IMPROVEMENTS

Cruise Terminal Expansion for Dedicated Operator

Location: Miami, Florida

Project Owner: PortMiami

Description

PortMiami needed to expand its cruise passenger terminal to support Carnival Cruise Lines' larger Dream-class vessel. The Cruise Terminal D Improvements project consisted of a new, approximately 19,800 square feet, two-story addition adjacent to the east entrance of the terminal; modifications to the existing intermodal, a remote baggage screening and passenger/crew access at the west end of the terminal intermodal; two new passenger access doors on the third level concourse; and interior improvements at the ground and second level to increase the passenger seating capacity. The project also achieved a LEED Silver Certification.

Cost: $15 million

Project Stakeholders

- Partners: Carnival Cruise Line
- Consultants/ Contractors: Bermello Ajamil & Partners / MCM Construction Contractors
- Advisors: Miami Dade County Legal and PortMiami Finance, Planning and Capital Development

PLANNING

Goals and Objectives

- Increase passenger queuing space at ground floor security lobby
- Increase security screening area at ground level to maximize passenger flow
- Add seating capacity to accommodate increase in passenger count from the Carnival Breeze and other Dream-class vessels
- Add two passenger access doors at third-level concourse to allow the terminal to be more flexible and accommodate a wider range of vessel door configurations

Existing Conditions/Assets

This project was an expansion to an existing 121,319 sq. ft. terminal facility completed on January 28th, 2008.

Market/Opportunities

The additional capacity, generated by this project, would allow larger vessels to continue to berth at this terminal, continuing to grow the Port's cruise industry.

Needs and Requirements

- Roughly 7,000 square feet of land for the expansion
- New chiller unit
- Additional seating for the newly expanded second floor
- Energy efficient systems and plumbing fixtures to achieve the LEED requirement

FEASIBILITY

Physical/Operational Performance

The expansion accommodates the estimated additional 250,000 passengers visiting the Port annually as a result of the larger vessel.

Financial Performance

Carnival Corporation agreed to home port a larger vessel at PortMiami that would increase revenues by an estimated $1.15 million to $2.1 million each year. Modifications to the cruise terminal were estimated to cost $15 million in order to accommodate the larger vessel. Over the term of a 30-year loan, the average annual principal and interest payments equaled approximately $875,000, totaling $26.3 million over 30 years. The average additional annual revenues earned from the increase in passengers were estimated to total approximately $79 million over 30 years. The anticipated return on investment merited the long term agreement with the Carnival Corporation.

Impacts

- Economic: Carnival is headquartered in Miami-Dade County and employed 3,800 shore side employees at the time the agreement was executed in 2011. At this time it was estimated that Carnival has a total economic impact of more than $1 billion annually in Miami-Dade County. This sizable impact makes Carnival an extremely valuable business partner.
- Environmental: The project obtained a LEED Silver Certification and there was very little impact to the environment.

Risk Assessment

- $2 million liquidated damages
- Double shifts during construction
- Construction materials being procured from different sources to assure proper availability

FINANCE

Approach

Funding was obtained from Florida Department of Transportation (FDOT) grants and Seaport Revenue Bonds issued in FY 12/13 as part of a major bond issuance that also rolled in with previous debt and resulted in a lower fixed interest rate (3%).

Funding Sources

- $1.7 million FDOT grants
- $14 million seaport revenue bonds

Project Delivery/Contract Method

The terminal improvements were delivered via an expedited traditional design-bid-build delivery mechanism. The architect/engineer and the contractor were hired in accordance with county processes that are guided by the Competitive Negotiation Act and the competitive construction contractor procurement processes of Florida Statutes 287 and 255 respectively. County/Seaport requirements for the inclusion of small business and the adherence to sustainability were also part of the delivery and contracting methods.

Duration/Status

Improvements and expansion to Terminal D have been completed.

Related Links/Articles:

- *http://www.miamidade.gov/portmiami/*

2. FRANCE ROAD TERMINAL BERTH 4 REDEVELOPMENT

Repurposing a Condemned Wharf Using Tenant Financing

Location: Port of New Orleans, New Orleans, Louisiana

Project Owner: Port of New Orleans (Port NOLA or the "Port")

Description: The Port's original container terminal located in the Inner Harbor, the France Road Terminal, was already an aging facility when it was heavily damaged during Hurricane Katrina. Subsequently, the main channel leading to the terminal, the Mississippi River-Gulf Outlet (MR-GO), was de-authorized and closed. Both the physical damage and the navigation changes resulted in a need to repurpose many of the Port's facilities on the Inner Harbor-Navigational Canal (IH-NC), with a focus on shallow draft or small, handy-sized vessels. Most of the Inner Harbor's deep draft activities were moved to Port NOLA facilities on the Mississippi River.

In late 2013, the Port was contacted by Boh Bros. Construction Co., which was looking to modernize its asphalt plant, with a focus on efficient logistics of its raw materials. France Road Terminal Berth 4 was identified as the ideal site. While the Port's capital investment focus is on its deep draft and cruise activities, the project offered the possibility to work with the tenant to provide tenant-financed improvements, which are amortized through credits on the market rent of the property as improved.

Cost: $2.25 Million

Project Stakeholders

- Partners: Boh Bros. Construction Co.
- Advisors: Volkert, Inc., and the Port's Legal, Port Development (engineering & construction management), Internal Audit and Industrial Real Estate Teams

PLANNING

Goals and Objectives

- Stabilize damage of the wharf to prevent future maintenance, liability and/or removal costs
- Generate revenue from a facility that had become a non-core asset
- Improve domestic logistics costs for asphalt production
- Leverage tenant investment so that the Port can continue to focus its limited capital on areas that have greater strategic importance

Existing Conditions/Assets

After the closure of the MR-GO, the navigational constraints of the Port's Inner Harbor changed drastically. The MR-GO allowed 36 feet of draft, and since it was an open channel, it had virtually no limit on ship length or beam. The new navigational constraint was driven by the dimensions of the IH-NC lock (30.5 ft. x 640 ft. x 75 ft.). Although the Inner Harbor is no longer suitable as a location for container terminals, the Port has pursued adaptive re-use, mostly focused on warehousing and logistics activities.

From a navigational standpoint, the site is ideal for barge traffic since it is located along the route of the Gulf Intracoastal Waterway (GIWW). The property is served by the New Orleans Public Belt Railroad,

providing access to six U.S. Class 1 railroads. The site also has excellent truck connectivity to Interstate 10 and U.S. 90. Prior to the project, only 830 of the wharf's 3,230 feet were capable of supporting cargo-related loads. Corrosion of the steel pipe pile substructure made what had once been a valuable asset to the Port a potential liability. As the wharf substructure continues to corrode, the Port continues to monitor the ability of sections of the wharf to hold its own weight. One of several access ramps leading to the wharf, not associated with this project, has collapsed because the degraded substructure.

Market/Opportunities

- Warehousing opportunities
  - The Kearney Companies has repurposed several buildings that were part of the terminal for storing port-related cargo.
- Transloading Opportunities
  - The Kearney Companies uses rail spurs for transloading both international and domestic cargo.
  - The Port unsuccessfully pursued a crude oil transload facility on the site.
- Manufacturing Opportunities
  - Atlantic Metrocast uses some of the open storage area for manufacturing pre-cast concrete pipe-piles.
  - The Port unsuccessfully pursued a window manufacturing for the site.
- Stevedoring
  - Berth 1 remains open for ships to use on a tariff basis; however, demand for the wharf has been limited.
  - A container line specializing in small ships investigated using Berth 1 for its New Orleans service, but had to shift its operations to the Port's container terminal on the Mississippi River when growing demand caused it to deploy larger vessels that wouldn't fit through the lock.
- Barge Fleeting
  - Although most of the wharf cannot support heavy weights of cargo without significant re-investment, it can support the lateral loads needed for barge fleeting. This use was ruled out, however, because of the inability to tier barges into the navigational channel.

Exhibit B-1 New Orleans Inner Harbor

- Domestic Cargo Opportunities
  - Boh Bros. is an example of domestic cargo opportunities.

Needs and Requirements

The needs were identified as 20-30 acres with 300 to 600 linear feet of restored wharf. The Port wanted to bring the facility as close as possible to design load capacity, even though this exceeded Boh Bros.' needs. The reasoning for doing so was that the Port wanted the wharf to have value and flexibility if Boh Bros. use were to cease. The final leased area is approximately 22 acres with 300 linear feet of restored wharf.

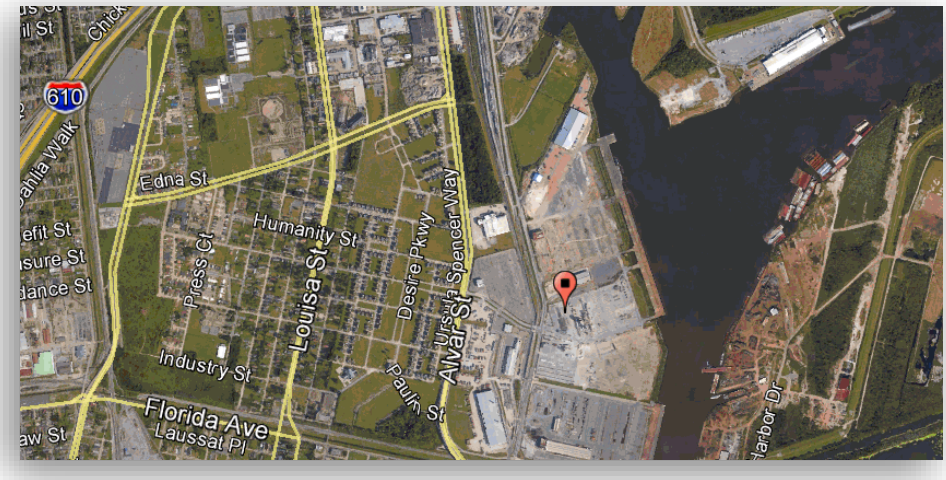
Stakeholder Engagement

The area where the development occurred is in an industrial area and has no impact on residential neighborhoods. The lease was discussed and approved at public meetings.

Recommended Project/Plan/Approach

Initially, Volkert had designed repair methods that required removing existing, damaged pile wrap, replacing segments of pipe pile as needed, wrapping each pile and encasing it in a polyethylene jacket to prevent further corrosion. However, at the start of construction, it was determined that there was no efficient way to remove the existing wrap, which contains asbestos, without encountering additional environmental risks.

Exhibit B-2 France Road Terminal



A new repair method was designed that essentially used the existing steel pipe pile as a form for concrete pile located inside the pile. The deck of the wharf was cored on top of each pile requiring repair. A threaded steel rod was inserted into the pile to provide reinforcement. Then, concrete was pumped into the pipe pile.

FEASIBILITY

Project Strategy

The Project Strategy is the redevelopment of a facility where the Port had invested heavily over the course of a century but where the improvements had essentially reached the end of the useful life. As such, the previous expenditures were considered sunk costs that had been recovered by the past use of the container terminal and other terminals and lease sites. The Port acquired more than 1000 acres in Eastern New Orleans in the early 20th Century.

In the 1920s, the Port dug the IH-NC, building a lock where it intersects with the Mississippi River and extending north to Lake Pontchartrain. In the 1950s, the federal government decided to route the shallow draft GIWW through the IH-NC. Further federal investment in a man-made outlet called the Mississippi River-Gulf Outlet connected the GIWW and the IH-NC to the Gulf of Mexico allowing vessels up to 36 feet deep to reach the Inner Harbor. In the 1960s, this area was considered the future of the Port of New Orleans since the MR-GO was shorter route than the winding route up the Mississippi River. The France Road Terminal Complex was built in the 1960s and 1970s.

As the size of container ships grew in the subsequent decades and erosion of the channel made it a controversial public works, the Port started planning a new container terminal at the Napoleon Avenue Wharf, where 45 foot drafts are available. The Corps

has now placed a rock dyke at the Gulf end of the MR-GO and the Lake Borgne Storm Surge Barrier on the Northern end of the MR-GO. The deauthorization of the MR-GO has caused the Port to seek adaptive reuse of the France Road Terminal and other properties. Its strategy post-Katrina is to try to create reliable revenue streams to the extent possible without having to devote capital that could otherwise be used on more strategically located properties. Therefore, the idea of tenant financing was a good fit for a project to redevelop 20 acres of the terminal.

Physical/Operational Performance

The transportation infrastructure had ample capacity to absorb the development because of its previous use as a container terminal.

Financial Performance

The approximate NPV values are listed as the incremental value of each 10 year term since Boh Bros. is not obligated to exercise the Options. However, Port staff believes that there is a high probability that the tenant will exercise its options and if it does not, it is likely that Port staff will find other tenants to lease the property for similar values.

Primary Term- $700,000
Option Term 1- $2.1 million
Option Term 2- $1.7 million

Impacts

- Economic: The project employs 62 jobs and helps make the production of asphalt for local construction projects more efficient through improved access to barge loads of quality aggregate materials.
- Environmental: The project's construction method had to be changed in mid-stream due to an unexpected environmental issue. See Recommended Project for further details.

Risk Assessment

- Construction cost overrun risks were considered and handled by placing a cap on the amount of capital costs that would be amortized by the tenant over the course of the primary term of the lease.
- Construction delay risks were considered and handled by placing a deadline on when lease payments would start, even if the rent credit for improvements had not been approved.
- Risks related to the accounting of eligible costs were considered and handled by including an exhibit on eligible costs to the lease, hiring Volkert to oversee construction and evaluate receipts for reasonableness, and including a provision in the lease that allows the Port's internal audit team to audit construction costs.
- Risks were considered related to Boh Bros. not exercising options for years 11-30, when the rent credits have expired and the Port will realize a higher cash flow. These were mitigated by repairing the wharf to a specification that had value and flexibility for other potential uses. Boh Bros.' position as a local and regional leader in highway construction was also considered, in that it will have a long-term need for an efficiently-run asphalt plant. It was also considered that because of the tenant's large capital investment in the site that it will be motivated to maximize its length of occupancy at the site.

FINANCE

Approach

The lease has a gross rent that is based on the market value of the property as improved with a working wharf capable of handling loads. These rent values were based on the Port's assessment of the value as compared to similarly-situated, leased facilities elsewhere in its real estate portfolio. The investment that Boh Bros. has made to Port-owned improvements, which does not include the specialized equipment and plant for the asphalt operation, is deducted from the lease in equal monthly installments over the 10-year primary

term of the lease. A budget for wharf repairs was developed by Volkert, and the lease includes a cap on the value of the rent credit based on the budget. The transaction provides a positive cash flow to the Port throughout the primary and option terms of the lease on a facility that had experienced a cataclysmic drop in its strategic value. While the Port forgoes the value of the rent credit in the primary term, it reaps the cash flow benefit of the investment with ramped up net rent payments in the option terms. It also has preserved its capital for other, more strategic investments in container and cruise facilities. The Port has also reduced its future liability and maintenance costs on the wharf.

