



**PROPOSED PONO LOUISIANA INTERNATIONAL
TERMINAL (LIT) CONTAINER TERMINAL, VIOLET, LA**
***CRITICAL DEVELOPMENT ISSUES
OVERVIEW REPORT***

JANUARY 15, 2024

Abstract

This Louisiana International Terminal (LIT) Critical Development Issues Overview Report was commissioned to identify significant detrimental concerns with the Port of New Orleans (PONO) proposed LIT Container and Intermodal Rail Terminal for Violet, LA, and the project development attributes according to the information submitted to the U.S. Army Corps of Engineers (USACE) in support of the PONO project permit application submittal.



PONO LIT CONTAINER TERMINAL, VIOLET, LA CRITICAL DEVELOPMENT ISSUES OVERVIEW REPORT

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PONO's LIT Critical Development Issues Overview Summary Findings

INTRODUCTION - PREAMBLE

This **Critical Container Terminal Development Issues Overview** was prepared by Vickerman & Associates, LLC under a consulting agreement commissioned by the St. Bernard Parish Government for the reference and use by the constituents of St. Bernard Parish. This Critical Container Terminal Development Issues Overview Report is intended as a public briefing and resource presentation for the citizens of St. Bernard Parish regarding the conclusions and finding of the Vickerman & Associates critical analysis and evaluation of the Port of New Orleans (PONO) proposed Louisiana International Terminal (LIT) container and intermodal rail terminal development in Violet, LA.

In the opinion of this Critical Development Issues Overview Report, the PONO neglected to conduct and/or share crucial project due diligence information and justification analysis to properly support this mega container and intermodal rail terminal development proposal, including, but not limited to, a detailed market cargo demand analysis which is fundamentally critical to evaluating the need for any modern successful marine terminal development project, and particularly required for the citizens of Louisiana, the constituents of St. Bernard Parish, and for deliberations involving the USACE permit application submittal.

Nevertheless, based on an economic development impact analysis report commissioned by the Port of New Orleans, it can be calculated that the truck trip volumes generated by the container terminal could reach 1,728 per day at full capacity. These tremendous daily truck trip volumes would negatively impact southeastern Louisiana traffic congestion, regional vehicular safety, and could deleteriously impact environmental air quality.

Because the current project will result in substantial and potentially deleterious public health, safety, environmental and traffic impacts on the citizens of St. Bernard Parish, a cohesive and compelling regional statewide strategy focused on conducting a thorough proper terminal site selection evaluation is critically needed. Not conducting such a **comprehensive site selection analysis** would be a strategic mistake for the State of Louisiana, and indeed the nation, now more than ever.

This Critical Development Issues Report urgently recommends that a **development advisory committee** should be formed to critically assess the market driven economic viability and needs assessment for a mega container port development in southern Louisiana. This Overview Summary endorses a proposed location and conceptual development plan for the intermodal container project, which must include state-of-the-art marine container and intermodal rail terminal capabilities and terminal characteristics.

This expert development advisory committee is urgently necessary considering the many prior market demand analysis reports reflecting the region's lack of a local population consumption market which would be needed to successfully support the magnitude of the intermodal container terminal complex proposed by the Port of New Orleans at the Violet riverfront site. The comprehensive terminal site selection evaluation is also necessary to ensure that the proposed intermodal container terminal is located at a superior and more optimal terminal site further downriver than the proposed site in Violet to avoid the potentially deleterious harm that will otherwise result to the stakeholders, citizens, constituents, and taxpayers of southeastern Louisiana.

PONO LIT TERMINAL MULTIPLE LAYOUT AND DESCRIPTION MODIFICATIONS:

The PONO proposed \$1.8 billion LIT Container Terminal Development Project in Violet, LA has been significantly revised multiple times by the PONO since the December 2021 PONO USACE permit application submission.

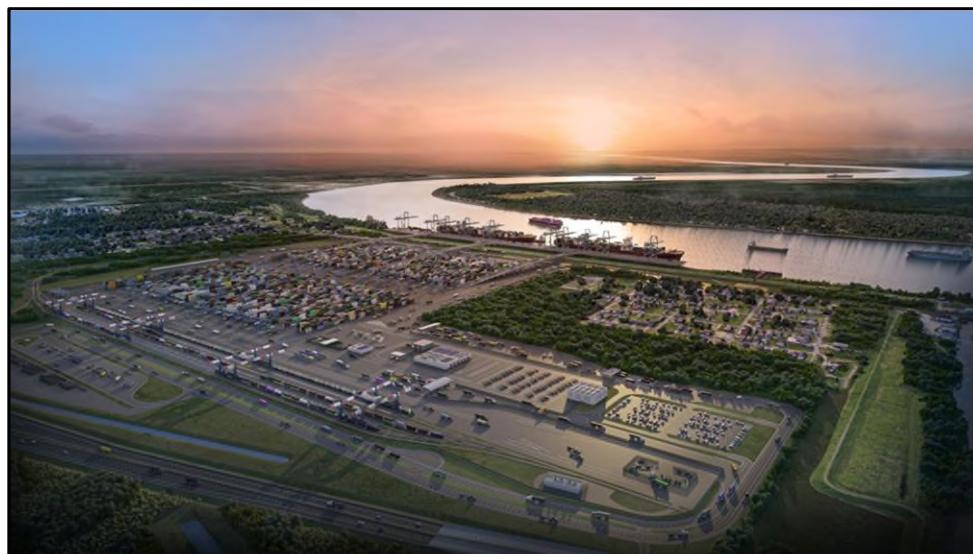
This LIT Container and Intermodal Rail Terminal Project **Critical Development Issues Overview** is primarily based on recent Freedom of Information Act (FOIA) responses from the USACE and other related US Public Port Authority and maritime industry public information and data.

PRESUMED PONO CURRENT LIT TERMINAL LAYOUT AND CHARACTERIZATION:

Since the December 2021 submittal to the USACE, the PONO has made major changes in the LIT terminal layout several times. As of the publication of this Critical Development Issues Overview Report, the following terminal plan and artist's rendering are believed to be reflective of the most recent PONO's latest LIT Terminal layout recommendations. These latest project changes differ substantially from the December 2021 PONO USACE project permit submittal.



