PORT EVERGLADES
BROWARD COUNTY, FLORIDA

PORT EVERGLADES MASTER/VISION PLAN

2018 UPDATE

Executive Summary

FINAL REPORT

Prepared by

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ES.0 Glossary of Terms

Air Draft
The maximum height of a structure or vessel.

Apron
Area immediately adjacent to the vessel berth where lines, provisioning, gangway and other operations occur.

Anchorage
Location where a vessel may anchor. For cruise, in destinations where docks are not present to accommodate vessel operations, anchorages are used and passengers are shuttled to/from the cruise vessel to a landside location using a small boat (tender). Anchorages are generally only used in ports-of-call. For cargo, an area outside a port where a vessel anchors to await a berth assignment.

Available Passenger Cruise Days (APCD)
The formula cruise lines typically use to assess and compare cruise itineraries from a financial perspective.

Beam
The width of a vessel at its widest part.

Bed (Berth) Nights
A typical cruise industry form of capacity measurement representing the number of lower berths (a bed on a cruise vessel, with the aggregate total generally determining the vessel's nominal passenger capacity) multiplied by nights of operation in a region.

Berth
(1) An anchorage or dock space for a vessel in port.
(2) A bed, generally attached to the deck and/or bulkhead onboard a cruise vessel.

Break-Bulk
General cargo or goods such as steel rebar or pipes that must be loaded/unloaded and handled individually or in pre-determined modular quantities (i.e. pallettes). Break-bulk cargo is not handled in intermodal shipping containers or in bulk quantities as would be the case with petroleum, grain and cement, for example.

Bunker/Bunkering
Marine fuel used for propulsion. The act of delivering marine fuel to a vessel.

Cabotage Laws
Legislation and/or regulation relating to the ability of foreign-flagged vessels to transport goods and passengers between domestic ports. Cabotage Laws are often put into place to protect domestic maritime industries.

Capacity
The number of units (passengers, berths, containers, gallons, tons, etc.) that a given area or space can handle at a given time.

Cruise Brand
Term referring to individual cruise vessel operating companies (i.e. Carnival Cruise Line) to distinguish them from their corporate holding companies (i.e. Carnival Corporation).

Cruise Line
For purposes of this report, cruise line is used to describe a corporate holding company with one or more cruise brand(s) operating under its corporate umbrella (i.e. Carnival Corporation).

Cruise Terminal
Building where cruise passengers embark and/or debark in a homeport destination.

Daily Cruises
Term applied to vessel service transporting passengers and/or vehicles and/or cargo from point to point. The key difference between daily cruises and multi-day cruises is that daily cruises offer transportation services as their primary business focus, not a travel and leisure experience.

Dockage
Fees levied by a port or destination for the right to dock a vessel.

Draft
The depth of water required by a vessel to float; the measurement in feet (or meters) of the extent to which the vessel projects below the surface of the water.

Dry Bulk
Commodity cargo that is transported in unpackaged, non-standardized, non-liquid granular form, usually in large quantities (i.e. cement, bauxite, coal, etc.).

Emission Control Area (ECA)
Geographic boundaries established through treaties to provide for decreased NOx and SOx emissions in select zones such as North America and Europe.

Gross Tonnage (GT)
A measure of a vessel's enclosed volume. This term has emerged as the standard measure of communicating a vessel's size. A *mega-vessel* generally refers to a vessel of 70,000 GT or larger.

Ground Transportation Area (GTA)
Zone in which vehicles, including buses, taxis and private cars are organized and accessed as part of cruise terminal/destination embarkation and disembarkation activities.

Homeport
A marine facility and destination locality that serves as the base of operations from which a multi-day or daily cruise begins and/or terminates.

Itinerary
Sailing routes and ports visited on a given cruise. Two itinerary types are generally observed. *Open-jaw (OJ) itineraries* refer to those deployments where the cruise begins at one homeport and ends at another. *Roundtrip* (RT) or *Closed-jaw itineraries*—the more common type observed—begin and end from the same homeport.

In Bond
Cargo or baggage that transits directly to and from the port/airport and has a customs approval allowing for a single inspection.

Length Overall (LOA)
Total length of a vessel in feet (or meters), including any incidental structure that may extend this dimension.

Liquid Bulk
Free-flowing liquid cargos, such as gasoline, jet fuel, crude oil, liquefied natural gas, industrial chemicals, etc. that are typically transported in large quantities via tanker vessel and stored in tanks at or near ports for distribution/consumption.

Liquified Natural Gas (LNG)
Liquefied natural gas is natural gas that has been cooled to a liquid state (about -260 degrees Fahrenheit) for shipping and storage. This process makes it possible to transport natural gas to places pipelines do not reach and to use natural gas as a transportation fuel.

Marine Terminal
Facility, including storage yards as well as associated buildings, where cargo handling activity occurs, usually within a physically defined and secure (i.e. gated) area.

Mixed-Use Facility
Refers to a facility or complex with more than one type of real estate or operational use. Mixed-use facilities generally:

(1) are contiguous in nature
(2) are developed within a broader master plan constructed at one time or in phases
(3) provide for a symbiotic relationship to occur among all uses such that the sum of the mixed-use facility from a real estate or operational perspective is greater than its parts. Mixed-use maritime facilities often include cruise, ferry, marina, commercial, residential, recreational and other upland transportation facilities.

Multi-Day Cruises (Cruises)
Leisure-oriented voyages on deep-water, ocean-going cruise vessels of two or more nights often to a variety of destinations, or port-of-calls. Multi-day cruises are offered either by regional or international operators marketing to a variety of consumer sectors and nationalities.

Neo-Panamax
Vessels classified as Neo-Panamax are of the maximum dimensions that will fit through the newest set of locks in operation by the Panama Canal (366 m/1,200 feet long by 49 m/161 feet wide by 15.2 m/50 feet in depth).

Panamax
Vessels classified as Panamax are of the maximum dimensions that will fit through the original locks of the Panama Canal (304 m long by 33.5 m wide by 25.9 m deep). Thus a Panamax vessel will usually have dimension of close to 294 m/965 feet long by 32.3 m/106 feet wide by 12.04 m/39.5 feet in depth.

Passenger Fee (Head Tax)
Port charges assessed against each passenger aboard a cruise vessel. Generally the principal income stream to ports and destinations for accommodating cruise activities.

Peak (or Peaking)
Period of greatest intensity of use or volume. Port Everglades' peak days for cruise activity, for example, are Saturday and Sunday since those are the days that, on average, see the greatest number of cruise ship calls and/or passenger debarkations during the course of a given cruise season.

Penetration Rate
Percentage of the total potential market that is currently accessible. For example, in 2016, North America (including Canada, the United States, Mexico, the Caribbean and Central America) had a penetration rate for cruise of 2.3 percent (13.34 million cruisers/579 million total population).

Port Authority
Governmental or quasi-governmental public authority for a special-purpose district usually formed by a legislative body (or bodies) to oversee and/or operate ports and other maritime, aviation, road and/or rail transportation infrastructure.

Port-of-call (POC)
One of several destinations visited as part of a cruise itinerary. The focus of the port-of-call is on tourism activities adjacent to the cruise arrival area and the transportation of passengers to regional points of interest.

Post-Panamax
Size standard that exceeds the largest vessel dimension capable of transiting the original Panama Canal locks (304 m long by 33.5 m wide by 25.9 m in depth). Generally based on the beam and LOA of the vessel.

Private Island
Island destinations primarily located in the Caribbean and Central America that are owned and/or developed for exclusive or semi-exclusive use by a single cruise company (cruise line) and its proprietary brands.

Revenue Passenger
This generally refers to homeport passengers or in some very limited cases port-of-call passengers (e.g. Vancouver, where all passengers are charged on/off the vessel), whereby passenger counts reflect the Port's passenger wharfage or tariff rate charging policy. For homeport calls the actual number of passengers is doubled to show that the cruise operator is charged by the port for the passenger embarking/debarking the vessel at a set fee.

Ro-Ro
Maritime term for roll-on/roll-off cargo such as passenger vehicles, tractor/trailers, buses, railcars, etc. that are driven on and off a ship under their own power or using a platform vehicle, such as a truck and trailer or self-propelled modular transporter.

Super Post-Panamax
Generally refers to the largest vessels in existence today. These vessels are defined not only by their dimensions, but also their carrying capacity (i.e. 3,000+ passengers for cruise and 12,000-14,000 TEUs for container ships).

Tariff
A schedule of fees charged to port users, especially marine terminal and vessel operators to cover some or all costs associated with port operations and other fiduciary obligations (i.e. infrastructure development and maintenance).

Terminal Operator (TO)
Entity with primary responsibility for managing marine terminal/cruise terminal and related operations on a daily basis, usually under contract to a public port authority or other public or quasi-public ownership interest.

Transit Passenger
By literal definition, the status of cruise passengers during a port-of-call.

Twenty-Foot Equivalent Unit (TEU)
Unit of cargo used to describe the capacity of modular container ships and container terminals. It is based on the volume of a 20-foot-long (6.1 m) intermodal container, which is the historical standard metal container used in container shipping. The majority of containers in use today are Forty-Foot Equivalent Units (FEU); however, TEU remains the standard unit of measurement.

Use Ratio (Utilization Percentage)
The ratio of days that a berth is actually occupied to available berth days (total calls/total available berth days). For example, in a year-round market, a single berth is theoretically available for a total of 365 days. If that berth receives 52 calls (one vessel sailing weekly roundtrip itineraries year-round) then its use ratio is .142, or 14.2 percent (52/365).

All other terms and acronyms are defined within the text below.

ES.1 Introduction

The Broward County Board of County Commissioners (the Board) has directed the Port Everglades Department (the Port) to update its Master/Vision Plan every two to three years. The Board approved the original 2006 Plan in December, 2007 and approved the first and second updates to that plan in March, 2011 and June, 2014, respectively. In September, 2017, the Board approved the selection of Bermello Ajamil & Partners, Inc. (B&A) to lead the third update of the Port Everglades Master/Vision Plan (2018 Update).

The Port's mission statement is as follows:

> *"Port Everglades is Florida's powerhouse global gateway. A respected leader in trade, travel and financial stability, we create economic and social value by working in partnership with world-class clients. We achieve advancements focusing on efficient facilities, trade and cruise expansion, jobs growth, safety, security and environmental stewardship for our customers, stakeholders and community."*

Consistent with both the 2009 and 2014 Updates, the goal of the 2018 Update is to help the Port achieve its mission by using an ongoing collaborative effort to create a plan that facilitates growth in volume and associated revenue while maintaining a diverse and environmentally responsible portfolio of operations through a realistic 5-year Capital Improvement Program (CIP) within the 10- and 20-year Vision Plan framework.

The 2018 Update is structured in two principal phases as follow:

Phase I

- Element 1: Existing Conditions Assessment
- Element 2: Market Assessment

Phase II

- Element 3: Plan Development and Final Plan
- Element 4: Impacts and Strategies for implementation

A third and fourth phase, which consist of the preparation of a 3-D computer-animated video documenting the 2018 Update and an update to the Deepwater Component and Transportation Element of the Broward County Comprehensive Plan (Broward NEXT), respectively, also comprise key aspects of the 2018 Update.

As with previous updates, the 2018 Update assesses changes in market and other conditions that have occurred regionally, nationally, and internationally since the last iteration of the plan (2014) and uses a 20-year planning horizon for future market assessments, activity projections and plan implementation and funding scenarios. The baseline year for the 2018 Update is 2018. The following milestone years define the 5-, 10- and 20-year plans:

- 5-Year Master Plan 2019-2023
- 10-Year Vision Plan 2024-2028
- 20-Year Vision Plan 2029-2038

ES.2 Project Scope

The B&A team worked with the Port to adopt the following guiding principles during the course of the 2018 Update process:

- Capacity – does the plan increase capacity consistent with projected demand?
- Efficiency – does the plan improve efficiencies and/or reduce operating costs?
- Flexibility – does the plan anticipate and allow for changing conditions over time?
- Integration – does the plan integrate related uses through physical adjacency?
- Environmental Preservation – does the plan anticipate/mitigate known impacts?

These principles are reflected in all of the 50 projects recommended for implementation during the 5-, 10- and 20-year plan milestones.

The core tasks completed as part of the 2018 Update are summarized below.

Element 1: Existing Conditions Assessment
The existing conditions assessment of the 2018 Update includes the following sections:

- Master Planning Context
- Land Ownership and Uses
- Facility Inventory
- Progress on 5-Year Projects in the 2014 Update
- Neighbors' Plans Influencing Port Development
- Cargo Berth and Yard Capacity Analysis

- On-Port Traffic and Parking
- Intermodal Transportation Network
- Environmental Conditions

Element 2: Market Assessment

The market assessment of the 2018 Update includes the following sections:

- Historical Cruise, Liquid Bulk and Cargo Activity
- Cruise Market Assessment
- Liquid Bulk Market Assessment
- Containerized Cargo Market Assessment
- Non-Containerized Cargo Market Assessment
- FTZ Trends and Port Everglades International Logistics Center Fit
- LNG Bunkering Assessment

The core tasks completed during Phase II of the 2018 Update are summarized below.

Element 3: Plan Development and Final Plan

The plan development/final plan component of the 2018 Update includes the following sections:

- Conceptual Planning Process
- Market Assessment Summary (from Element 2)
- Status of Projects in the 2014 Master/Vision Plan
- Terminal Design Trends
- Operational Enhancement Opportunities
- Facility Needs Assessment (from Element 1)
- Project Decision Matrix
- Projects Included in the 2018 Update (Final Plan)
- Affordability Analysis

Element 4: Impacts and Strategies for Implementation

The impacts/implementation component of the 2018 Update includes the following sections:

- Parking and Estimated Future Truck Traffic

- Environmental Impact Assessment
- Business and Asset Utilization Strategies
- Financial Strategies
- Goals, Objectives and Policies

ES.3 Outreach and Participation

The public outreach program for the 2018 Update was developed to invite input into the planning process and final development program from as many entities and individuals that are vested in the Port's future as possible. More than 40 meetings, most of which were advertised and accessible to the public, were held. The process involved an ongoing collaborative effort among the B&A team and the Port's senior staff to "pull" information from and "push" information to Port tenants and other users, external stakeholders and constituencies, as well as local residents and members of surrounding communities. Key outreach meetings held between May, 2018 and February, 2020 include:

- Four tenant/stakeholder meetings
- Two environmental stakeholder meetings
- Two general public meetings
- Five planning charrettes
- Two Port Everglades Association meetings
- Two Port focus group meetings
- Multiple County Administration/Commission briefings
- Multiple Metropolitan Planning Organization updates

The PowerPoint presentations made during all public meetings are available online at the Port Everglades website (www.porteverglades.net). Apart from the meetings highlighted above, a number of one-on-one interviews with Port tenants, users and other stakeholders were also conducted both in person and by phone. In late April and early May, 2019, charrettes with Port tenants and other stakeholders were conducted. Input and comments received by the B&A team have been incorporated into the 2018 Update. Major concerns and feedback received during the charrettes is summarized as

follows:

- Trucks carrying petroleum and other liquid bulk cargos to/from Northport having to stop on Spangler Boulevard while waiting to access terminals
- General congestion related to automobiles, buses, taxis, vans, and provisioning trucks entering or exiting the Midport cruise areas, particularly via Eller Drive and especially on weekends during multi-ship days
- Long queues of trucks carrying containers clogging access to Southport and spilling onto the I-595 eastbound approach due to the presence of a security checkpoint on McIntosh Road and lack of alternative access to Southport

In anticipation of such challenges, a separate Traffic Study was commissioned by Port management in late 2018 to identify near-term opportunities to improve internal circulation within Port Everglades as well as long-term opportunities to better distribute future peak traffic associated with growth in both cruise and cargo activity. The results of this separate study are incorporated as appropriate into Elements 3 and 4 and presented in full as an appendix to the 2018 Update.

Other concerns identified by Port tenants and stakeholders as the Port looks to advance its infrastructure development, relocate certain uses, and improve operational efficiencies include:

- Liquefied natural gas (i.e. how to bunker, if/where to store at the Port)
- Near-term taxi and bus staging to support cruise operations
- Relocation options for the tug boats that currently berth in the Tracor Basin
- Ongoing construction-related impacts to both cruise and cargo operations (i.e. Berth 19 Finger Pier, McIntosh Road realignment)
- Airport adjacency issues associated with the proposed Griffin Road extension and NE 7th Avenue improvement projects
- The potential inability to position or use Ship-to-Shore (STS) cranes or even mobile harbor cranes at the berths to the far west (Berth 30W) and north (Berth 30N) of the Southport Turning Notch Extension (STNE) due to FLL airport proximity
- Lack of a dedicated berth or terminal facility for daily cruise (ferry) operations

Some of these matters have been addressed during the planning process but others remain ongoing and will need to be addressed separately by the Port and its user

community in conjunction with individual projects as they come online or as part of future Master/Vision Plan updates.

ES.4 Existing Conditions Assessment

Element 1 of the 2018 Update presents an assessment of existing conditions at Port Everglades, and provides context related to the Port Everglades operating environment. Specifically, information pertaining to existing conditions at Port Everglades has been updated as follows:

- Land ownership and uses
- Facility inventory
- Progress on 5-year projects in the 2014 Update
- Neighbors' plans influencing port development
- Containerized and non-containerized cargo berth and yard capacity analysis
- On-port traffic and parking
- Intermodal transportation network
- Environmental conditions

ES.4.1 Land Ownership and Uses

Of the Port's 2,190 acres, 1,742 acres are upland, and 448 acres are submerged land. Within the Port Everglades Jurisdictional Area, there is a mix of private and public land, and a large variety of different uses, including commercial and retail uses. The Port is also abutted by residential communities to the west and northeast. Figure ES.4.1 shows approximate allocations of Port Everglades land by type of use as of the baseline year (2018). It must be noted that the majority of land identified for Liquid Bulk/Petroleum use is privately owned. As a landlord port, Port Everglades generates the majority of its revenue by contracting out its available publicly-owned land and facilities to private operators for uses that are generally water-dependent and/or consistent with the Port Everglades mission. The port uses several different types of contracts to this end. Port Everglades' land leases and grid areas as of May 2018 are shown in Figure ES.4.2. The Port also contains a substantial amount of rail trackage, most notably the Florida East Coast Railway (FEC) Intermodal Container Transfer Facility (ICTF) in Southport.

Figure ES.4.1: Land Uses within the Port Everglades Port Jurisdictional Area (PJA)

Source: Google Earth; Port Everglades; B&A

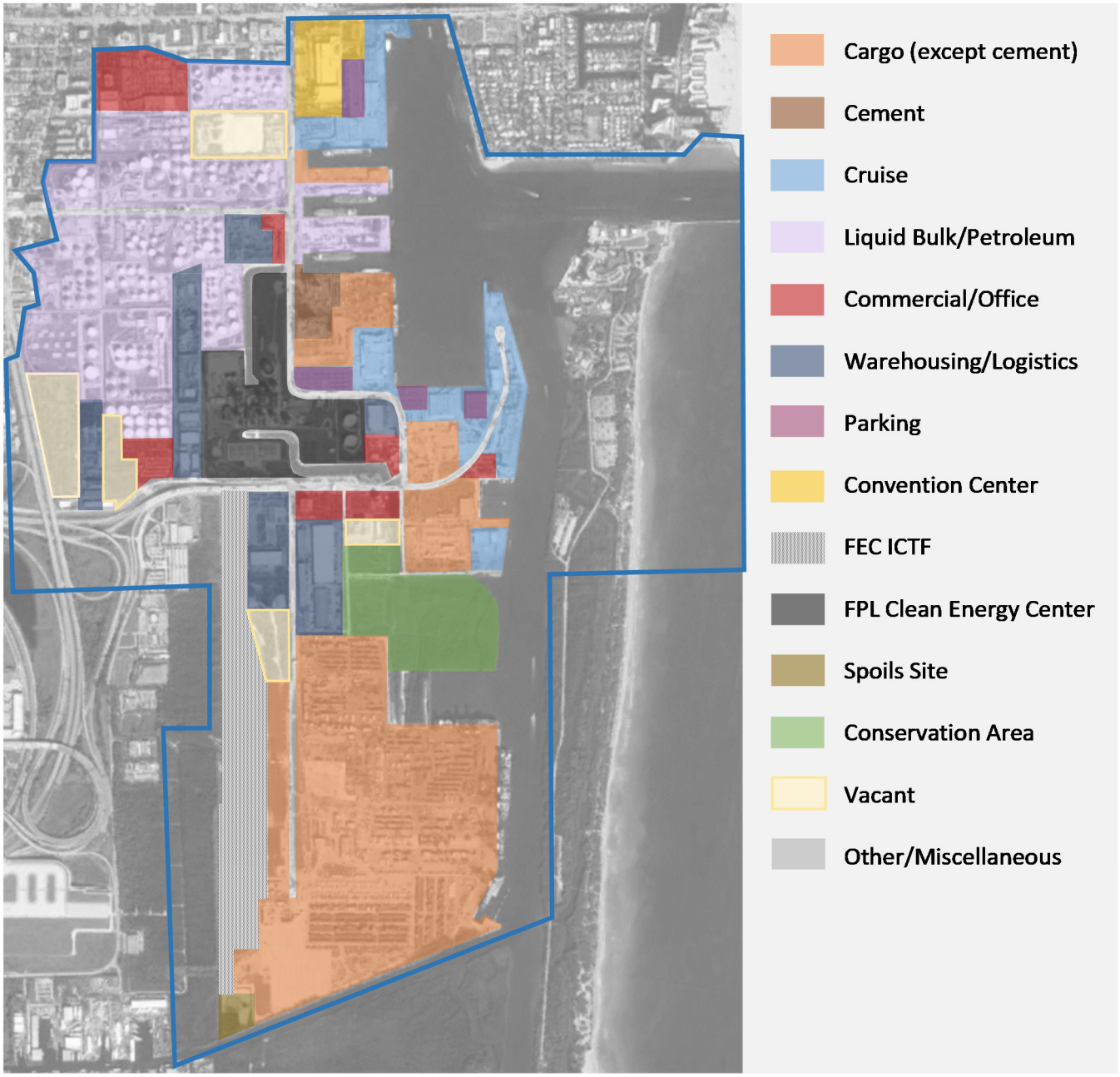
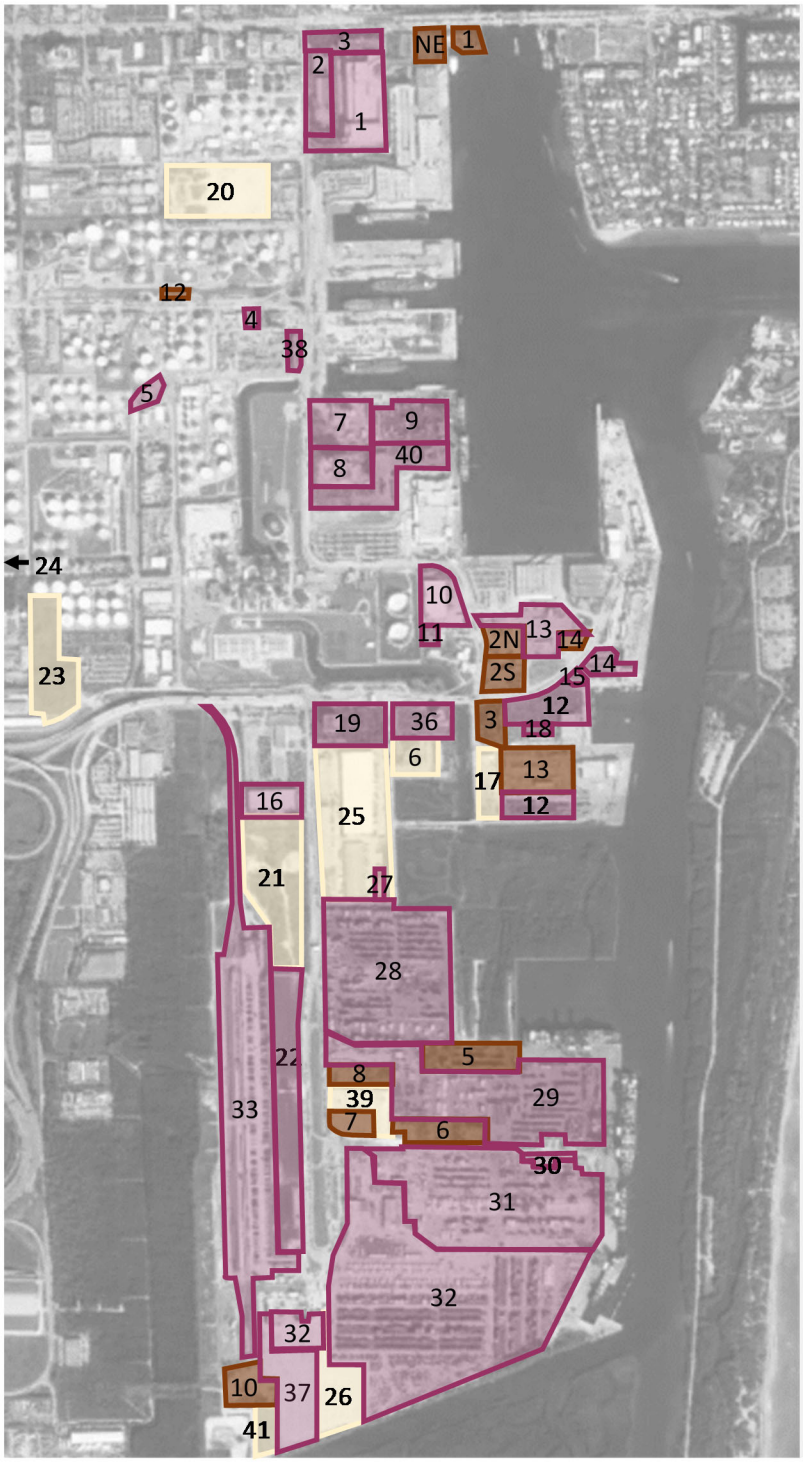


Figure ES.4.2: Port Everglades Land Leases and Grid Areas, May 2018
Source: Port Everglades; B&A



Land Leases (user: acres)

1	Broward County Convention Center: 10.25
2	CVB offices parking: 4.27
3	Portside Yachting: 3.89
4	Pittville: 0.40
5	Penn Tank Lines: 1.15
6	Vacant: 3.57
7	Lehigh Hanson: 4.91
8	CEMEX Construction: 4.61
9	H.T. Shipping: 7.00
10	Colorado Boxed Beef: 5.00
11	Resolve Fire & Hazard Response: 0.59
12	Horizon Terminals: 8.67
13	Sol Shipping: 5.20
14	Seacor Holdings: 2.10
15	Tugz: 0.15
16	Chiquita ripening facility: 6.00
17	Vacant: 2.00
18	Horizon (warehouse & office): 27,560 sq ft
19	High Woods/Florida Holdings: 5.09
20	Vacant: 13.25
21	Vacant: 16.65 (future PE-ILC)
22	King Ocean Services: 18.40 (container yard 9b)
23	Vacant: 8.54
24	Vacant: 18.55 (off map, "Dynergy property")
25	Existing FTZ (future container yard): 24.67
26	Vacant: 5.06
27	IWS: 0.23
28	Florida International Terminals: 36.03
29	King Ocean Services: 33.80
30	U.S. Customs & Border Protection: 1.18
31	Mediterranean Shipping Company/PET: 39.18
32	Crowley Liner Services: 78.00
33	FEC ICTF: 43.00
34	AMI Kids Greater Fort Lauderdale: 1.62 (off map)
35	Wildlife Care: 4.11 (off map)
36	Port Everglades Administrative Offices
37	Florida International Terminals: 12.00
38	Amman Building
39	Vacant: 3.75 acres
40	King Ocean Services: 7.00
41	Vacant: 4.00

Grid Areas (acres)

NE	1.50
1	1.14
2N	3.00
2S	2.34
3	2.80
5	5.00
6	4.60
7	2.64
8	3.42
10	3.96
12	0.23
13	6.59
14	1.60

ES.4.2 Facility Inventory

The inventory of facilities at Port Everglades is continuously modified and updated through an ongoing facilities investment and maintenance plan, as defined by the Port Everglades 5-Year Capital Improvement Program (CIP).