Financing Analysis

A cash flow analysis was performed to evaluate the tenant- financed improvement that the lease contemplates and an alternative analysis in which the Port would make the upfront investment. The purpose of this analysis was to compare and contrast the financial implications of the tenant financed improvements that were used, with a similar scenario in which the Port could have paid the upfront cost to have the dock repaired. In the tenant financed model, the NPV of the cash flow in the 10 years of the primary term is approximately $701,000. If the Port would have invested more than $2 million in the dock, during the primary term it could have received the annual gross rent of $286,860 instead of the $80,610 of annual net rent. However, the rent credit arrangement actually results in a higher net present value for the primary term of the lease when the upfront investment of$2.25 million is deducted. In both the tenant financed and the Port financed scenarios, much of the value of the lease is harvested in the option terms (lease years 11-20 and 21-30) after the initial investment has been amortized.

Funding Sources

- Boh Bros. Construction Co.

Project Delivery/Contract Method

Because of its capabilities as a major maritime construction firm, Boh Bros. conducted most of the repairs itself and was reimbursed for the actual cost of construction, not including profit. The lease includes a cost methodology to further define the actual cost of construction. Volkert served as the design and engineering firm and construction manager. The problems removing the existing pile wrap caused a hiccup that required a complete re-design of the repair method. However, the new method was delivered without any additional increase in the rent credits that are deducted from the primary term rent.

Financial Management Strategy

Following completion of the work, cost documentation was submitted to the Port and Volkert. It was reviewed and in January of 2015, the Port formally accepted the work completed by Boh Bros. and issued rent credits to the lease in the amount of $2,062,500. The rent was set accordingly with this amount being amortized over the primary term of the lease as a rent credit.

Financial Status/Financial Performance

The project is complete and in use. In addition to the jobs and activity generated by the project, Port NOLA staff now has a repair method and a cost model for redeveloping other areas of the wharf. While none of the market opportunities to pursue other repairs of the wharf for alternate use have come to fruition yet, Port Industrial Real Estate staff continues to pursue opportunities related to the adaptive reuse of France Road Terminal.

Related Links/Articles:

- *www.portno.com*
- *www.bohbros.com*
- *http://www.mvn.usace.army.mil/Portals/56/docs/PAO/FactSheets/IHNC-LakeBorgneSurgeBarrier.pdf*

3. NIT NORTH GATE COMPLEX PROJECT

Gate Complex /Intermodal Transportation Project Supported by TIGER Grant Funding

Location: Norfolk International Terminals (NIT), Norfolk, VA

Project Owner: Virginia Port Authority (VPA or Port of Virginia)

Description: The NIT North Gate Complex will complete the I-564 Intermodal Connector, directly connecting the world's largest Navy base, Naval Station Norfolk, and the Port of Virginia's largest terminal, NIT, to the U.S. system of interstate and defense highways. The project will divert 740 trucks per day off congested local roads such as Hampton and Terminal boulevards.

Cost: $31 Million

Project Stakeholders

- Partners: VPA, Virginia International Terminals, MARAD
- Advisors: Clark Nexsen, Quinn Consulting Services, Inc.
- Agencies: U.S. Army Corps of Engineers, Virginia Department of Transportation (VDOT), Virginia Department of Environmental Quality, U.S. Customs & Border Protection, Virginia Department of Rail and Public Transit
- Industry: Hampton Roads Shipping Association – International Longshoremen's Association, Local Motor Carriers, Local Rail Lines, Ocean Carriers, Virginia Pilots Association
- Community: City of Norfolk, U.S. Navy, U.S. Coast Guard, Hampton Roads Transportation Planning Organization, Old Dominion University

PLANNING

Goals and Objectives

The NIT North Gate Complex project is the last element in a comprehensive multi-agency regional intermodal transportation initiative to address the heavy traffic volumes generated by both port operations and Naval Station Norfolk. The I-564 Intermodal Connector is the centerpiece of this initiative and is complemented by the NIT North Gate Complex (planned), $500 million in capacity improvements at NIT (complete), a new Port rail yard outside the north gate (complete), a new rail grade separation project at Hampton Boulevard that will eliminate traffic stoppages when trains depart NIT (nearly complete), and a Navy Base Gate (planned).

Existing Conditions/Assets

The recent record growth at NIT has led to increased truck traffic at the terminal's single truck gate and increased congestion on the terminal, as well as on Hampton and Terminal Boulevards. Once on terminal, trucks traveling to the north container yard must use a single road and then return south to exit through the same truck gate.

Market/Opportunities

- The NIT North Gate Complex project is a critical last-mile connection between the East Coast's 3rd largest port and USDOT's Primary Freight Network and Interstate Highway System. The project will increase the total gate capacity of the terminal by 1.2 million TEUs for the terminal's truck-served customers, reduce heavy truck traffic on the congested city streets by 60% (740 round trips per day), and reduce total truck-highway miles by over 91.9 million through avoided cargo diversions.
- This project enhanced many other projects already completed by the port, allowing the port to continue its annual growth in container volumes.

Exhibit B-3 NIT North Gate Complex Project

- The NIT North Gate Complex's connection to I-564, I-64, I-95, I-85, and I-81 are shown in the regional existing transportation infrastructure map in Exhibit B-4.
- The exhibit depicts the gate complex's supporting road, rail, and DoD projects that are aimed at rerouting freight, defense, and commuter traffic around the presently affected communities and business districts. These projects include:
  - VDOT's $169 million I-564 Intermodal Connector to directly link Port and Navy traffic to I-64.
  - VDOT's $38 million Hampton Boulevard Grade Separation to eliminate traffic delays by Port-generated rail traffic.

Exhibit B-4 Project Connections to Existing Transportation Infrastructure

- VPA's $31million North Gate Project to directly link port traffic to the I-564 Connector ($15 million TIGER request / $16 million VPA).
- U.S. Navy's Gate 6 Relocation Project to directly link naval station traffic to the I-564 Connector.
- VDOT's future $3 billion+ Patriot's Crossing Project to construct a new cross-harbor bridge-tunnel to the Cities of Portsmouth, Suffolk, and Newport News.
- Constructing the North Gate Complex so that it opens with the I-564 Connector is paramount to each project immediately realizing its full benefits.

Stakeholder Engagement

The Port of Virginia worked with the U.S. Navy, the VDOT, the City of Norfolk, Norfolk Southern, Virginia Department of Rail and Public Transit, and others to plan and invest in projects that will create an improved intermodal transportation system — of which the NIT North Gate Complex is the final component.

Significant regional collaboration with the Hampton Roads Transportation Planning Organization (HRTPO) and the Hampton Roads Planning District Commission (HRPDC) was critical in terms of data gathering and planning studies to determine project needs.

Agencies and stakeholders such as the HRTPO, the HRPDC, the City of Norfolk, and the Lochhaven Civic League have collaborated with the port, the Navy, and VDOT on this project.

The NIT North Gate Complex project is fully supported by the state and the region, and is included in the VPA's Master Plan document.

Recommended Project/Plan/Approach

The NIT North Gate Complex is included in the VPA 2040 Master Plan and is fully supported by state and regional planning bodies. The project is the last step in a long-planned regional strategy to mitigate traffic around the terminal and the Navy Base that includes the I-564 Intermodal Connector, the Hampton Boulevard Grade Separation, and $500 million in infrastructure improvements and permitting at NIT. These improvements are part of a larger regional and state transportation improvement plan to construct a new cross-harbor bridge tunnel that will improve connectivity between the cities of Hampton Roads and provide greater access to and from the region.

The project will be built in two phases. The first phase will be to construct the 5.7 acre container yard expansion, which also includes the roadway for truck access to the container yard. Phase 1's plans were 100% complete at the time of application. Phase 2, which includes final design and permitting of the gate complex, began after award of the TIGER Grant.

FEASIBILITY

Physical/Operational Performance

The NIT North Gate will be utilized by approximately 800-1,000 over-the-road trucks accessing the terminal on a daily basis. The North Gate will connect motor carriers with the weekly vessel services provided by 30 contracted international steamship line customers.

Impacts

Social: The reduced vehicle miles traveled as a result of the project directly reduces highway maintenance costs, accidents, air pollution, fuel consumption, and congestion. Providing a second gate greatly reduces queuing delays and improves on-terminal traffic flow. Finally, the advanced technologies that will be incorporated into the gate will greatly enhance personnel safety by removing inspection personnel from the truck lanes.

Economic:

- Benefit-Cost Ratio: Over 3:1
- National Impact: $98.5 million in national long-term benefits

Environmental: Unexpected soil contamination discovered during early phases of construction resulted delays to the schedule but has been fully mitigated by the port.

FINANCE

Approach

The Port of Virginia's new construction, system preservation, and maintenance projects are funded primarily from terminal operating revenue. This project was funded using those revenues, as well as a TIGER Grant from USDOT.

Funding Sources

- $16 million Virginia Port Authority Bonds
- $15 million FY2014 TIGER Grant

Project Delivery/Contract Method

Invitation for Bid (IFB)

Duration/Status

This project began construction in July 2015 and is scheduled for completion in June 2017.

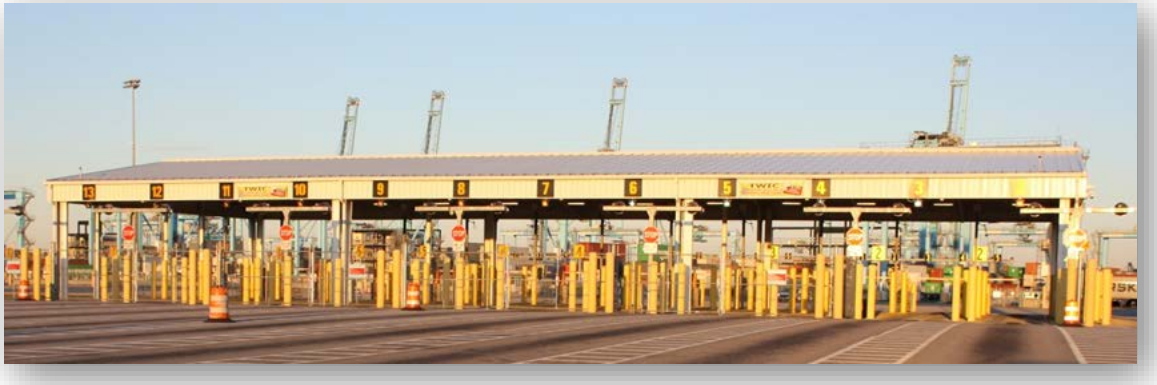
Innovations/Special Features

The NIT North Gate Complex project will deploy proven state of the art automated gate technology currently in use at Virginia International Gateway terminal in Portsmouth, Virginia. The VIG terminal is operated by the VPA and is the first automated container handling facility operating in North America. The technology that will be used at the North Gate Complex includes RFID to monitor truck appointments, biometric security verification, line scan imaging portals for remote scanning and storage of container maintenance and repair conditions, and an appointment system to meter traffic flow to the terminal. This same technology is also being deployed at the existing NIT Main Gate as part of a separate advanced technology project.

The technology improvements proposed for the North Gate Complex are critical components of the advanced Terminal Operating System currently being implemented that will more efficiently coordinate on-terminal activity and provide port customers with increasingly responsive service they need to hone their competitive edge in the international marketplace. Additional performance-enhancing technology improvements planned for the near future, such as real time location tracking and advanced container handling equipment will further rely on the technology and processes being implemented at the gate.

Related Links/Articles:

- *www.portofvirginia.com*



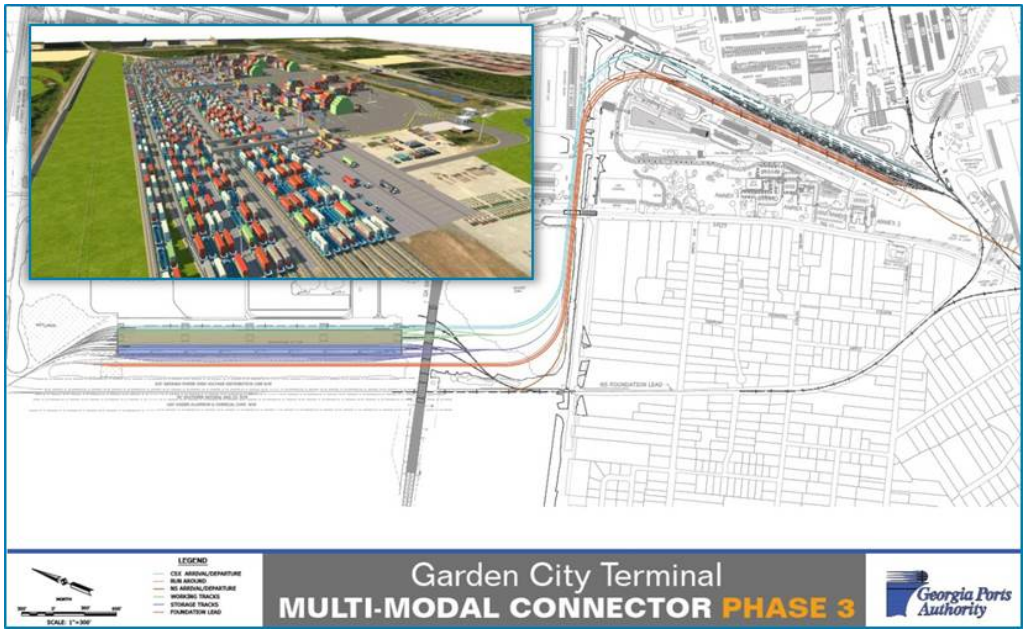
4. GARDEN CITY TERMINAL MULTI-MODAL CONNECTOR

International Multi-Modal Connector Project

Location: Garden City Terminal, Savannah, Georgia

Project Owner: Georgia Ports Authority (GPA or the "Port")

Description: To accommodate growth and handle future traffic projections, the International Multi-Modal Connector (IMMC) project will reconfigure both of the GPA's on-dock intermodal container transfer facilities (ICTFs) to bring rail switching activities inside the Port. The project will shift cargo traffic away from the surrounding community and neighborhoods, where current switching on existing rail infrastructure causes traffic backups on two state highways, and prevents all of the containers loaded onto railcars each day from leaving the Port the same day by train. Additionally, local surface roads rail blockages will be reduced by up to 6 hours / day, 26 at-grade rail crossings can be eliminated, and protection of the 21,000 acre drainage basin from flooding with the canal realignment and widening.