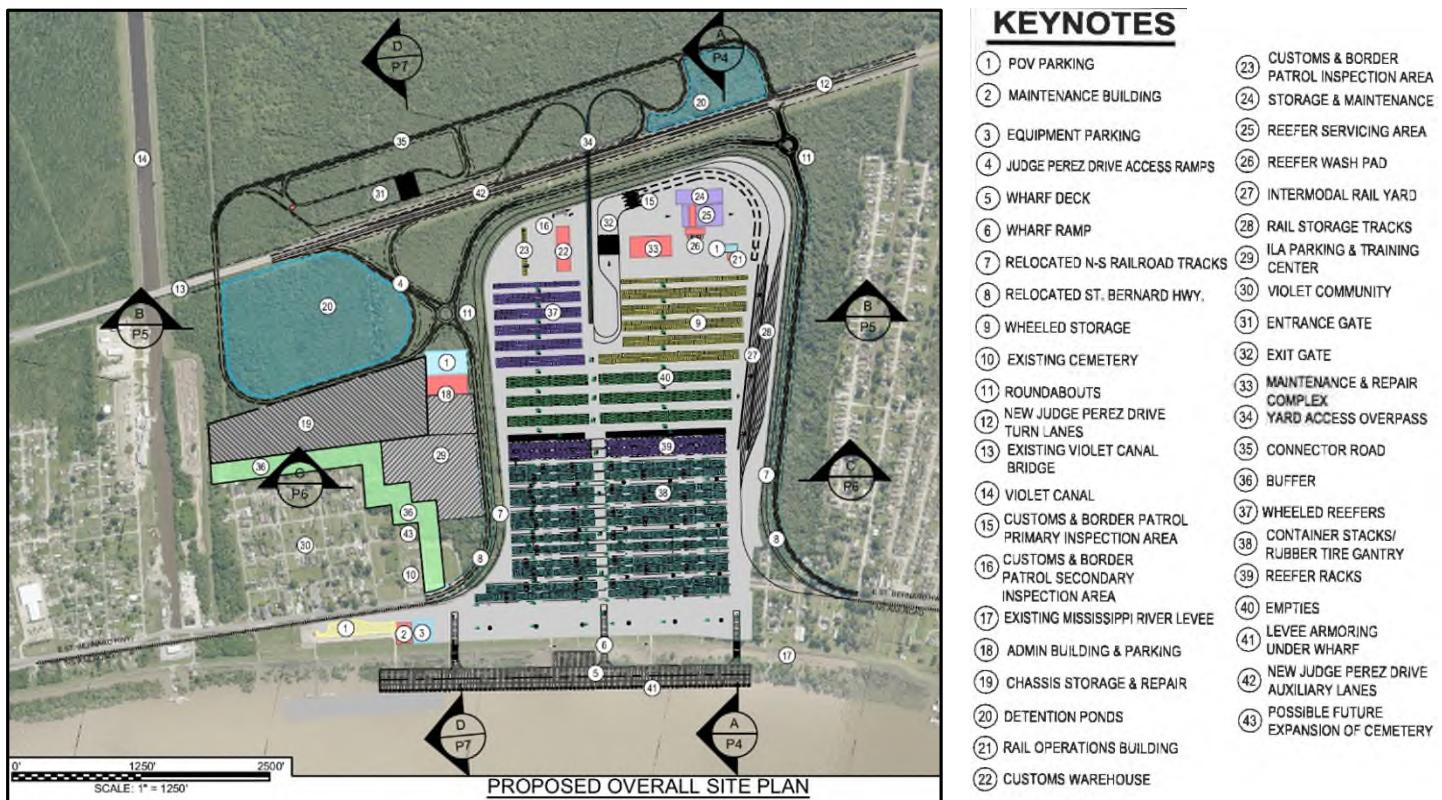
An artist's rendering of the latest proposed PONO LIT terminal development follows:





A. PONO DECEMBER 2021 USACE PERMIT SUBMITTAL DETAILS

The USACE published a public permit announcement for the LIT project on January 24, 2022, based on the Port NOLA (PONO) permit application for development of a commercial container terminal (Permit # MVN-3032-00270-EG – AECOM Drawings dated 11/8/2021) in Violet, LA as illustrated below:



At River Mile 83, the LIT permit calls for a total of 3,600 lineal feet of a new pile support wharf/quay with three berths (two vessel berths + one barge berth), and three terminal truck access ramps. Berth lengths: berth # 1: 1,500 ft., berth # 2: 1,500 ft., and berth # 3: 600 ft.) serviced by ten wharf/quay 100 ft. gage ship-to-shore (STS) electric cable reel gantry cranes.

The container yard has approximately 36 mobile yard gantry cranes (each crane spanning a 7 containers-wide stack by six containers high + one pass-over container and one truck lane). The project also includes 1 million cubic yards of native soil excavation; 3.9 million yards of hauled-in sand; and 61,119 cubic yards of riprap stone armoring protection over the riverbank slope. 404 acres of wetlands banking credits from USACE mitigation bank would be used. Estimated total potential LIT operational terminal gross acreage, including wharf/quay and access ramps, is 561 acres – Reference: AECOM Drawing P3 and P13 dated 6/4/2021, Job No. 60637450; Potential Terminal Boundary Impact (+/- 316 acres); + Additional Potential Terminal Area Impact (+/- 245 acres).

B. LIT MARKET DEMAND AND FUTURE CARGO FORECAST ANALYSIS

There was no LIT container and intermodal rail market demand analysis report submitted to the USACE by the PONO. The following overview data was derived from a recent USACE FOIA response based on an economic development analysis prepared in the spring of 2021 in a report titled,

"Louisiana International Container Growth: The Economic Impact of the Louisiana International Terminal Complex" prepared by Dr. Dek Terrell, Ph.D. of Lewis Terrell and Associates.

Dr. Terrell's report assumes an anticipated \$1 billion construction project for LIT and also assumes that a fully operational LIT with a "two berth container facility has a **capacity of handling 2 million TEUs** (twenty-foot equivalent unit ISO containers) per year.") The conversion rate for container lifts in Dr. Terrell's report is 1.62 TEUs/Lift with 2019 as a base year (1,234,568 container lifts). The economic impacts in Dr. Terrell's report are predicated on estimated construction costs occurring from 2021 – 2031, and operations from the anticipated opening of the first LIT berth and the following 22 years, from 2028 – 2050.