In December, 2017, Amman Whitney delivered their 12th Biennial Condition Report of Port Facilities (2017 Biennial Report) to Port Everglades. This report, published in three volumes, documents a comprehensive, months-long visual inspection of Port Everglades facilities, utilities, cranes, and underwater infrastructures. Specific categories inspected include:

- Buildings (52)
- Open areas (56 – consistent with Port Everglades lease and grid areas)
- Lift stations (30)
- Berths (27 – including underwater infrastructure, as well as fenders, concrete cap, bollards, and seawalls)

Figure ES.4.3 presents a map of all Port Everglades buildings included in the Amman Whitney report.

Figure ES.4.3: Port Everglades Building Locations

Source: B&A

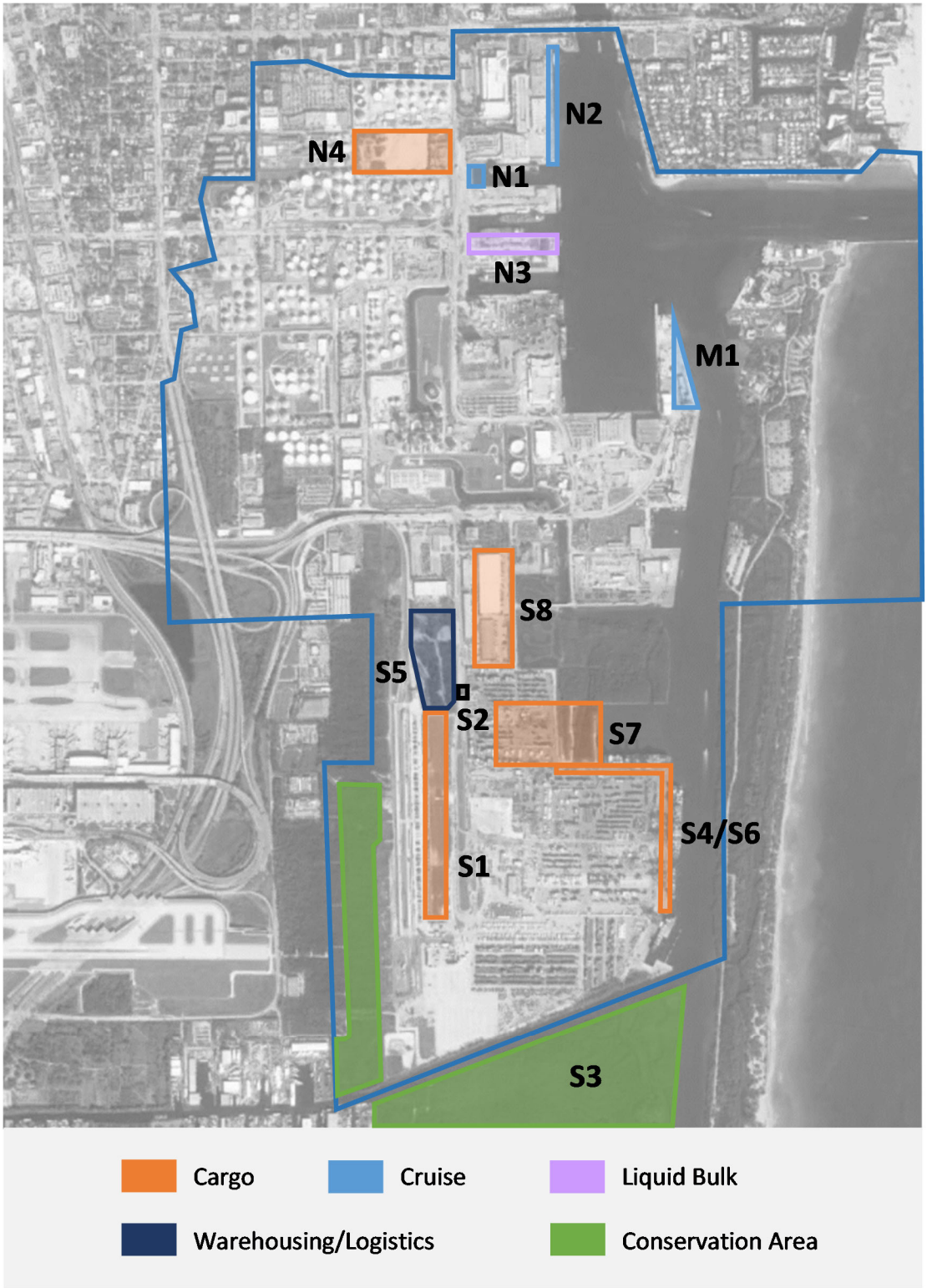
ES.4.3 Progress on 5-Year Projects in the 2014 Update

Port Everglades has implemented, or is in the process of implementing, most of the projects that were identified as five-year priorities within the 2014 Update of the Port Everglades Master/Vision Plan. These projects are listed in Table ES.4.1. The location of each project is shown in Figure ES.4.4.

Table ES.4.1: Port Everglades Projects (2015-2019) as Proposed in 2014 Update
Source: 2014 Port Everglades Master/Vision Plan

Port Area	Project ID	Project Name	Status
Northport	N1	Slip 2 Westward Lengthening	Completed (FY2017)
	N2	Berths 1, 2 and 3 New Bulkheads	Pending (FY2021)
	N3	Slip 1 New Bulkheads and Reconfiguration - Phase 1 (Berths 9/10)	Underway (FY2023)
	N4	Break-Bulk Storage Yard	Pending (TBD)
Midport	M1	T25 Improvements/Expansion	Underway (FY2018)
Southport	S1	Southport Phase 9b Container Yard	Completed (FY2018)
	S2	Southport McIntosh Road Gate Lane Addition	Underway (FY2019)
	S3	Westlake Mitigation (Southport Turning Notch Extension)	Underway (FY2020)
	S4	Super Post-Panamax Cranes (3)	Ordered (FY2020)
	S5	Foreign-Trade Zone (FTZ) Relocation	Underway (FY2020)
	S6	New Crane Rails (Berths 30, 31 and 32)	Underway (FY2020)
	S7	Southport Turning Notch Extension	Underway (FY2022)
	S8	Southport Phase 9a Container Yard	In Design (FY2022)
Portwide	P1	USACE Deepening and Widening Design	PED Underway (FY2026)

Figure ES.4.4: Port Everglades Projects (2015-2019) as Proposed in 2014 Update
Source: B&A



ES.4.4 Neighbors' Plans Influencing Port Development

In addition to projects planned, designed, and implemented by Port Everglades itself, the B&A team evaluated plans by neighbors of the Port that are likely to have an impact on Port Everglades' 5-year Master Plan and 10- and 20-year Vision Plans.

Northport

The most important neighboring development planned in the near-term that will affect the Northport area of Port Everglades is the expansion of the Broward County Convention Center. In 2015, the Board of County Commissioners approved moving forward with the expansion project, which includes a proposed 800-room headquarters/hotel, as well as more than 560,000 square feet of additional Convention Center space. The project is expected to cost approximately $550 million to develop. See Figure ES.4.5.

Figure ES.4.5: Proposed Convention Center Expansion and Headquarters Hotel
Source: broward.org/ccexpansion

Midport

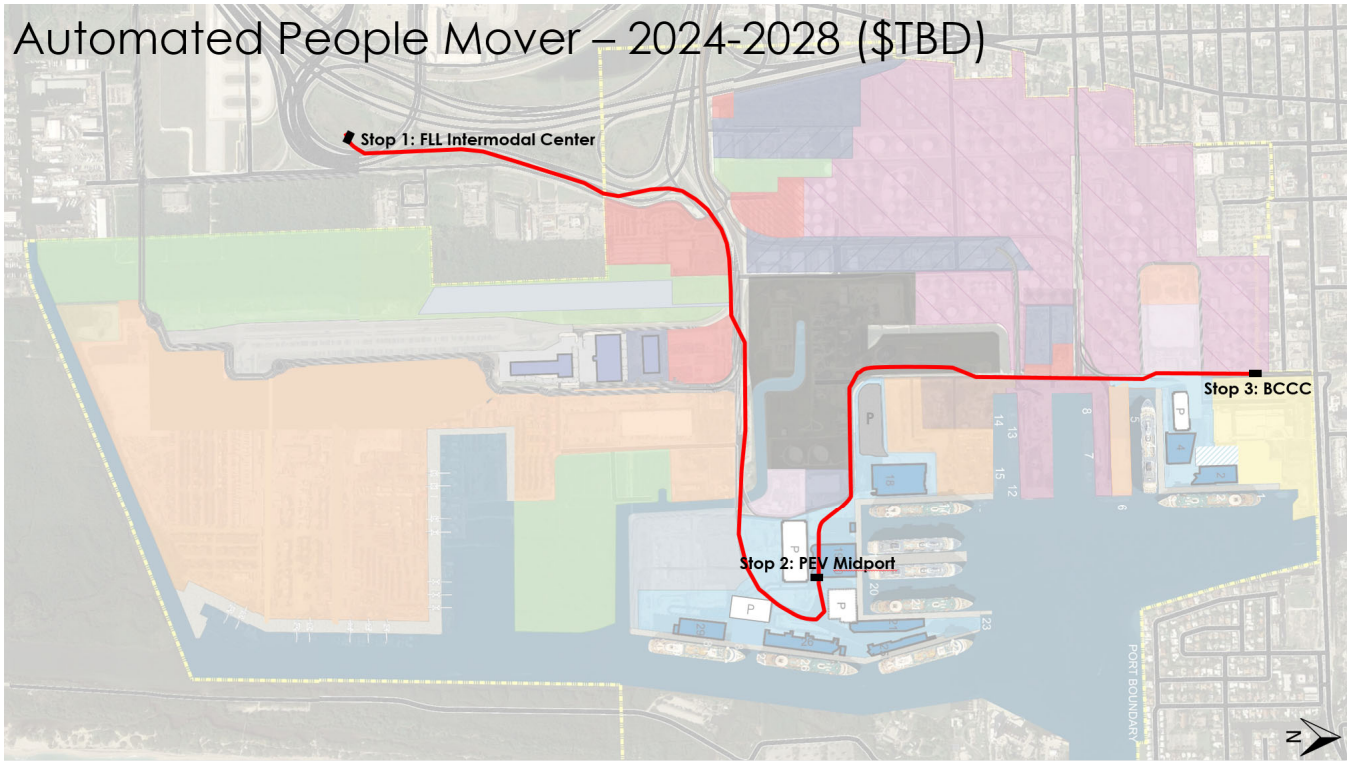
An additional neighboring development that will impact both Northport and especially Midport relates to the Fort Lauderdale-Hollywood International Airport (FLL) Master Plan, specifically the proposed Intermodal Center and the automated people mover (APM) system that is proposed to connect FLL to the Broward County Convention Center via Port Everglades. Figure ES.4.6 illustrates the proposed FLL Intermodal Center. Figure ES.4.7 illustrates a potential path for the proposed APM.

Arriving fly-in cruise passengers currently transit from the FLL terminal, where they arrive either directly to the port to board their cruise, or (if they are enjoying a pre-cruise stay in South Florida) via taxi, rideshare, or courtesy shuttle to their hotel or other accommodation. Once the planned intermodal center is operational, arriving passengers – including cruise passengers – will be routed to their ground transportation options via this new facility. Because the intermodal center will be new and include a significant amount of additional and highly flexible space, new opportunities for air-sea synergies, including remote check-in, security screening, and baggage-drop for cruisers could be feasible.

Figure ES.4.6: Proposed FLL Intermodal Center
Source: Broward County Aviation Department

Initially, the proposed APM will serve as an internal transportation solution for FLL, meaning it will connect FLL terminals and other key on-airport stops (i.e. commercial center, parking structures, rental car center, etc.) to the proposed intermodal center via a closed loop. However, consistent with previous concepts and studies conducted by Broward County and others, both the APM and the Intermodal Center are currently envisioned to be developed as different phases of a single project, known as SunPort. In other words, they will be designed in such a way that a future extension of the APM to the Midport area of Port Everglades and continuing on to Northport – then terminating at the Convention Center –will be possible. This project is ongoing, and neither the final alignment/path of the APM nor the costs have been finalized.

Figure ES.4.7: Potential Path of Proposed APM (February, 2020)
Source: Broward County



Southport

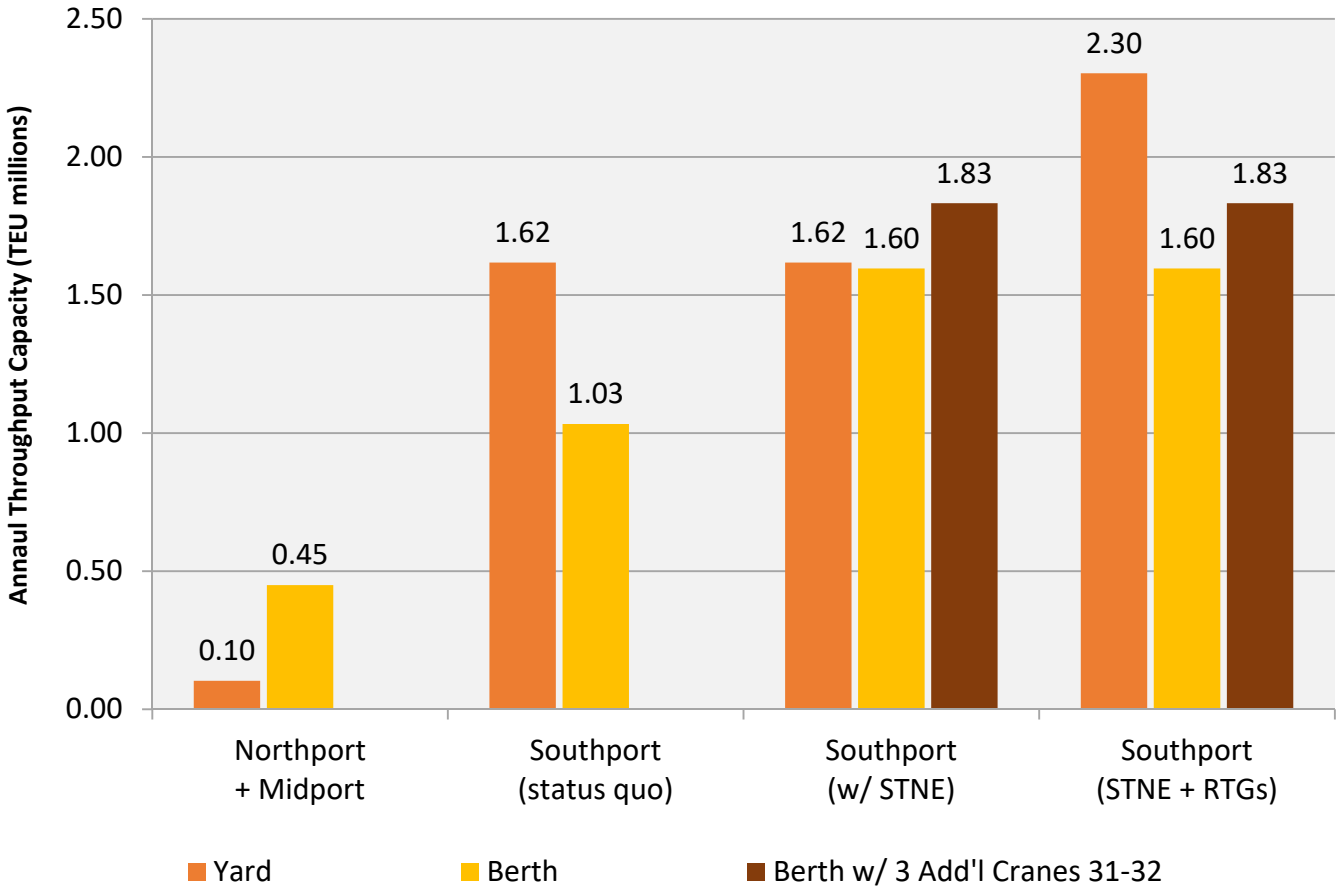
The B&A team is currently unaware of any major non-port developments planned in the Southport area that would impact Port Everglades directly.

ES.4.5 Cargo Berth and Yard Capacity Analysis

A capacity assessment of the existing cargo facilities handling containers, dry-bulk and break-bulk, was performed across the Southport, Midport, and Northport facilities at Port Everglades. The capacity assessment was conducted using a spreadsheet-based model to determine the port's throughput capacity, defined as the amount of cargo a terminal can handle, assuming status quo operating models and practices. For containerized cargo, the capacity has been calculated in twenty-foot equivalent units (TEUs) per year. For dry bulk and break-bulk cargos, the capacity has been calculated in short tons per year.

Figures ES.4.8 and ES.4.9 present the overall findings of the cargo capacity analyses conducted as part of the 2018 Update.

Figure ES.4.8: Containerized Cargo Berth Capacity vs. Storage Capacity
Source: Hatch



As shown in Figure ES.4.8, Northport and Midport operations combined saw a throughput of approximately 71,000 TEUs in FY2017, compared to 103,000 TEUs of available yard capacity. Berth capacity in Midport is higher, at over 200,000 TEUs. In Southport, container berth capacity is currently the limiting factor. Should the Southport terminals implement rubber tire gantry (RTG) operations over time, yard capacity will significantly exceed berth capacity, based on current operating parameters. Berth capacity will be further improved in the Southport area once the new STS cranes come online in 2020 and 2023, respectively, as a result of improved vessel turn times and overall productivity.

Figure ES.4.9: Bulk/Break-Bulk Cargo Berth Capacity vs. Storage Capacity
Source: Hatch

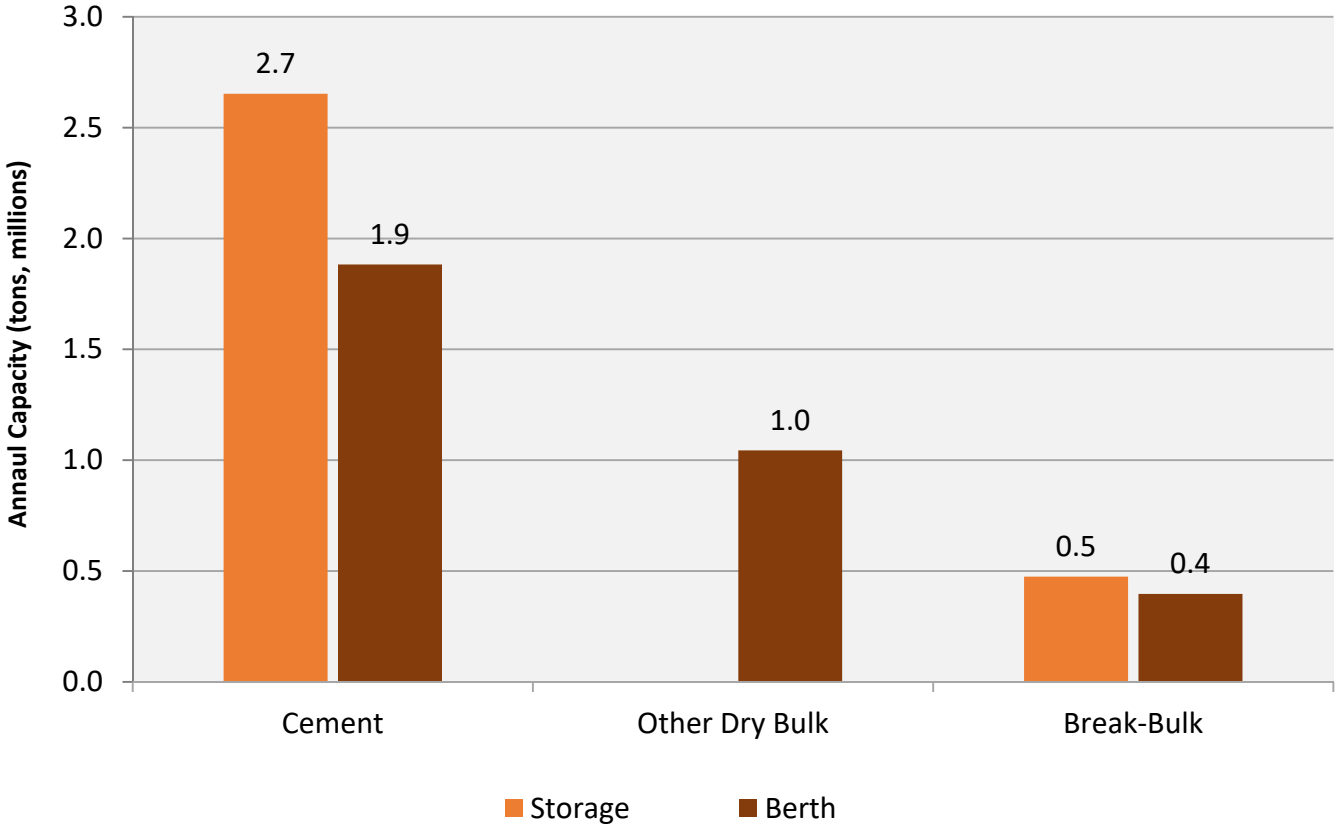


Figure ES.4.9 compares annual storage capacity to annual berth capacity for cement, other dry bulk, and break-bulk product types. Overall, Port Everglades appears to have adequate upland storage capacity to accommodate the existing cement and other dry bulk cargo volumes, though without much room to accommodate future growth. Break-bulk cargos appear to be severely constrained by yard capacity. While the volumes and

vessel calls for yachts, ro-ro, and project cargo are minor in comparison to the steel break-bulk cargos, the volumes (tonnage) of these cargos have been accounted for in the overall capacity analysis to provide a complete assessment of all current cargos at the Port.