Cost: $128 million

Project Stakeholders:

- Partners: Georgia DOT (GDOT), Chatham County, Georgia, Genesee & Wyoming (G&W) and Savannah Port Terminal Railroad (SP)
- Advisors: HDR, Inc.
- Agencies: Dept. of Transportation (DOT), MARAD
- Industry: CSX
- Community: The IMMC project is strongly supported by a broad range of partners, including local municipalities and cities, Chatham County, the State of Georgia, and the participating railroads as well as private industries and citizens.

PLANNING

Goals and Objectives: The lost productivity from the current inefficient yard arrangement is GPA's single biggest chokepoint, and a significant threat to the region's future economic competitiveness. The IMMC will eliminate this bottleneck, improve the way containerized cargo is transported between the Port of Savannah and cities across the United States, and add enough capacity to handle GPA's growth projections well into the next decade. Trains up to 10,000 feet long will be able to be assembled within GPA's GCT providing financial incentive to the rail lines to pull more trains more frequently from the GCT.

Existing Conditions/Assets

The GPA has two existing on-dock, intermodal container transfer facility rail yards servicing two Class I railroads, CSX and Norfolk/Southern that are insufficient to handle future growth. Additionally, there are up to 6 hours of surface road blockages at various at-grade crossings due to the need to break trains in to smaller sections to fit in the CSX ICTF. The 21,000 acre drainage basin needs improvements at GA Hwy 21.

IMMC Project Components

Component	Outcome
Build two 7,800-foot arrival/departure tracks at Chatham Yard	Provides additional train arrival/departure capacity to add 85,000 new lifts per year at Chatham Yard
Extend one pad track east from Chatham Yard to new arrival/departure tracks	Moves Chatham Yard switching activity onto terminal and out of neighborhood, cutting SR 25 and SR 21 grade crossing delays by 4-6 hours per day
Rebuild SR 25 bridge over new yard tracks, Pipemakers Canal	Protects 21,000-acre drainage basin from flooding, while creating space beneath the widened bridge for extended arrival/departure tracks
Extend Chatham Yard arrival/departure tracks into Mason Yard as working tracks	Moves all lift activity to Mason Yard, eliminating all switching moves across SR 25
Construct two additional 10,000-foot arrival/departure tracks from Mason Yard to Chatham Yard	Moves all Mason Yard switching onto terminal and out of neighborhood, cutting grade crossing delays on Foundation Lead by up to 2 hours per day
Build 2 new working tracks at Mason Yard, add high-capacity cranes	Adds 135,000 lifts per year
Build 5 new storage tracks at Mason Yard	Maintains yard efficiency as lift volumes increase
Relocate NS Foundation parallel to arrival/departure tracks between Mason and Chatham	Removes Foundation Lead from neighborhood, eliminating 6 grade crossings and an additional 1 hour per day of crossing delays
GPA lift capacity increase	220,000 lifts per year

Market/Opportunities

The IMMC will provide a way for GPA to realize a long-standing goal of using rail intermodal service to extend the Port of Savannah's market reach to destinations such as Atlanta, Memphis, St. Louis, Chicago, Columbus, and the Ohio Valley. We refer to these market areas as the GPA Mid-American Arc. Serving more destinations at greater distances demands reliable, cost-effective rail service.

The improvements from the IMMC project will make rail a more attractive option for shippers and will handle the projected growth through 2026.

Needs and Requirements

Project land is currently owned by GPA or Chatham County with potential for minimal cost-to-cure issues.

Stakeholder Engagement

GPA engaged with the local community, surrounding cities, counties, and the State as well as the rail lines of CSX, G&W, and SP. These partnerships comprise an important part of the IMMC project, since the improvements constitute work that will occur inside and outside of GPA property, and will deliver benefits to the public not realized by traditional GPA capital improvement projects. Over 45 letters of support were received from a broad base of municipal, political, and industry entities in support of the project.

Recommended Project/Plan/Approach

This project had been studied for several years to develop the plan in this constrained area. After formal DOT award and approval to move forward on the project, GPA will follow its governmental procurement processes to implement the project program.

FEASIBILITY

Physical Performance

The Chatham ICTF was nearing capacity and trains for this ICTF were required to be broken into several pieces as it is not long enough for unit trains causing many hours of at-grade surface road blockages. This project overcomes many obstacles in the constrained footprint to allow the projected multimodal growth to 2026. The IMMC also allows Chatham County to improve the canal that services the 21,000 acre drainage basin in conjunction with the improvements needed for the rail multimodal increase.

Uses of Project Funds

Item	Funds Allocated
Description	**Cost**
▪ Ballast / Ties / Rail / OTM	$ 31,000,000
▪ Rail Bridges over Pipemakers Canal	$ 14,500,000
▪ State Route 25 Grade Separation	$ 12,000,000
▪ Canal Realignment	$ 1,700,000
▪ Utility Relocations	$ 3,000,000
▪ RTG Runways	$ 1,700,000
▪ Other Infrastructure	$ 900,000
▪ RMGs	$ 57,200,000
▪ Crane Rail	$ 2,500,000
▪ Crane Power	$ 3,500,000
Total	**$ 128,000,000**

The project will cut container handling times at the terminal, increase rail service, and add 220,000 new lifts per year to meet GPA's growth projections into the next decade.

Impacts

Social: The project will deliver changes to the Port and the surrounding community and neighborhoods by:

- expanding the Port's rail capacity, reducing traffic and commuter delays at local bottlenecks and on the regional roadway network system by eliminating several congested rail crossings;
- improving local flood control infrastructure;
- enhancing economic competiveness and opportunities for global trade;
- strengthening regional employment opportunities; and
- combining efforts by local, state, and regional stakeholders to improve the overall multi-modal transportation system.

Environmental: There should be little to no impact during the construction of this project. Much of the work will be on a previously developed port terminal and roadway along with other previously disturbed soil.

Economic: The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy in FY 2014 by the University of Georgia, Terry School of Business provides the most current data available and is as follows:

- 369,193 full- and part-time jobs (8.4% of Georgia's total employment
- $20.4 billion in income (5.3% of Georgia's total personal income)
- $84.1 billion in sales (9.6% of Georgia's total sales)
- $33.2 billion in state GDP (7.2% of Georgia's total GDP)
- $1 billion in local taxes
- $1.3 billion in state taxes
- $4.5 billion in federal taxes
-

Financial Performance

Project Evaluation Metric	Undiscounted	3% Discount Rate	7% Discount Rate
Total Discounted Benefits	$934,793,729	$561,594,810	$321,887,824
Total Discounted Costs	$132,421,450	$117,176,838	$101,271,859
Net Present Value	$802,372,279	$444,417,972	$220,615,965
Benefit / Cost Ratio	7.06	4.79	3.18
Internal Rate of Return (%)			18.5
Payback Period (years)			7.8

Risk Assessment

Project risks and mitigation strategies include the following:

Risk Category	Risk Name	Description	Mitigation Strategies
Financial	Loss of Private Funding	Loss of funding due to unforeseen circumstances	Highly unlikely. GPA and its funding partners are committed to completing the project.
Financial	Loss of Public Funding	Loss of funding due to unforeseen circumstance.	Additional funds would have to be obtained; the project would be delayed significantly.
Management	Stakeholders	Stakeholders providing significant contributions to the project may have varying procedures and objectives to ensure proper project execution	GPA has successfully worked numerous times with the groups involved, and feels all obstacles could be overcome with stakeholder communication to address potential concerns.
Technical	Flood Control	Conditions prove to be different than model results	Matches existing improved cross section of the canal with the Hwy. 25 chokepoint eliminations.
Contracting and Procurement	Administrative Burden	GDOT will administer the Hwy 25 and bridge portion, while GPA will manage the rail contracting	GPA will coordinate/collaborate with GDOT to help ensure timely completion as consistent with past practice. GPA will administer the rail contracts, and has successfully completed many capital projects of this size and larger to include rail projects.
Construction	Traffic	Traffic congestion during construction of rail crossing and site infrastructure	Close collaboration between GPA and GDOT to identify potential detour routes.
Environmental	NEPA	Historic/Archaeological/cultural resources discoveries	GPA owns most of the land required for this project. The area of proposed construction is located on previously disturbed soil.
Environmental	Wetlands	Project impact on existing wetlands	Preliminary investigation suggests this is not a problem. Adequate suitable area exists to construct replacement wetlands and/or circumvent areas of concern.
Environmental	Endangered Species	Impact to any endangered species within the project area	Preliminary investigation suggests this is not a problem. If encountered, design measures will be taken to circumvent and/or phasing measures to minimize impact during construction.
Right of Way	Property ownership	The entire project area is owned by the public authorities. There are not likely to be right of way issues	Right of way issues, if any, will be addressed during the final engineering phase and addressed if necessary. Potentially, there will be cost-to-cure issues, which GDOT handles expeditiously within the GDOT process.

FINANCE

Approach: The GPA cost share is being provided over a seven-year period by internal capital funds.

Funding Sources

Funding Partner	Description	Funding Amount
Georgia Ports Authority	Applicant	$82.875 million
Genesee & Wyoming	Partner – Investment in this Project	$0.5 million
Chatham County	Partner – Investments in Regional Flood Control Program and SR 25 Bridge Design	$0.625 million
U.S. Department of Transportation	FASTLANE Grant Funds Administrator	$44.0 million

Project Delivery/Contract Method

GPA's governmental bidding procedures along with innovative contracting approaches such as the potentially more cost effective method of Design-Build to promote accelerated project delivery will be utilized.

Financial Management Strategy

GPA internal capital funds, as needed over the years, will be provided by revenue from port operations while grant funds will be requested on a reimbursement basis. Grant funds will be requested for reimbursement at 34.73% of work expenditures to draw down the appropriate grant funding in relation to project cost share of participating partners. The GPA enterprise accounting system of SAP has a "Project Systems" module. This module segregates projects under an account code with sub codes to segregate items within this code. This allows for invoices to be split for the proper cost share and federal grant funds. Further, it lets a project be broken down into whatever components need to be tracked.

Duration/Status

GPA is beginning grant project processes and work. Work will be complete in seven years; however, GPA will attempt to compress this timeline for earlier utilization.

Innovations/Special Features

The two on-dock, Class 1 railroads with the project improved ICTFs along with the Savannah Harbor Expansion Project (SHEP), improved road systems to include last mile projects near GPA as well as Georgia areas around Macon and Atlanta, and the Georgia inland ports in Cordele and Chatsworth (Appalachian Regional Port or ARP) will combine to significantly increase GPA's frequency and reach in the region and the Mid America Arc.

Related Links/Articles

GPA Website: *http://www.gaports.com/Home.aspx*

GPA Press Releases

http://www.gaports.com/Media/PressReleases/TabId/379/ArtMID/3274/ArticleID/87/Lynch-GPA%E2%80%99s-Mid-American-Arc-to-expand-target-market.aspx

http://www.gaports.com/Media/PressReleases/TabId/379/ArtMID/3274/ArticleID/88/GPA-marks-record-August-for-container-volumes.aspx

Other Related Articles

http://www.ledger-enquirer.com/opinion/opn-columns-blogs/article103007612.html

http://savannahnow.com/opinion-editorial/2016-09-16/editorial-healthy-expansion-georgia-ports-us-heartland

http://www.customstoday.com.pk/georgia-ports-on-the-move/

http://abcnews.go.com/US/wireStory/savannah-port-targets-midwest-128m-rail-expansion-42118018

http://finance.yahoo.com/news/savannah-port-targets-midwest-128m-rail-expansion-182309723.html

5. CONLEY TERMINAL INTERMODAL IMPROVEMENTS AND MODERNIZATION

Container Terminal Modernization Project Supported by FASTLANE Grant Funding

Location: Boston, Massachusetts

Project Owner: Massachusetts Port Authority (Massport)

Description: Conley Terminal is the region's only deep-water, full-service container terminal capable of serving large ships in the Port of Boston. The project includes a series of intermodal improvements and equipment upgrades that together will enhance intermodal freight movement and efficiency and mitigate freight bottlenecks in the Northeast. The improvements include:

- Repairs and strengthening at Berth 11 to support shore-side deepening;
- Backland and fender repairs at Berth 12 to maintain a continuous state of good repair condition on two functional berths;
- Refrigerated container storage racks to improve energy efficiency and increase capacity;
- Terminal technology and equipment upgrades that will expedite container processing and increase reliability for trucks transporting goods on the National Highway Freight Network; and,
- New gate processing facilities that will rehabilitate severely deteriorated portions of the terminal backlands and reconfigure terminal flow.

Cost

- $47.3 million for repairs and strengthening to restore Berth 11 as a second functional berth
- $55.6 million for intermodal terminal enhancements, including refrigerated container storage, terminal technology and equipment upgrades, and new gate processing facilities

Project Stakeholders

- Agencies: These projects are fully supported by the Commonwealth of Massachusetts, which is contributing $75 million toward the Boston Harbor Dredging Project.
- Industry: The International Longshoremen's Association (ILA), The Boston Harbor Association and local industry in discussions regarding these projects to assure that the needs of all involved parties are being adequately met.

PLANNING

Goals and Objectives

The Conley Terminal Intermodal Improvements and Modernization project is a packaged set of infrastructure improvements that will create a modern intermodal gateway for New England freight, provide a continuation of global business connections, and support jobs and economic impacts for Boston and New England, while also improving the performance of America's freight system, particularly in the Northeast region.