Dr. Terrell's **2050 Total PONO container forecast** throughput volume in 1,000s of TEUs is as follows:

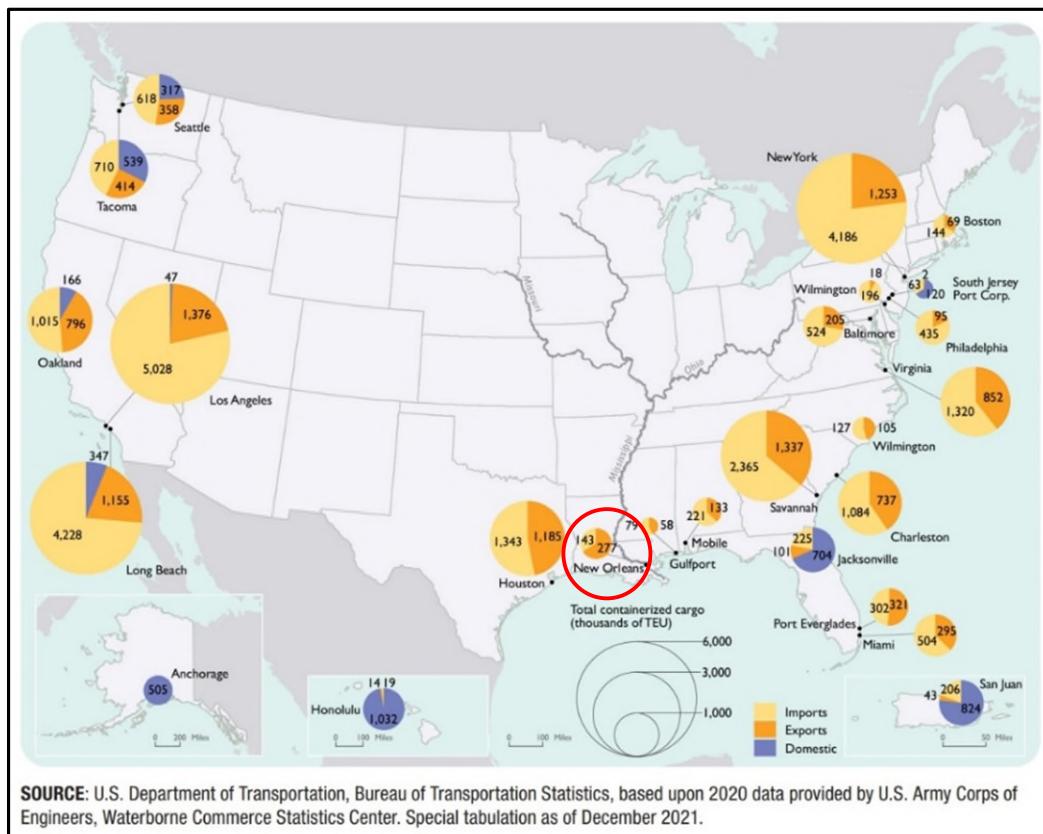
Imports: 317.2 TEUs (15.5%); Exports: 957.9 TEUs (46.8%); Empties: 768.7 TEUs (37.6%)
Total: 2,045.9 TEUs (note the dominant export/import ratio of 3 to 1).

The PONO's current Strategic Master Plan, published in Spring 2018, indicates the PONO container throughput forecast as follows:

High Forecast: 865,000 TEUs; **Base Forecast:** 710,000 TEUs; and **Low Forecast:** 645,800 TEUs.

The **2020 and 2023 Port Performance Freight Statistics Program: Annual Report to Congress** prepared by the Bureau of Transportation Statistics ranks PONO as **number 18** on the list of top 25 container ports by TEUs in the U.S. as illustrated below. Note the PONO comparative volume size.

As depicted in the graphic below, the LIT throughput volume of 2 million TEUs would be larger than the current throughput of the entire port complex of Charleston, SC, and slightly less than the entire port complex of the Virginia Port Authority (VPA), Port of Virginia.





C. ESTIMATED LIT TRUCK TRAFFIC VOLUME (TRUCK-TRIP GENERATION CONCERNS):

Tremendous truck-trip volumes will have a direct bearing on future traffic congestion, safety and environmental air emission concerns along local highways and local arterial roads. Commodity-based truck-trip modeling is the current state of the practice in statewide USDOT modeling. Commodity-based trip rates are rarely published and are difficult to derive from available public data. Vehicle-based models are the most frequently used technique for estimating trip generation at the metropolitan level. The variation in truck classification categories, land-use categories, and trip type categories makes it difficult to compare trip generation rates from one study and area to another.

Ports and Intermodal Terminal Data Sources utilized below were derived from truck-trip generation national rationale and methodology recommended by the:

U.S. Transportation Research Board (TRB)
NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)
NCHRP SYNTHESIS 298 - “*Truck Trip Generation Data*”
Chapter 3 - Port and Intermodal Terminal Data Resources

Use of the criteria contained in NCHRP Synthesis 298 for truck forecasting typically requires a detailed trade econometric forecast analysis. However, no detailed LIT market demand analysis has been provided by PONO and forwarded to the USACE for the LIT permit analysis. This Critical Overview Summary will use the USACE FOIA Response prepared by Dr. Dek Terrell, Ph.D. wherein it is stated that the LIT project as a “*two berth container facility has a capacity of handling 2 million TEUs (twenty-foot equivalent ISO containers) per year* (refer to top of page 2 of this Critical Issues Summary).

LIT Development 2050 annual throughput capacity: **2 million TEUs**

LIT Annual On-Dock Rail Capacity: **300,000 TEUs**
(assuming similar to the PONO Strategic Plan – Napolean Ave Intermodal Rail Terminal volume at 15% of the total current terminal capacity)

LIT Development 2050 annual truck only capacity: **1,700,000 TEUs**

LIT Development **Daily All Truck-Trips** approximate linear regression: **1,728 Trucks per day**
(864 Trucks Inbound and 864 Trucks Outbound Non-Peak Day – assumed One Shift + limitation)

(Total Truck-Trips/Day = $(2.62 \times \text{Acres}) + 40$. The adjusted R2 value was 0.56 with a standard error of approximately ± 37 truck-trips. The corresponding generalized all truck-trip rate was 3.08 trips/acre.)

This analysis assumes a LIT (Semi-Automated) Gate Complex typically operates one shift + per day with a vessel at one or more berths and includes truck bobtails, trucks with empty chassis, and trucks with container on chassis. The CN “*Carter Ratio*” was used for Intermodal Rail Terminal truck-trip generation forecast with semi-automated gate function and reservation system operating one shift + per day with increased shifts when an intermodal Double Stacked Train (DST) is present.