ES.4.6 On-Port Traffic and Parking

The traffic analysis conducted as part of Element 1 of the 2018 Update consists only of assembling baseline data as a basis for future evaluation of projected roadway/traffic volumes within Port Everglades. The most current Florida Department of Transportation (FDOT) traffic counts available at the time of the analysis were used. Findings are summarized below.

Eller Drive

Eller Drive is the single busiest point of access at Port Everglades. The Eller Drive data show a significant volume of vehicles passing through the security gate at this location, particularly in the eastbound direction, which is consistent with this road being the primary access point for the Midport area of the Port, which is home to six of Port Everglades' eight multiday cruise terminals. The difference in eastbound and westbound traffic indicates that some vehicles entering Port Everglades via Eller Drive exit the controlled access area of the port via a different gate, most likely Eisenhower Boulevard. Saturdays and Sundays are the peak traffic days for the Eller Drive gate, which is consistent with peak cruise vessel activity at Port Everglades, the vast majority of which occurs on Saturdays and Sundays. Peak daily activity also loosely correlates to typical cruise vessel disembarkation (mid-morning) and embarkation (early afternoon) activity.

Eisenhower Boulevard

Eisenhower Boulevard is the second busiest access point at Port Everglades. Saturdays and Sundays are the peak traffic days at this location. The Eisenhower Boulevard gate data corresponding to the peak days show an unbalanced entry and exit traffic pattern. It appears that a disproportionate percentage of cruise ship traffic exits the port through the Eisenhower Boulevard gate, relative to traffic entering this gate (based on the high percentage of eastbound traffic at the Eller Drive gate vs. the high percentage of northbound traffic at the Eisenhower Boulevard gate). These results may explain in part the low percentage of truck traffic that exits the Eisenhower Boulevard gate, compared to the percentage of trucks entering this gate. If there is heavy vehicle activity in the northbound direction on Eisenhower Boulevard, for example, then trucks will likely seek

alternative exit points to avoid traffic delays. Both Spangler Boulevard and Eller Drive are also likely preferred exit points for trucks, since they provide better access than Eisenhower Boulevard to US 1 and I-595, respectively.

McIntosh Road

McIntosh Road is currently the only access point to Port Everglades' Southport container terminals and the ICTF. Not surprisingly, the data show that a high percentage of trucks (48 percent overall) use the McIntosh gate relative to the other three Port Everglades gates. Fridays are the peak traffic days for the McIntosh Road gate. This calculation is consistent with container vessel activity and marine terminal operating practices and gate hours in Southport, where peak vessel activity typically occurs on Thursdays, Fridays, Saturdays and Sundays, but terminal gates are only normally open during standard workday hours (i.e. 8am-6pm). In terms of daily peaking, peak traffic at the McIntosh Road gate occurs on either side of the lunch hour, which is also consistent with marine terminal operator practices, since gates are often closed during the lunch hour to comply with union work rules.

Spangler Boulevard

The Spangler Boulevard data show a more balanced entry and exit traffic pattern. SR 84/Spangler Boulevard is an alternate entrance/exit for cruise terminals located in both Northport and Midport. Saturdays and Sundays are the peak traffic days for the Spangler Boulevard gate, which correlates to peak cruise vessel activity at Port Everglades. Similar to the Eller Drive gate, peak daily activity loosely correlates to typical cruise vessel disembarkation (mid-morning) and embarkation (early afternoon) activity.

Parking

The baseline year utilization of Port Everglades' four public parking facilities is presented in Figure ES.4.2.

Table ES.4.2: Summary of Parking Utilization Data, 2018
Source: Port Everglades

Parameter	Parking Facility				Total Spaces
	Midport Garage	Northport Garage	T18 Surface Lot	T19 Surface Lot	
Parking Capacity	1,966	2,350	600	404	5,320
Peak Month Overnight	March 2017	November 2016	June 2017	November 2016	December 2016
Average Peak Month Overnight	1490	525	543	199	2567
High Peak Month Overnight	1,899	963	596	361	3042

The Northport garage, which will be replaced by the new Terminal 2/Terminal 4 (T2/T4) garage in 2020, had 2,350 spaces available during the baseline year. Data from that year show increased use during the peak season of mid-November through mid-April. Overall usage of this facility is, however, below 50 percent of available capacity, including during the peak cruise season.

The Midport garage, with 1,966 spaces, is also more heavily utilized during the peak season of mid-November through mid-April. Overall, the garage averaged about 75 percent utilization during the season.

The surface parking West of T18 has a maximum capacity of 600 spaces. Overall, while this surface lot was used up to 100 percent of capacity on some days, it averaged around 85 percent utilization during the peak season.

The former surface lot west of T4, which had 172 spaces during the baseline year, was used only minimally.

ES.4.7 Intermodal Transportation Network

The Strategic Intermodal System (SIS) is the statewide high-priority transportation network authorized by the Florida Legislature in 2003 and described in Florida Statutes, Sections 339.62, 339.63, and 339.64. The SIS includes corridors such as highways, freight and passenger rail, waterways, hubs (such as seaports, airports, and other terminals) and connectors between the hubs and internal corridors. SIS components relevant to Port Everglades include:

- Highway connectors
  - I-95 to SR 84 to Spangler Boulevard to Port entrance
  - I-595 East straight into the Port entrance (Eller Drive)
- Rail connector
  - FEC spurs from seaport property, including the ICTF in Southport, to FEC lines
- Waterway connector
  - Port Everglades harbor channel and turning basins connecting to the Atlantic Coast shipping lane

Also important to Port Everglades are the SIS connectors to FLL:

- FLL connector
  - SIS corridor (I-595/US 1 interchange) directly to passenger entrance and I-95 to SR 84/SW 24th Street to SW 4th Avenue to Perimeter Road to air cargo entrance

A long-discussed alternative to moving freight by road or rail is the concept of short-sea shipping, the coastwise movement of containers or trailers which offers shippers, truckers, and intermodal companies the opportunity to shift intermodal cargo to the waterborne mode.

Florida's lengthy coastlines and the state's SIS Atlantic and Gulf coast waterways offer particular opportunities to utilize the concept effectively – if and when specific financial and policy issues are resolved, and appropriate infrastructure gets built. A study sponsored by FDOT's seaport office looked at opportunities for increased cargo transport on the State's commercial intracoastal and navigable waterway system some 15 years ago. This study concluded that scheduled coastal shipping was limited to only a few carriers, but operations in open water that could be characterized as "short-sea"

operations, were conducted more regularly. The latter occur particularly in the domestic trade between Florida (the Port of Jacksonville and Port Everglades) and Puerto Rico, as well as between Florida's West Coast ports and Texas.

Constraints to the use of the inland waterways, such as the Atlantic ICW that serves the three South Florida seaports, involve both infrastructure limitations and the appropriateness of specific cargos. Generally speaking, water depths are not adequate in portions of the waterways, and dedicated terminals that complement landside truck or rail operations are lacking. Also, only cargos that are not time-sensitive present a "critical mass," and can be regularly scheduled are suitable for this mode of transport.

As all-water services bring more cargo through the East Coast ports, including Florida, short-sea shipping may become more interesting and commercially viable. FDOT, as it updates its Seaports and Waterways System Plan, may take a fresh look at the opportunities for more productive utilization of the state's resources for marine highway shipping.

ES.4.8 Environmental Conditions

Port Everglades collaborates with several organizations to achieve its environmental management, restoration, and remediation goals. As part of Element 1, the B&A team assessed existing environmental conditions, initiatives, and considerations that are germane to Port Everglades' ongoing operations and future development. Specific areas assessed and elaborated in great detail within Element 1 include:

- Wildlife and habitat
- Mitigation projects
- Contamination issues
- Restoration activities
- Surface water quality
- Air quality
- Climate change, resiliency, and sustainability
- Drinking water management
- Shore power

ES.5 Market Assessment

Element 2 of the 2018 Update presents an assessment of future market conditions for each of Port Everglades' core lines of business through the year 2038. Specifically, 20-year business forecasts were developed by members of the B&A team as follows:

- Cruise/ICTF — B&A
- Liquid Bulk/LNG — Hatch
- Containerized Cargo — Martin Associates
- Non-Containerized Cargo — Martin Associates
- Foreign-Trade Zone (FTZ) Trends — B&A

Information presented in this element reflects B&A's review of historical Port Everglades statistics, broader industry information pertaining to each individual line of business, one-on-one interviews held with Port Everglades tenants and other stakeholders, and input from Port Everglades senior staff and coordination with Broward County, including Broward County Aviation Department (BCAD) and the Convention and Visitors Bureau (CVB). All years specific to Port Everglades are fiscal (October-September), and all projections are unconstrained, unless otherwise noted.

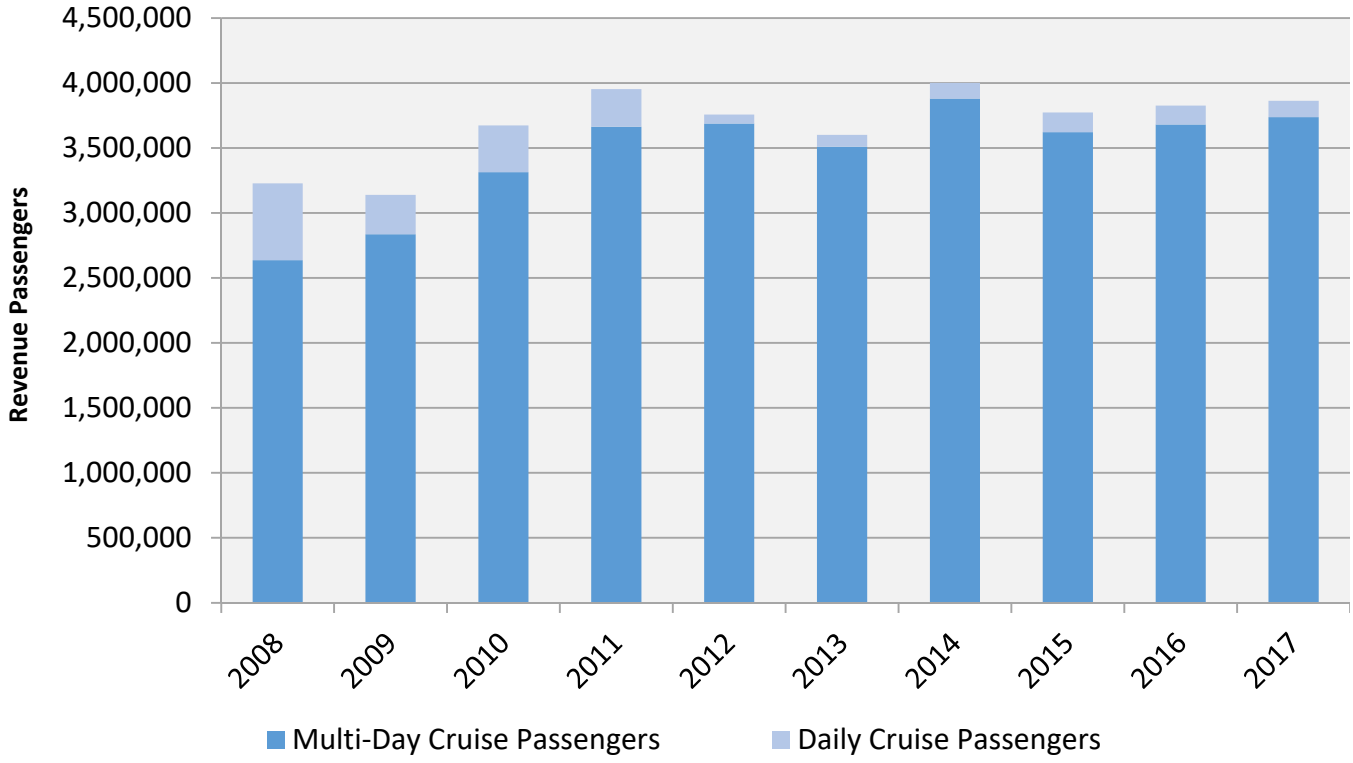
ES.5.1 Historical Cruise, Liquid Bulk and Cargo Activity

Cruise

Port Everglades' historical cruise activity between FY2008 and FY2017 is shown in Figure ES.5.1. While the trend during this 10-year period was generally positive, multiday cruise-passenger volumes have essentially stabilized since FY2011, with some year-to-year variation, but no overall growth. In fact, FY2017 combined multiday and daily cruise passenger activity was below the level achieved in both FY2014 and FY2011. As a point of comparison, multiday cruise activity in North America as a whole increased by 25.3 percent, or 2.3 percent per year, between 2008 and 2017.[1]

[1] *Source: Cruise Industry News Annual Report 2018*

Figure ES.5.1: Historical Port Everglades Cruise Revenue Passengers, 2008-2017
Source: Port Everglades



Liquid Bulk

Port Everglades has a long history of helping to meet the energy needs of South Florida. In FY2017, 36 percent of statewide light product demand, including 20 percent of Florida's demand for gasoline, jet fuel, and other liquid fuels, was met by petroleum products that are stored and distributed by companies located at the port.[2] In all, 12 petroleum terminals and pipeline companies operate on private property within the port's jurisdictional area, and more than 13.4 million gallons of petroleum products arrive at Port Everglades on tanker vessels and barges each day. Table ES.5.1 presents the mix of petroleum-related liquid-bulk products handled at Port Everglades during FY2017, which serves as the baseline year of the 2018 Update.

[2] *Sources: 2017 Port Everglades Commerce Report, p.17; Port Everglades light product data for FY2017as analyzed by Hatch*

Table ES.5.1: Port Everglades Liquid Bulk Product Mix (Barrels), FY2017
Source: Port Everglades

Product	FY2017
Asphalt	371,259
Aviation Gasoline	213,752
Bio Diesel (truck/rail)	141,406
Crude Oil Loaded	470,568
Diesel Fuel	15,741,886
Ethanol (vessel)	1,633,434
Ethanol (truck/rail)	5,415,909
Fuel Oil	2,683,242
Gasoline	63,268,372
Jet Fuel	31,982,450
Propane	385,375
Total	**122,307,652**

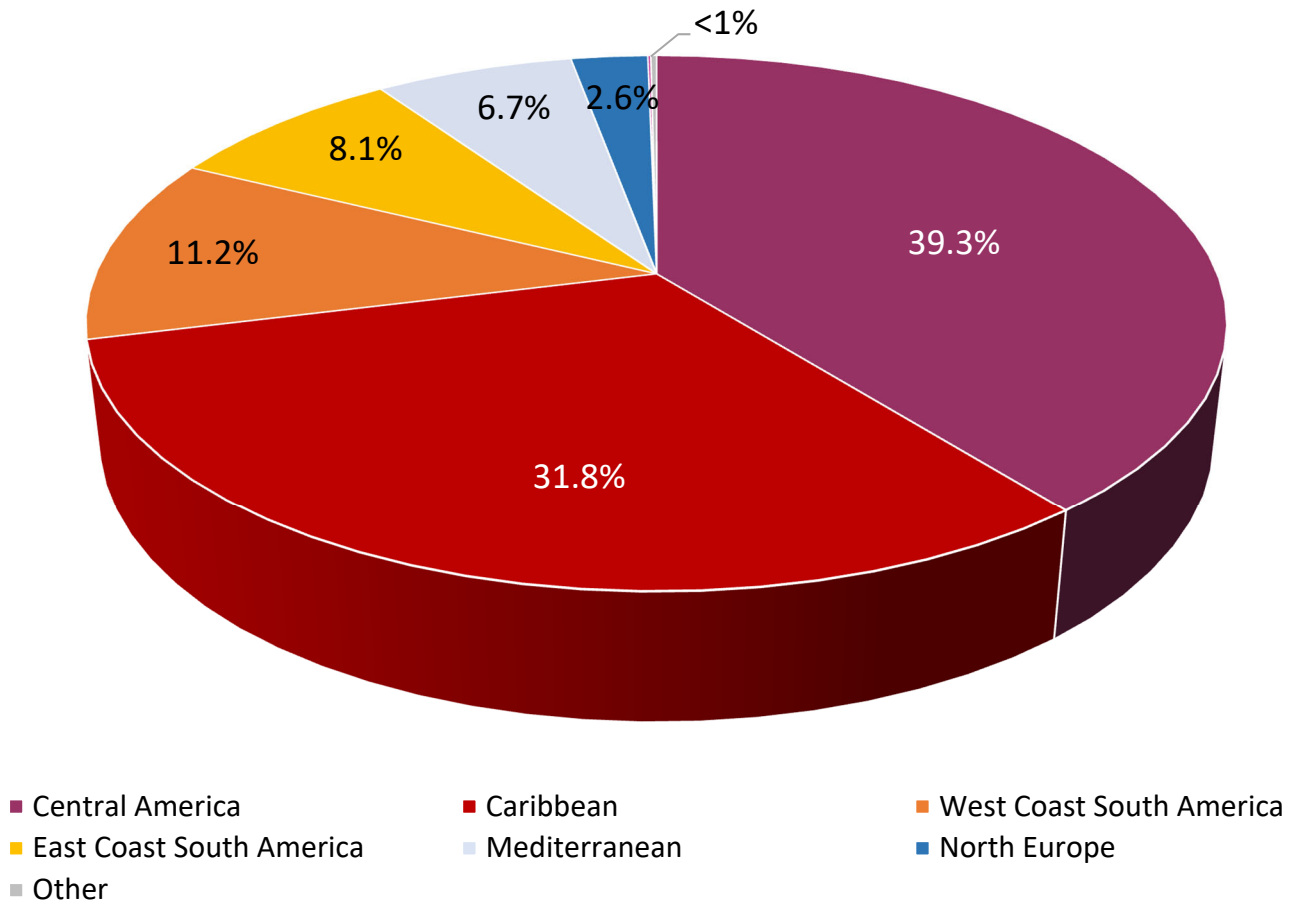
These products are distributed across 12 Florida counties, and are critical to the operation of all four international airports in the region, namely:

- Fort Lauderdale-Hollywood International Airport (FLL)
- Miami International Airport (MIA)
- Palm Beach International Airport (PBI)
- Southwest Florida International Airport (RSW)

In addition to the products listed in Table ES.5.1, Port Everglades handled about 8,500 tons of nonpetroleum liquid bulk products in FY2017.

Cargo (Containerized and Non-Containerized)

Figure ES.5.2: Top 10 Port Everglades Trade Partner Regions (Loaded TEUs), 2017
Source: Port Everglades



Port Everglades is also a major contributor to South Florida's trade economy. The Port ranked 10th among mainland U.S. container ports in FY2017, handling 1,076,893 TEUs. Tables ES.5.2 and ES.5.3 present the Port's top import and export products, respectively.

Table ES.5.2: Top Port Everglades Containerized Import Commodities, 2017
Source: PIERS

Commodity	TEUs	$ Value
Apparel	35,998	3,836,894,759
Beverages	23,629	296,213,219
Lumber	15,304	153,954,603
Glass/Ceramic	15,176	204,408,379
Aggregates	13,736	137,155,447
Machinery	11,948	1,154,777,828
Manufactured Plastic Products	9,747	246,557,383
Aluminum & Non-Ferrous Metals	9,363	407,441,799
Paper	9,183	144,766,290
All Others	123,856	1,969,087,671

In addition to being Florida's busiest container port by volume (TEUs), Port Everglades also leads the state in north-south trade, and is the busiest port in Florida for refrigerated cargo and the fifth busiest nationwide. Figure ES.5.2 shows Port Everglades' top trade partner regions in FY2017. Since 2006, Port Everglades' total tonnage has fluctuated between approximately 20.5 million short tons on the low end, up to approximately 26 million short tons on the high end. Liquid bulk cargo, which consists mainly of refined petroleum products (see Table ES.5.1), is the dominant cargo handled at Port Everglades by tonnage. Liquid-bulk volumes, as measured in barrels, hit a 10-year high in FY2017 and were up 1.7 percent from the next highest year, FY2016. Containerized cargo, the second largest cargo market handled at the port in terms of tonnage, peaked in FY2008, then declined to a low in FY2009, reflecting the global recession (see Figure ES.5.3).

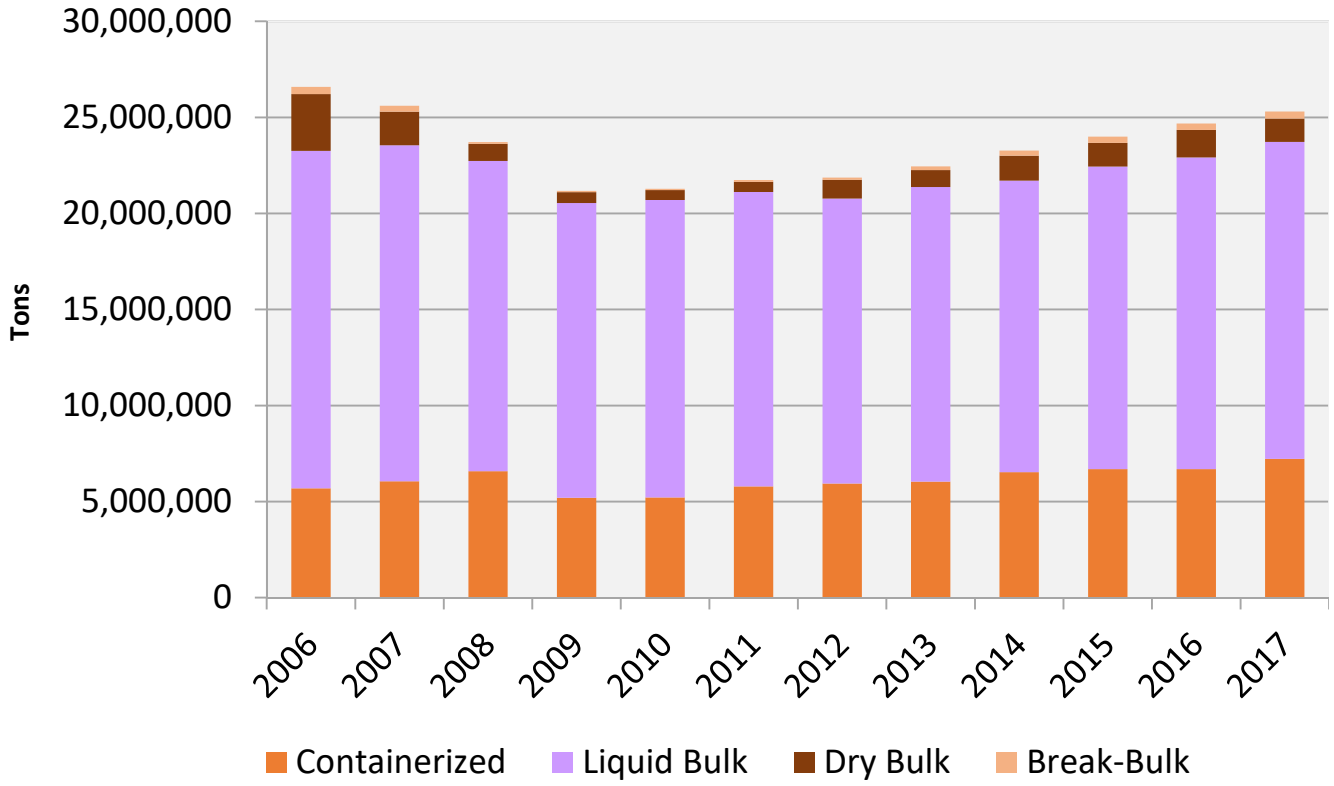
Table ES.5.3: Top Port Everglades Containerized Export Commodities, 2017
Source: PIERS

Commodity	TEUs	$ Value
Food Products	46,537	926,520,701
Machinery	45,442	2,495,474,273
Motor Vehicles	42,376	744,336,505
Apparel	21,682	2,391,659,903
Steel Products	20,335	541,240,574
Paper	16,748	219,408,120
Textiles	15,755	888,581,671
Vehicle Parts	14,894	252,219,253
Industrial Chemicals	12,278	250,552,264
All Others	98,915	4,271,226,765

Since 2009, container volumes have shown steady growth, reaching a tonnage level in FY2017 that was about 10 percent higher than the previous peak year (2008). Total container volume as measured in TEUs was up 3.8 percent in FY2017, compared to FY2016. Loaded TEUs were up 7.3 percent. Dry bulk cargos have declined from nearly 3.0 million tons in 2006, to 1.2 million tons in 2017 – a 41 percent decline. Break-bulk cargo, which represents less than 1 percent of total cargo tonnage handled at Port Everglades, has shown no growth over the past 11 years.

Since the 2014 Update, Port Everglades has expanded its ro-ro business considerably, handling some 15,000 automobiles in FY2017, with plans to handle nearly 40,000 per year by the end of the 20-year planning horizon.