Existing Conditions/Assets

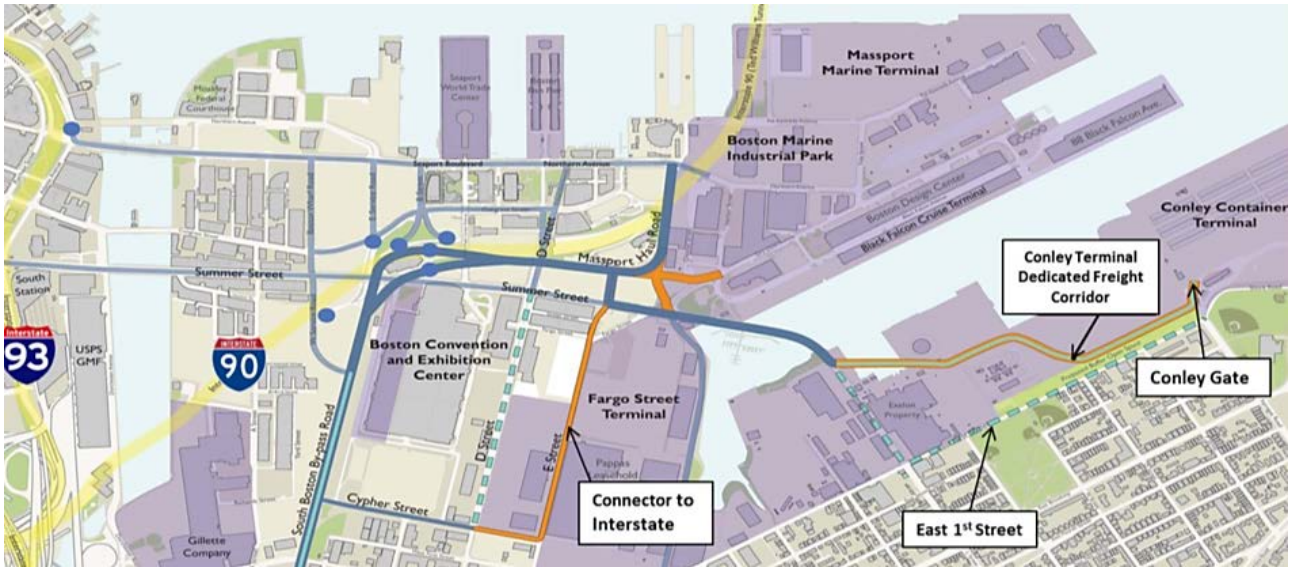
Conley Terminal is a vital intermodal transportation asset that diversifies and promotes the resiliency of the nation's international freight system by providing an alternative to other congested Northeast ports for serving the New England market. While currently successful, Conley Terminal is in need of major capital improvements to remain competitive in the face of significant changes in the container industry.

The project is necessary to ensure the continued relevance and functioning of the Port of Boston in the face of these changes and to leverage investments made to date and continue toward completion of the ultimate Master Plan.

The project leverages the Boston Harbor Dredging Project, the dedicated freight corridor and the new SmartScan 3D automated container screening technology by restoring redundancy and enhancing operational efficiency with an improved state of good repair and modern technology to serve users.

Needs and Requirements

Berth 11 must be repaired and deepened to handle the Ultra-Large container vessels that are calling on Conley Terminal. Without these improvements the shift in the global fleet to larger container vessels limits Conley Terminal's ability to serve as a viable resource for container shipments. As a result, the more than 237,000 TEUs currently moving through Conley to or from New England will shift from the Port of Boston to the Port of New York/New Jersey or to the Port of Halifax, Nova Scotia. Such a shift would have significant impacts on traffic congestion and emissions generated throughout the Northeast.



Stakeholder Engagement

The project improvements are all fully contained within Massport owned lands, are consistent with existing use of the site, and therefore are not subject to any state or local planning regulations. Because Massport is independently funded and does not rely on state or local funding for its operations, projects are not normally programmed in the TIP or Long Range Transportation Plan. Should grant funds be awarded, the Boston Region MPO can mobilize to amend the TIP to include the projects within 45 days. Massport has been fully coordinating with the Massachusetts Department of Transportation (MassDOT) with regards to these improvement projects. All relevant agencies, including MassDOT, the Boston Region MPO, and the City of Boston are fully aware and supportive of the proposed improvements.

FEASIBILITY

The estimated rate of return for the project is 22 percent. The non-discounted capital costs of the entire FASTLANE Project are $102.9 million. The Project will also generate a net operating cost savings of $52.5 million at the terminal over the analysis period through avoided maintenance of heavily deteriorated assets that are replaced. At a seven percent discount rate, this investment is expected to generate $291.9 million in benefits, resulting in a benefit to cost ratio of 4.2. At a three percent discount rate, the same investment generates $512.2 million in benefits and a benefit to cost ratio of 8.0. Individual analyses of several project components were also conducted to show independent utility.

At present, Massport spends approximately $2.5 million per year in "patching" maintenance of the facilities that will be replaced through this project. Upon completion, the Berth 11 and 12 improvements, refrigerated container storage, terminal technology improvements, and new gate processing facilities will reduce annual O&M costs by an average of $1.75 million per year.

Financial Performance

Millions of $2015; 7% Discount Rate			
Benefits	**Berth 11 & 12 Improvements**	**Terminal Enhancements**	**Total Project**
▪ Transportation Cost Savings	$72.4	$0.6	$78.7
▪ Travel Time Savings	$0.0	$1.3	$3.1
▪ Accident Savings	$39.9	$3.0	$46.4
▪ Non-Carbon Emission Savings	$7.8	$0.1	$8.3
▪ Carbon Emission Savings	$35.4	$0.1	$40.6
▪ Pavement Maintenance Savings	$60.3	$0.1	$65.3
▪ Congestion Savings	$45.4	$0.0	$49.0
▪ Residual Value	$0.4	$0.2	$0.6
TOTAL BENEFITS	**$261.5**	**$5.5**	**$291.9**
Costs			
Capital Costs	$39.9	$47.0	$86.9
Operating & Maintenance Costs	-$4.2	-$13.7	-$17.9
TOTAL COSTS	**$35.7**	**$33.3**	**$69.1**
Net Present Value (NPV)	**$225.7**	**-$27.9**	**$222.8**
Benefit-Cost Ratio (BCR)	**7.31**	**0.16**	**4.23**

Impacts

Qualitative Benefits	Berth 11 & 12 Improvements	Terminal Enhancements			Full Project
		Refrigerated Container Storage	Terminal Tech & Equipment	New Gate Facilities	
Economic Outcomes					
Increase Reliability					
▪ Provides a second functional berth	✓				✓
▪ Adds container capacity		✓		✓	✓
▪ Implements current communication technology			✓	✓	✓
▪ Reduces National Freight Highway Network congestion	✓				✓
Increase Efficiency					
▪ Reduces processing time by up to 5 minutes				✓	✓
▪ Reduces terminal operating time by 5 minutes			✓		✓
▪ Provides redundancy and ability to serve 2 ships	✓				✓
▪ Creates efficient and modern Conley Terminal	✓	✓	✓	✓	✓
Improve connectivity between freight modes					
▪ Improves ship to truck movements	✓		✓	✓	✓
Mobility Outcomes					
Maintain freight infrastructure in state of good repair					
▪ Repairs degraded and outdated infrastructure	✓	✓	✓	✓	✓
Increase Resiliency					
▪ Enhances reliability of intermodal freight system	✓			✓	✓
Reduce Congestion and Bottlenecks					
▪ Eliminates truck traffic on congested Northeast corridor interstates	✓				✓
▪ Prevents worsening bottlenecks at PONYNJ	✓				✓
▪ Alleviates in-terminal bottlenecks		✓	✓	✓	✓
Safety Outcomes					
Reduce the likelihood of high consequence events					
▪ Improves in-terminal traffic flow and upgrades pavement condition	✓	✓	✓	✓	✓
Improve Interactions between Roadway Users					
▪ Avoids additional vehicle miles	✓		✓	✓	✓
Community & Environmental Outcomes					
Avoid Harm to communities and environment					
▪ Crane painting enhances terminal aesthetics			✓		✓
Improve Environmental Quality					
▪ Increases energy efficiency and reduces emissions	✓	✓	✓		✓
▪ Reduces light pollution			✓		✓

Social: A benefit-cost analysis was conducted to quantitatively assess the merits of the Conley Terminal Intermodal Improvements and Modernization project as part of the overall cost-effectiveness analysis. In addition to the quantified benefits, a summary of the many qualitative benefits is included at the end of this section. All project components are expected to be completely constructed by the end of first quarter 2019. Annual costs and benefits were computed and summarized over a 30-year period.

Economic: Conley Terminal contributes to the local, regional and national economies by providing employment and income to individuals,

tax revenues to local, state and federal governments, customs fees to the federal government, and revenue to businesses engaged in handling, shipping, and receiving cargo via the port. The jobs provided by Conley are well-paying, blue-collar jobs that support families in the Boston area.

Environmental: Since 2010, Massport has held more than a dozen meetings with neighboring community groups to discuss the dedicated freight corridor and park, the purchase of the Coastal Oil site, and other Conley Terminal projects. Additionally, Massport has implemented a comprehensive environmental management system to actively improve air quality, reduce hazardous material and wastes, and conserve water, electricity and fuel usage to minimize impacts to the community.

Risk Assessment

The Conley Terminal Intermodal Improvements and Modernization project is a very straightforward project with very few foreseen risks. The investment will restore existing infrastructure to a state of good repair and allow for the continued long-term operations and expansion of the facility. Massport already fully owns the land under consideration and the improvements do not extend beyond the existing footprint in any way that would materially impact the environment. There are no additional real estate needs to pose delays to the project, and none of the materials required for construction have long-lead times.

Additionally, many previous studies in the area have addressed and mitigated potential risks associated with this project. These include the master planning effort, the preparation of the Environmental Notification Form for the related dedicated freight corridor project, and the detailed Boston Harbor Deep Draft Navigation Improvements Project (BHDDNIP) Study. The primary risks associated with improvements at Conley Terminal have already been addressed and mitigated.

One potential risk that has been identified is the presence of contamination in the excavated material at Berth 11 or the fill removed from the backlands for Berths 14-17. The upper layers of material in the harbor are likely to contain some level of contamination that may not be suitable for open water disposal. This issue was identified during the BHDDNIP Study and it was determined that this material would be suitable for disposal in the Confined Aquatic Disposal (CAD) cell that is included as a component of the Berth 11 deepening project. This technique has been successfully used for disposal of similar materials in previous Boston Harbor marine excavation projects. Should contaminated materials be encountered during excavation for the installation of the new steel sheet pile bulkhead, Massport has hazardous material management plans in to address any disposal needs.

FINANCE

Project Delivery/Contract Method

As a traditional design-bid-build project, the construction contractor procurement process will take place upon completion of final design.

Duration/Status

Massport has completed site inspections and preliminary investigations of the impacted areas for other terminal projects. Supplemental geotechnical investigation will be required to confirm the findings of these previous efforts.

The permitting process for Berth 11 and 12 improvements will begin as soon as the design has progressed to the necessary stage, anticipated to be third quarter 2016. Procurement and construction award for the Berth 11 project are anticipated for third quarter 2017. Construction of the initial Berth 11 improvements is expected to begin immediately upon contract award and to last for 18 months with completion foreseen in early 2019.

Berth 11 deepening would commence upon receipt of all remaining permits and is not expected to extend the overall construction schedule for Berth 11 improvements. Berth 12 Fender and Backland Pavement, Refrigerated Container Storage, and Terminal Technology & Equipment Improvements components are anticipated to be complete by the end of 2018. The new gate facilities are anticipated to be completed by early 2019.

Innovations/Special Features

With funding from the DHS, the Commonwealth of Massachusetts and Massport, Passport Systems, Inc. is currently constructing and testing its SmartScan 3D automated cargo inspection system at Conley Terminal. This system, which can non-intrusively detect nuclear materials and other contraband, will be used by Customs and Border Patrol to screen containerized cargo at Conley Terminal, making the Port of Boston the first in the nation to use this technology.

The broadband Wi-Fi network and other operational improvements within the terminal will help fully leverage this cutting-edge technology aimed at keeping these hazardous materials off of the nation's roadways and out of our communities.

Additionally, Massport recently launched a new mobile application called Forecast Mobile Lite, making Conley among the first in the industry to make this technology available. The application provides customers, primarily trucking companies and drivers, access to container availability information in real time on their smartphones, saving time and avoiding potential issues at the terminal gate.

Related Links/Articles

- *https://www.massport.com/media/2914/Conley_Terminal_Environmental_Notification_Form_Report.pdf*
- *https://www.massport.com/news-room/news/port-of-boston-welcomes-largest-cargo-ship-to-date/*

Funding Sources

Project Component	Massport Funding	Other Federal Funding	FASTLANE Funding	Total Project Cost	% of Project Segment Cost	% of Full Project Cost
TOTAL PROJECT COST (ALL COMPONENTS)	***$41,604,500***	***$333,185***	***$60,953,768***	***$102,891,453***		***100%***
BERTH 11 & 12 IMPROVEMENTS	***$21,890,150***	***$0***	***$25,378,800***	***$47,268,950***		***45.9%***
Berth 11 Repairs	$11,000,000	$0	$19,795,800	$30,795,800	65.2%	29.9%
▪ **Pier and Apron**	$4,200,000	$0	$10,990,000	$15,190,000	49.3%	14.8%
▪ **Bulkhead**	$2,200,000	$0	$4,405,800	$6,605,800	21.5%	6.4%
▪ **Backlands**	$2,000,000	$0	$3,000,000	$5,000,000	16.2%	4.9%
▪ **Fender**	$2,600,000	$0	$1,400,000	$4,000,000	13.0%	3.9%
Berth 11 Strengthening	$4,000,000	$0	$2,383,000	$6,383,000	13.5%	6.2%
Berth 11 Deepening	$2,490,150	$0	$0	$2,490,150	5.3%	2.4%
Berth 12 Fender & Backlands	$4,400,000	$0	$3,200,000	$7,600,000	16.1%	7.4%
▪ **Backlands**	$3,000,000	$0	$2,000,000	$5,000,000	65.8%	4.9%
▪ **Fender**	$1,400,000	$0	$1,200,000	$2,600,000	34.2%	2.5%
TERMINAL ENHANCEMENTS	***$19,714,350***	***$333,185***	***$35,574,968***	***$55,622,503***		***54.1%***
Refrigerated Container Storage	$6,007,896	$0	$4,005,264	$10,013,161	18.0%	9.7%
Terminal Technology & Equipment	$6,876,877	$333,185	$4,251,400	$11,461,462	20.6%	11.1%
▪ **Broadband Network**	$936,877	$0	$624,585	$1,561,462	13.6%	1.5%
▪ **LED Terminal Lighting**	$360,000	$0	$240,000	$600,000	5.2%	0.6%
▪ **Yard Tractors**	$1,080,000	$0	$720,000	$1,800,000	15.7%	1.7%
▪ **RTG Drive Replacement**	$2,160,000	$333,185	$1,106,815	$3,600,000	31.4%	3.5%
▪ **Structural Crane Painting**	$2,340,000	$0	$1,560,000	$3,900,000	34.0%	3.8%
Gate Processing Facility	$6,829,576	$0	$27,318,304	$34,147,880	61.4%	33.2%
▪ **Berths 14 to 17 Rehabilitation**	$3,400,800	$0	$13,603,200	$17,004,000	49.8%	16.5%
▪ **New Gate Processing**	$3,428,776	$0	$13,715,104	$17,143,880	50.2%	16.7%

6. RIVERFRONT COLD STORAGE FACILITY

Largest Blast-Freeze, Cold Storage Facility in the Northern Hemisphere

Location: New Orleans, Louisiana

Project Owner: Port of New Orleans

Description: The Port of New Orleans planned to construct a new cold storage facility at Henry Clay Avenue for temperature-sensitive products to arrive via trucks. The products required blast-freezing and/or cold storage warehousing in an insulated on-dock building until exported via dockside handling directly into refrigerated ships or refrigerated containers.