The detrimental impact of 1,728 container trucks per day on local St. Bernard roadways and local arterial roads will be significant on local communities, and especially on local residential neighborhoods in proximity to the LIT. Increased truck traffic volume through local business areas, and industrial districts will no doubt increase urban goods movement auto-truck accident rates for St. Bernard Parish, especially in the vicinity of the LIT terminal entrance and exit truck routes. Air, noise, pollution, and view corridor limitations are all major terminal planning issues.

The proposed St. Bernard Transportation Corridor elevated roadway from LIT to the I-510 Corridor will not handle all of the 1,728 LIT trucks due to local truck traffic origin and destination criteria and typical traffic distribution.

D. THE NEED FOR A COHESIVE REGIONAL AND STATEWIDE APPROACH TO STRATEGIC SOUTHEAST LOUISIANA PORT DEVELOPMENT SITE PLANNING

The development of a new container terminal port and intermodal rail hub development along the lower Mississippi River in southeast Louisiana is a project of **Statewide and National**

Significance. A pragmatic and comprehensive site selection evaluation and analysis is needed in Southern Louisiana now more than ever. Not conducting such a port terminal site development evaluation and analysis by the State of Louisiana represents a strategic miscalculation for the region, the State, and the nation.

As a co-author of the **Port of New Orleans Millennium Port Development and Investment Study**, my final report message to the PONO Port Commission and Mr. J. Ron Brinson, President and CEO, is as valid today as it was in late 1999, and even more now. The Millennium Port statements made in a recommendation letter to the Port of New Orleans continue to serve as an important warning today.

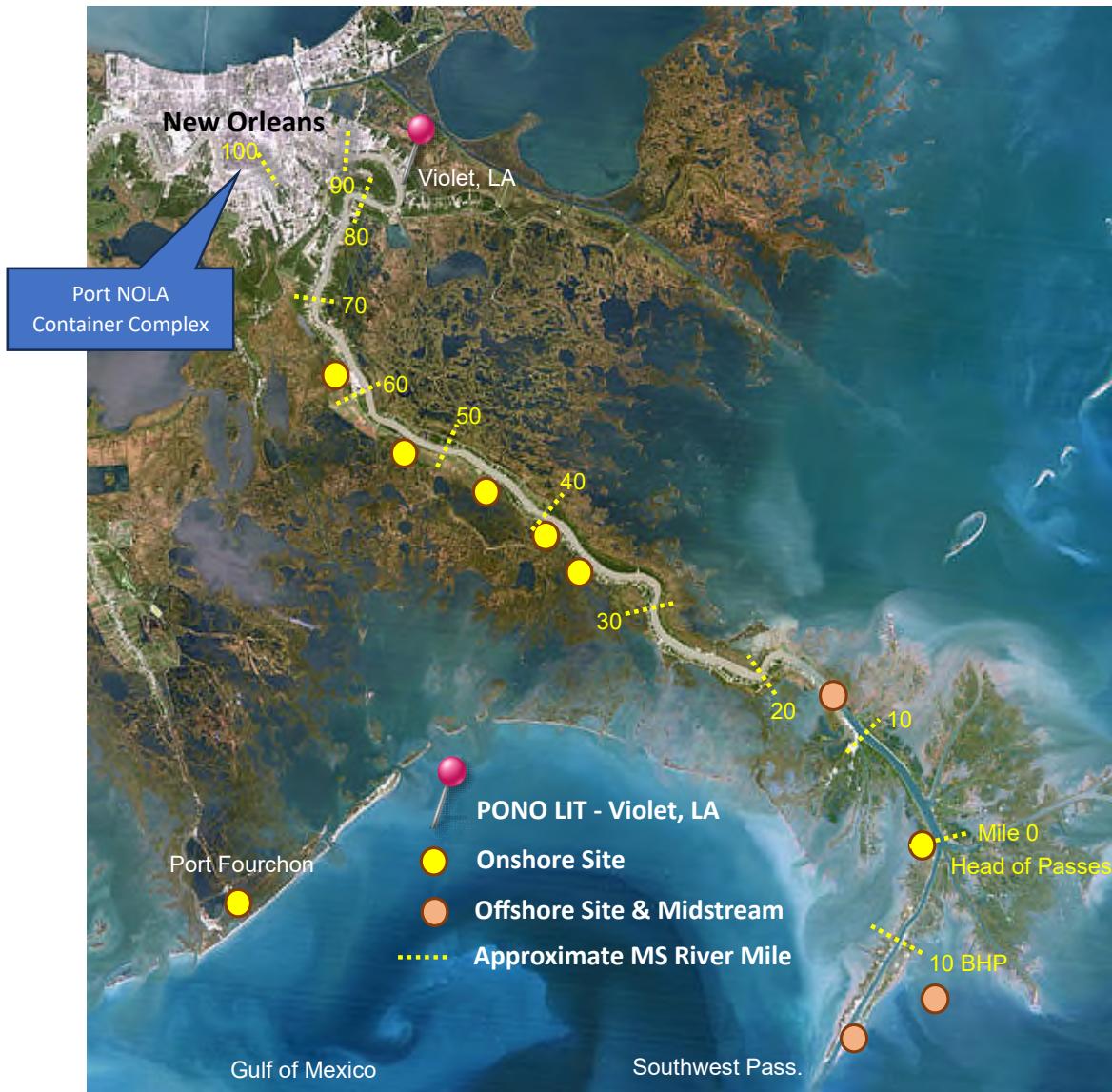
- Public health, safety, welfare, environmental compliance, and environmental justice should be of paramount concern in addressing port development sites and operating scenarios for future Southeast Louisiana port development. Louisiana port stakeholders and the citizens of Louisiana expect these issues to be addressed thoroughly.
- The context of significant port development going forward should encompass the entire southeast Louisiana region, and clearly include the future prospects of other proposed prominent Louisiana public ports in southern Louisiana.
- It would be a mistake to approach the future of a major strategic port plan and distribution hub in Louisiana with a theme of one site or region to be considered to the exclusion of all others.
- A realistic statewide strategic master plan of mega port development for the State seems logical and it should begin with deliberate planning that blends the values and objectives of Louisiana's citizens and marine industry stakeholders/investors/operators in a creative, yet pragmatic port development proactive planning process.
- What is needed is deliberate value-added inspired planning of future port infrastructure development that rigidly follows a discipline of blending and leveraging the State's desire for environmental quality of life values with the State's interests in quality economic development. Such a port planning exercise could lead to a national best in class model for large multi-modal port transportation infrastructure development programing in the U.S.