Figure ES.5.3: Historical Tonnage Handled at Port Everglades, 2006-2017
Source: Florida Ports Council

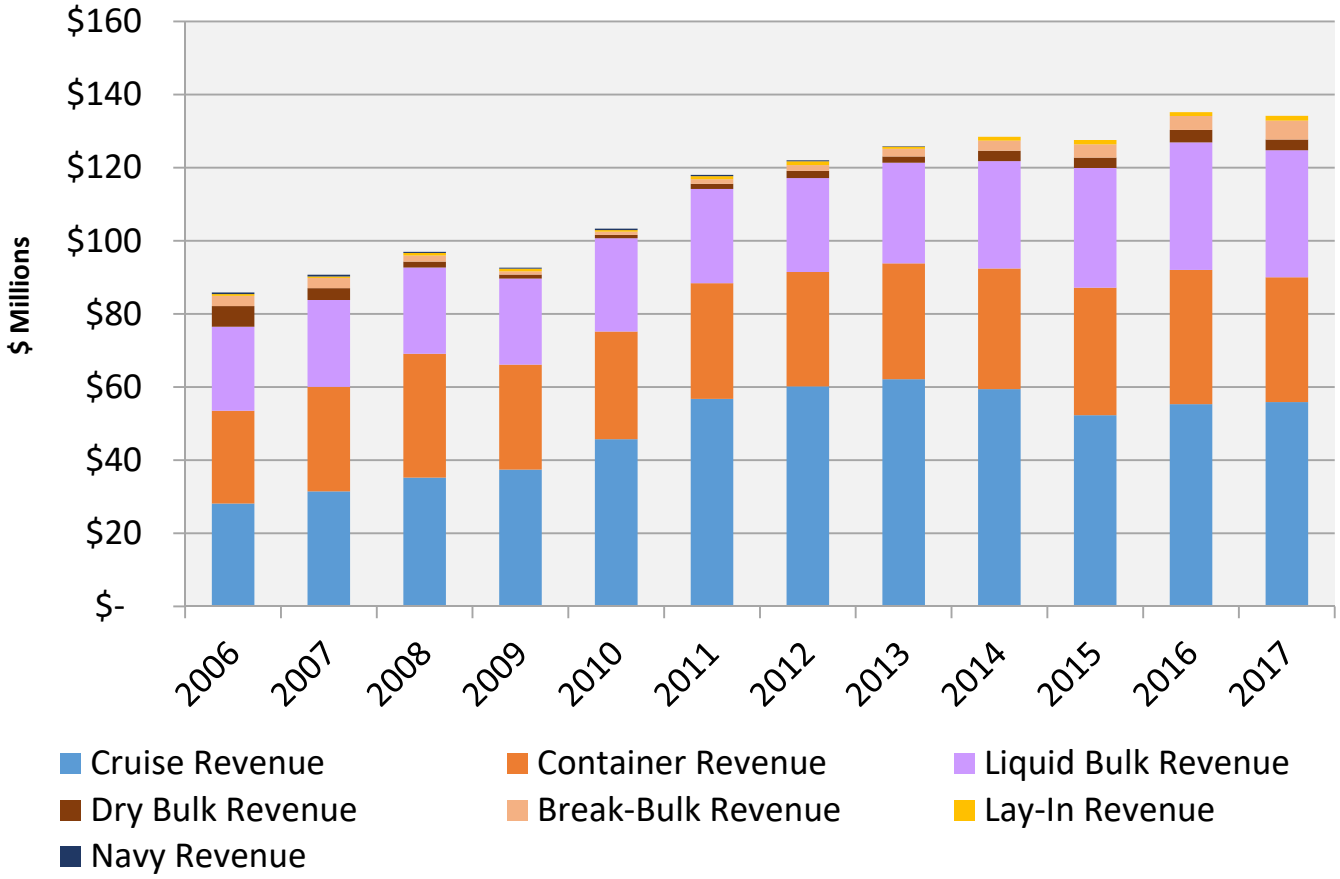


Port Revenue

Total revenue at Port Everglades has generally grown since 2009, reaching a high of $162.6 million in FY2016. Revenue from cruise operations accounted for 34.5 percent of total Port Everglades revenue in FY2017. Liquid bulk (21.5 percent) and containerized cargo (21.1 percent) accounted for nearly all revenue generated by Port Everglades cargo activity in FY2017, with combined non-containerized cargo (dry bulk, break-bulk, autos, etc.) accounting for 5 percent. Like cruise passenger activity, cruise revenue has fluctuated during the past decade, peaking in FY2013 at $62.2 million, declining nearly $10 million to $52.3 million in FY2015, then recovering to reach $55.9 million in FY2017. The decline in cruise revenue is due mainly to the payoff of RCCL's cruise terminal 18 (T18) capital cost recovery charge (CCRC). Total cargo revenue for Port Everglades increased from 2006 through 2008, then declined in 2009, reflecting the global recession. Cargo revenue rebounded in 2010, then remained stable through 2013. Since 2013, cargo volumes have fluctuated, but have generally followed an upward growth pattern.

Unsurprisingly, cargo revenues have followed a similar and roughly proportional trajectory, though FY2017 revenue generated by cargo declined from FY2016 levels. Specifically, revenue from container operations was down $2.5 million, and dry bulk revenue was down approximately $500,000. Break-bulk revenue increased about $1.3 million. Liquid bulk revenue remained flat.

Figure ES.5.4: Historical Port Everglades Revenue by Source, 2006-2017
Source: Port Everglades



In summary, since 2006, cruise revenue has been strong but inconsistent, particularly since FY2013. Containerized cargo revenue has been generally stable, with notable declines occurring in FY2009 as a result of the global recession, then again in FY2017. Non-containerized cargo revenue has fluctuated from year to year since 2006, but has generally increased over time, following a sharp four-year decline leading into 2009. Growth in liquid-bulk revenue has been the key driver in overall cargo-related revenue growth at Port Everglades, particularly during the past five years.

ES.5.2 Future Market Assessment Summary

The detailed market assessments presented in Element 2 are summarized below for the Port's four principal business lines, namely:

- Cruise
  - Multi-day
  - Daily
- Liquid bulk
- Containerized cargo
- Non-containerized cargo
  - Dry bulk
  - Break-bulk
  - Other (yachts, used ro-ro, project cargo)
  - Automobiles

Cruise

Figure ES.5.5: Range of Multi-Day Cruise Revenue Passenger Projections, 2012-2038
Source: B&A

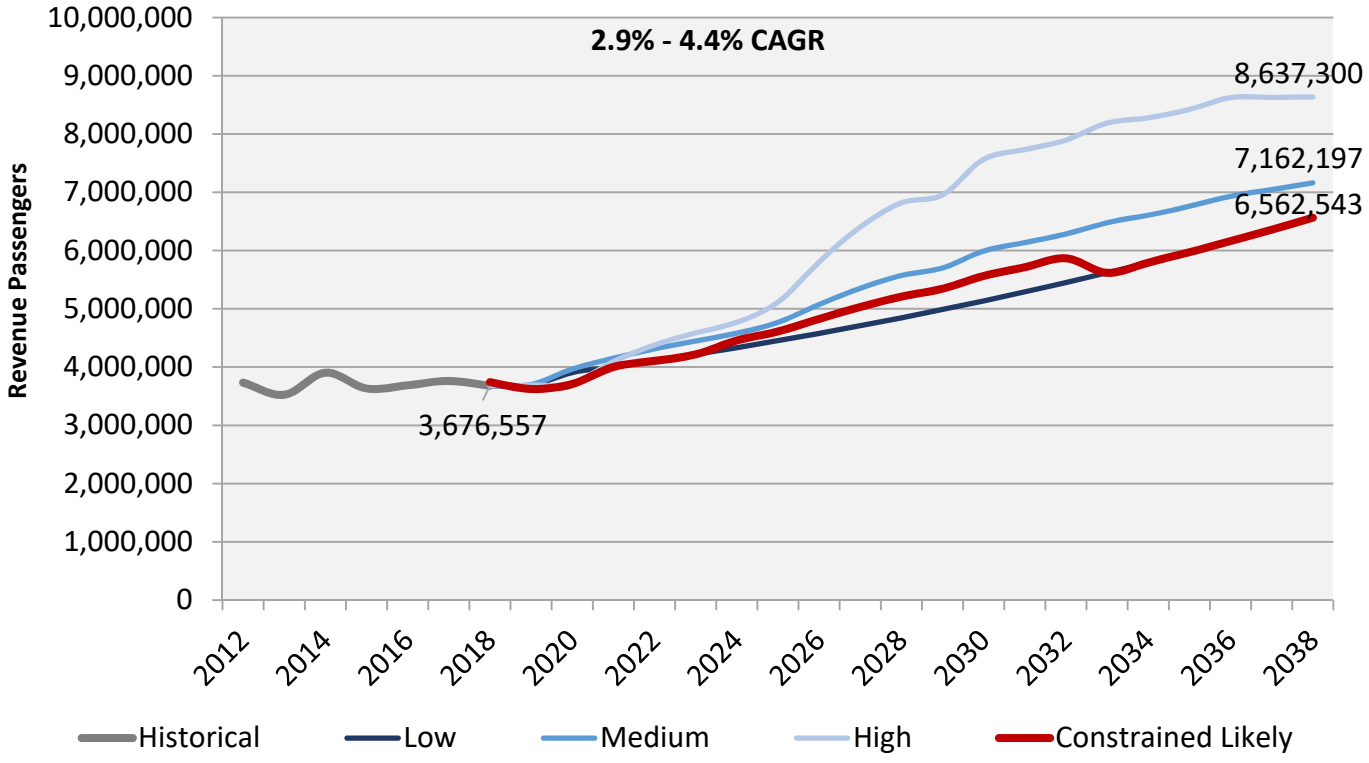


Figure ES.5.6: Range of Multi-Day Cruise Vessel Call Projections, 2012-2038
Source: B&A

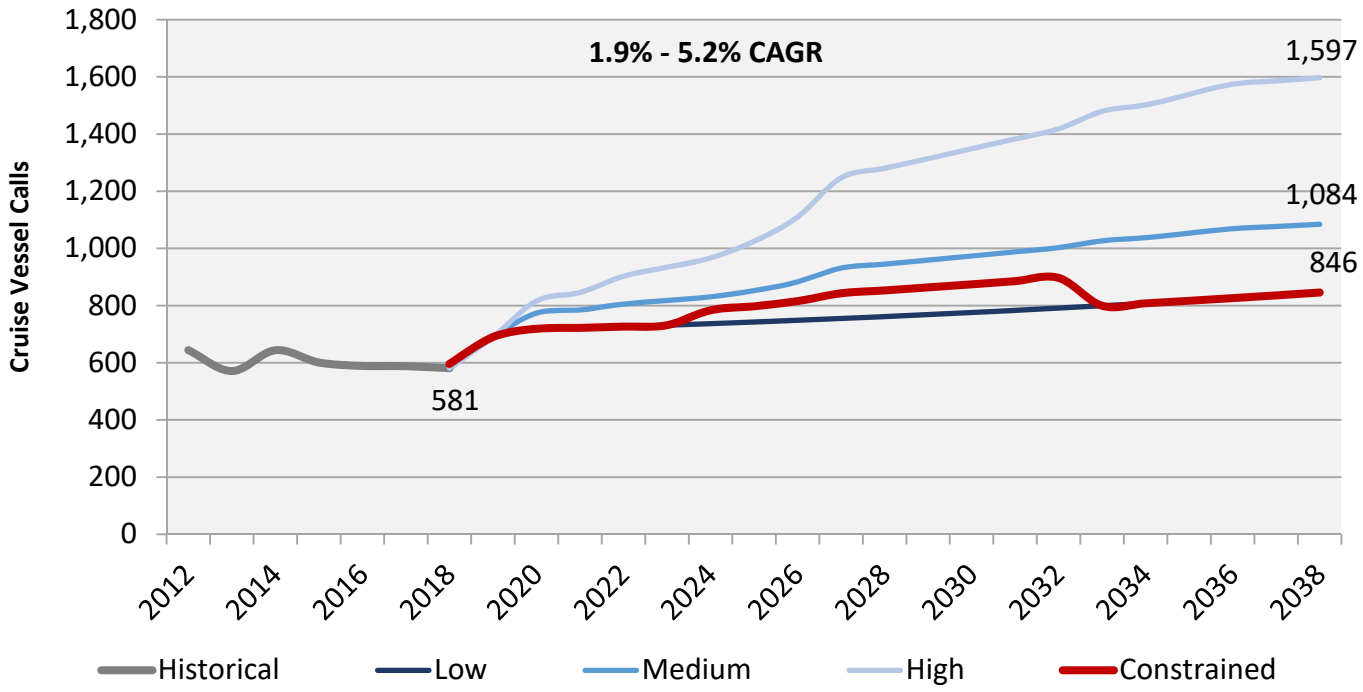
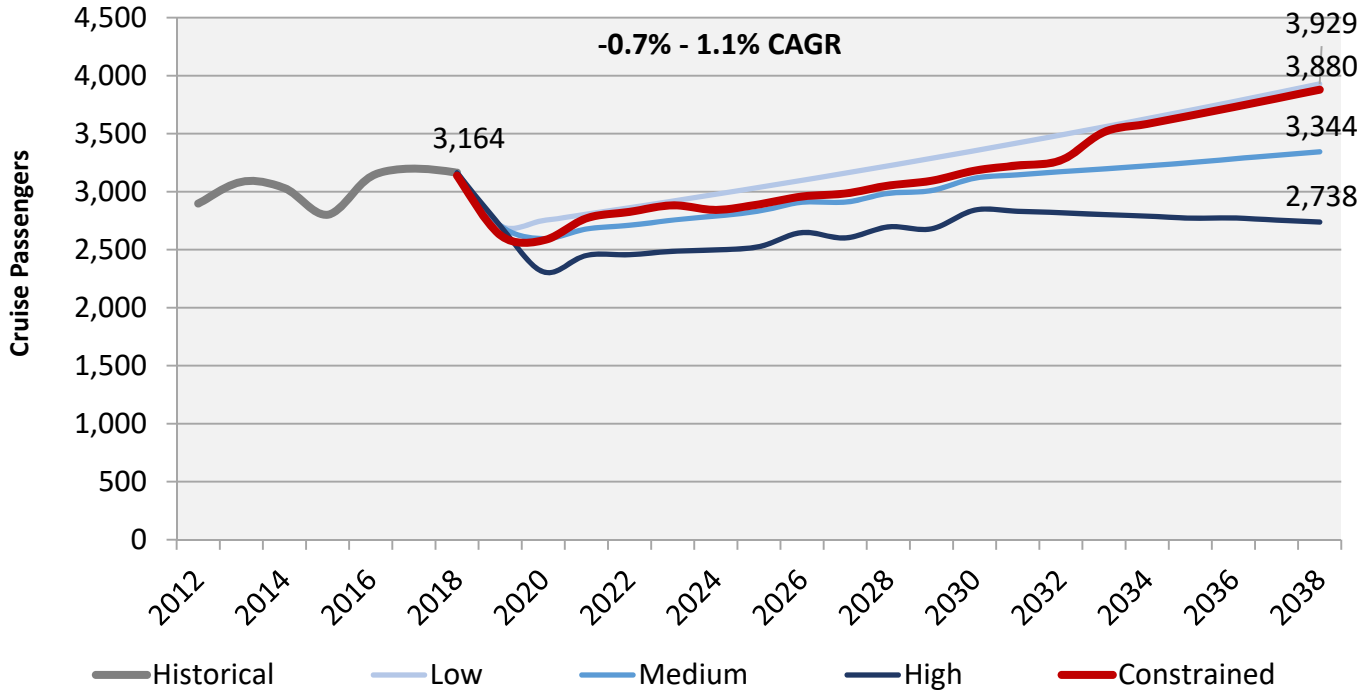


Figure ES.5.7: Range of Expected Multi-Day Cruise Passengers per Call, 2012-2038
Source: B&A



The 2018 Update multi-day cruise market projections shown in Figures ES.5.5-ES.5.7 determined that up to 10 multi-day cruise berths are required to meet projected unconstrained future cruise demand with a ninth multi-day cruise berth being a high mid- to long-term priority for Port Everglades in order for the Port to be able to maintain its current market position and stay competitive as a marquee homeport within South Florida serving the still expanding Caribbean cruise market. Discussions with cruise line stakeholders also revealed that major near-term improvements to the Port's existing cruise terminals and ground transportation areas are also a priority.

It must be noted that, since completion of the 2018 cruise market assessment, an additional "constrained likely" forecast – illustrated in red above – was developed in order to reflect additional input from Port management. This constrained likely forecast serves as the basis for all financial modeling done as part of the 2018 Update.

In addition to the Port's multi-day cruise line of business, a separate 20-year market assessment was completed for daily cruise (ferry) activity as part of Element 2. This assessment is not included or referenced here because no projects related to ferry activity are included in the 2018 Update.

Liquid Bulk

The updated liquid bulk market projections are supported by the currently planned petroleum modernization, berth expansion and bulkhead replacement program at Berths 7 through 13. This modernization program was proposed as part of the 2014 Update and no changes are recommended as part of the 2018 Update. The goal of this program is to create three Post-Panamax berths consistent with the planned USACE deepening and widening; the recommended projects include capacity enhancements, modernization and built–in redundancy to handle all expected product throughput throughout the planning horizon (i.e. 2019-2038).

Figures ES.5.8-ES.5.10 present the 20-year projections for liquid bulk volume (by product type), tanker calls and barge calls, respectively.

Figure ES.5.8: Port Everglades Liquid Bulk Throughput Projections, 2012-2038
Source: Hatch

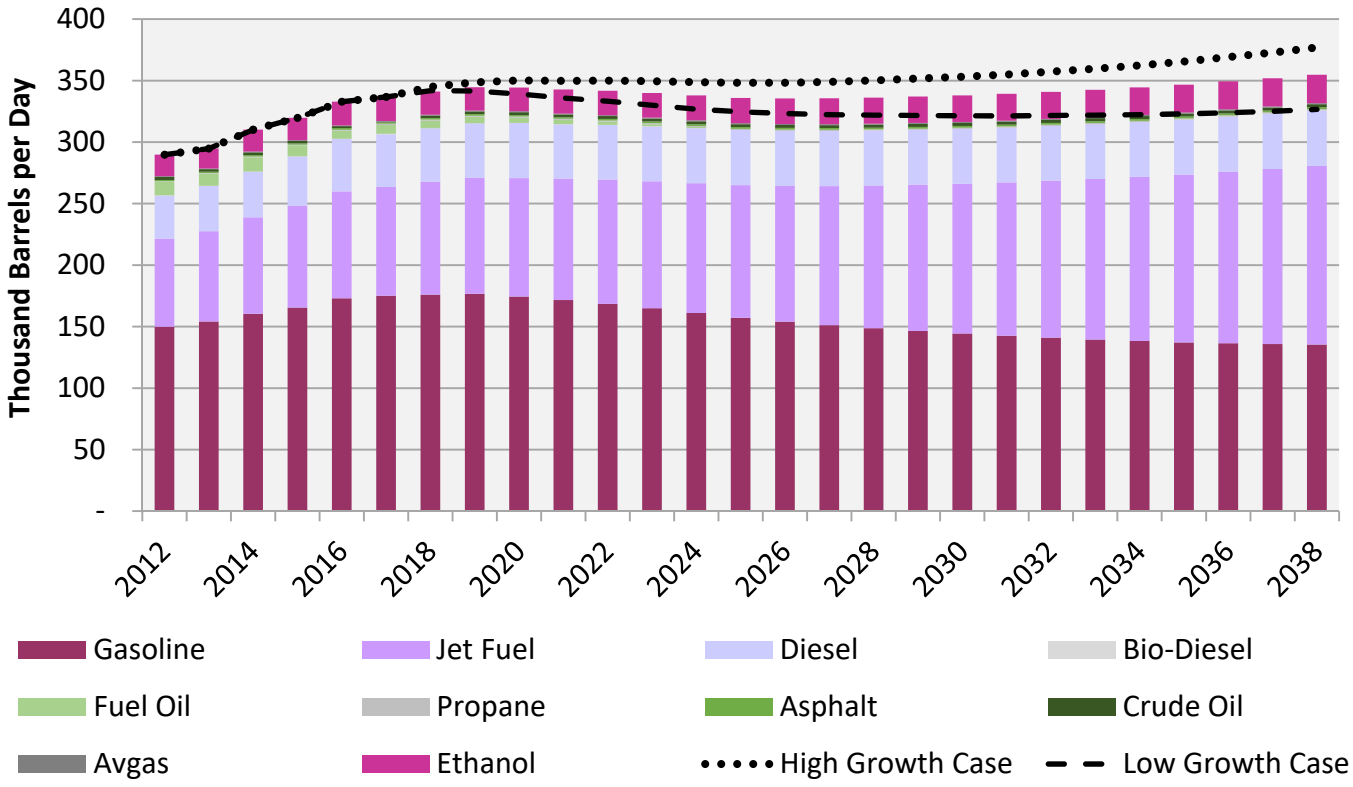


Figure ES.5.9: Tanker Vessel Calls at Port Everglades, 2012-2038
Source: Hatch

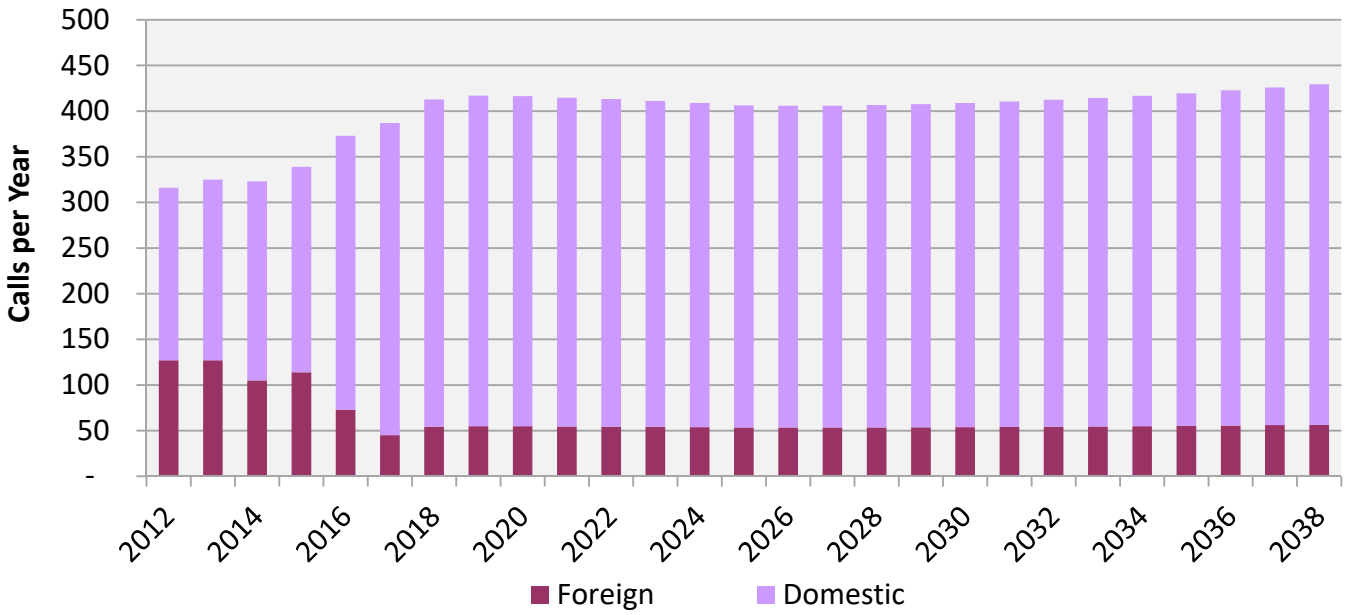
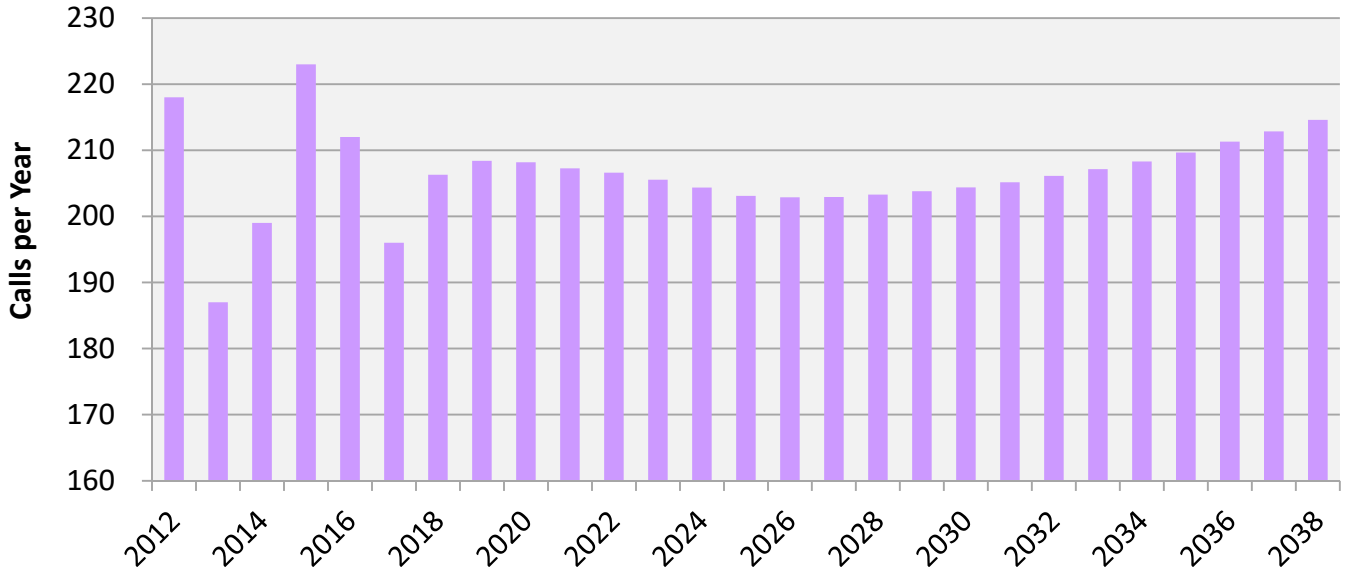