Cost: $40.5 million

Project Stakeholders

- Partners: McDonnel-Primus Joint Venture, Metairie, La. (Developer)
- New Orleans Cold Storage LLC (Operator)

PLANNING

Goals and Objectives

To replace and expand cold storage and blast-freeze capacity lost on the Inner Harbor Navigation Canal, due to the closure of the Mississippi River Gulf Outlet following Hurricane Katrina.

Existing Conditions/Assets

- Port of New Orleans Existing 187,081 SF Cold Storage Facility at Jourdan Road Terminal (JRT) in New Orleans East
- Blast freeze capacity - 1.2 million lbs. daily
- Storage capacity - 52 million lbs.

The Port's existing facility at JRT was served by the Mississippi River Gulf Outlet, which was congressionally closed following Hurricane Katrina, limiting deep-water access to the existing facility. The only access following the closure was through the Inner Harbor Navigation Canal (IHNC) Lock, which limited the size and draft of ships accessing the existing facility:

- IHNC lock placed in service in 1921
- 75-ft wide X 640-ft long
- 31.5 foot draft
- Average delay is 11 hours
- Maximum delay is 24-36 hours

The Port first had to identify a suitable available site for the project. Through a series of exercises, the Port determined the existing Henry Clay Wharf was best suited for the project.

The site at the time was leased by Ports America and consisted of two ship berths and a transit shed. The Port renegotiated Ports America's lease to obtain the site for the development of the new terminal.

Market/Opportunities

- 420 commercial broiler farms in market region
- 3 poultry processors
- 1 billion+ pounds grown annually
- Annual economic impact: $1.24 billion in Louisiana alone
- Port of New Orleans cold storage business handles worldwide export of frozen products, exporting 44% of Louisiana poultry
- Construct the largest blast-freeze facility in Northern Hemisphere

Needs and Requirements

Operational capacity needs include the ability to blast freeze 2.4 million lbs. of product in 48 hours or less and warehousing capacity to store 38 million lbs. of frozen product.

- Shipping and Receiving Dock
- Self-polishing seamless floor, automatic tip tables and stretch-wrap stations to reduce loading time
- Rack freezing system
- 40 truck bays
- Battery Stations and Washer

- Leadership in Energy and Environmental Design (LEED) Standards
  - Light-emitting diodes (LED) lighting with centralized control and motion sensor systems
  - Intricate sequence of systems that reduce energy demand such as:
    - Wider doors that allow trucks to open directly into the building
    - Air doors to reduce warm air infiltration
    - Dehumidifiers

Stakeholder Engagement

- Engaged the terminal operator, New Orleans Cold Storage LLC
- Poultry producers for needs and volume forecasts
- Community Outreach to project neighbors such as:
  - Audubon Nature Institute
  - New Orleans Children's Hospital
  - Ports America
  - Neighborhood Associations

Recommended Project/Plan/Approach

The former 50-year-old dockside transit shed at Henry Clay was demolished and the substructure strengthened in preparation for the new facility. The berths were stabilized and dredged to a minimum 35-foot draft. The warehouse incorporates energy-saving technology and state-of-the-art operational efficiencies.

There are two break bulk vessel berths at the Henry Clay dockside facility, with direct access to the global vessel trade via the Mississippi River. In addition to break bulk access, the close proximity to the Port's Napoleon Avenue Container Terminal will create additional efficiencies for the growing refrigerated container trade.

FEASIBILITY

Physical Performance

The refrigeration processes can freeze up to 1.25 million pounds of product daily and store 38 million pounds of frozen goods between -15 and 40 degrees F, making it the largest blast-freeze operation in the Northern Hemisphere.

Henry Clay also has direct access to rail, with switch services by the New Orleans Public Belt Railroad, giving NOCS and its customers access to the North American rail network (US, Canada, and Mexico) via the Union Pacific, Burlington Northern Santa Fe, Norfolk Southern, Canadian National, Kansas City Southern, and CSX railroads.

Economic Impacts

- Added 124 new direct jobs
- Generates $126 million in annual spending
- Supports the Louisiana poultry industry which is valued at more than $1.6 billion.

Risk Assessment

- Riverfront Cold Storage Facility was originally planned for the Gov. Nicholls Street/ Esplanade Ave. Wharf downriver near the French Quarter. Those plans received push back from the neighborhood and hospitality community, despite the fact the wharves were historically cargo docks and continue to operate today as a maritime facility.

FINANCE

Approach

The project's investment for all improvements totaled $40.5 million, of which $35.13 million went to the construction of the facility. Louisiana's Office of Community Development-Disaster Recovery Unit provided $23.5 million in Community Development Block Grant (CDBG) Disaster Recovery funds with the remaining funds coming from the Federal Emergency Management Agency (FEMA) and the Port of New Orleans. The Port of New Orleans, which is a state agency, owns the terminal and leases it to New Orleans Cold Storage to operate.

Funding Sources:

- $23.5 million State of Louisiana Reimbursement through CDBG
- $2.8 million FEMA Funding
- $14.2 million Port of New Orleans

Project Delivery/Contract Method

The Riverfront Cold Storage Facility is the first design-build project undertaken by the Port of New Orleans. The Board authorized its first design-build ordinance in 2009 and awarded the contract in May of 2010 to McDonnel-Primus Joint Venture of Metairie, La.

Financial Status

The Riverfront Cold Storage Terminal has met its revenue guarantees in its leases with the Board of Commissioners of the Port of New Orleans. However, the Port has realized diminished returns from dockage due to increased containerization of poultry exports and decreased breakbulk handling of the refrigerated cargo.

Duration/Status

A 10-month design period was required prior to a 24-month construction term for the Riverfront Cold Storage Terminal. Construction began in June of 2010 and was completed in June of 2012. Included in the construction term was substructure and foundation reinforcement for the changed-use of the terminal from a traditional breakbulk facility to a blast-freeze, cold storage terminal.

Innovations/Special Features

Project Management Institute Atlanta Chapter 2012 Project of the Year Award

Related Links/Articles:

- *http://portno.com/henry-clay-avenue-wharf*
- *http://www.nocs.com/henry-clay-wharf*
- *http://www.cattlenetwork.com/cattle-news/New-Orleans-Cold-Storage-opens-new-warehouse-163078586.html*
- *http://www.areadevelopment.com/newsItems/7-24-2012/new-orleans-cold-storage-facility-dedication-161615.shtml*
- *http://portno.com/CMS/Resources/press%20releases/prsrel071912.pdf*

7. MITSUI/TRAPAC PROJECT

New Container Terminal for a Dedicated Carrier

Location: Jacksonville, Florida

Project Sponsor/Borrower: Jacksonville Port Authority (JaxPort or JPA)

Description: A long term concession-like Operating Lease & Use Agreement with Mitsui MOL and Trans Pacific Container Corp for the development and financing of a new container terminal expected to eventually throughput 800,000 containers per year. The Agreement sets forth the business and financing terms for the new terminal including a multi-tiered plan of finance and a 30-year operating lease. Because Mitsui is directly or indirectly responsible for all debt service, the project forecast improved JPA's net operating revenues and overall financial position.

Some relevant terms and attributes of the Agreement include:

- JaxPort will own the facility during and after construction. Both parties have representatives on a construction committee to oversee the planning and construction of the project.
- Mitsui/TraPac will lease the premises from JaxPort and operate the container terminal. The term of the lease is 30 years from date of beneficial occupancy of the facility.
- Mitsui/TraPac will have exclusive right to use the facilities during the lease.
- Mitsui/TraPac will pay JaxPort a throughput fee per container.
- Additional Rent under the lease will equal amounts payable to JaxPort for the various components of the financing arranged by JPA.
- The Operating and Lease Agreement constitutes a "full net lease" which means that Mitsui/TraPac, during the lease term, is responsible for keeping the facilities in good working order at its own expense, including insurance, repairs, security, etc.

Cost: $220 million

FINANCE

Funding Sources

- $25 million State of Florida PRPA/Commonwealth grants
- $45 million JPA Revenue Bonds secured by net operating revenues and highly rated given additional revenue support by the City of Jacksonville pursuant to an Interlocal Agreement
- $50 million Florida PRPA/Commonwealth state infrastructure bank (SIB) loan secured on a subordinate lien basis by JPA
- $100 million Special Purpose Facility Revenue Bonds issued by JPA but secured and paid by Mitsui

Project Delivery/Contract Method: Design-Build-Finance-Operate-Maintain

Private Partner: Dedicated Carrier (Mitsui/TraPac)

Project Advisors/Consultants

- Office of General Counsel of the City of Jacksonville – Issuer's counsel
- Foley & Lardner LLP – Bond & disclosure counsel
- Public Financial Management - Financial advisor
- Martin Associates – Demand & revenue consultant

Lenders: Bondholders, FDOT SIB

Duration/Status: Terminal opened January 12, 2009

Financial Status/Financial Performance

All three debt financing components have been completed. The $100 million Special Purpose Facility Revenue Bonds, which were sold as variable rate demand bonds and swapped back to a fixed rate at 3.90%, closed April 11, 2007. The SPFR Bonds are guaranteed by Mitsui which helped to attract a low cost Letter of Credit from Sumitomo Mitsui Bank.

The $50 million FDOT SIB loan agreement is secured by JaxPort on a subordinate lien basis with loan repayments reimbursed to JaxPort by Mitsui. The SIB loan closed in July 2007. The final financing component, $45 million of JaxPort Revenue Bonds, were issued April 2008 as part of a larger JaxPort bond offering, again with debt service reimbursed to JaxPort by Mitsui.

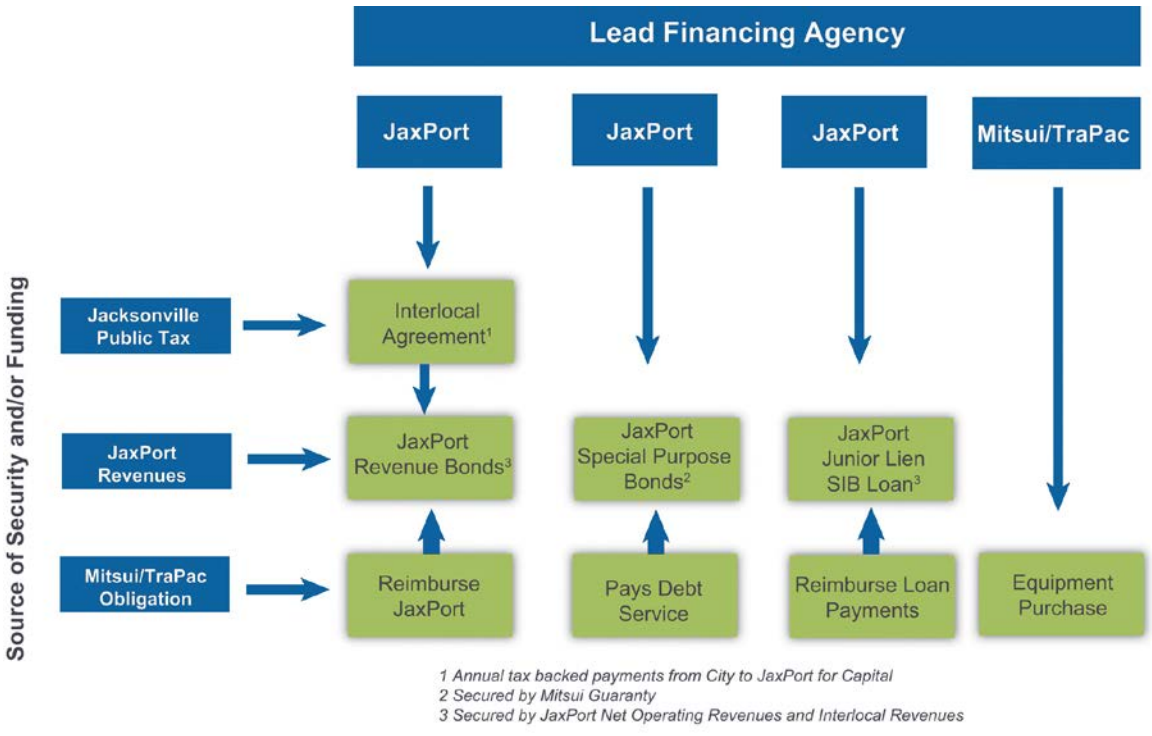
Innovations/Special Features

- Typical concession financing using bank debt was replaced with public finance structure providing high credit quality, low cost, tax exempt debt which Mitsui could not obtain on its own
  - JaxPort willing to serve as conduit issuer, and Mitsui used a parent corporate guaranty

Related Links/Articles:

- *www.jaxport.com*

Exhibit B-5 JaxPort Funding Sources



8. SEAGIRT MARINE TERMINAL CONCESSION

Single Marine Terminal Concession by 3rd Party Operator

Location: Baltimore, Maryland

Project Sponsor: Maryland Port Administration (MPA)

Description: MPA, a department of the Maryland DOT, sought a P3 arrangement related to the existing Seagirt Marine Terminal and expansion thereof. This was the first project in Maryland to be undertaken as a P3 project. As a first task, the different forms of concession, lease and financing arrangements were laid out so that MPA could determine the basic transaction framework with which to proceed. Using this framework, a financing structure and project valuation was developed working with the cargo forecasting and engineering consultants. This financial analysis helped to show MPA and the Maryland Transportation Authority (MDTA), which owns Seagirt and leases it to MPA, that they could meet their collective business and economic goals for the P3.

The framework to enable a proper and competitive P3 solicitation process for the project was then developed. The next steps were to begin the solicitation process. A request for qualifications was drafted for the project, which was made available to interested parties in April 2009 with responses due back June 2009. The data room for the project was managed in-house by the financial advisor, saving MPA a significant project expense and providing better control of data room content. Statements of Qualifications were received and evaluated, with two teams being shortlisted. The request for offers was then drafted that was released to firms shortlisted from the RFQ process. The RFO included all concession/lease terms considered of material importance to MPA and MDTA, as well as a full description of Seagirt, its operations, its physical condition, and the terminal expansion project.