The current LIT project being proposed by PONO will result in substantial and potentially deleterious public health, safety, welfare, environmental and traffic impacts on the St. Bernard Parish community and the Parish transport roadway and rail systems. Other more suitable terminal sites within Southeast Louisiana and the lower Mississippi river region could be identified that have superior attributes to the current LIT Violet, LA development site.

It would be a mistake to approach the future of strategic port planning in Louisiana with a theme that selects a port development from only one site or one region to the exclusion of all others.

Alternative Container Port Downriver Sites:

Starting with the initial PONO MILLENNIUM PORT STUDY list of potential container port sites (please refer partially to the illustration below), a concise list of the most suitable port development sites can be identified for further analysis and evaluation. A final recommended site suitable for a port and intermodal rail terminal development of **Statewide and National Significance** can be identified.



The formation of a stakeholder, subject matter expert (SME) advisory committee to strategically analyze and evaluate port and intermodal rail terminal site location options from many relevant strategic sites in Louisiana is certainly called for considering the potential impacts of this mega container port terminal development. Consider the following vision, mission, and goals for this Louisiana expert port site selection advisory committee:

Vision: Convene an experienced expert panel of relevant stakeholders, including industry leaders, governmental officials, and other pertinent port development subject matter experts (SME), to identify and thoughtfully analyze potential port development site locations for a mega Louisiana container port terminal development program with superior attributes.

Mission: Thoroughly assess the market driven econometric cargo demand needs and future cargo forecasts of such a port development project and recommend a proposed location site and conceptual development plan for this Louisiana port project of **Statewide and National Significance**.

Goal: Determine the location that is in the highest and best interest and use for the State of Louisiana, the region, and indeed the nation.

Analysis Framework:

- Long-term viability considering state-of-the-art trends and emerging technologies in the ocean and inland river shipping industries.
- Public health, safety, environmental justice, and public welfare mandates.
- Environmental impacts and long term environmental and economic sustainability.
- The analysis should include evaluation of regional port rationalization concepts and opportunities that have been previously discussed by various Louisiana Port Authorities and the State.

E. THE NEED TO EMPLOY STATE-OF-THE-ART INTERMODAL RAIL EQUIPMENT

Intermodal container shipping continues to be one the fastest growing segments for all Class I railways in North America today. Coast to coast, all major U.S. Port Authority container terminals have developed on-dock, near-dock, or remote Intermodal Container Transfer Facilities (ICTFs), sometimes referred to as intermodal rail terminals or yards. Demand for intermodal rail transportation services continues to grow in North America.

The evolution of intermodal rail terminal equipment is rapidly evolving from top lift - Reach Stackers (RS), Straddle Carriers (SC), and Rubber Tired Gantry (RTG) cranes towards automated Rail Mounted Gantry (RMG) / Wide Span Bridge Cranes (WSC) and nested bridge cranes, following the lead of the largest Class I railroads in North America. The deployment of these RMGs and WSCs is focused on generating high-capacity container storage, retrieval and throughput on smaller and smaller intermodal rail terminal footprints.

The initial PONO USACE LIT permit terminal application plan only proposed conventional smaller intermodal rail terminal equipment on fairly short intermodal rail working tracks. The following photograph depicts a modern high-capacity intermodal rail terminal with WSC equipment. An intermodal container terminal site should deploy today's state-of-the-art high productivity intermodal rail terminal yard equipment to reduce the container terminal footprint and maximize intermodal rail container throughput capabilities. The most recent modification to the LIT layout by PONO may include such equipment.



F. SOUTHEAST LOUISIANA LACKS THE LARGE LOCAL POPULATION CONSUMPTION MARKET THAT OTHER MAJOR GATEWAY CONTAINER PORT DEVELOPMENTS HAVE

The following LED, DOTD, BRAC and GNO, Inc. and PONO previous investigations and analysis regarding container and intermodal rail market demand analysis reports have similar findings and conclusions regarding the future of container and intermodal shipping in southeast Louisiana:

In June of 2009, the PONO commissioned **Parsons Brinckerhoff (now WSP)** to prepare a Strategic Advisory Report titled, "**Napoleon Avenue Container Terminal Development Utilizing Public-Private Partnerships**." This report forecasted a 20-year containerized cargo demand market growth rate for PONO of only 1%, (a base container cargo forecast of approximately 325,000 TEUs in 2028). Even with a high container market forecast scenario attracting two new Asian container carriers, the total long-term PONO forecast was estimated at 550,000 TEUs.

Booze Allen Hamilton issued their final Trade Study Report dated June 11, 2009, to the BRAC and GNO, Inc. in the report titled, "**Strategy to Optimize the International Trade Potential of Southeast Louisiana**." The report indicated that "Southeast Louisiana's key trade strength rests with non-containerized trade, with the lack of industrial and consumer demand as the leading weakness. The State's population has lagged the growth experienced in the rest of the U.S. Local consumption is not the big driver of local trade, the report stated. Industrial activity is below average within the region especially if the petrochemical industry is excluded. Southeast Louisiana captures approximately 7% of the U.S. population within a 500-mile radius compared to approximately 14% for competing ports. The region lacks a cohesive market strategy and lacks a unified vision on trade and the transportation industry."

Louisiana Economic Development (LED) and DOTD commissioned **ATKEARNEY** to prepare a "**Port Complex Market and Feasibility Analysis**" published December 22, 2009. This report forecast that Louisiana would only "maintain 7% share of the Gulf Container Traffic" even with the opening of the new expanded Panama Canal capability in 2016. The report meanwhile indicated that the Panama Canal expansion would increase traffic to the other Gulf ports.

In the LED and DOTD report, of the 78 market areas analyzed, Louisiana had a low potential opportunity in 58 of the 78 areas. In only 6 of the 78 market areas did Louisiana have a high potential opportunity. The balance of the areas was identified as having a medium potential market opportunity.

PREVIOUS LED, DOTD, BRAC AND GNO, INC. AND PONO INVESTIGATIVE CONCLUSIONS:

The majority of the above referenced containerized market opportunities analyzed for southeast Louisiana and the PONO were pessimistic. In the author's opinion, the potential for new container and intermodal rail markets for Louisiana could be beneficial for the State and the nation, but these markets require a "Market Driven" mentality that is laser focused on key targeted cargo commodities that are uniquely advantaged and empowered by the southern Louisiana region.