Figure ES.5.10: Barge Calls at Port Everglades, 2012-2038

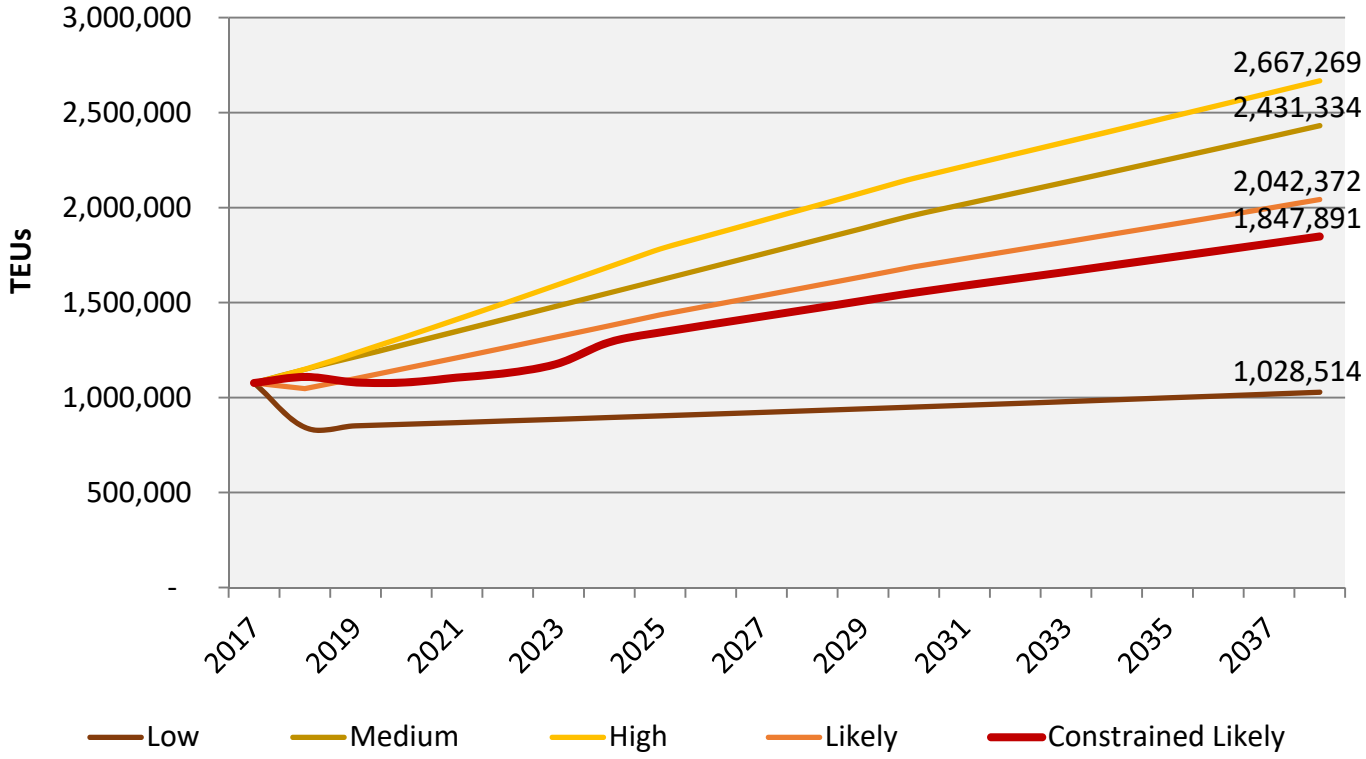
Source: Hatch



Containerized Cargo

Figure ES.5.11: Summary of Containerized Cargo Projections (TEUs), 2018-2038

Source: Martin Associates



As with the updated cruise forecasts, it must be noted that, since completion of the 2018 containerized cargo market assessment (Element 2), an additional "constrained likely" forecast – illustrated in red on the previous page – was developed in order to reflect additional input from Port management. This constrained likely forecast serves as the basis for all financial modeling done as part of the 2018 Update.

The updated containerized cargo forecasts presented in Figure ES.5.11 clearly demonstrate that ongoing and planned improvements at the Port, such as the STNE plus new super post-Panamax STS cranes, USACE deepening and widening and relocation of the Foreign Trade Zone area in Southport are critical to support the Port's forecasted containerized cargo market growth and competitive position. Taken together with the separately conducted Traffic Study, the updated containerized cargo projections also confirm the need for continued Southport improvements in both the near-term and outer years of the 2018 Update, particularly the upland transportation enhancement projects including the Griffin Road extension, McIntosh Road realignment and NE 7th Avenue improvement projects. These projects not only directly address the internal traffic concerns expressed by Port Everglades' stakeholders during the charrettes but also indirectly allow a substantial amount of new, contiguous container yard acreage to be developed, all of which is vital to support anticipated future volumes and reduce operational inefficiencies and operating costs associated with current yard layouts.

Non-Containerized Cargo

The 2018 Update's non-containerized cargo projections demonstrate a mixed future for this business line. See Figures ES.5.12-ES.5.15. The only non-containerized product type that is expected to experience robust growth in the coming 20 years is new automobiles. As a result, additional acreage dedicated to short-term storage of new import and export automobiles is recommended in the 2018 Update to support this growth over time. Likely demand for all other product types under the non-containerized cargo umbrella, including break-bulk (i.e. steel), yachts, used ro-ro products and dry bulk commodities (i.e. cement) can generally be characterized as remaining relatively stable during the coming 20-year period, or growing slightly. In no case do projected volumes support an increase in allocated acres or berths vis-à-vis status quo conditions. Some reconfiguration of existing facilities and footprints is recommended, however as a means to increase operational efficiencies associated with berth/upland adjacencies (i.e. break-bulk, ro-ro).

Dry bulk is the only non-containerized product type other than new automobiles to have potential for substantial future growth, but only under the high scenario and only on a speculative basis since such growth potential depends entirely on the assumption that additional future permits will not be granted to the Lake Belt region of South Florida to continue to produce sufficient limestone aggregate to meet the region's needs, making importation of such aggregate the most likely future solution. To accommodate such volumes of imported aggregate Port Everglades would need to make a substantial commitment to this business line both financially and in terms of custom-designed infrastructure that would allow such product to be offloaded efficiently at Port Everglades without disrupting other, existing business operations (i.e. containerized cargo). In consultation with Port management and stakeholders, it was determined that this is not a line of business that Port Everglades is interested in pursuing and no such aggregate import facility is envisioned or proposed in this 2018 Update.

Together, the updated forecasts presented here have served as the key factors informing the near-term and long-term infrastructure projects required to allow Port Everglades to meet future demand throughout the 20-year planning horizon.

Figure ES.5.12: Projected Port Everglades Dry Bulk Imports (Tons), 2018-2038
Source: Martin Associates

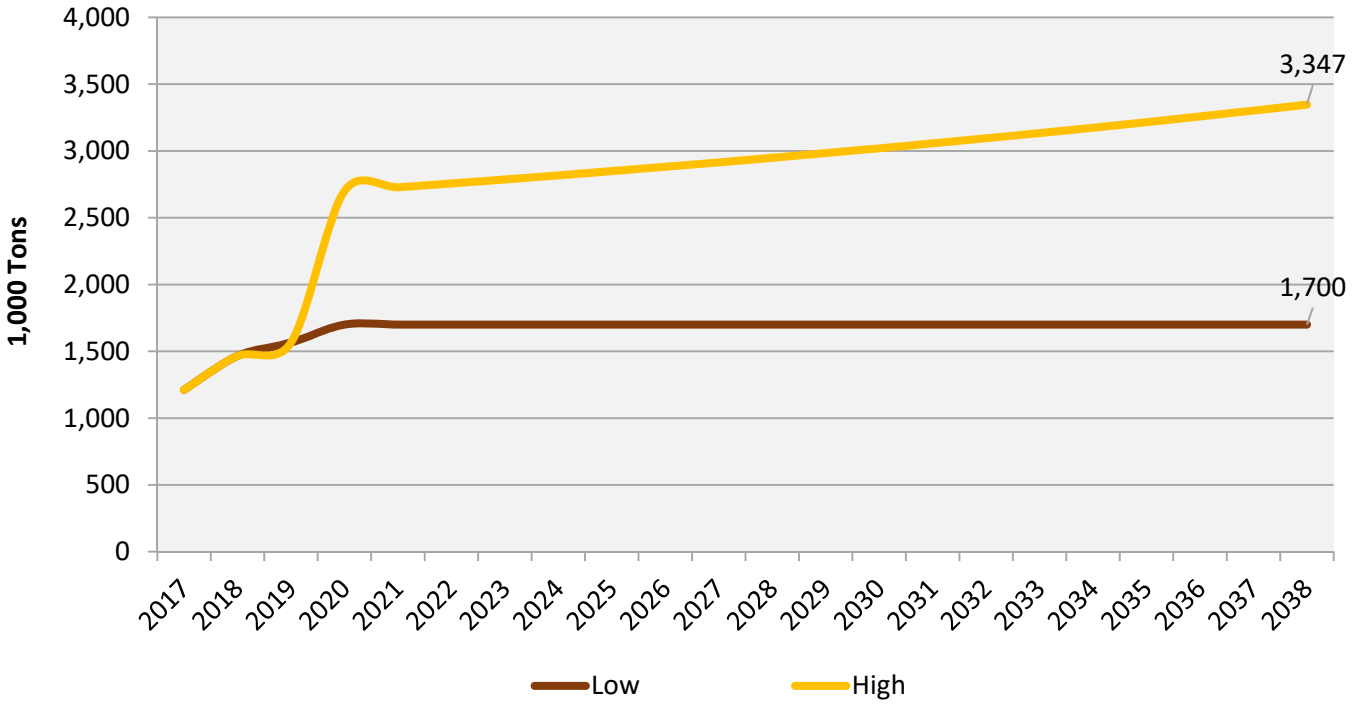


Figure ES.5.13: Summary of Break-Bulk Projections (Tons), 2018-2038
Source: Martin Associates

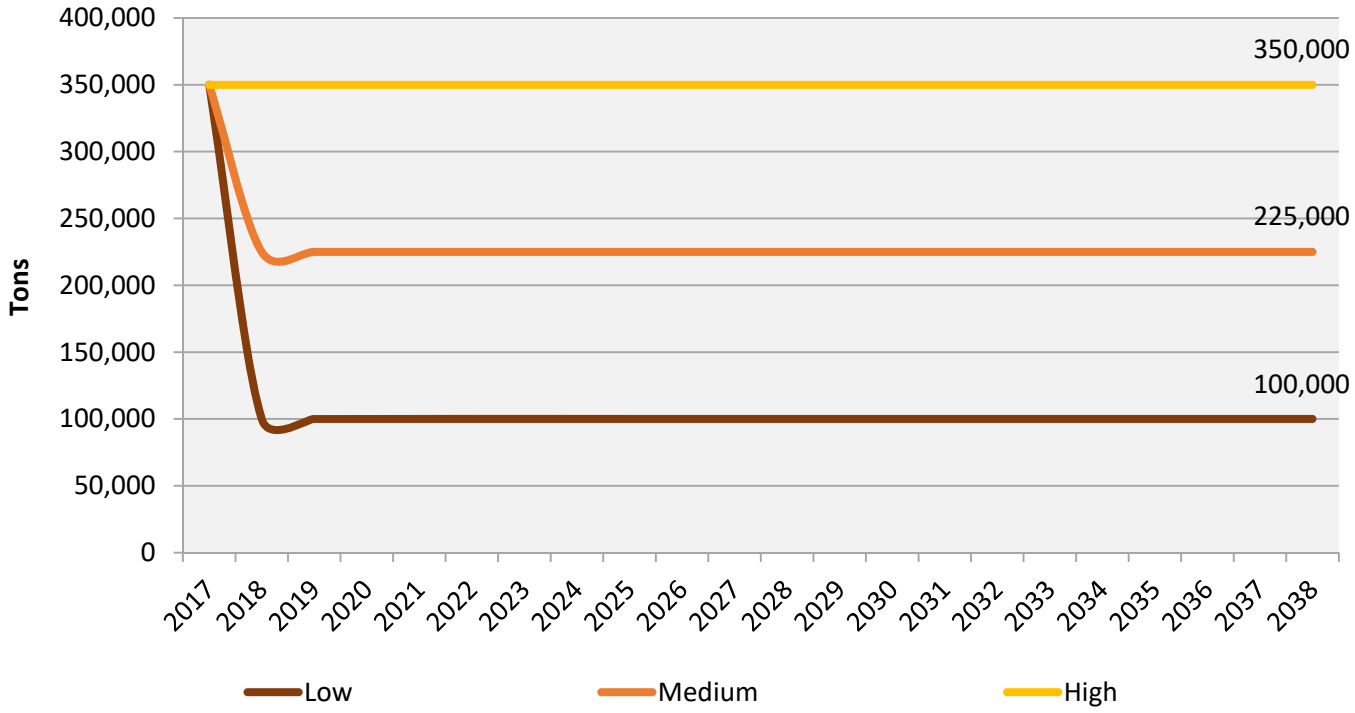


Figure ES.5.14: Yachts and Other Ro-Ro Cargo Handled at Port Everglades, 2018-2038
Source: Port Everglades

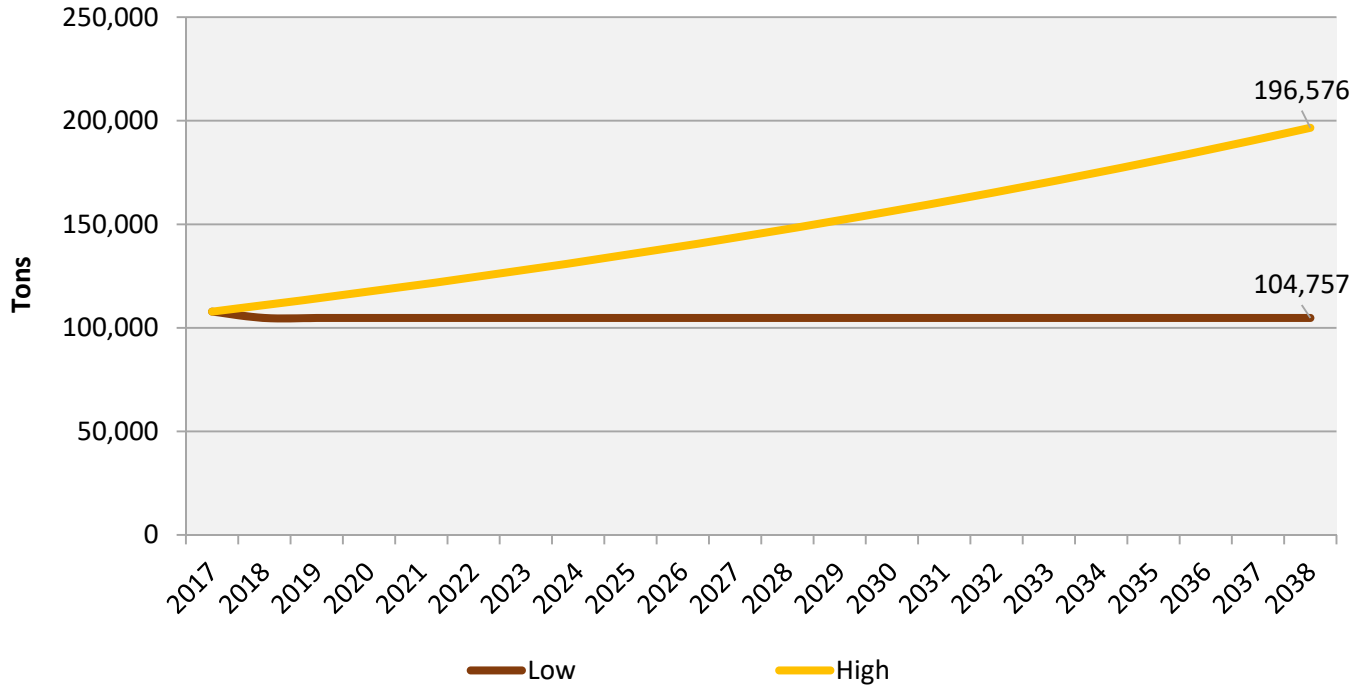
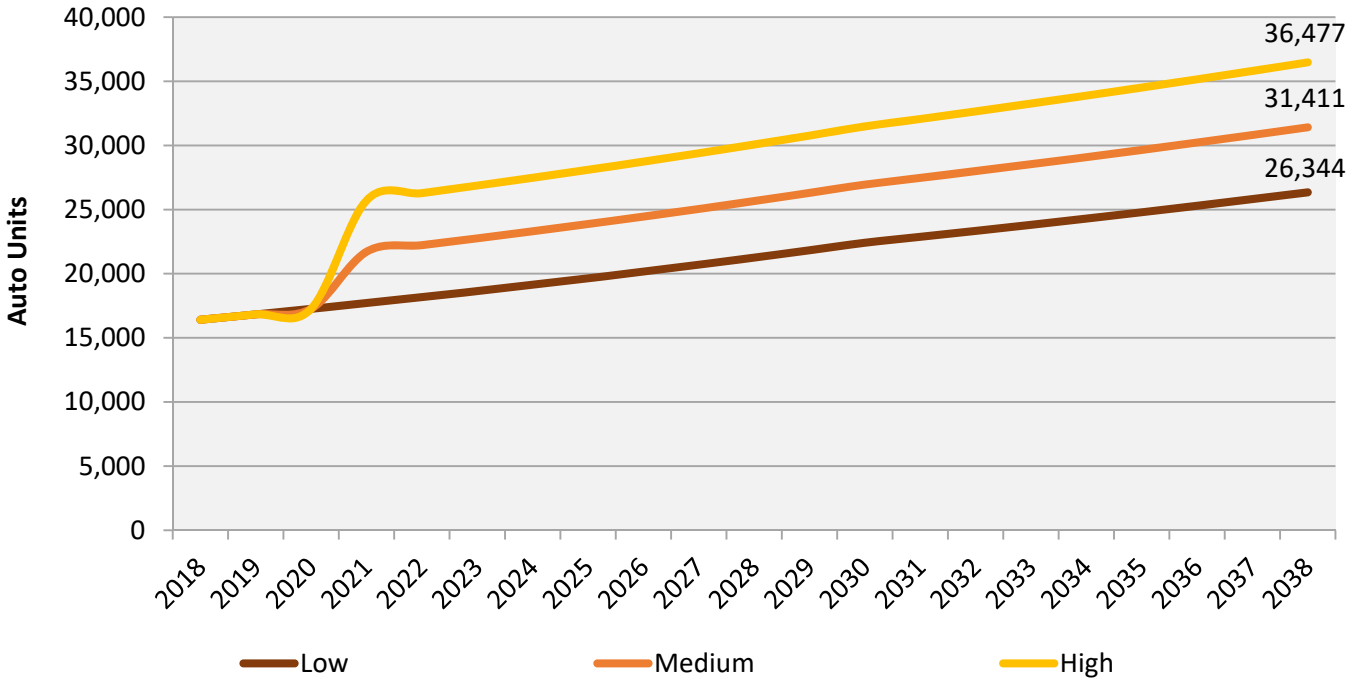


Figure ES.5.15: Summary of Automobile Projections (CEUs), 2018-2038
Source: Martin Associates



ES.5.3 Foreign-Trade Zone (FTZ) Trends

Given the prevalence of FTZs within the U.S., particularly within major port-adjacent metropolitan areas, there is little evidence to suggest that having an FTZ is a competitive advantage for an individual port, in terms of attracting or sustaining containerized cargo volumes. However, it is almost certainly true that not having an FTZ would serve as a competitive disadvantage for a Port like Port Everglades. In this sense, while it is not easy to quantify the direct benefits of FTZ-25 on Port Everglades cargo volumes, there is plenty of evidence that port users can and do benefit from using FTZ-25. The benefits of an FTZ for a given company depend on myriad factors, however, so not all port users will benefit from FTZ designation at Port Everglades or elsewhere.

FTZ-25 has been successful in the past, to the extent that it has provided Port Everglades users with business advantages associated with FTZs. Given Port Everglades' unique mix of cruise and cargo activity, having an on-port FTZ has proven to be, and likely will continue to be, a valuable logistics asset that meets a clear market demand. Two principal and related challenges that limit growth in the number of FTZ users are:

- Lack of information/awareness
- Perceptions associated with activation and compliance processes

Most active FTZ users in South Florida, and more broadly, likely have a positive story to tell, in terms of the benefits of FTZs. Some of these stories no doubt also include positive testimonials related to the unexpected ease or simplicity of achieving these benefits, compared to prior expectations. One potential marketing strategy related to FTZ-25 is to work closely with current FTZ-25 users to develop testimonial-based marketing materials and a network of existing users that new or potential new users can access to better understand what is involved, and why they should bother.

Another path to expansion of FTZ-25 is the adoption of the Alternative Site Framework (ASF). The ASF streamlines the FTZ application process, thereby reducing the "fear factor" of businesses that might be considering FTZ activation, but still remain undecided and/or unsure as to the value and process involved. This strategy may even increase the appeal of Port Everglades over time among companies that do not currently ship products via Port Everglades, but who qualify for FTZ activation within FTZ-25 under the ASF. The ASF could also potentially serve as a marketing tool for Port Everglades in the sense that it differentiates FTZ-25 from other FTZs in the tri-county region of South Florida. Given that Broward County recently converted to the ASF framework for FTZ-25, these and other ASF benefits are likely be realized in the near term.

ES.5.4 LNG Bunkering Assessment

The two main drivers behind decisions to convert to liquefied natural gas (LNG) fuel are compliance with emissions regulations and cost savings associated with lower LNG fuel costs.

Standards for marine vessel emissions have been getting increasingly stricter, both globally and regionally (North America). The driving standard has been the International Maritime Organization (IMO) Annex VI of the International Convention for the Prevention of Pollution from Ships, commonly known as MARPOL. MARPOL Annex VI defines emission and fuel quality requirements, both globally and locally for Emission Control Areas (ECAs). An ECA can be designated for sulphur oxide (SOx), particulate matter (PM), nitrogen oxide (NOx), or all three types of emissions.

MARPOL restrictions have been in place in the Baltic and North Seas for a while, and have more recently been applied to North America, including the U.S. Caribbean. The following is a list of the existing ECAs by date of adoption:

- Baltic Sea (SOx, adopted 1997); enforced in 2005
- North Sea (SOx, 2005/2006)
- North America, including most of U.S. and Canada (NOx and SOx, 2013/2015)
- U.S. Caribbean, including Puerto Rico and the U.S. Virgin Islands (NOx and SOx, 2011/2014)

In addition, the IMO demanded a reduction of sulfur content in marine fuel, for use in the North Sea, the English Channel, and the Baltic Sea – all of which fall within a Sulfur Emission Control Area (SECA) – from 1.0 percent to 0.1 percent after January 1, 2015. Further sulfur reductions are required in 2020 and 2025. Further NOx Tier III reductions came into effect in 2016. In order to meet the lower emission requirements, shippers have chosen either to add technology to their ships to remove the emissions, or change to a cleaner burning fuel – MGO and LNG being the two most practical options. When compared to Heavy Fuel Oil (HFO), LNG results in:

- 85 percent less NOx and Sox
- 90 percent less PM
- 30 percent less carbon dioxide (CO_2)

This latter point is particularly important long-term, since reduction in greenhouse gases is a major component and primary goal of international and regional climate change initiatives. LNG is largely viewed as a favorable fossil fuel alternative, given its reduced emissions that is based on the success the Baltic area, especially Norway, has had using LNG to meet their emission-reduction targets.