In September 2009, the RFO produced a bid from Ports America with an upfront offer that was vigorously negotiated using financial analysis. The analysis showed that if MPA assisted Ports America with a tax-exempt financing, the overall value of the concession would increase. After negotiations were completed, the offer was $245 million including a $140 million upfront payment and $105 million for an additional berth at Seagirt. The offer also included both fixed and volume based payments to MPA over time as well as capital improvements to Seagirt Marine Terminal, both of which significantly increase the total value of the transaction. The Lease and Concession Agreement ("Concession") has a term of 50 years and includes the upfront payment, the expansion of Seagirt, ongoing fixed and variable payments to MPA, a commitment by Ports America to invest in the capital needs of Seagirt, and the return of leased property to MPA that Ports America holds at the adjacent Dundalk Marine Terminal. The upfront payment was negotiated up to $140 million from $110 million, a significant increase from the original offer, contingent on a tax-exempt financing.

Cost: $245 million

FINANCE

Exhibit B-6 MPA Funding Sources

Sources and Uses				
Sources	**Series A Bonds**	**Series B Bonds**	**Equity Contribution**	**Total**
Par Amount of Series 2010 Bonds	$ 166,920,000	$ 81,755,000	$ -	$ 248,675,000
(Original Issue Discount)	(2,496,249)	(1,223,653)	-	(3,719,902)
Equity Contribution	-	-	75,000,000	75,000,000
Total Sources	**$ 164,423,751**	**$ 80,531,347**	**$ 75,000,000**	**$ 319,955,097**
Uses				
Authority Project Costs	$ 140,151,028	$ -	$ -	$ 140,151,028
Terminal Project Costs	-	66,412,602	39,542,766	105,955,367
Debt Service Reserve Requirement	15,048,225	7,487,100	-	22,535,325
Capitalized Interest	5,022,018	5,022,018	-	10,044,037
Capital Reserve Account	-	-	7,750,000	7,750,000
Operating Reserve Account	-	-	4,750,000	4,750,000
Deposit to Start-up Operations	-	-	12,525,682	12,525,682
Costs of Issuance and Other	4,202,479	1,609,627	10,431,553	16,243,658
Total Uses	**$ 164,423,751**	**$ 80,531,347**	**$ 75,000,000**	**$ 319,955,097**

Approach

MPA facilitated the tax-exempt financing through the Maryland Economic Development Corporation (MEDCO). MEDCO issued two series of bonds, the $167 million Revenue Bonds Series A that were used to reimburse MDTA for tax-exempt qualified projects and the $82 million Revenue Bonds Series B, tax-exempt private activity bonds that were used to pay for a portion of the Seagirt expansion. Equity contribution of $75 million was provided by Highstar Capital.

Funding Sources

- $249 MEDCO
- $75 Million Highstar Capital

Project Delivery/Contract Method: Design-Build-Finance-Operate-Maintain

Private Partner: Third party operator (Ports America)

Project Advisors/Consultants

- Cleary Gottlieb Steen & Hamilton LLP – General counsel
- Orrick, Herrington & Sutcliffe - Bond counsel
- Laurene B. Mahon - Financial advisor to MPA
- Public Financial Management - Financial advisor to MPA
- Martin Associates – Demand & revenue consultant
- AECOM – Engineering consultant

Lenders: Bondholders

Duration/Status: Concession in effect as of January 12, 2010

Financial Status/Financial Performance

MEDCO sold the project revenue bonds on January 6, 2010 and closing was on January 12, 2010, at which time the Concession went into effect. Bonds received a rating of Baa3 from Moody's.

Innovations/Special Features

Concession financial model used tax-exempt debt to lower costs and increase the upfront value to MPA as well as the ROI to the private partner

Related Links/Articles:

- *www.mpa.maryland.gov*

9. CRANE FINANCING

Crane Lease Financing

Location: Wilmington, North Carolina

Project Sponsor/Borrower
North Carolina State Ports Authority (NCSPA or the "Authority")

Description: NCSPA sought financing to refinance certain port facilities improvements including container cranes. In an effort to maintain competitive advantage and proactively plan for future development, the Authority upgraded and improved the capacity of its current container yard at the Port of Wilmington. The first phase of the improvements were broken down into 2 categories: 1) the purchase of four (4) new 100-foot gauge ship to shore container handling cranes and 2) the improvements to the capital infrastructure to accommodate these new cranes. Improvements to the capital infrastructure as part of phase two included: the installation of the 100-foot gage landside crane rail, repairs and improvements to Berth 9, and the installation of the power distribution system for the new 100-foot gauge container cranes (Phases 1 and 2 collectively referred to as, the "Project"). The Project was acquired / constructed at a cost of approximately $42 million including engineering, design certification, and quality control. The acquisition / construction were initially financed through the use of NCSPA's short-term line of credit, and NCSPA desired to refinance such equipment on a long-term basis. The reasonably expected useful life of the Project is at least 30 years.

Cost: $32 million (cranes)

FINANCE

Funding Sources

- $32 million equipment lease financing issued via four schedules (one for $10 million; three for $7.3 million each) under Master Lease Agreement

Project Delivery/Contract Method: Master Lease Agreement

Private Partner: N/A

Project Advisors/Consultants

- Office of State Attorney General – Issuer counsel
- Womble Carlyle Sandridge & Rice - Lease counsel
- Public Financial Management - Financial advisor

Lenders: SunTrust Equipment Finance and Leasing Corp.

Duration/Status: Operational

Financial Status/Financial Performance: Lease financing closed April 2008

Innovations/Special Features
Legal and security structures include a subordinate lien on the net revenues of the Authority's Port Facilities pursuant to the terms of a Subordinated Trust Agreement, and a security interest in the cranes / equipment

Related Links/Articles:

- *www.ncports.com*

10. JAXPORT CAPITAL IMPROVEMENT PROGRAM (FY 2013)

CIP Funding with Port System Revenue Bonds and Grants

Location: Jacksonville, Florida

Project Sponsor/Borrower: Jacksonville Port Authority (JaxPort" or "JPA)

Description: The FY 2013 Capital Program consists of the following projects:

- Blount Island Projects: primarily the "Wharf Rehabilitation and Upgrade Project" consisting of structural rehabilitation and upgrades to approximately 5,200 linear feet of the existing marginal wharf structure, bulkhead, and associated structures in order to replace or otherwise repair ballasted deck, pile caps, bulkhead, and other structural members and to restore the cargo terminal to fully operational status
- Dames Point Projects: primarily includes completion of the Intermodal Container Transfer Facility (ICTF)
- Talleyrand Projects: rehabilitation of wharf structures and other improvements
- Improvements to Bartram Island Dike
- Acquisition of Land for expansion purposes
- Mile Point: harbor project to improve the flow of the St. Johns River at Mile Point, where intra-coastal and river currents pose navigational hindrances for deep draft vessels during certain tidal conditions

Cost: $117 million

FINANCE

Funding Sources

- $19 million Series 2012 port system revenue bonds
- $5 million JPA operating funds
- $4 million JPA line of credit
- $73 million State of Florida grants
- $16 million Federal grants

Project Delivery/Contract Method: Traditional Public Contracts

Private Partner: N/A

Project Advisors/Consultants

- Office of General Counsel of the City of Jacksonville – Issuer's counsel
- Foley & Lardner LLP - Bond & disclosure counsel
- Public Financial Management - Financial advisor

Lenders: Bondholders

Duration/Status: Ongoing capital improvement program

Financial Status/Financial Performance: Bond financing closed in 2012

Innovations/Special Features

- Port system revenue bonds additionally secured by Interlocal Agreement
- Revenues received from the City of Jacksonville

Related Links/Articles:

- www.*jaxport.com*

11. CRANEY ISLAND EASTWARD EXPANSION

Marine Terminal Expansion using State Port Fund Bonds

Location: Portsmouth, Virginia

Project Sponsor/Borrower: Virginia Port Authority (VPA or the "Authority")

Description: The 522-acre Craney Island Marine Terminal is expected to be constructed in four phases. Pursuant to the Authority's present plan, Phase I of the marine terminal is scheduled to become operational in 2026 and will consist of approximately 220 acres of terminal yard, 3,000 linear feet of wharf, 8 Suez-Class container cranes, an on-terminal Intermodal Container Transfer Facility and a capacity of approximately1.3 million TEUs. Additional phases will be completed between 2030 and 2038 in response to growth in demand. Road and rail access will be provided through a dedicated corridor to Route 164. The Craney Terminal has also been designed to accept an interchange from the proposed Third Harbor Crossing, which is a major transportation goal for the Hampton Roads region.

The proceeds of the Series 2011 Bonds were used to pay, either directly or indirectly through repayment of a Treasury Loan, the costs of the Craney Island Eastward Expansion, including: South and Division Cross Dikes; real estate acquisition; environmental mitigation; utility relocation; road and rail connections; other related construction; and all associated engineering, testing, and management.

Cost: $60 million (related to the Series 2011 Bonds)

FINANCE

Funding Sources
Debt service on the Series 2011 Bonds is payable from the Port Fund, a special non-reverting fund established as part of the Transportation Trust Fund of the Commonwealth of Virginia

Project Delivery/Contract Method: Various traditional public contracts

Private Partner: N/A

Project Advisors/Consultants
Related to Series 2011 Bonds issuance:

- Moffatt & Nichol – Consulting engineer
- Williams Mullen, P.C. - Bond counsel
- Public Financial Management - Financial advisor

Lenders: Bondholders

Duration/Status: Under construction

Financial Status/Financial Performance:
Financing closed in 2011

Innovations/Special Features
$14 million borrowed from the Virginia Department of Treasury served as interim funding and was repaid with the proceeds of the Series 2011 Bonds.

RELATED LINKS/ARTICLES:

- *www.portofvirginia.com*

12. SHORE POWER INSTALLATION AT B STREET AND BROADWAY TERMINALS

Shore Power Installation at Cruise Ship Terminals

Location: San Diego, CA

Project Sponsor/Borrower: San Diego Unified Port District (Port of San Diego)

Description

- CA Air Resources Board (CARB) regulations on shore powering of cruise ships to begin in January 2014. Regulations required cruise ships with at least 5 calls to use shore power for at least 50% of their calls and if a ship had the shore power capability, they must 'plug in'.
- 2006 air inventory showed ½ air emission particulates were generated from ships. Of that, ½ were from cruise ships and ½ of those emissions were hoteling emissions.
- Regulations will increase to 70% in 2017 and 80% in 2020.
- When the project was completed, San Diego was 2nd in CA to install shore power. Only 5 had been installed globally.
- Port of San Diego received a 2008 Carl Moyer Program Grant (State program) award that provided a portion of funding for shore-side equipment. The project completion was three years ahead of regulations.
- Because of the high power demand and cost of infrastructure, the project was designed to power one ship at a time. Flexibility was built into the system by providing the infrastructure to power three berths. Additional power can be added in the future to allow simultaneous connection of 2 vessels.
- Obligations to grant for emissions reductions were based on volume of ship calls from 2006, when the cruise business was at its highest.

Challenges

- Because shore power was still a newer technology and the cruise ships required a system that was flexible in how it switched power, a proprietary system was chosen. This system was one that most cruise lines were using and comfortable with. Because a cruise ship is equivalent to a floating hotel, the switch from ship-power to shore power must be seamless and not affect the passenger's experience. The switch must be synchronized to not disrupt certain services or impact passengers.
- At time of installation and deployment, there were no set standards for ship or shore-side. Systems had to be flexible to accommodate connection location on the ship-side.
- Decline in cruise business caused a decrease in air reductions received from shore powering, which did not meet the grant obligation.
- In 2013, CARB granted a ten-year extension to the grant to meet air reductions.

- Meeting grant regulations over the next 10 years may be challenging due to slow return of cruise business
- Cruise growth projections show that by the 2017 increase to 70%, the ability to power two ships simultaneously will be required. This will necessitate another multi-million dollar investment.
- Because the Port of San Diego could only power one ship at a time, an additional operational expense is incurred each time the jib (connection) is moved to accommodate a ship at one of the three potential berths.
- At start up, the Port of San Diego and utility company had not come to an agreed upon shore power rate. San Diego has some of the highest utility rates in the country. The difference in utility rates at different ports results in different costs to vessel operators in different ports. Although the existing rate structure is acceptable to cruise lines, that rate structure will end in 2016. Increased rates are difficult for the cruise lines and the return of the cruise lines to San Diego.
- Port of San Diego is not part of a municipality, so does not qualify for reduced rates.
- Port of San Diego will work to develop a shore power rate and obtain California Public Utilities Commission approval.

Cost: $7.1 million

FINANCE

Funding Sources

- $2.4 million – Carl Moyer Grant Program
- $4.7 million Port of San Diego's Capital Improvement Program

Project Delivery/Contract Method

Sole Source Contract – system was specific to cruise ships. Vendor designed, procured, installed and maintains equipment. Infrastructure was provided through traditional Public Works contracting.

Private Partner: N/A

Project Advisors/Consultants

- Cochrane Electric for equipment/system design and installation;
- Engineering Partners, Inc. for infrastructure design
- SDG&E (local utility) for infrastructure and power supply

Lenders: N/A

Duration/Status: 9 month construction/installation (2007 – 2009 planning and design). Completed December 2010.

Financial Status/Financial Performance:

Grant program performance period expired in 2010; however a ten-year extension has been granted for reporting of emissions. Because this was regulatory by the state, no ROI will be realized.

Innovations/Special Features

Cost for utility service supply design and infrastructure construction ($2 million). Portion of this cost is planned to be refunded to the port of San Diego over 7 years if threshold use of power is met. As of today received $150,000 in the first year of use, but then decreased to approximately $40,000 - $50,000 per year due to the decline in cruise business. The cruise business decline was caused by the economic recession and perceived violence in Mexico, which is the primary market for San Diego's cruise business.

Related Links/Articles:

- *www.portofsandiego.org*

13. SOUTH HARBOR

Construction of Inland River Harbor

Location: Madison, Illinois on the Mississippi River

Project Sponsor/Borrower: America's Central Port (ACP)

Description: The South Harbor project at ACP is the construction of a new, inset river harbor located on the left descending bank of the Mississippi River approximately three miles north of downtown St. Louis, Missouri. The project consists of several components including:

- Lease of property from the U.S. Army Corps of Engineers
- Clearing and grubbing of trees
- Excavation of 750,000 cubic yards of sand and clay material
- Placement of rip rap for bank stabilization
- Construction of a clay cutoff wall and clay blanket for levee protection
- Construction of 10 new levee relief wells for levee and flood protection
- Construction of 9,600 lineal feet of rail track that will serve the South Harbor
- Construction of a 400' long open cell sheet pile wall
- Construction of a 30' diameter closed cell, two 19' diameter closed cells and four mooring dolphins
- Construction of a rail/truck terminal, including conveyor and loadout, for handling dry bulk commodities
- Purchase of two captive deck barges for terminal operations
- Acquisition and mitigation of nearly 100 acres of land for wetlands mitigation purposes
- As added options, construction of dry bulk storage, liquid pipelines and liquid storage tanks.