Southeast Louisiana container and intermodal shipping can drive a new potential market centroid for Gulf Centric Logistical Warehousing and Distribution of containerized cargo activity in southern Louisiana, linked directly to the future form of highway distribution of goods via the "Mississippi River Highway" leveraging emerging current container on barge (COB) and new container on river vessel (COV) technologies.

However, the interface between the large mega container ocean vessels and the "upriver marine highway COB/COV" and landside roadway and railroad transfer points, MUST be located at a more optimal terminal site further downriver than the proposed LIT site in Violet, LA. The optimal terminal site should not carry deleterious factors and negative characteristics that do not fully serve Louisiana's container and intermodal shipping stakeholders, and the citizens and taxpayers of Louisiana.



G. MARITIME VESSEL SIMULATION OF 23,000 TEU ULTRA LARGE CONTAINER VESSEL “ULCV” WITH 4 AZMUTH STERN DRIVE (ASD) - 70 TON BOLLARD - TRACTOR TUGS

On January 27-29, 2021, LOCUS LLC conducted two days of maritime vessel simulation using a Kongsberg Full Mission Ship Simulator located at the Maritime Pilots Institute in Covington, LA. This vessel simulation research was conducted on behalf of the PONO for the purpose of evaluating the feasibility of a proposed LIT container terminal located at Mississippi River Mile 83, on the left descending bank, near Violet, LA. LOCUS LLC published a Final Report on August 24, 2021.

The simulation design vessel was a large, heavy **23,000 TEU ULCV model at 52' of draft** (full load capacity). The vessel was relatively underpowered in comparison to smaller “large” container vessels of 9,000 to 14,000 TEU capacities. The 23,000 TEU ULCV model represents a vessel of 1,312' x 192', which is longer in length, wider in beam, and 100,000 tons larger in displacement, than any vessel in current service on the Mississippi River and is beyond Neo-Panamax lock dimensions.

MAJOR VESSEL SIMULATION ANALYSIS AND PILOT CONCERNS AND ISSUES:

CONCERN A. UNSAFE CLEARANCES WITH OPPOSING RIVERBANK ANCHORED VESSELS:

Vessel simulation studies demonstrated unsafe clearances with anchored vessels under conventional piloting conditions. Given any unforeseen variables in piloting conditions, the **risk of striking a vessel in the 9-mile anchorage is high**. The vessel simulations concluded that **having vessels anchored in the 9-mile anchorage opposite the proposed LIT container facility berths poses an unsafe hazard for vessels departing the LIT container terminal berths.**

CONCERN B. UNSAFE UPRIVER DEPARTURE CLEARANCE CONDITIONS:

During vessel simulation studies departing the proposed LIT berths and proceeding upriver to turn the vessel was simulated. **These maneuvers were not successful due to unsafe clearance issues**, and they took a great deal of time. As such, the vessel simulation did not recommend departing the proposed LIT berth and proceeding upriver to turn. Rather, the vessel simulation recommended turning directly from the LIT berth downriver.

CONCERN C. DREDGING RIVER REQUIREMENT TO 55' MLLW:

The vessel simulation for this vessel operational area should be dredged to 55' MLLW or greater and be regularly surveyed for silting. Additionally, the area downriver of the proposed berth has shallow water that will need to be dredged to 55' MLLW or greater.

CONCERN D. ADDING A FIFTH TRACTOR TUG FOR HIGH RIVER DEPARTURES:

In the event of extreme high river conditions, the vessel simulations recommend **adding a fifth tug for departures of this class of vessel**. This would obligate every large tug in the Port of New Orleans. It was recommended that in the planning for this proposed LIT facility, it is imperative to address the availability of capable tugs, including the consideration of providing dedicated tractor tugs for the LIT facility.

CONCERN E. FAILURE TO DEVELOP VESSEL HEADWAY DEPARTING LIT LOWER BERTH:

The vessel simulation found that when departing from the lower berth in high river water, the vessel failed to develop enough vessel headway through the water to achieve sufficient steerage to safely navigate through the turn in the river below the LIT berth. Under these high river conditions, the use of the tugs to assist the ship in gaining headway in order to gain steerage for the upcoming river turn at 12-Mile point was required.



SIMULATION AND RIVER PILOT ANALYSIS CONCLUSIONS:

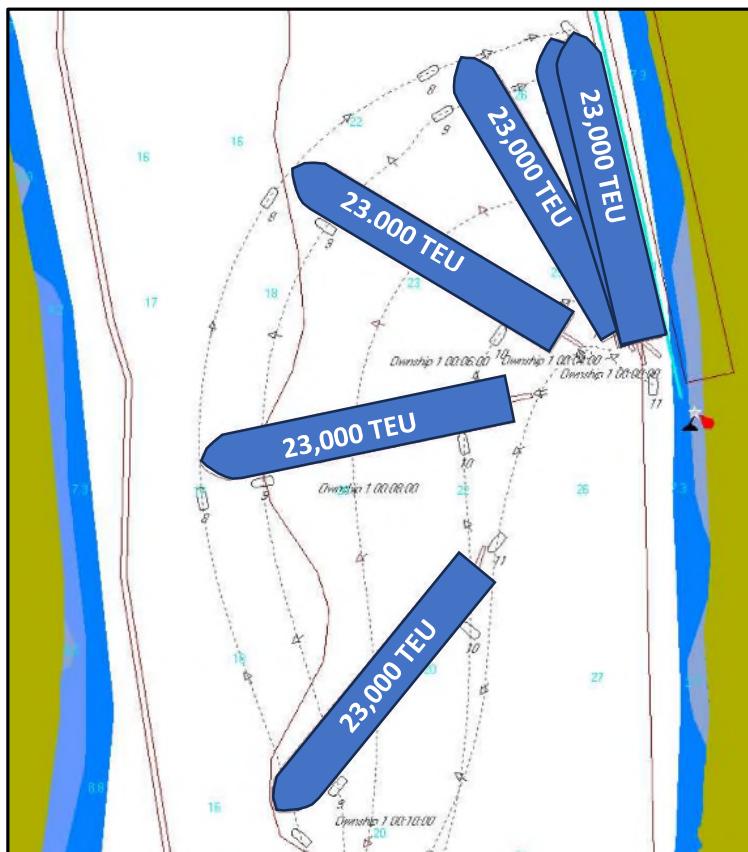
Although the overall vessel simulation and pilot analysis was supportive of the location for the proposed Violet container terminal, the primary concern found in the vessel simulation research and analysis was:

- 1. Unsafe presence of anchored vessels in 9-Mile anchorage, opposite the proposed LIT container vessel berths.** Vessel simulations found, if ships are anchored in the lower part of 9-Mile anchorage, it was not safe to turn 400m length ULCV container vessels directly from the proposed berths.
- 2. Additionally, mid-stream mooring operations** above the proposed LIT site were found to be unsafe for container vessel operations and for transits of other large vessels passing the LIT container berths. **The vessel simulation and the Pilots do not recommend a mid-stream mooring operation in the area of the LIT Terminal.**

DISRUPTION TO MISSISSIPPI RIVER COMMERCIAL VESSEL OPERATIONS:

The above conclusions to the vessel simulation and Pilots analysis impact and restrict commercial shipping operations in the vicinity of the LIT Container Terminal at the proposed Violet, LA site.

The following graphic was taken from vessel simulation “**Run 11a: Undocking Berth 1, No Wind, 5 Kns Current, Day.**” Please note the departing 23,000 TEU ULCV vessel from LIT Berth #1 will obstruct the majority of the Mississippi River width if the vessel simulation and pilot **Concern B** (previous page) were enforced. As illustrated below, **82% of the navigational river traffic would be completely blocked during vessel departures from the LIT Berth #1.**



H. THE NEED TO EMPLOY ALL GREEN TERMINAL – ZERO EMISSION (ZE) EQUIPMENT:

Any new modern international container terminal project should fully embrace current and future green port terminal technological advances and set a national example of State-of-the Art green container and intermodal terminal equipment operations.

These costs can be controlled by executing a modern professional approach for the electrical infrastructure development that is optimized for the power requirements of the planned terminal handling throughput capacity and operating equipment. This includes a utility plan that leverages the right type and size of the terminal's main components (such as transformers) for the planned power distribution system. Once in operation, the energy costs can be controlled by deploying a professional power management terminal solution.

The power distribution system needs to interface with numerous terminal systems or "nodes" when transporting power to the various consumers of power within the River Container and Intermodal Rail Terminal. Each of these electrical power systems can cause disruptive issues and can deleteriously impact terminal reliable operations.

The key in managing this risk lies in precise interface definition between all terminal electrical utility systems. This should be an integral part of the terminal's strategic electrical infrastructure design and, at minimum for the systems outlined below, should be defined, and integrated into the electrical power distribution system for the following major terminal components:

- Ship to Shore (STS) Wharf/Quay Gantry Crane Electrical Systems.
- Refrigerated Container Storage (Reefer) Control and Remote Reefer Monitoring systems.
- Terminal Backland Building, Entry/Exit Truck Gate and Radiological Portal Monitor systems.
- Terminal Storage Yard and General Area Lighting Systems.
- Terminal Electrical Grid Connection and Utility Grid Protection Schemes.

One of the most demanding interfaces to define is the grid connection as it requires substantial understanding of the Terminal electrical power systems at the national, regional, and local levels.

The following Green Terminal (ZE) equipment section is included as a technical reference for the reader.

GREEN TERMINAL– Zero Emission (ZE) and Near Zero Emission (NZE) Terminal Equipment:

The following reference data was derived from a Port of Oakland commissioned analysis titled "Zero-Emission Cargo-Handling Equipment Feasibility Assessment" by AECOM, published November 21, 2019. The **California Air Resources Board (CARB)** and the North American Maritime and Intermodal Industry have in general accepted the CARB regulatory setting implications for future marine terminal applications that are summarized below.

Relevant California regulatory regulation is found in the CARB Mobile Cargo-Handling Equipment Regulation (**Container Handling Equipment (CHE) Regulation**) for Ports and Intermodal Rail Yards, as amended in October 2012. The California CHE Regulation requires new terminal yard and truck equipment to have either a Tier 4 final off-road, or a model year 2010 or newer on-road engine.



Terminal yard tractors (hustlers) were required to be fully compliant with the CHE Regulation by December 31, 2017, and other types of yard equipment (top-picks, RTG cranes, etc.) were required to be fully compliant by December 31, 2013. In March 2017, the CARB Governing Board directed CARB staff to develop new regulations for CHE that will require up to **100% Zero Emissions (ZE) equipment by 2030**. New CHE regulations were permitted to be adopted as soon as 2022 with regulatory implementation starting as early as 2026.

A California CARB rule that requires all terminal equipment in operation to be fully ZE by 2030 is unlikely to be feasible, as this will require terminal operators to get rid of substantial quantities of equipment with some useful life remaining. The following chart depicts anticipated Container Handling Equipment (CHE) **Technology Maturity Status**, for the technical and commercial status of various **Zero Emission (ZE)** and **Near Zero Emissions (NZE)** terminal equipment types.

Container Handling Equipment (CHE)Technology Maturity Status

	2020	2021	2022	2023	2024	2025
Hybrid RTG cranes						
Electric RTG cranes						
Electric off-dock yard tractors						
Electric on-dock yard tractors						
Hydrogen on-dock yard tractors						
Hybrid side-picks						
Electric top-picks						
Hydrogen top-picks						
	Early production					
	Revenue-service production					
	Not for sale in US					

The above CARB report findings focused on the analysis of the near-term equipment technologies with sufficiently developed commercial availability to allow for a cost analysis, which primarily are electric yard tractors and hybrid lift equipment. In the above chart, intermediate-term technologies do not yet have substantial cost information available and were only discussed qualitatively.

GREEN TERMINAL Hybrid Electric Rubber Tired Gantry (RTG) Yard Cranes – Current Status:

Hybrid Electrical RTG Cranes are commercially available and may save 40% in fuel compared to conventional diesel RTG terminal yard cranes. Advanced technologies to replace conventional diesel terminal equipment vary in their current state of development. Current options include hybrid NZE equipment, alternative fuel engines that allow NZE operation (e.g., natural gas engines using renewable natural gas), battery-electric vehicles, hydrogen fuel cell vehicles, and terminal equipment that can be connected to the electricity grid through cables or bus bars.

Hybrid Electric RTG Cranes, which use a battery with a small engine for repowering when the energy recovery is insufficient to keep the battery charged, are part of the regular offering list from multiple large terminal lift equipment vendors.