With regard to cost, North America has gone through a gas revolution in recent years, due to the introduction of fracking technology to extract gas from shale deposits. In 2010, the U.S. Energy Information Administration (EIA) released estimates, putting U.S. natural gas reserves at their highest level in four decades. In 2012, the U.S. became the top gas producer in the world. This additional supply has caused natural gas prices to reduce substantially, with demand to date remaining stable. As a result, LNG prices across the global market have come down and mostly stabilized.

Meanwhile, HFO and diesel pricing is tied to the oil price per barrel, which has been a very volatile market over the last 10 years. Even with recent low oil prices, natural gas has been more competitive on an energy-content basis, compared to diesel and HFO, and is forecast to remain more competitive in the foreseeable future.

LNG Bunkering Alternatives

For bunkering purposes, LNG fuel is generally produced offsite, then transported to berth for loading onto a vessel. LNG bunkering can be accomplished in any of the following ways:

- **Port Tank to Ship (PTS)**
  This bunkering process involves pumping LNG through a pipeline, directly from a storage tank located at or near the berth.
- **Truck to Ship (TTS)**
  LNG is pumped from individual tanker trucks to the vessel at berth; the LNG source (i.e. storage tanks) is located offsite and the trucks must drive into the vessel operating area.
- **Ship to Ship (STS)**
  LNG is pumped from a barge (or other LNG storage vessel) to the vessel being bunkered. Vessel-to-vessel transfers are the most common form of bunkering for traditional fuel oil.
- **Portable Tank Transfer (PTT)**
  LNG is pre-loaded into a tank then the tank is loaded onto the vessel and connected. Once all the LNG in the tanks has been consumed for fuel, it will need to be replaced with another full tank. These tanks could be standard ISO-sized tanks or custom tanks specific to a given vessel.

Due to the large bunkering requirements of cruise ships and other issues, the only practical delivery option envisioned for Port Everglades for cruise vessels is ship to ship bunkering. In Southport, port tank to ship bunkering is being evaluated to potentially service Crowley vessels in international trade lanes (as opposed to domestic/Puerto Rico service). Eventually, if LNG demand is substantial enough it could warrant a dedicated LNG supply terminal located on or near the port with pipe delivery to vessels at berth. A natural gas pipeline is located close to the port; however, real estate for a liquefaction

plant and routes for a cryogenic pipeline would need to be determined. It is recommended that this possibility continue to be evaluated as part of future updates.

ES.6 Plan Development and Final Plan

Element 3 of the 2018 Update, which combines parts of Elements 3, 4 and 5 from the 2014 plan, presents a review of design trends for both cruise and cargo terminals as well as a discussion of potential operational enhancements at Port Everglades. As was done for the 2014 Update, a project decision matrix has been developed to evaluate projects proposed in the 2018 Update. This matrix was included as part of Element 4 in the 2014 plan but has been moved to Element 3 for this 2018 Update. A comprehensive description of all projects included in the Final 2018 Master/Vision Plan together with their investment costs and derived benefits is then presented. Element 3 concludes with an affordability analysis of the Port's 5-year CIP and 10- and 20-year Vision Plans. The parking analysis and estimate of future truck trips included in Element 3 of the 2014 Update is now included as part of Element 4 of the 2018 Update.

Three planning components provided the essential precursor for the plan development process discussed in Element 3:

- The market assessments previously presented in Element 2 that update the forecasts for the Port's four business lines
- The status of the various projects from the 2014 Master/Vision Plan, particularly key projects such as: the STNE plus new super post-Panamax STS cranes, USACE deepening and widening and relocation of the Foreign Trade Zone area in Southport; the redevelopment of Terminal 25 in Midport; and the extension of Slip 2 and demolition of storage tanks to clear approximately 11 acres of land for future development in Northport
- Conceptual feasibility and affordability of new projects in the context of the Port's past, current and expected future financial position

Together, these components provided the foundation for the B&A team's recommendations related to future development alternatives and priority phasing.

ES.6.1 Terminal Design Trends

Cruise Terminal Trends

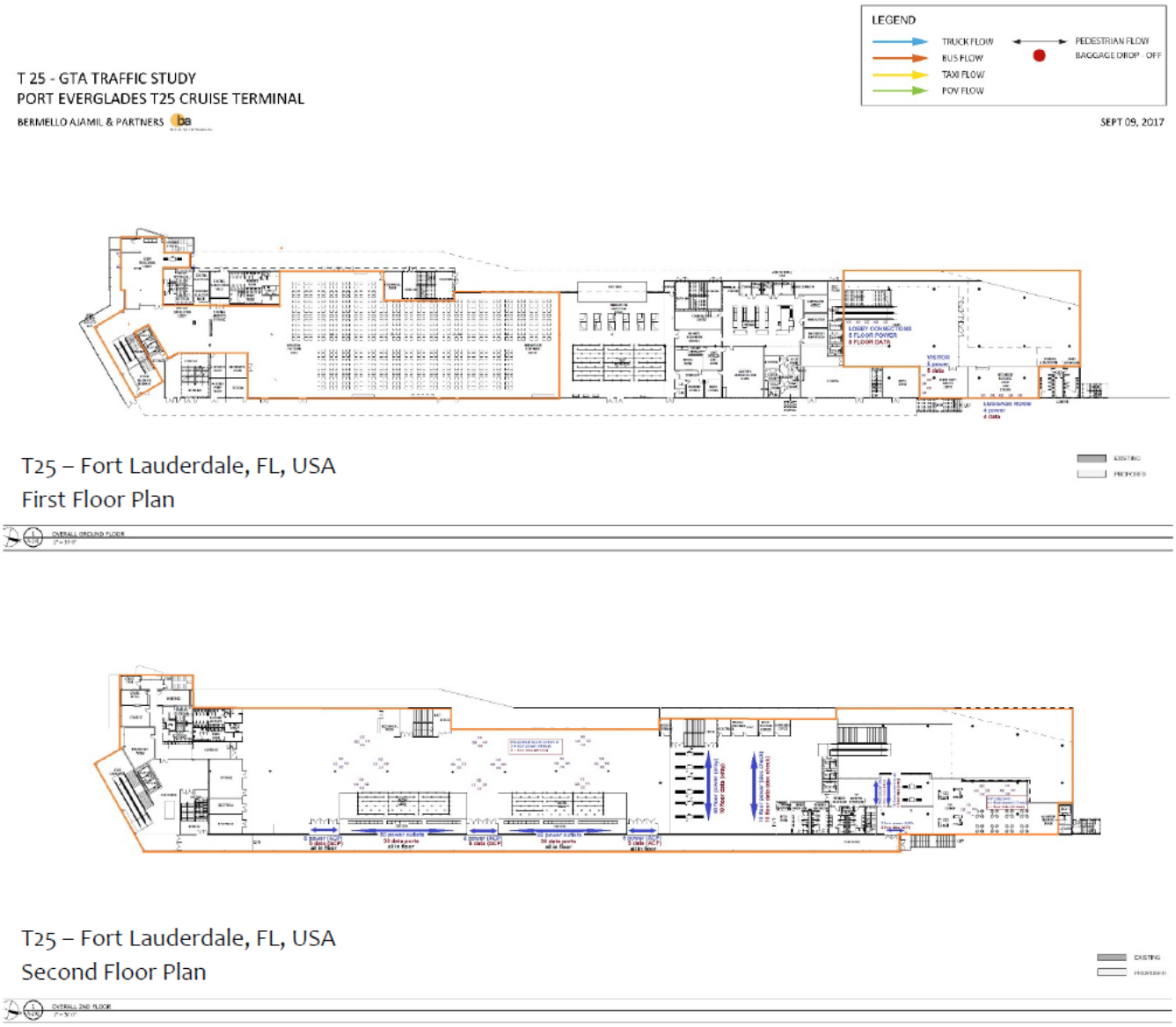
User convenience and satisfaction should be the key drivers in the cruise terminal design process. While certain "bells and whistles" or next-level amenities (including functional as well as aesthetic amenities) may be desirable on the part of cruise lines as a means to reinforce their branding and the overall passenger experience within the terminal, the core design should focus on efficiency and be intuitive while allowing for maximum flexibility and easy maintenance. The future can be anticipated, but never predicted, so flexibility and design that addresses short-term issues within a long-term strategy are vital as this will minimize or avoid future costs associated with unexpected market or operating changes and also allow the Port to adapt to new opportunities more dynamically. Key considerations that influence facility design concepts include:

- Segregation of passengers/traffic
- Segregation of transportation modes
    - Buses/tour vehicles
    - Private vehicles/staff
    - For-hire vehicles
- The latest security
    - Entry/exit, pier, GTA
    - Check of passengers, bags, provisioning (if required)
    - Provide for operational flexibility
        - All facility security cordon
        - Partial facility security cordon
        - Berth security cordon
- Improvements in functionality
    - Reduce queuing
    - Linkages of passenger metering processes – slow to fast
    - Integrate facility into the waterfront
- Secondary uses
    - Commercial
    - Other

Typically, today's cruise homeport facilities provide for two levels of operations in order

to allow for simultaneous embarkation and disembarkation. Figure ES.6.1 presents an example of a best-in-class multi-level terminal: Port Everglades' own Terminal 25 (T25).

Figure ES.6.1: Example Multi-Level Terminal Program – Port Everglades T25
Source: B&A



Multiple (two) passenger boarding bridges (gangways) are also typically used for each vessel call to allow for safe and efficient movement of passengers on and off the vessel. Design elements should be as flexible as possible in order to accommodate multiple vessel types and sizes as well as different operations. Flexibility is also important in order

to allow for potential future reconfiguration of the facility based on changing operational preferences as well as changes in security practices and/or protocols over time.

The following cruise terminal trends – all of which are elaborated in Element 3 of the 2018 Update – are among the most salient in terms of positioning Port Everglades to handle projected future cruise traffic while achieving best-in-class operational efficiency, convenience and passenger comfort:

- Multi-level terminals
- Key performance indicators (KPIs)
- Type, number and service range of passenger boarding bridges (gangways)
- Parking and ground transportation areas (GTA)
- Baggage handling
- Customs and Border Protection (CBP)/Security
- Alternative/secondary use

Container Terminal Trends

Since the 2014 Master/Vision Plan was adopted, two major global trends related to the containerized cargo industry have largely already played out.

The first of these – a shift to larger average vessels in most east-west trade lanes and even some north-south lanes – has been occurring for more than a decade but was accelerated in terms of relevance to Port Everglades with the official opening of the Panama Canal's new set of locks to commercial traffic in 2016. Since then, there has been a clear cascading of larger vessels into both the Transatlantic and Transpacific trade lanes, with some cascading also occurring in the inter-Americas trade lane.

Table ES.6.1 highlights the increase in average vessel size that has occurred since 2016; a trend which continues today. As shown, Port Everglades is the only major container port in the South Atlantic region not to see an increase in average vessel capacity. This is due in part to the trade lanes that Port Everglades's customers serve; however, it is also due in part to the fact that post-Panamax vessels (i.e. vessels with capacities in excess of approximately 4,500 TEUs) cannot be serviced efficiently at Port Everglades due to both navigational and equipment constraints.

Table ES.6.1: Average Size (TEUs) of Vessels Deployed through Panama Canal – Select South Atlantic Ports

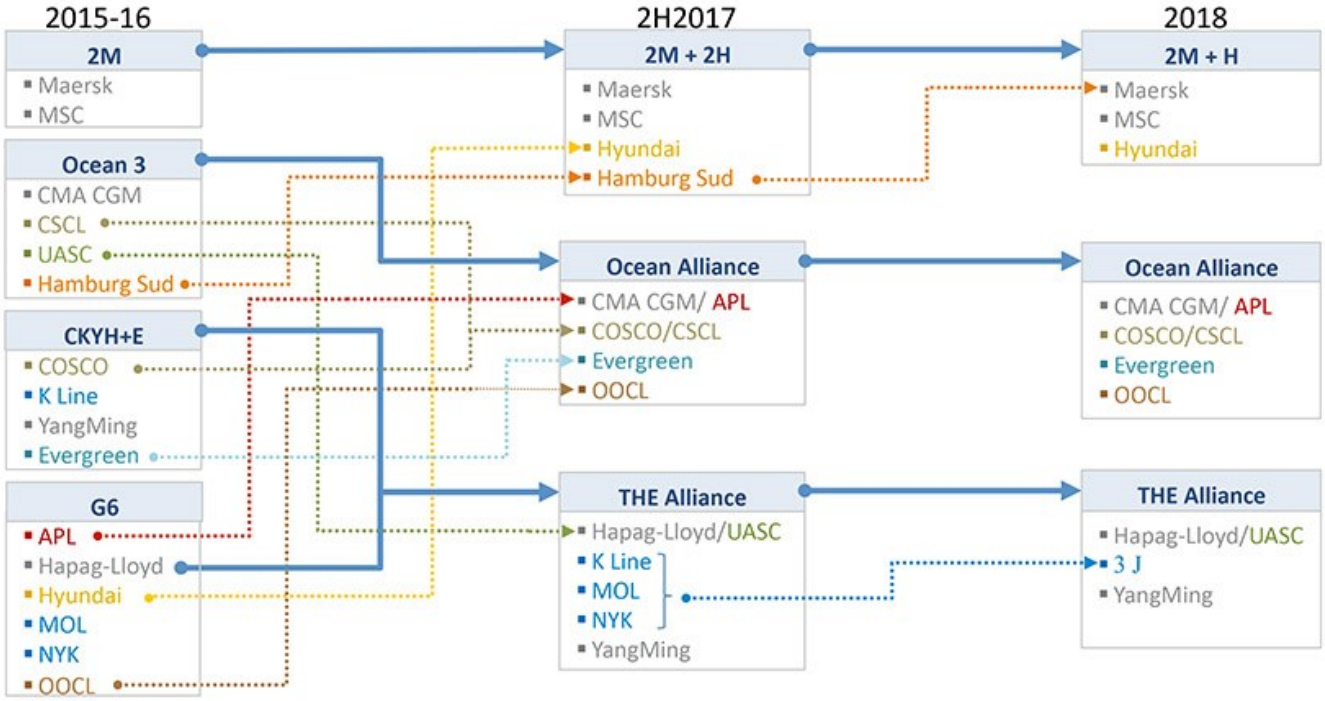
Source: PIERS; Martin Associates

PORT	AVERAGE SIZE OF CONTAINER SHIP 2012 (TEUs)	AVERAGE SIZE OF CONTAINER SHIP 2017 (TEUs)
Port of Charleston	4,885	8,401
Port of Savannah	5,106	8,366
Port*MIAMI*	4,650	6,974
JAXPORT	5,002	6,566
Port Tampa Bay	2,448	4,748
Port Everglades	4,235	4,189

The second major trend to occur in recent years within the global container shipping industry is a massive amount of ocean carrier consolidation triggered by mergers, acquisitions and at least one high-profile bankruptcy (Hanjin). This consolidation has occurred at the corporate level but also – and perhaps more importantly – at the consortium/alliance level. Figure ES.6.2 illustrates the extent and pace of consolidation that has occurred since the 2014 Plan was adopted.

Figure ES.6.2: Container Liner Industry Consolidation (2015-2018)

Source: pacificatrucks.com



The practical impact to Port Everglades of the trend reflected in Figure ES.6.2 is that more decision-making and greater market share are now concentrated in fewer hands, meaning container lines have more leverage in nearly all aspects of the industry – including port selection – than ever before.

Additional trends that are elaborated in detail within Element 3 include:

- Terminal Densification
- Ship-to-Shore (STS) Crane Capabilities
- Electrification of Container-Handling Equipment
- Empty Container Depots
- Near-Port Cold Storage/Transloading
- Terminal Operating System (TOS) Integration

ES.6.2 Operational Enhancement Opportunities

Southport

The Southport area of Port Everglades handles the vast majority of containerized cargo activity at Port Everglades currently and is expected to handle nearly all containerized cargo activity once all projects in the 10- and 20-year Vision Plans are completed. Interviews with the Port's container terminal operators conducted during the 2018 Update process revealed a common thread of issues, primarily berth and STS crane capacity/availability constraints, as well as traffic congestion within and surrounding the Southport facilities. There is also a general sentiment among Port Everglades' container terminal operators that these issues must be addressed – not only in order for the containerized cargo business to grow at Port Everglades, but also to prevent carriers from leaving Port Everglades for other Florida and South Atlantic ports. The primary operational enhancement opportunities related to containerized cargo operations in Port Everglades' Southport area are summarized as follows:

- Berth (and crane) availability
- Crane size and capacity
- Terminal operating practices
- Navigational constraints (i.e. channel depth and width restrictions, especially the need to accommodate access by neo-Panamax container vessels to Southport while post-Panamax cruise vessels are at T25, T26 and/or T29)
- Traffic congestion in and around the Port, especially on McIntosh Road

Midport

Midport currently comprises a patchwork of mixed land uses and multiple operations in a confined area. This area services all of the cargo types found at the Port, with the exception of petroleum products; it includes a mix of container, break-bulk, and cement terminals as well as significant ro-ro (i.e. new automobile import/export) activity. Midport is simultaneously home to six of the Port's eight multi-day cruise berths/terminals and three separate cruise-related parking areas, meaning there is continuous and ongoing competition both for berths and for adjacent land areas. In some cases this diversity of uses is advantageous to the Port since it results in higher berth utilization rates. In other cases, however, this mixed-use approach hinders operational efficiencies and creates conflicts. As cruise activity continues to increase at Port Everglades it will be critical for

the Port to reduce the overlapping uses in Midport in order to be able to offer a more efficient space in which to concentrate growing cruise activity and operations. The principal operational enhancement opportunities in Port Everglades' Midport area are summarized as follows:

- Berth-terminal adjacency
- Conflicts between cruise and cargo operations
- Tracor basin

Northport

The principal inefficiencies within the Port's Northport area relate to liquid bulk operations within and around Slips 1 and 3 (Berths 6-13); and to a lesser extent Slip 2 (Berths 4 and 5). These inefficiencies, which relate almost entirely to the age and condition of the finger piers and width of the slips themselves, have mostly been addressed by the projects included in the 2018 Update, which have, for the most part, been carried over from the 2014 Plan. These piers were designed to service smaller liquid bulk and break-bulk vessels that called the Port in years past and are generally unsuitable for the current, let alone next generation of liquid bulk vessels. Vessels have not only gotten larger, but the amount of product transferred per vessel call has also increased, placing constraints on both the slip widths and the land area and liquid bulk transfer infrastructure within the piers. It is not uncommon today, for example, for an adjacent berth within the same slip to be unable to be used simultaneously due to navigational constraints and general safety concerns. This is an issue for Slip 2 as well as for Slips 1 and 3. However, given the critical nature and berth-specific requirements of liquid bulk operations vs. those of break-bulk operations, challenges associated with Slip 2 are far less urgent and have not been prioritized for purposes of this Update; it is assumed that bulk operations taking place at Berth 5 can and will be accommodated around Berth 4 cruise vessels activity. Recommendations for enhancement to Northport operations that have carried over from the 2014 Update include:

- Replacing manifolds and loading arms with larger piping
- Connecting manifolds to allow higher transfer of cargo and more efficient distribution of the flows
- Widening of Slips 1 and 3
- Repairing and/or replacing all relevant bulkheads

ES.6.3 Project Decision Matrix

Consistent with both the 2009 and 2014 Updates, the 2018 Update utilizes a decision matrix to evaluate the projects proposed for inclusion in the revised Master/Vision Plan. Table ES.4.7 shows the resulting evaluation criteria used to assess the projects proposed in the 2018 Update. Some of these criteria can be measured quantitatively while others are qualitative in nature. Similarly, some of the measures shown in Table ES.6.2 are more applicable when applied to the Port's overall 20-year development program than to individual projects. B&A's decision matrix accounts for these different levels of evaluation of the 2018 Update.

Table ES.6.2: Decision Matrix Criteria
Source: B&A

Category	Evaluation Criteria		
Competitiveness	Capacity	Efficiency	Integration
Economics	Return on Investment (ROI)	Flexibility	Economic Impacts
Sustainability	Asset Preservation	Environmental Stewardship	Resiliency

Before applying the decision matrix above to the Port Everglades Master/Vision Plan, it is important to understand that while all projects included in the 2018 Update fit into at least one of the categories identified in Table ES.6.2, not all projects in the Plan meet all of the evaluation criteria. For example, not all projects in the 5-year Master Plan and/or 10- and 20-year Vision Plans result in increased capacity or direct revenue to the Port or can be linked directly to regional economic benefits. However, many projects proposed in the 2018 Update are necessary to improve overall Port operations by mitigating existing traffic congestion, accommodating changing mobility needs, reducing gateway costs, freeing up or otherwise repurposing land for more productive use, maintaining existing assets in a state of good repair, etc. The proposed I-595 flyover (2025) and commercial consolidation (2035) projects are good examples of projects that can be easily linked to some evaluation criteria (i.e. efficiency, integration) but not so easily to others. Without these and other

transportation network/land use improvements, however, the future needs of Port tenants, users, regulatory agency partners and the general public cannot be met, at least not optimally. These investments contribute indirectly to the success of separate but related revenue-generating projects that are essential to maintaining Port competitiveness, ensuring Port tenant and user satisfaction, meeting regulatory requirements and ultimately providing local and regional economic benefits.

Other projects – such as the petroleum-receiving berth improvements included in the 2018 Update (i.e. expansion of Slips 1 and 3) or the proposed redevelopments of cruise terminals 21 (2023), 29 (2027) and 26 (2030) in Midport – do directly contribute to Port revenues and economic impacts but are required just as much to ensure that liquid bulk and cruise passenger throughput at the Port does not decline due to obsolete infrastructure as to increase liquid bulk and cruise market share. In this sense the benefits associated with some major projects are not necessarily due only to incremental growth assumptions, but also to preservation of existing markets. Such projects all rank highly when evaluated using the decision matrix presented in Table ES.6.2, applied holistically to the overall 20-year development program. However, these same projects may or may not rank highly if evaluated on an individual project basis.

ES.6.4 Projects Included in the 2018 Update (Final Plan)

The 2018 Update of the Port Everglades Master/Vision Plan, which encompasses the 20-year period from 2019-2038, comprises a total of 50 projects, distributed across three Plan milestone periods as follows:

- 2019-2023 22 projects (~$1,724 million)
- 2024-2028 15 projects (~$540 million)
- 2029-2038 13 projects (~$802 million)

Of these 50 projects, seven are concentrated in Northport; 11 are concentrated in Midport; 12 are concentrated in Southport; seven are portwide projects (i.e. projects whose impact and/or benefit occurs across multiple port areas and/or business units); and 13 are bulkhead repair/replacement projects. It is expected that a total over 20 years of $3.02 billion (2019 dollars) will be required to implement all 50 projects. Of this total, it is anticipated that Port Everglades will be responsible for approximately two thirds ($2.01 billion) with various private, State and Federal entities contributing the remaining

one third (~$1.01 billion). See Element 4 for additional details on third-party funding sources and strategies.

All 50 projects proposed in the 2018 Update are summarized in the following pages by Plan milestone period and by geographic area of implementation. Anticipated project start and completion years as well as estimated project costs are also shown.

The B&A team used an iterative planning and design process to evaluate and refine future land use alternatives for the Port using the following four principles as a guide throughout:

- Capacity – does the plan increase capacity consistent with projected demand?
- Efficiency – does the plan improve efficiencies and/or reduce operating costs?
- Flexibility – does the plan anticipate and allow for changing conditions over time?
- Integration – does the plan integrate related uses through physical adjacency?

In addition to the projects themselves, how to prioritize and phase the implementation of projects had to be considered. The five principal criteria used to evaluate project prioritization during the planning process included:

- Is there an immediate safety or security issue that this project helps to address/improve/ resolve?
- Is the project critical to both near-term and long-term competitiveness?
- Is the project already approved, funded and/or underway?
- Is the project as important or more important than a competing project and can the port afford (financially and/or operationally) to implement both projects at the same time
- Are there constraints to implementation that necessitate a specific implementation timeframe (i.e. lease terms, permitting, funding)

Because flexibility is one of the guiding principles of the 2018 Update, as time goes on it is fully expected that both the currently recommended order of implementation and the actual start and completion years for many of the 10-year and 20-year projects will continue to evolve in line with market conditions as well as other internal and external factors. However, it is the intent of the Port that the 5-year Master Plan/CIP be implemented essentially as currently recommended.