Cost: $50 million

Funding Sources

- $5 million - Port operating and capital development funds
- $26.5 million - loan funds
- $4 million - State of Illinois grant
- $14.5 million - Federal grant (TIGER I)

Project Delivery/Contract Method: Traditional public contracts, and design/build

Private Partner: N/A

Project Advisors/Consultants
Numerous rail and terminal design consultants, survey and geotechnical engineers

Lenders: Regions Bank

Duration/Status: Construction is being completed in stages; all construction is scheduled to be complete by September 2015

Financial Status/Financial Performance: Loan for $16.5 million closed in July 2014

Innovations/Special Features
Only one of two inset harbors in the entire St. Louis metropolitan area: allows terminal operations to occur outside of the navigation channel. The most northerly ice-free and lock free port on the Mississippi River

Related Links/Articles:

- *www.americascentralport.com*

APPENDIX C Estimating Throughput Capacity Example

The models used to estimate port throughput capacity are either linear static models using spreadsheets or more sophisticated, dynamic simulation models that can show the impact of system dynamism and random events.

Static models support equation-based analyses to estimate throughput capacity and equipment requirements as a function of the site layout, physical characteristics, and current/anticipated operating practices. Spreadsheet models can also be used to examine isolated facility functions or specific demand versus capacity issues. A dynamic simulation model can be developed to gain a better understanding of the complexity and integrated multi-modal aspects of the entire port operation. These models should take into account many operational variables and random variations to analyze specific project alternatives.

Although some project challenges require the use of simulation models, static models often provide results sufficient to readily examine a broad range of factors that influence port capacity. Regardless of the various spreadsheet and simulation models that are available or can be useful for port projects, capacity models should support basic computations and have a structure that allows for increasing level of details as the planning process progresses, and that are transparent in their assumptions and algorithms.

The throughput capacity of a facility is a function of the physical assets of the facility and the rate at which those assets are used. Physical assets can be identified from drawings or other resource descriptions. The rate of asset use generally has two components: physical space and time. With regard to physical space, the analysis must recognize that, in addition to physical space actually in use, the facility operators must reserve empty space that maintains fluidity and allows the facility to operate at adequate productivity. Operators must also allocate sufficient space to sustain accessibility to objects that must be handled or processed. With regard to time, the analysis must recognize that demand is uneven over time, and that physical space must be reserved to allow efficient service of peak conditions.

For example, in the context of a freight terminal, analysis of the berth must allow for the physical lengths of vessels, as well as the gaps between vessels required for mooring and maneuvering. The berth analysis must also reflect the need to have berths available when vessels arrive, even if their schedule reliability is low. The berth analysis also needs to reflect seasonal variations in call durations caused by changes in vessel exchange rates. With this example, it can be seen that there is physical length, plus access space, plus reserve space, as well as physical call duration, plus variability reserve, plus peaking reserve.

This appendix includes an example of a robust approach and tools that can be prepared using a static model to estimate berth and storage yard capacity in a container terminal. Similar approaches can be used for auto/ro-ro, dry/liquid bulk, break bulk and passenger terminals.

Berth-Constrained Capacity

A berth throughput capacity models typically contain the following major components:

Terminal Parameters:
- Specification of values for all terminal berths

Vessel Parameters:
- Specification of values for each class of vessel being considered
- Calculation of the relationship of each class of vessel to the berth space

Vessel Performance:
- Specification of vessel operating performance parameters

Calculation of vessel performance for each class of vessel

Berth Performance:

Calculation of overall berth productivity for each class of vessel

Mixed Fleet Performance:

Specification of the mix of vessels across the classes

Capacity for each Class:

Calculation of each class's contribution to the capacity of the berth

Calculation of berth throughput capacity

Berth Occupancy Graphics:

A tool for visualizing and confirming how the fleet fits on the berth at capacity

Exhibit C-1 shows the general equation used to establish berth-constrained capacity of a terminal. Berth capacity is calculated by multiplying the maximum number of vessel calls in a week by the maximum cargo/passenger units transferred per call, annualizing the results, and then dividing by seasonal peaking factor. Seasonal peaking is the ratio of peak to mean month of vessel throughput. For cargo terminals, the maximum number of calls in a week is based on berth utilization, crane productivity, crane assignment, and unproductive time.

Exhibit C-1 Essential Mathematics of Berth Capacity

$$C_B = Berth\ Capacity = \frac{C_W \times T_C \times 52\ {}^{wk}/_{yr}}{P_S}$$

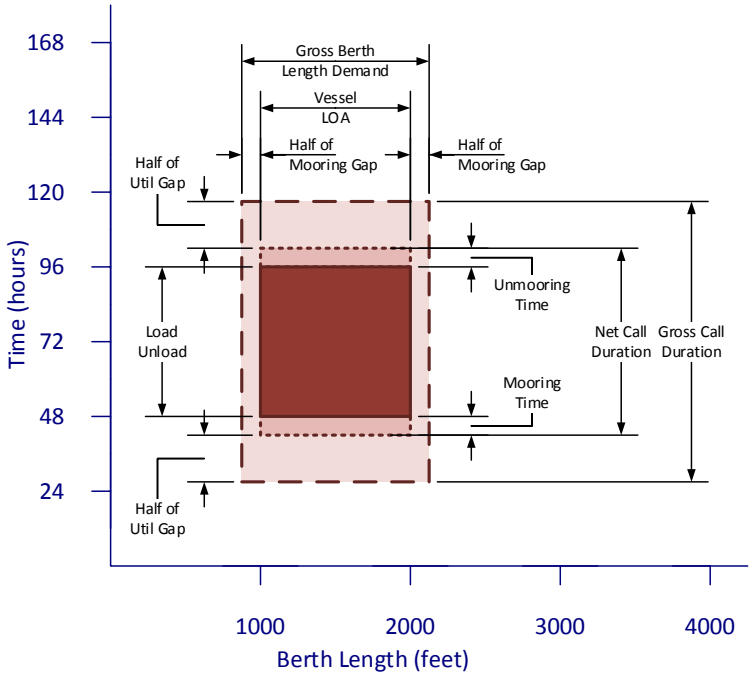
In which:

C_W = maximum number of calls in a week

T_C = maximum transfers per vessel call

P_S = seasonal peaking factor, the peak monthly volume divided by the mean monthly volume

Exhibit C-2 Net and Gross Vessel Demand



Berth utilization is limited by the need to allocate berth length in increments sufficient to accommodate variable vessel lengths, and by the need to assure that a berth space is available when a vessel calls, even if its arrival time is somewhat random. Given these constraints, the full gross capacity of a berth is never used. For instance, if a berth is 100 percent full and a vessel leaves, a vessel of exactly the same length would need to be standing by to take that space, in order to sustain 100 percent utilization. Berth utilization is expressed as net call duration demand multiplied by the gross berth length demand, as berth foot-hours or meter-hours.

Gross berth length demand consists of: 1) the vessel overall length (LOA); 2) the necessary gap between vessels to accommodate mooring lines. The mooring gap is applied evenly to either end of the vessel length.

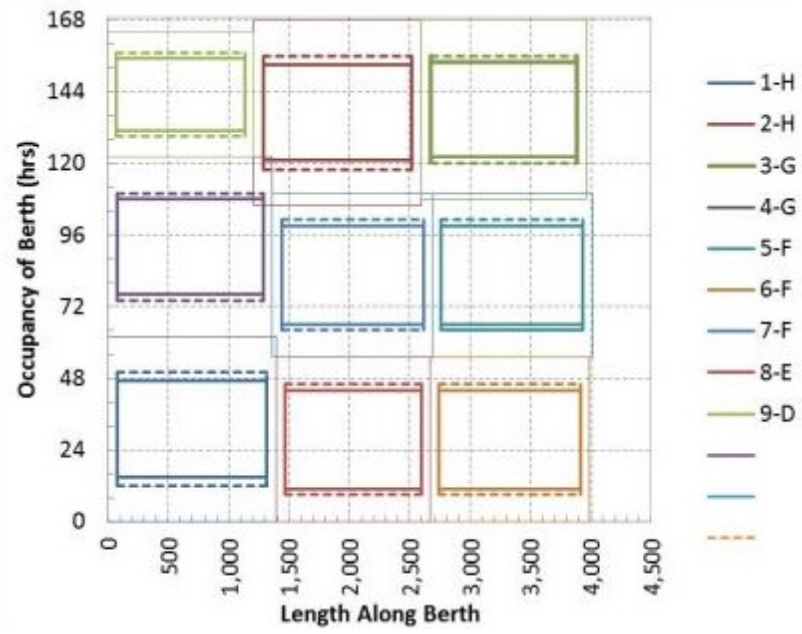
Net call duration demand consists of: 1) time to moor the vessel; 2) time to unload and load the vessel; 3) time to unmoor the vessel and free the

berth. The sum of these values is converted to gross call duration demand by dividing by allowable berth utilization. The gap between net and gross call duration is applied evenly to either end of the net duration.

Exhibit C-2 depicts these relationships between net and gross berth occupancy in space and time. With this approach, each vessel takes up an appropriate portion of the total space-time capacity of the berth.

A berth model should allow the modeler to consider a mix of vessel classes, each with its own potential impact on demand and capacity. For each vessel class, the model should calculate gross occupancy demand in terms of berth length and call duration. The number of vessels of each class that the berth can accommodate should be calculated based on total berth length and the gross berth length occupancy of the class. As such, the number berths in the available berth length is a function of classes of vessels that call at the berth. A sample output of berth occupancy demand is shown in Exhibit C-3.

Exhibit C-3 Berth Occupancy



Storage-Constrained Capacity

To calculate the capacity constraint imposed by a storage yard, a model typically includes the following major components:

Throughput Mix, for each Market:
- Specification of the mix of movements processed by the yard
- Specification of movements not directly tied to terminal throughput

Mean Dwell Times, for each Market & Movement:
- Specification of the mean storage dwell times
- Calculation of dwell times for key movement groups

Tactical Peaking Factors, for each Market & Movement:
- Specification of the ratio of peak to mean storage during a peak week

Storage Modes for each Market, Movement & Technology:
- Specification of the storage mode for key movement groups
- Specification of the technology deployed for key movement groups

Static Storage for each Market:
- Establishment of the maximum practical storage area available
- Establishment of the maximum practical stacking height

Capacity for each Layout & Market:
- Calculation of each class's contribution to the capacity of the yard
- Calculation of yard throughput capacity

Exhibit C-4 shows the general equation used to establish yard-constrained capacity of a terminal. Storage capacity for each movement is calculated by multiplying the static storage of the specific yard area with the mean dwell days, annualizing the results to determine storage turns per year, and then dividing by seasonal and tactical peaking. The capacity of the storage yard is the sum of the capacity of all flows passing through the storage yard per year. Static storage is based on maximum physical stacking area and stacking height, multiplied by storage utilization factors that depend on storage mode for each movement.

Exhibit C-4 Essential Mathematics of Storage Yard Capacity

$$C_S = Storage - Constrained\ Capacity = \frac{S_S \times 365\ {}^{d}/_{yr}}{T_D \times P_S \times P_T}$$

In which:

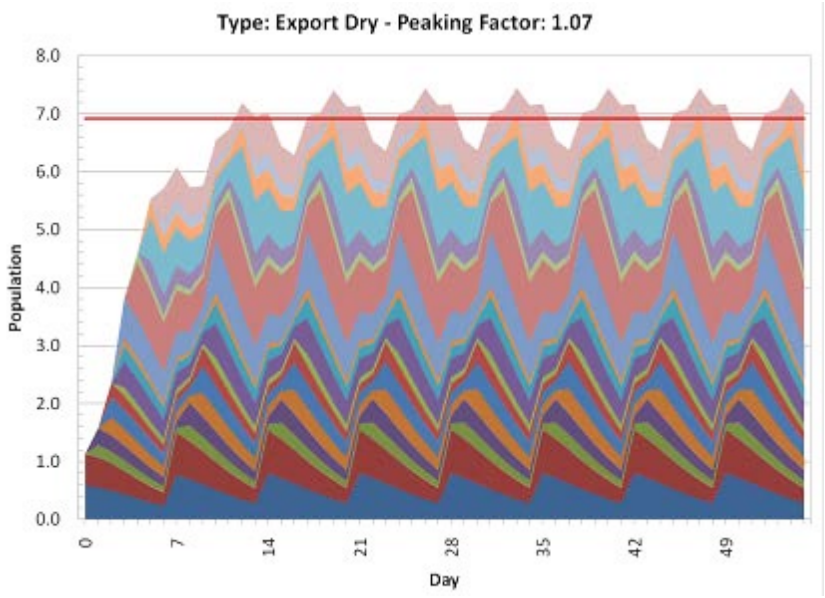
S_S	=	static storage capacity
T_D	=	mean dwell (days)
P_S	=	seasonal peaking factor
P_T	=	tactical peaking factor

The component with the least capacity is the 'bottleneck' or the component limiting the capacity of the terminal as a whole. The analysis should establish the overall capacity of each component at the terminal and identify which components are constraining the throughput.

A capacity model should take into account day-to-day flexibility to address peak occurrences, while allowing for long-term flexibility so plans can evolve over the life of the facility. A static capacity model can be used to analyze the short-term utilization of Port resources using a Tactical Peaking Factor (TPF or P_T) Tool. The TPF identifies the relationship between peak inventory and mean inventory over the course of the typical work week. During this period, rapid changes in inventory – gains for inflows, losses for outflows– reflects a high TPF. However, as inventories from ships in multiple weeks are superposed, peaking patterns may be dampened.

Exhibit C-5 shows an example of a modeled variation in inventory over a multi-week span using a distribution of dwell times and vessel schedules. In the Exhibit, the horizontal axis is time, in days. Each colored area, plotted against the left axis, represents the relative inventory generated by a particular vessel service based on its pro forma arrival schedule and the mix of storage dwell times for the given movement type.