GREEN TERMINAL Zero-Emission (ZE) STS Crane Conclusion Recommendations:

Hybrid Electric RTG yard cranes are the most appealing option to reduce emissions in the near to intermediate term. Hybrid Electric RTG Cranes are currently available from multiple terminal equipment vendors (e.g., Mi-Jack, Kalmar, Kone). An applicable example is the Port of Oakland's SSA Terminals, which operates the Oakland International Container Terminal (OICT) and Matson Terminal and has replaced thirteen 1,000-horsepower engines with 142-horsepower engines via the hybrid-electric RTG project.

GREEN TERMINAL ZE and NZE Terminal Equipment Recommendations:

In consideration of the above industry findings, and considering current industry updates, procurement of the following terminal Container Handling Equipment (CHE) should be considered:

- **Hybrid Electric STS Cranes (ZE)** at the terminal Wharf/Quay,
- **Hybrid Lift RTG (NZE)** Yard Cranes, and
- **Electric On-Dock Yard Tractors (High Powered Yard Hostlers) (NZE)** when practical and economically available, near term, within the container and intermodal equipment industry.

I. CRITICAL LIT DEVELOPMENT ISSUES OVERVIEW FINDINGS AND CONCLUSIONS

This Critical Development Issues Overview Report addresses major paramount LIT port development issues and concerns and is not limited to the identified issues and concerns outlined and described in this report.

In summary, this Critical Development Issues Overview Report finds and has concluded that:

- Because the current project will result in substantial and potentially deleterious public health, safety, environmental and traffic impacts on the citizens of St. Bernard Parish, a cohesive and regional sustainable **statewide strategy** focused on conducting a suitable competitive container terminal site selection evaluation is critically needed. Not conducting a **comprehensive site selection analysis** would be a strategic miscalculation for the State of Louisiana, and indeed the nation, and Louisiana's marine and intermodal shipping interests now more than ever.
- A comprehensive statewide container port site selection analysis is critically necessary to ensure that a state-of-the-art intermodal container port terminal is located at a **superior, more favorable, and less publicly impactful terminal site** further downriver than the current PONO proposed site in Violet, LA.
- The State of Louisiana, and in particular St. Bernard Parish and the southeastern Louisiana maritime shipping and logistics stakeholders, must avoid the potentially detrimental harm that would otherwise adversely impact the lower Mississippi region, southeast Louisiana citizens and taxpayers, and marine and intermodal rail container shipping stakeholders of Louisiana and mid-America.



- This Critical Development Issues Overview report urgently recommends that a **Port and Intermodal Development Advisory Committee** should be formed to critically assess the market driven economic viability and justifiable needs for a mega container port development in Southern Louisiana. This Overview Summary endorses a proposed riverfront location and conceptual terminal development deliberate planning for a state-of-the-art marine container and intermodal rail terminal designed to specifically advantage the competitive capabilities of the entire southeastern Louisiana marine container shipping region, and not just a single port complex. John F. Kennedy, in a 1963 speech, stated, “*A Rising Tide Will Lift All Boats.*” Perhaps this metaphorical expression in this instance should be “*A Rising Tide Should Lift All Boats.*”
- The PONO neglected to conduct and/or share crucial project due diligence information and justification analysis to rigorously evaluate and justify the LIT Mega Container Terminal development proposal, including, but not limited to, a detailed market cargo (Container and Intermodal) demand analysis, which is fundamentally critical to evaluating the need for any modern competitively successful marine intermodal terminal development project.
- The truck-trip volumes generated by the container terminal could reach 1,728 per day at full terminal capacity. These tremendous daily truck-trip volumes would negatively impact southeastern Louisiana traffic congestion, regional vehicular safety, and could deleteriously impact environmental air quality.



ABOUT THE AUTHOR:



PROFESSIONAL BIOGRAPHY

Proven World Class Port & Intermodal Terminal Development Expertise

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John Vickerman is the President of **Vickerman Associates LLC**, a firm specializing in the planning and design of port, intermodal and freight coordination facilities and systems worldwide. Much of John's work focuses on assisting ports and shipping companies to recognize and prepare for future market and technological changes.

John has worked on major port projects throughout the North America and the world for more than 40 years. **SIXTY-SEVEN of the NINETY' North American deep-water general cargo ports have benefited from John Vickerman's strategic port master planning and port development design programs.** John Vickerman has managed some of the largest Port Planning projects in North America. His international practice includes work for many of the Canadian Ports, the Ports of Rotterdam and Hong Kong, Melbourne Australia, the Panama Canal Authority, the intermodal freight analysis for the Eurotunnel between England and France, the Port of Pecém, Brazil, the new Port of Castilla, Honduras and emerging new transhipment port and logistics development projects in Latin America.

Mr. Vickerman has served as a member of the USDOT Freight Roundtable Advisory Board to the US Secretary of Transportation. He completed two terms as Chairperson for the **Intermodal Freight Terminal Design and Operations Committee** under the purview of the Transportation Research Board (TRB)/National Research Council (NRC), National Academy of Science. He has served on many national Policy Committees for the TRB.

John is both a licensed Civil Engineer and Registered Architect in 22 states and holds a master's degree with honors in Structural Engineering from the University of California, Berkeley. He retired as a Captain in the Civil Engineer Corps of the United States Navy Reserve after 38 years of continuous service.

LOUISIANA CENTRIC PORT STRATEGIC MASTER PLANNING EXPERTISE:

Port NOLA – Port of New Orleans - **Port-Wide Strategic Master Plan - Phase II** (2017 – 2019)

Port NOLA - Port of New Orleans – **"Millennium Port" Strategic Planning Study**

Port NOLA - Port of New Orleans – **West Bank Port Development Strategic Planning**

"CHANGING COURSE" International Competition Finalist – Future of the Lower MS River Delta

Port of Plaquemines Parish - **Comprehensive Port Strategic Master Plans** (2009 – 2017)

Louisiana International Gulf Transfer Terminal (LIGTT) - Port Commission - General Consultant

Houma Navigation Canal (HNC) Lock Complex (TE-113) Navigation Study - Terrebonne Parish

Calcasieu Ship Channel Salinity Control Measures (CS-065) – Navigation Feasibility Study

Port of Baton Rouge – **Strategic Port Master Plan**

Port of South Louisiana – **Strategic Port Master Plan**