Table ES.6.3: 2018 Master/Vision Plan Projects (2019-2023)

Source: B&A

Location	0-5 Year Projects	Start Year	Completion Year
Northport	T2 / T4 Parking Garage	2018	2020
	Maintenance Facility Consolidation	2019	2023
	Port Access Road	2019	2024
	Slip 1 / Phase 1 (Berths 9 / 10 Bulkheads)	2019	2025
Midport	T21 Redevelopment	2020	2023
	Ro-Ro Yard Relocation / Expansion	2020	2023
Southport	3 SPP STS Cranes	2017	2020
	PEV ILC	2019	2020
	Phase 9A	2018	2022
	STNE	2015	2023
	SP Crane Rail	2015	2023
	3 SPP STS Cranes	2021	2023
Portwide/Other	USACE Deepening & Widening (USCG Relocation)	2019	2026
	Former Dynegy Logistics Development	2020	2023
	Auto Terminal West	2020	2023
	USACE Deepening & Widening	2019	2025
	I-595 Flyover	2021	2025
Bulkheads Replacements/ Improvements	Berths 21 & 22 Bulkheads	2019	2022
	Berths 7, 8, 8A & 32 Bulkheads (USACE Design)	2019	2023
	Entrance Channel North Wall	2020	2024
	Berths 9 & 10 Bulkheads (Slip 1 / Phase 1)	2019	2025
	Berths 1A, 1B, 2, & 3 Bulkheads	2021	2025
	Berths 16-18 Bulkheads	2022	2026

Table ES.6.4: 2018 Master/Vision Plan Projects (2024-2028)

Source: B&A

Location	5-10 Year Projects	Start Year	Completion Year
Northport	Break-bulk Yard	2024	2026
	Slip 1 / Phase 2 (Berths 7, 8, 8A & 32 Bulkheads)	2025	2027
Midport	Tracor Basin Fill	2024	2026
	Ro-Ro Yard Expansion	2024	2027
	T29 Redevelopment	2024	2027
	T26 Redevelopment	2026	2030
	T29 / T26 Parking Structure	2026	2030
Southport	Phase 9C-1	2024	2025
	Griffin Road Extension / NE 7th Avenue Improvements	2024	2026
	McIntosh Road Realignment	2024	2027
	Container Terminal Reconfiguration	2024	2028
Portwide/Other	APM/Rail Extension (TBD)	2024	2028
Bulkheads Replacements/ Improvements	Berth 29 Bulkheads	2024	2026
	Berths 14 & 15 Bulkheads (Design Only)	2023	2027
	Berths 7, 8, 8A & 32 Bulkheads (Slip 1 / Phase 2)	2025	2027
	Berths 4-6 Bulkheads	2025	2029

Table ES.6.5: 2018 Master/Vision Plan Projects (2029-2038)

Source: B&A

Location	10-20 Year Projects	Start Year	Completion Year
Northport	Slip 3 Expansion (Berths 11-13 Bulkheads)	2033	2038
	LNG Bunkering + Storage Facility	TBD	TBD
Midport	Ro-Ro Yard Expansion	2030	2033
	Berth 19 Finger Pier	2033	2037
	T19 / T20 Redevelopment	2035	2038
	T19 / T20 Parking Structure	2035	2038
Southport	Phase 9C-2	2029	2032
	1 Small STS Cranes	2029	2032
Portwide/Other	Commercial Consolidation	2031	2035
Bulkheads Replacements/ Improvements	Berths 14 & 15 Bulkheads (construction)	2027	2031
	Berths 11-13 Bulkheads (Slip 3 Expansion)	2033	2038
	Berths 19 & 20 Bulkheads	2034	2038
	Berth 23 Bulkhead	2034	2039
	Berths 24 & 25 Bulkheads	2034	2039
	Berths 26 & 27 Bulkheads	2034	2039

Figure ES.6.3: Status Quo (2018) Land Use at Port Everglades

Source: B&A

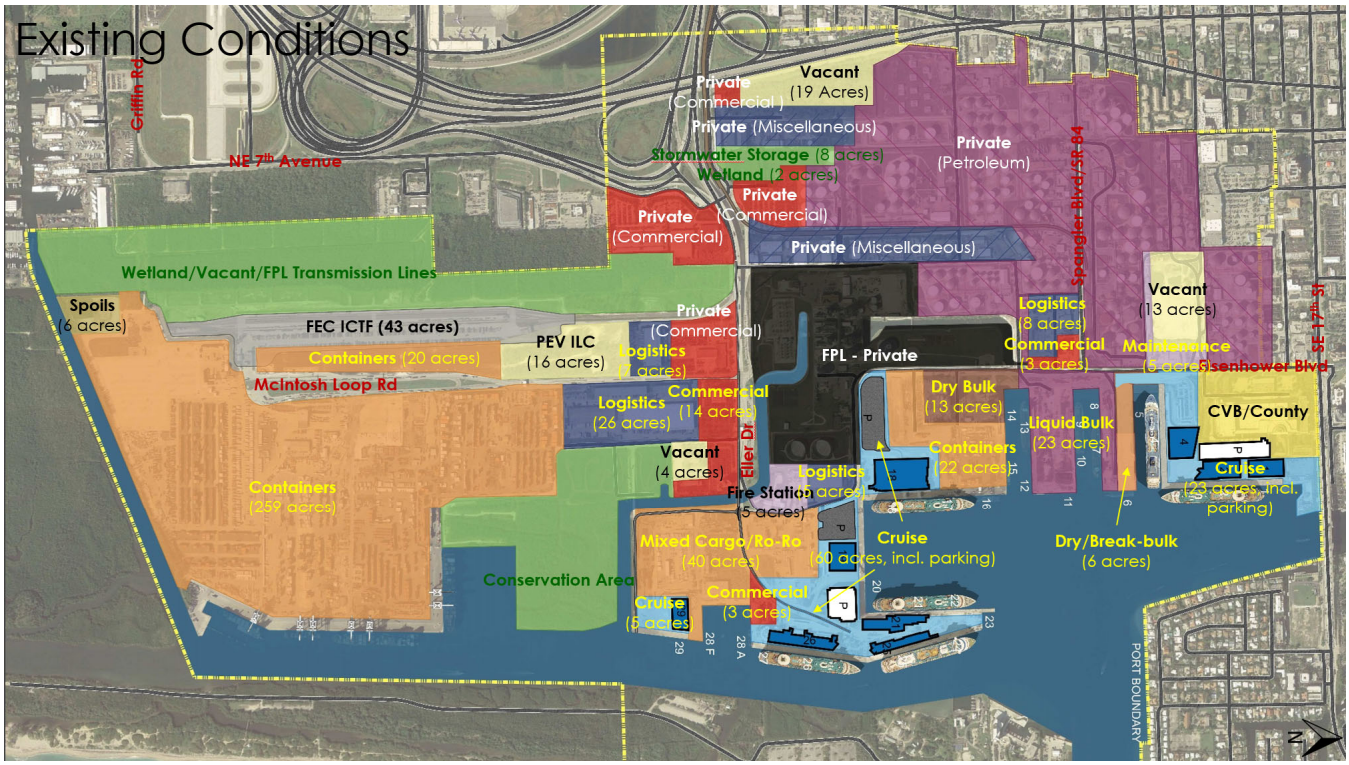


Figure ES.6.3 shows the existing conditions at Port Everglades as of the baseline year (2018). Figure ES.6.4 on the following page illustrates all 22 projects proposed for implementation during the initial 5-year Master Plan. These 22 projects are distributed across Port business units as follows:

Business Unit	# Projects	Investment (Total/PEV)
• Cruise	4 projects	$196.5/$127 million
• Liquid Bulk	2 projects	$141/$92 million
• Containerized Cargo	7 projects	$665.5/$508 million
• Non-containerized Cargo	1 projects	$10/$10 million
• Parking	1 project	$112/$112 million
• Real Estate	0 projects	$0/$0
• Portwide/Other	7 projects	$554/$104 million
	22 projects	$1,679/$953 million

Figure ES.6.4: Proposed 5-Year Projects at Port Everglades

Source: B&A

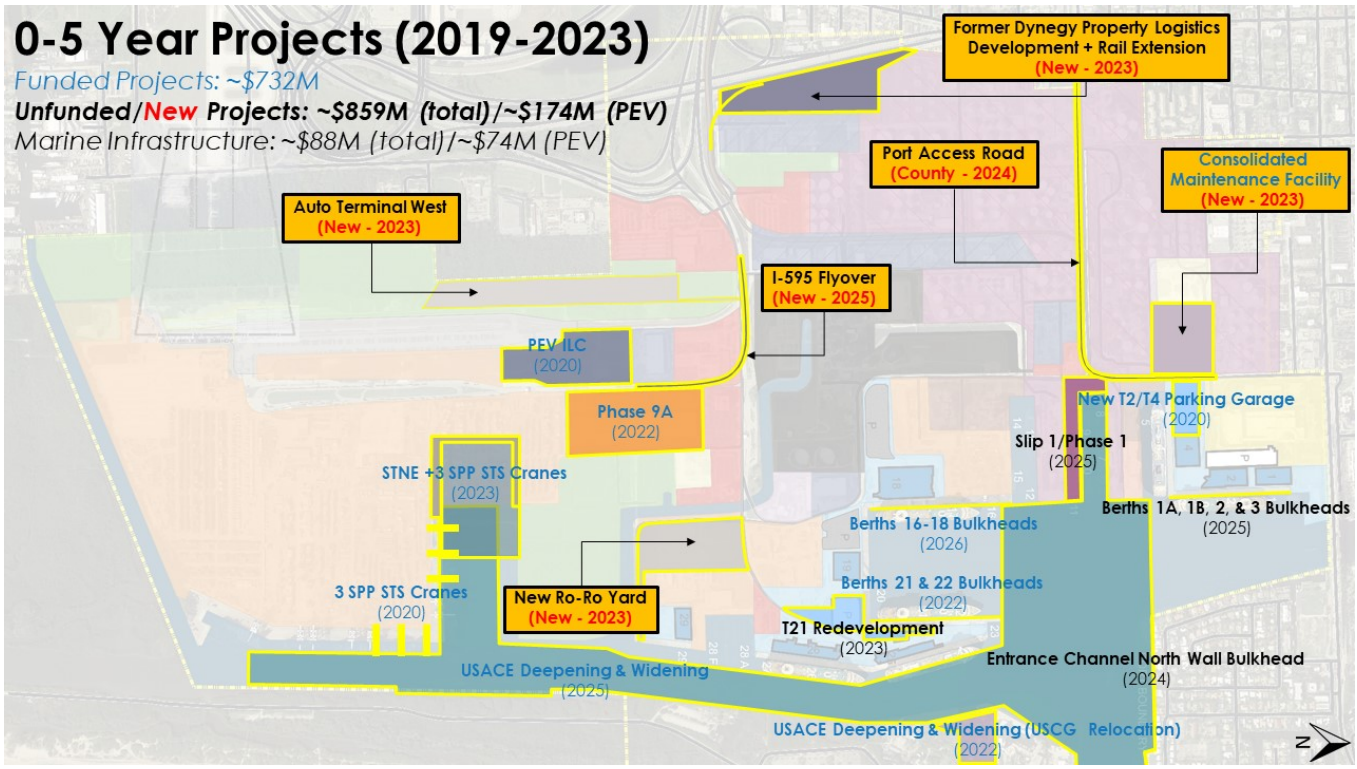


Figure ES.6.5 on the following page shows the result of implementation of all 22 of the projects included in the 5-year CIP of the 2018 Master/Vision Plan in terms of portwide land use.

Table ES.6.6, also on the following page, presents the total estimated annual economic impacts of Port Everglades as of 2023.

Figure ES.6.5: Proposed 2023 Land Use (Post-Implementation)

Source: B&A

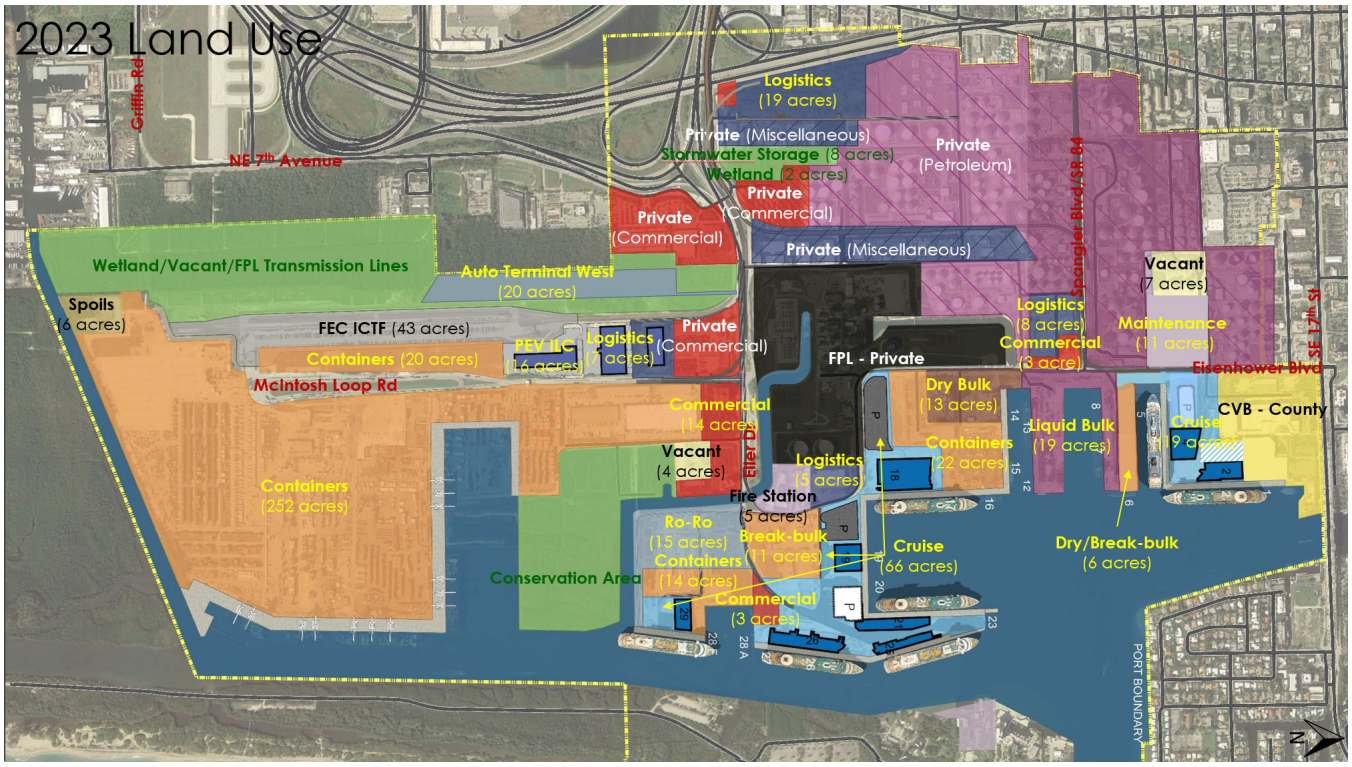


Table ES.6.6: Total Estimated Economic Impacts of the Port – 2023

Source: Martin Associates; B&A

Impact Category	2018 (Total)	2023 (Cruise)	2023 (Cargo)*	2023 (Total)	% Change
JOBS					
DIRECT	13,127	6,618	8,276	14,893	13%
INDUCED	8,624	3,437	6,329	9,766	13%
INDIRECT	9,660	4,638	6,492	11,130	15%
TOTAL JOBS	**31,411**	**14,693**	**21,096**	**35,789**	**14%**
PERSONAL INCOME ($ 000)					
DIRECT	$531,097	$195,650	$405,322	$600,972	13%
INDUCED	$1,008,260	$335,623	$805,131	$1,140,754	13%
INDIRECT	$396,137	$147,613	$309,293	$456,906	15%
TOTAL PERSONAL INCOME ($ 000)	**$1,935,494**	**$678,886**	**$1,519,746**	**$2,198,632**	**14%**

** Includes liquid bulk, containers, dry bulk, break-bulk, ro-ro and all other miscellaneous cargo types*

Figure ES.6.6: Proposed 10-Year Projects at Port Everglades

Source: B&A

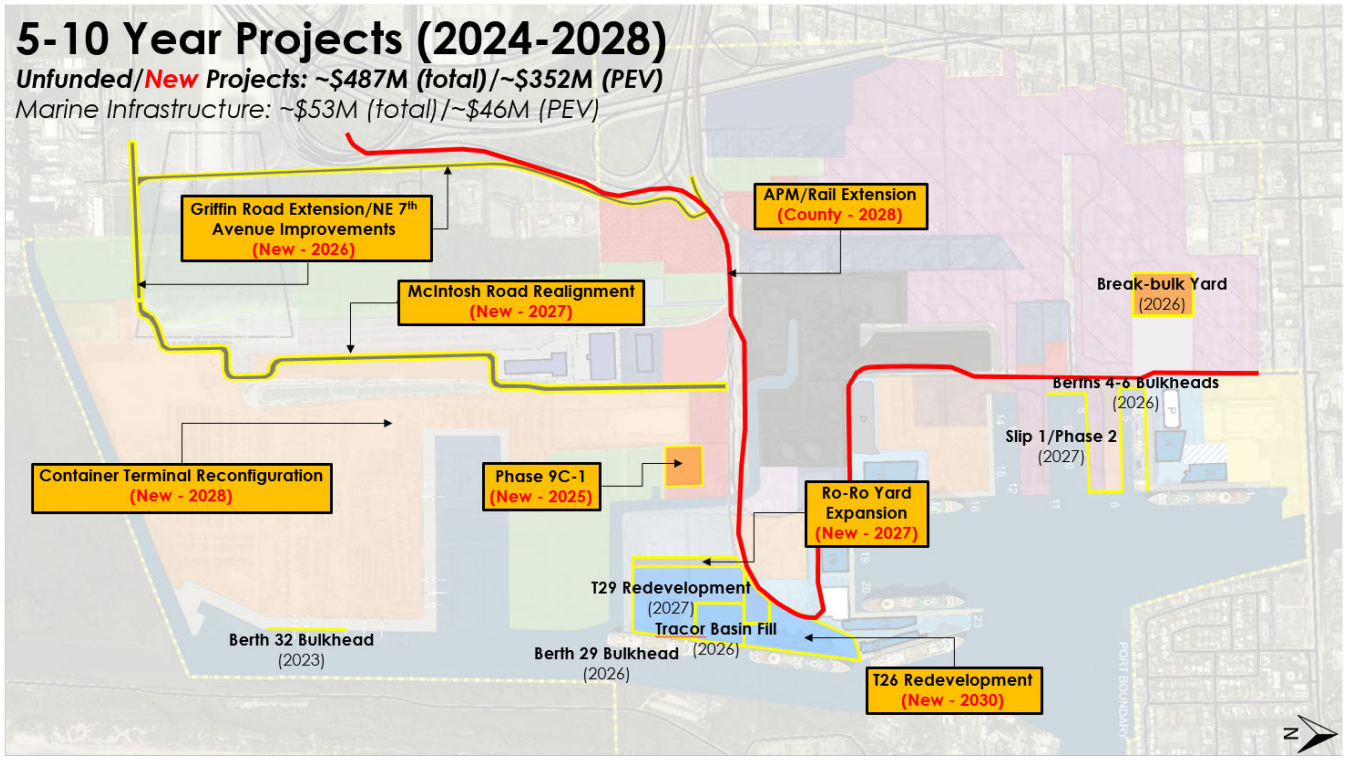


Figure ES.6.6 illustrates all 15 projects proposed for implementation between 2024 and 2028, a period which constitutes the first phase of the Vision Plan beyond the planned CIP. These 15 projects are distributed across Port business units as follows:

Business Unit	# Projects	Investment (Total/PEV)
• Cruise	5 projects	$366/$232 million
• Liquid Bulk	1 project	$41/$37 million
• Containerized Cargo	4 projects	$81/$81 million
• Non-containerized Cargo	3 projects	$11/$7 million
• Parking	1 project	$41/$41 million
• Real Estate	0 projects	$0/$0
• Portwide/Other	1 project	$TBD/$0
	15 projects	$540/$398 million

Figure ES.6.7: Proposed 2028 Land Use (Post-Implementation)

Source: B&A

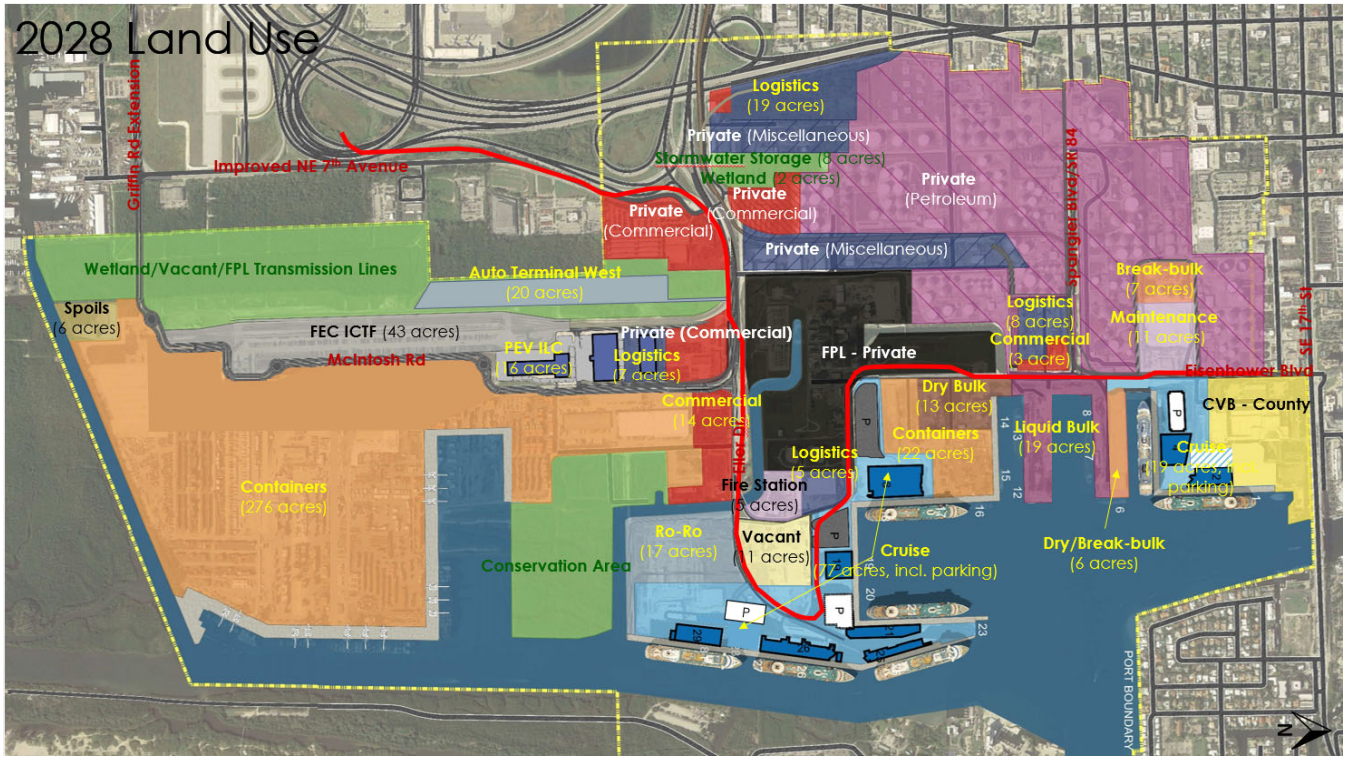


Table ES.6.7: Total Estimated Economic Impacts of the Port – 2028

Source: Martin Associates; B&A

Impact Category	2018 (Total)	2028 (Cruise)	2028 (Cargo)*	2028 (Total)	% Change
JOBS					
DIRECT	13,127	8,090	9,029	17,119	30%
INDUCED	8,624	4,187	6,903	11,090	29%
INDIRECT	9,660	5,720	7,197	12,917	34%
TOTAL JOBS	**31,411**	**17,997**	**23,129**	**41,126**	**31%**
PERSONAL INCOME ($ 000)					
DIRECT	$531,097	$237,794	$442,052	$679,847	28%
INDUCED	$1,008,260	$407,685	$878,093	$1,285,777	28%
INDIRECT	$396,137	$182,032	$342,903	$524,935	33%
TOTAL PERSONAL INCOME ($ 000)	**$1,935,494**	**$827,511**	**$1,663,048**	**$2,490,558**	**29%**