Exhibit C-5 Sample Tactical Peaking Factor Tool Output



While the model can estimate the gate and equipment requirements, these components are usually not considered constraining elements. For example, gate operating hours can be extended or lanes can be reconfigured, and additional equipment can be purchased in response to increased demand. The peak gate lane demand at each station is calculated from the mean gate flow for each transaction type, augmented by seasonal and tactical peaking factors, and divided by the maximum practical lane velocity. Similarly, the peak equipment demand is calculated from the mean berth and storage flow for each cargo type, augmented by the peaking factors, and divided by the maximum practical equipment productivities and utilization. Equipment quantities (quay cranes, storage yard cranes, chassis, yard trucks, etc.) can be estimated for each capacity level.

While certain capacity factors can be controlled by a port, such as terminal configuration and layout, equipment deployed, and capital resources invested; capacity is also strongly influenced by external factors such as trade volumes, shipping patterns, throughput mixes, dwell times, the size and type of ships, rail/highway access, union work rules, customs regulations, and security.

As these factors evolve over the life of the facility, the planning effort should be able to take into account different capacity scenarios. This is particularly important since a facility's capacity can increase or decrease at any point in time without any changes to land use or infrastructure as a result of different external influences.

Exhibit C-6 shows an example of how varying factors can change throughput capacity based on future containership deployment patterns. As the planning effort advances to subsequent phases of the project, the scenarios can be blended to reflect intermediate states in a phased development.

The capacity analysis will identify the probability, magnitude, and timing of potential shortfalls in port capacity by comparing the existing practical capacities, calculated by the model, to forecasted projections. The comparison will provide a guide of future needs for the port.

Exhibit C-6 Sample Scenarios in a Capacity Model

Var	Variable	Unit	S1	S2	S3
L_C, C_V	Lifts per call	Lifts / vessel call	1,145	1,527	1,908
P_S	Seasonal peaking factor	Peak week / Mean week	1.07		
R_W	Weekly work rate	Hours / week	140		
U_B	Berth utilization	%	65% for multiple berths		
C_C	Average vessel size	TEU / vessel	6,000	8,000	10,000
R_{CA}	Crane assignment ratio	Lifts / crane / call	360	400	440
N_C	Mean cranes per ship	Cranes/ship	4.0	4.2	4.4
C_B	Berth capacity	Ship lifts/year	**1,130,000**	**1,286,000**	**1,399,000**

This Page Left Intentionally Blank

APPENDIX D Forecasting Trade Demand Example

Multiple approaches to forecasting trade demand are available. In order of complexity, these generally include:

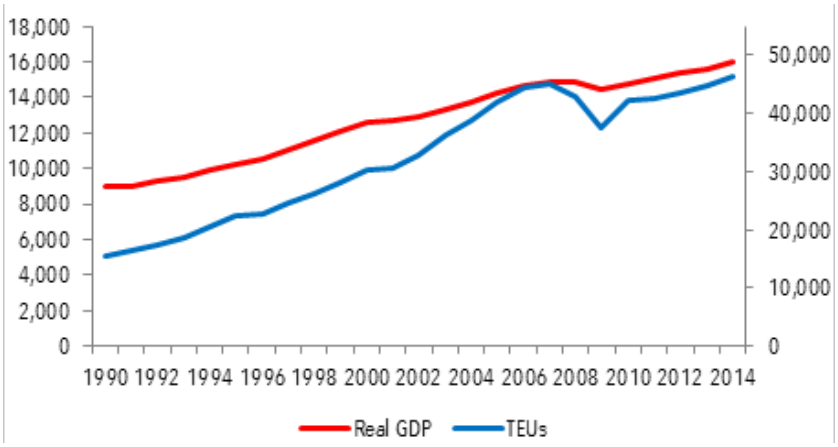
- **Regression and Trendline Analysis**. A simple, common and generally useful technique for short-term projections and easily prepared by port staff.
- **U.S. Economic Indicator-Driven Forecasts**. Based on changes in key U.S. economic indicators. May be reasonably well suited for general cargo – particularly containerized consumer goods – but are less well suited for commodities where trade volumes are less dependent on U.S. economic forces, and have some important limitations.
- **Macroeconomic Forecasts**. Address changes in global production and consumption by country and commodity, and are generally purchased from third-party economic modeling firms. They provide excellent detail but typically do not address port infrastructure or competitiveness issues.
- **Supply Chain-Adjusted Macroeconomic Forecasts**. Provide the benefits of macroeconomic forecasts but additionally consider factors such as vessel sizes and carrier services, port infrastructure constraints, inland truck and rail connections and costs, and other competitiveness factors. This approach provides the best possible forecasts, but can be complex and costly.

U.S. economic indicator-driven forecasts, used properly, may provide useful information and can be developed relatively easily and inexpensively. They can meet near-term forecasting needs, bridging gaps between major forecasting efforts or suggesting whether more intensive forecasting efforts are warranted. However, there are some important considerations and limitations to this approach.

The most commonly cited U.S. economic indicator for port forecasts is Gross Domestic Product (GDP). It has been postulated by many in the past that increases in U.S. container volumes can reasonably be viewed as a multiple of GDP growth. As shown in Exhibit D-1, container trade volumes grew more rapidly than real GDP from 1990 through 2006, and this growth difference accelerated from 2001 through 2006. Container trade volumes grew at nearly twice the rate of real GDP from 1992 through 2001 and 2.8 times real GDP growth in 2002 to 2006.

This postulated relationship offers an appealing proposition, reducing the container trade volume forecasting process to simply taking real GDP forecasts available from a number of sources and applying an appropriate multiplier to produce a container volume forecast. Unfortunately, this simple approach has two fundamental shortcomings.

Exhibit D -1 U.S. Real GDP ($Billions, left scale) and Containers (000, right scale)



Sources: U.S. Bureau of Economic Analysis, AAPA, port websites and Parsons Brinckerhoff analysis.

- First, the history of the past ten years shows that the previously suggested relationship is not valid (or has expired). Comparing the pre-recession container volume levels of 2006 to the volumes of the years during and since the Great Recession shows that volumes have not increased at a positive multiple of GDP. This suggests that a new theory of causal relationships between container volumes and real GDP is required.
- The second shortcoming of the postulated container trade/GDP multiplier is that there has been no causal relationship offered to explain it.

While there are certainly fundamental causal relationships between container volumes and real GDP, they are not with GDP as a single aggregate indicator. In particular, container trade volumes are closely correlated with, and directly related to, one of the major components of GDP, U.S. real import value. Container trade is heavily unbalanced, with imports significantly exceeding exports (imports were 2.8 times exports in terms of 2014 value and 1.4 times exports in weight). The strong correlation between container trade volumes and U.S. real import value can be seen in Exhibit D-2.

U.S. real import value is a subtraction in the GDP computation, representing the supply of goods and services sourced from outside the U.S. that are used by the demand components of GDP including personal consumption, investment, government and exports (C+I+G+X, in macroeconomic accounting). Therefore, attempting to positively correlate container trade volumes to the total of real GDP when volumes are so closely and logically tied to a large negative value in GDP suggests that the simple relationship between container volumes and real GDP requires a better formulation.

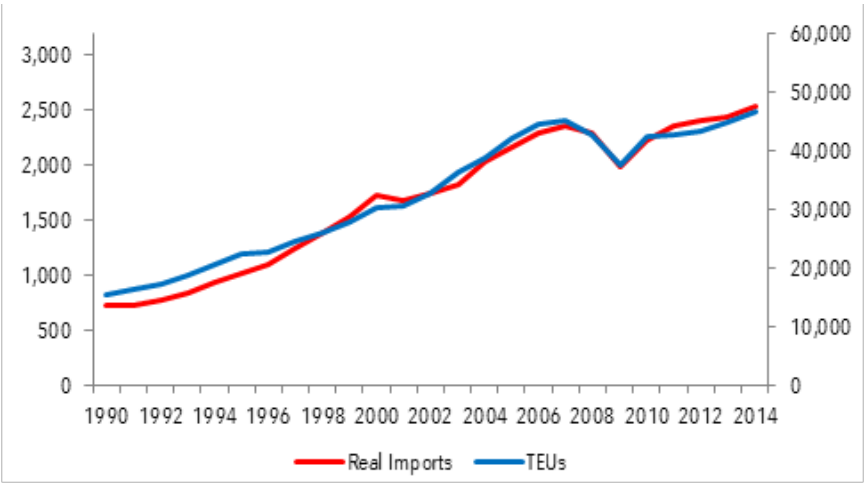
One simple solution would be to use forecasts of real imports as a way of projecting container trade. Unfortunately, this simple solution also has a fundamental limitation. Total real import value includes very large portions unrelated to container trade despite the apparent relationship.

These unrelated GDP components include:

- Imports of services (22% of import value in 2014)
- Imports of many goods that are carried in vessels but not in containers such as U.S. imports of oil and other bulk goods (18% of imported goods value).
- High-value imports of goods by air (23% of imported goods value)
- Very large volumes of imported goods by other than vessels or air, largely overland from major trading partners Canada and Mexico (27% of imported goods value in 2014)

After the above exclusions, containerized imports represented about 31% of total imported goods value in 2014 and about 25% of total import value.

Exhibit D-2 U.S. Real Imports ($Billions, left scale) and Containers (000, right scale)



Sources: U.S. Bureau of Economic Analysis, AAPA, port websites and Parsons Brinckerhoff analysis

Major shifts in these categories' shares of real import value in the future (as have occurred in the past) would call into question any container volume forecast based on total real import value.

For U.S. container volume forecasts to be based on projections of U.S. real GDP, container volumes should be related to the demand components of GDP rather than GDP as a whole or to imports. This makes sense as many imports of goods can be directly related to goods consumed, used in physical investments or used in U.S. based production.

Resource Catalogue

A digital resource catalogue is included with the Toolkit and available on the AAPA website at ***http://aapa.files.cms-plus.com/PDFs/Toolkit/Resource%20Catalogue.xlsx***. The resource catalogue contains references and links to relevant online documentation from previous and ongoing planning and feasibility initiatives that may have value to the Toolkit users. It includes documents prepared from 2007 to present and from English language sources. The documents referenced only include those that are freely available on the Internet.

The catalogue is provided in spreadsheet format in Microsoft Excel for purposes of organizing and easily searching for the relevant documents. The Catalogue is categorized by five resource types:

- RFQs and Scopes of Service
- Manuals and Guides
- Strategic/Master Plans
- Feasibility Studies
- EIS/EIR Documents

Entries in the Catalogue include the following information for each resource:

- Title – Document title
- Author – Individual or company that prepared the document
- Sponsor – Name of agency or company that sponsored the development of the document
- Sponsor Type – Public Agency, Private Agency, Academia or Press/Journal
- Year Produced – Year the document was released
- Project Location – U.S. State or Country in which the project is/will be located or location where document was produced
- Project Type –
  - Container Terminal
  - Auto Terminal
  - Liquid Bulk Terminal
  - Dry Bulk Terminal
  - Intermodal Rail
  - Inland Port
  - Cruise Terminal
  - Multi-use Terminal
  - Marine Highway
  - Industrial Development
  - Landside Access
  - Waterside Access
  - Energy Improvement
- Internet Link – Hyperlink to location on Internet

This Page Left Intentionally Blank

Port Concession Evaluation Model

Port system pro forma cash flow models and project finance models are user and project specific. An additional resource in the Toolkit is a general port concession evaluation model that enables port owners to quickly and at a very conceptual level consider the potential financial performance of a project using varying financing strategies and considering varying project development approaches. The model is aligned with the guidance included in the Finance Module. As the Toolkit user considers the content in each module and the appendices when developing their grant/funding applications or financing documents, they can use this model to compare options. The model is available on the AAPA website at ***http://aapa.files.cms-plus.com/PortPlanningandFinanceToolkit/Port%20Concession%20Evaluation%20Model.xlsx***.

For full comprehensive 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 required for private partner payments. A model can be made to further solve for the discounted cash flows and calculate the equity Internal Rate of Return in order to determine the full value of a concession agreement to a potential private partner.

The ***port concession evaluation model*** reports several financial measurements from the concessionaire and port owner perspective based on key variables that are input into the model. The following ten spreadsheet tabs comprise the model:

Instructions - Includes a description of the intent and objectives of the model and a list of variables that can be adjusted.

I. Assumptions - Primary input sheet for general information and variables related to concession payments and tax rates, project capital costs and financing sources.

II. Sources & Uses - Reports sources and uses of funds on hand, senior lien bonds, subordinate lien bonds, concessionaire bonds and equity.

III. Concessionaire Cash Flow - Reports the concessionaire's cash flow schedule including annual operating revenues and costs, fixed payments, variable payments, pledged revenues, senior lien debt, capital deposits, income tax, equity contributions, dividends and cash flow total.

IV. Public Entity Cash Flow - Reports the port owner's cash flow schedule including annual operating revenues, concessionaire fixed and variable payments, total revenues, operating expenses, revenues available for debt service, senior and subordinate lien debt and residual revenues.

V. Concessionaire Debt Service and Coverage - Reports the concessionaire's debt service schedule for senior lien on the project including annual principal, interest, debt service, capital interest, net debt service, pledged revenues and lien coverage ratio.

VI. Public Entity Debt Service and Coverage - Reports the port owner's debt service schedule for senior lien on the project including annual principal, CAPI/interest, net debt service, new and convertible capital appreciation bond values, interest and debt service, existing debt, total senior debt service, subordinate lien debt, aggregate debt service, pledged revenues and lien coverage ratios.

VII. Concessionaire Tax - Reports a schedule of the concessionaire's annual profit before tax, state and federal carryforward tax loss, state and federal taxes, loss utilized, remaining tax carryforward and tax payable.

VIII. Depreciation - Reports a schedule of the annual depreciation and amount remaining related to the equity amount, depreciation method, acceleration factor, and depreciation term.

Data Input - The second input sheet which includes schedules for operating revenues and costs, existing debt payments and project debt issuance pro forma including principal and interest schedules for:

- Interest Bonds
- Capital Appreciation Bonds
- Convertible Capital Appreciation Bonds
- Subordinate Lien Interest Bonds
- Concessionaire Senior Lien

By following the instructions in the first tab and inputting general project and finance information in the second and last tab, a high level indication of the project's anticipated financial performance can be estimated for the concessionaire and port owner. Results from this model are not investment grade but will provide an indication of the relative financial performance of a project under consideration and will inform the port's finance experts or consultants on where and how to improve the project plan.

U.S. Department of Transportation
Maritime Administration
West Building
1200 New Jersey Avenue, SE
Washington, DC 20590

American Association of Port Authorities
1010 Duke St.
Alexandria, VA 22314

U.S. Department of Transportation

Maritime Administration

Alliance of the Ports of Canada, the Caribbean, Latin America and the United States