** Includes liquid bulk, containers, dry bulk, break-bulk, ro-ro and all other miscellaneous cargo types*

Figure ES.6.8: Proposed 20-Year Projects at Port Everglades

Source: B&A

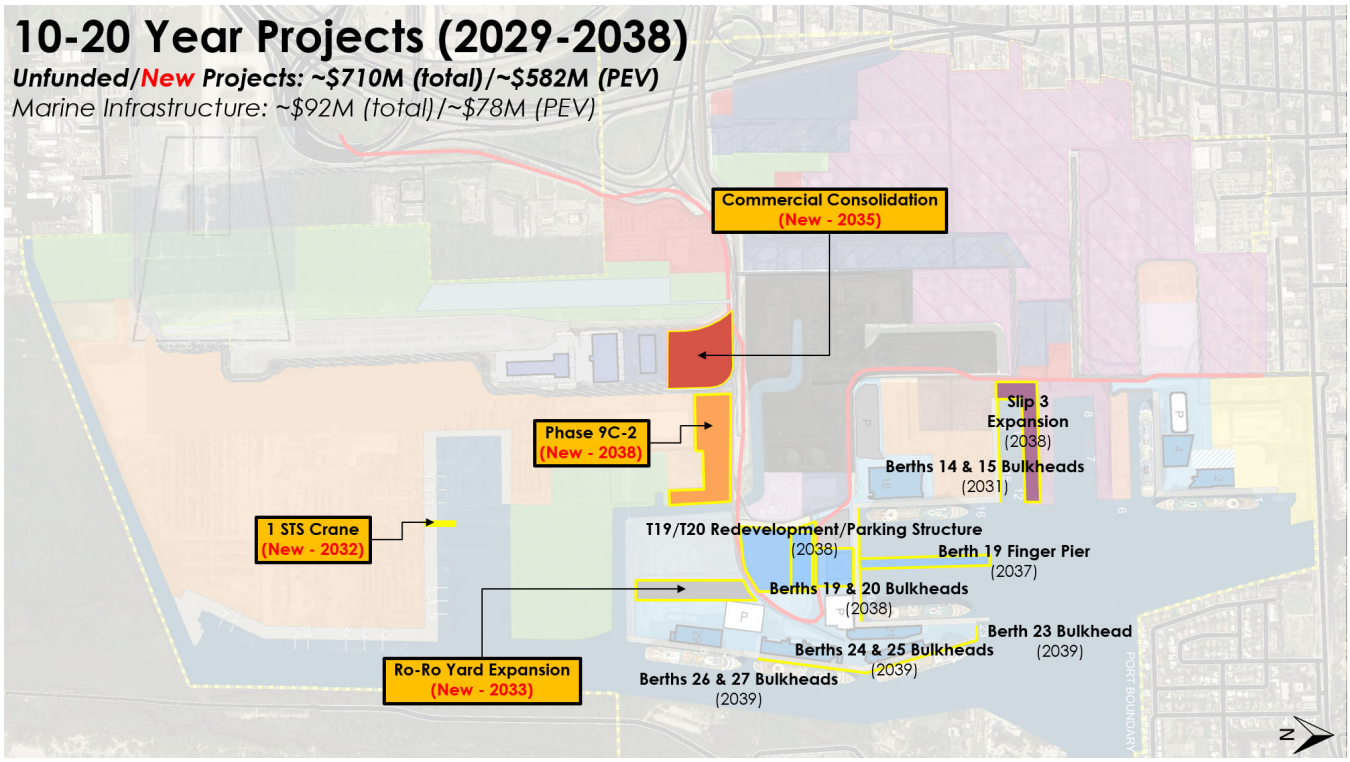


Figure ES.6.8 illustrates all 13 projects proposed for implementation between 2029 and 2038, which is the final phase of the 2018 Update of the Port Everglades Master/Vision Plan. These 13 projects are distributed across Port business units as follows:

Business Unit	# Projects	Investment (Total/PEV)
• Cruise	6 projects	$402/$278 million
• Liquid Bulk	1 project	$136/$132 million
• Containerized Cargo	2 projects	$36/$29 million
• Non-containerized Cargo	2 projects	$33/$30 million
• Parking	1 project	$57/$53 million
• Real Estate	1 project	$137/$137 million
• Portwide/Other	0 projects	$0/$0
	13 projects	$802/$660 million

Figure ES.6.9: Proposed 2038 Land Use (Post-Implementation)

Source: B&A

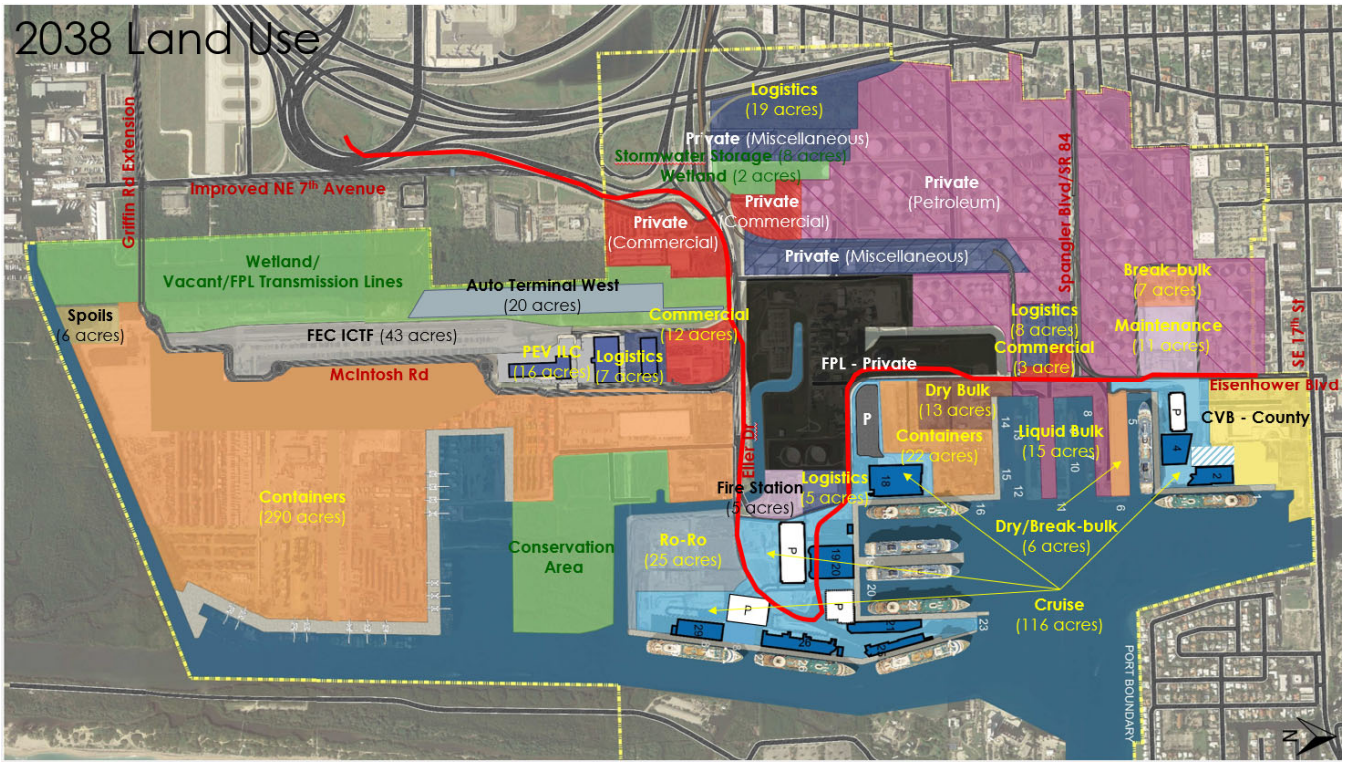


Table ES.6.8: Total Estimated Economic Impacts of the Port – 2038

Source: Martin Associates; B&A

Impact Category	2018 (Total)	2038 (Cruise)	2038 (Cargo)*	2038 (Total)	% Change
JOBS					
DIRECT	13,127	9,958	10,040	19,998	52%
INDUCED	8,624	5,134	7,670	12,804	48%
INDIRECT	9,660	7,135	8,090	15,225	58%
TOTAL JOBS	**31,411**	**22,227**	**25,799**	**48,027**	**53%**
PERSONAL INCOME ($ 000)					
DIRECT	$531,097	$291,110	$490,981	782,092	47%
INDUCED	$1,008,260	$498,611	$975,285	1,473,896	46%
INDIRECT	$396,137	$226,969	$385,433	612,403	55%
TOTAL PERSONAL INCOME ($ 000)	**$1,935,494**	**$1,016,691**	**$1,851,699**	**$2,868,391**	**48%**

** Includes liquid bulk, containers, dry bulk, break-bulk, ro-ro and all other miscellaneous cargo types*

ES.6.5 Affordability Analysis

The 2018 Update assumes that Port Everglades will continue to be successful not only in securing State and Federal grant dollars but in achieving a greater degree of public/private co-investment in its facilities in partnership with its tenants and other users. These third-party partnerships are vital to the feasibility of the 2018 Update. Not only can the Port not afford to develop all projects included in the 2018 Update using only Port funds, but it is no longer a reasonable expectation that the Port should have to do so given the number of public/private co-investment precedents that exist for both cruise and cargo projects at other ports across the U.S.

In light of this new reality as relates to port development, the 2018 Update of the Master/Vision Plan assumes that Port Everglades will be responsible for roughly two thirds ($2.01 billion) of the $3.02 billion overall capital improvement program included in the updated Plan. Figure ES.6.10 presents the assumed distribution of 20-year capital contributions associated with the 50 projects included in the 2018 Update by funding source.

As is often the case at seaports in the U.S., the largest source of future capital for the Port will be Port-issued bonds, with just under half (~$1.42 billion) of the funds required to implement the 50 projects included in the 2018 Update expected to come from this source.

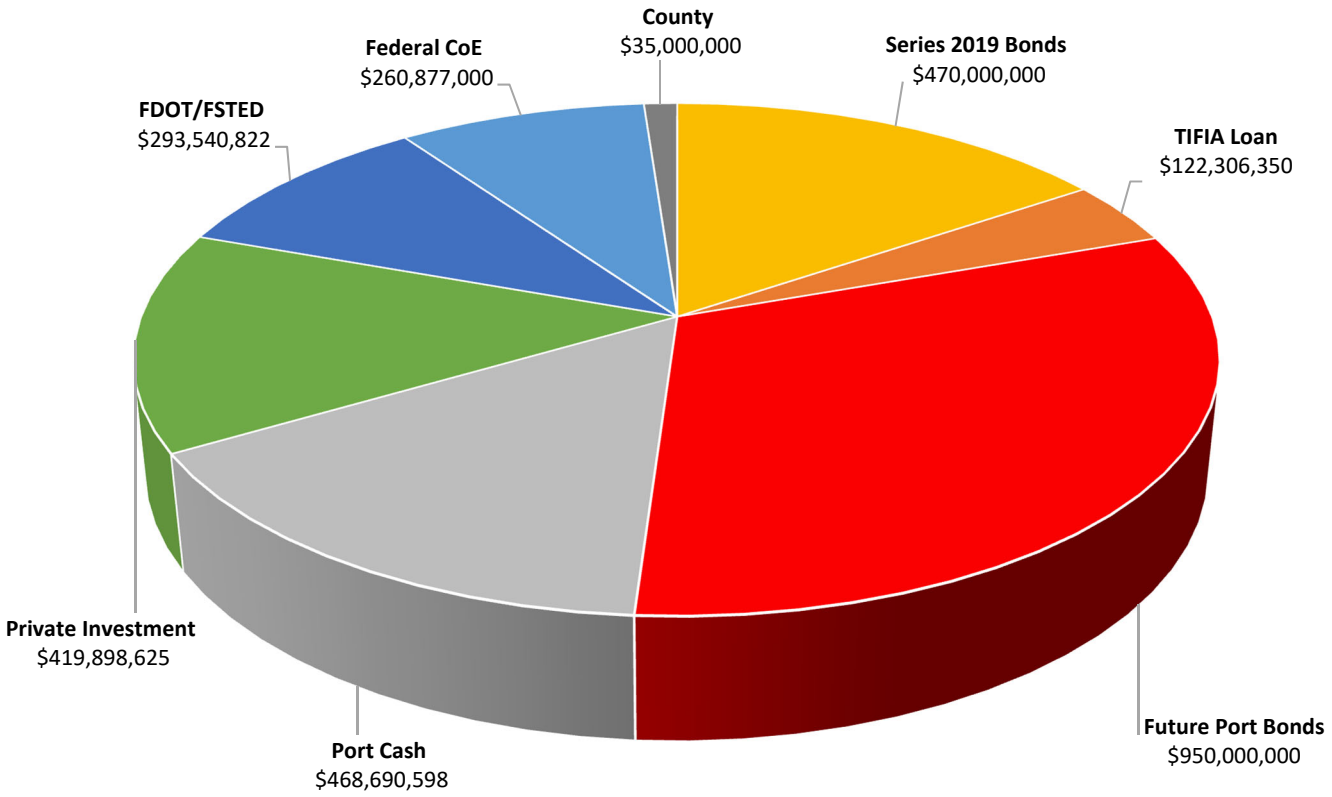
Surplus revenues (Port cash) not required to cover the Port's bond commitments will account for the second largest source of future capital (~$469 million).

Direct capital contributions from the private sector, including Port tenants and other users, will account for the third largest source of capital during the 20-year life of the 2018 Update (~$420 million).

The Federal government is expected to be the fourth largest contributor to the 2018 Update as the result of an approximately $261 million contribution to the deepening and widening project plus a separate Transportation Infrastructure Finance and Innovation Act (TIFIA) loan of approximately $122 million.

The State will also contribute approximately $294 million to help implement the 2018 Update in the form of both Florida Department of Transportation (FDOT) and Florida Seaport Transportation and Economic Development (FSTED) grants.

Figure 3.10.1: 20-Year Distribution of Capital Contributions ($3.02B)
Source: Port Everglades; B&A



Last but not least, Broward County will make major contributions to two specific projects included in the 2018 Update. County contributions will include approximately $35 million to design and construct the proposed Port Access Road connecting US Highway 1 to SE 17th Street and an as-yet unknown amount to design and construct the proposed Automated People Mover (APM) connecting Fort Lauderdale-Hollywood International Airport to the several Port Everglades cruise terminals as well as the Broward County Convention Center.

Based on the distribution of 20-year capital contributions described above, both B&A and the Port believe that all projects included in the 2018 Update are affordable within the planned timeframes. That said, how, when and in what form capital for each project is secured will be determined on an ongoing and in some cases project-specific basis, meaning the Port will need to continuously update its near-term and long-term capital

plans using dynamic financial modeling. Should the Port determine at some point that assumptions included in the initial affordability analysis for the 2018 Update have changed to the extent that certain aspects of the overall plan are deemed to be unaffordable, options for addressing any affordability gaps include:

- Advance or otherwise modify planned bond issuance(s)
- Secure additional third-party funding to support one or more of the projects included in the 5-year Master Plan and/or 10- and 20-year Vision Plans
- Modify the proposed implementation schedule of one or more project(s) such that the capital demand in years where there is a projected deficit or other financial challenge is reduced or eliminated, with some or all of that capital demand being shifted to a year in which there is a projected surplus (i.e. delay the start of the Berths 16-18 and Berths 21 & 22 bulkhead repair/replacement projects from 2020 to 2021/2022)
- Bridge the deficit years using a short-term, one-time loan specific to each respective annual deficit

In all likelihood a combination of all four of these strategies/realities will occur during the 20-year life of the 2018 Plan.

Regardless of how Port Everglades ultimately chooses to fund different plan components, it is almost certainly the case, based on historical precedent, that not all projects will ultimately be implemented according to the exact schedules proposed in the Master/Vision Plan, including some of those in the 5-year Master Plan. The schedule for the USACE deepening & widening project, for example, while critical to the Port's future success, is not wholly within the Port's ability to control, meaning there is a strong possibility that target dates included in the 2018 Update for this project may not be met exactly as planned. Should this and/or other projects included in the 2018 Update be delayed then the timing of bond issuance(s) and other project funding efforts may need to change as well. Such changes are largely unavoidable and should be expected, which is why the Port needs to continuously assess affordability issues and different potential funding scenarios on an ongoing basis.

ES.7 Impacts and Strategies for Implementation

Element 4 of the 2018 Port Everglades Master/Vision Plan combines aspects of Elements 4, 5 and 6 from the 2014 plan in order to more directly connect the strategic drivers of the 2018 Update to its ultimate implementation. As such, Element 4 begins by presenting an analysis of parking and anticipated truck traffic to be generated by the projected growth and an assessment of environmental impacts generated by the proposed new projects in the following areas:

- Vehicular traffic
- The natural environment
- Water resources
- Climate change, resiliency and sustainability
- Air quality

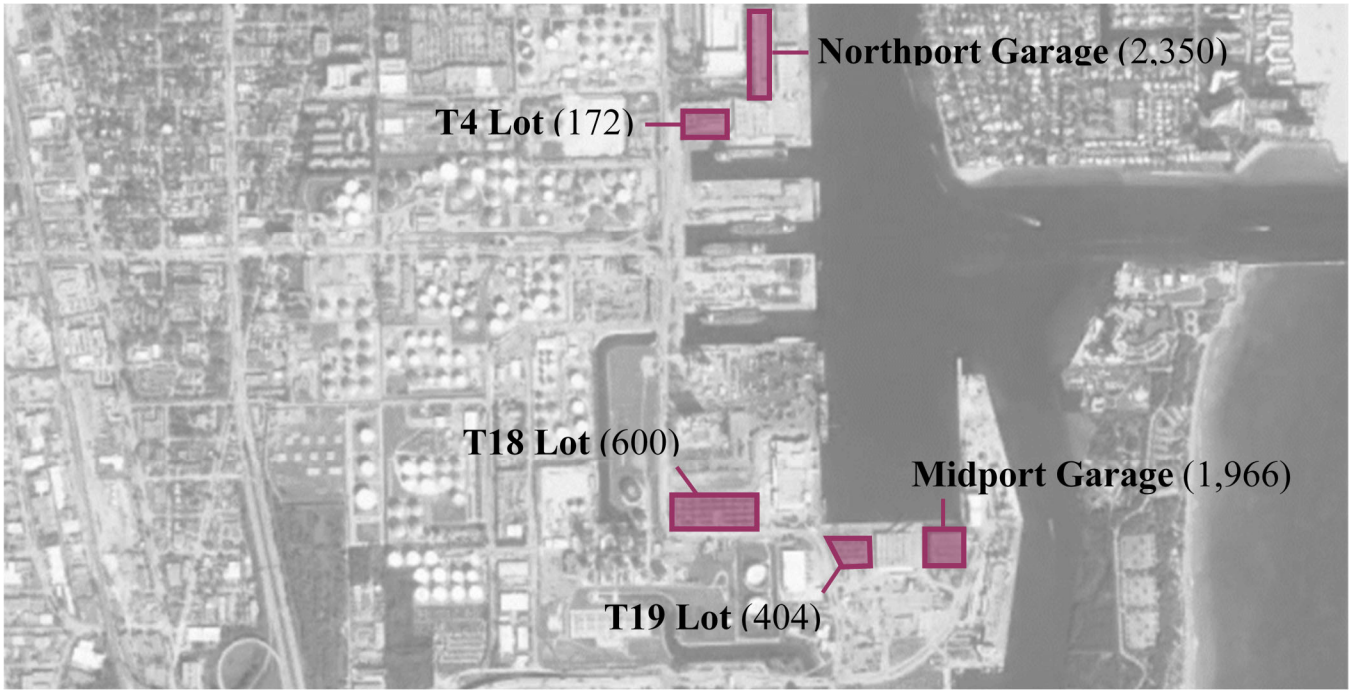
Business, asset, and financial strategies identified in the course of the planning process are then presented. Element 4 concludes with a comprehensive alignment of goals, objectives, and policies between Port Everglades and Broward County as a framework for Plan implementation.

ES.7.1 Parking

Parking Capacity

Port Everglades has historically had two parking structures: one within the Northport area, adjacent to the Convention Center, and another in Midport between cruise terminal 19 (T19) and cruise terminal 21 (T21). Port Everglades historically also has had three surface parking areas located adjacent to cruise terminal 4 (T4), cruise terminal 18 (T18), and cruise terminal 19 (T19), respectively. These historical parking areas are shown in Figure ES.7.1.

Figure ES.7.1: Port Everglades Cruise Parking Areas (Spaces) – 2018
Source: B&A



The new 1,818-space T2/T4 parking garage, which is discussed in detail in Element 3, is under construction as of the drafting of this report and scheduled to open in 2020. This new multi-level structure will replace the existing Northport garage and T4 lot. The new structure will serve T2 and T4 exclusively, and will link via an elevated moving passenger walkway to T2. Access to this garage from 17th Street will not require users to pass through the Eisenhower Boulevard gate prior to entering the garage.

Port Everglades' Midport garage has a capacity of 1,966 spaces, and serves all Midport cruise terminals, including T18, T19, T21, T25, T26, and T29. Cruise Terminal 29 is served via shuttle, given its distance from the Midport garage. The Midport garage is connected to the Port Everglades Harbormaster tower, and is also used by Port operations staff. Port Everglades' surface parking areas are summarized as follows:

- T18 – 600 spaces
- T19 – 404 spaces

Looking to the future, in order to support growth and eventual partial consolidation of cruise activity in Midport, the 2018 Update calls for the development of two additional

multi-level parking garages there. Both of these parking projects are discussed in detail in Element 3. The first of these two future parking projects – the T29/T26 parking structure – is planned to open in 2030 and will include 1,600 total spaces, all of which will be net additional spaces for the Port. The second future parking project – the T19/T20 parking structure – is planned to open in 2038 and will provide an additional 2,200 spaces of garage parking in Midport. However, because this latter project together with the adjacent T19/T20 redevelopment will replace the existing T19 surface parking lot, the net additional number of spaces will be approximately 1,800.

Figures ES.7.2-ES.7.4 show the Port's expected cruise parking capacity by location at the 5-, 10-, and 20-year milestones.

Figure ES.7.2: Port Everglades Cruise Parking Areas (Spaces) – 2023
Source: B&A

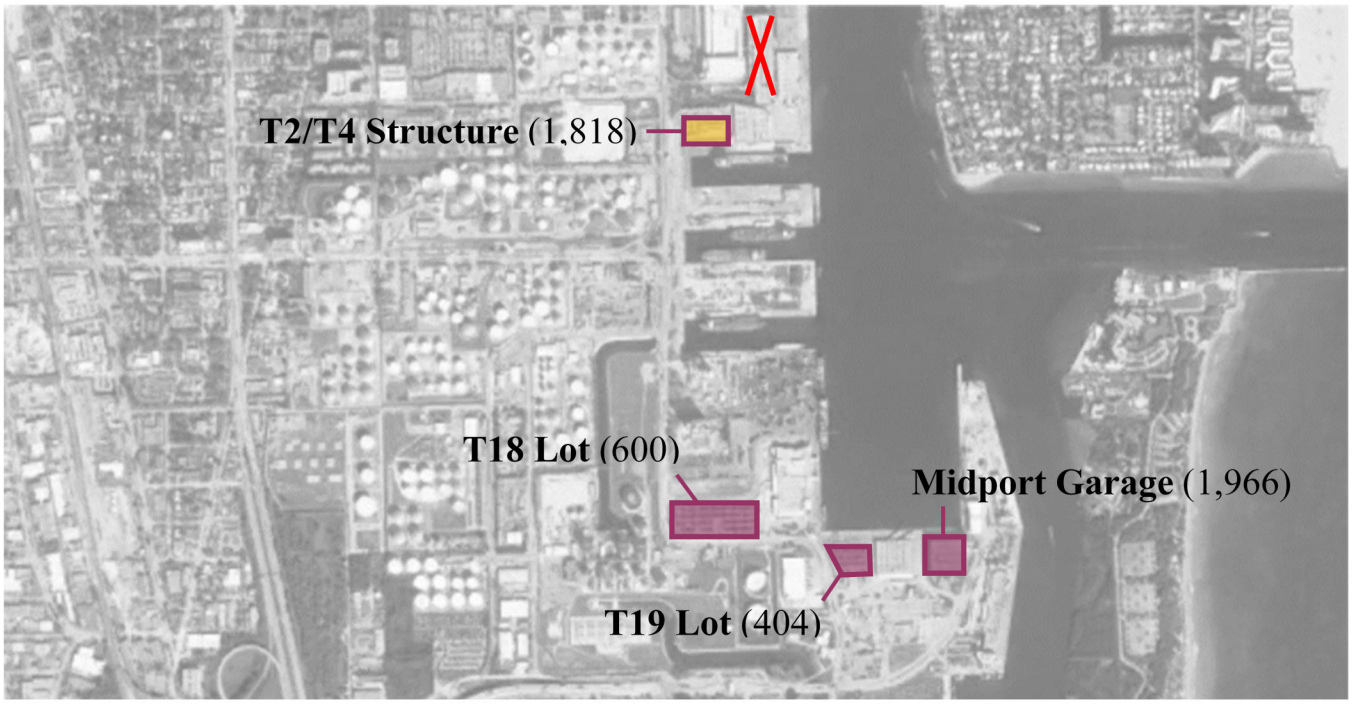


Figure ES.7.3: Port Everglades Cruise Parking Areas (Spaces) – 2028
Source: B&A

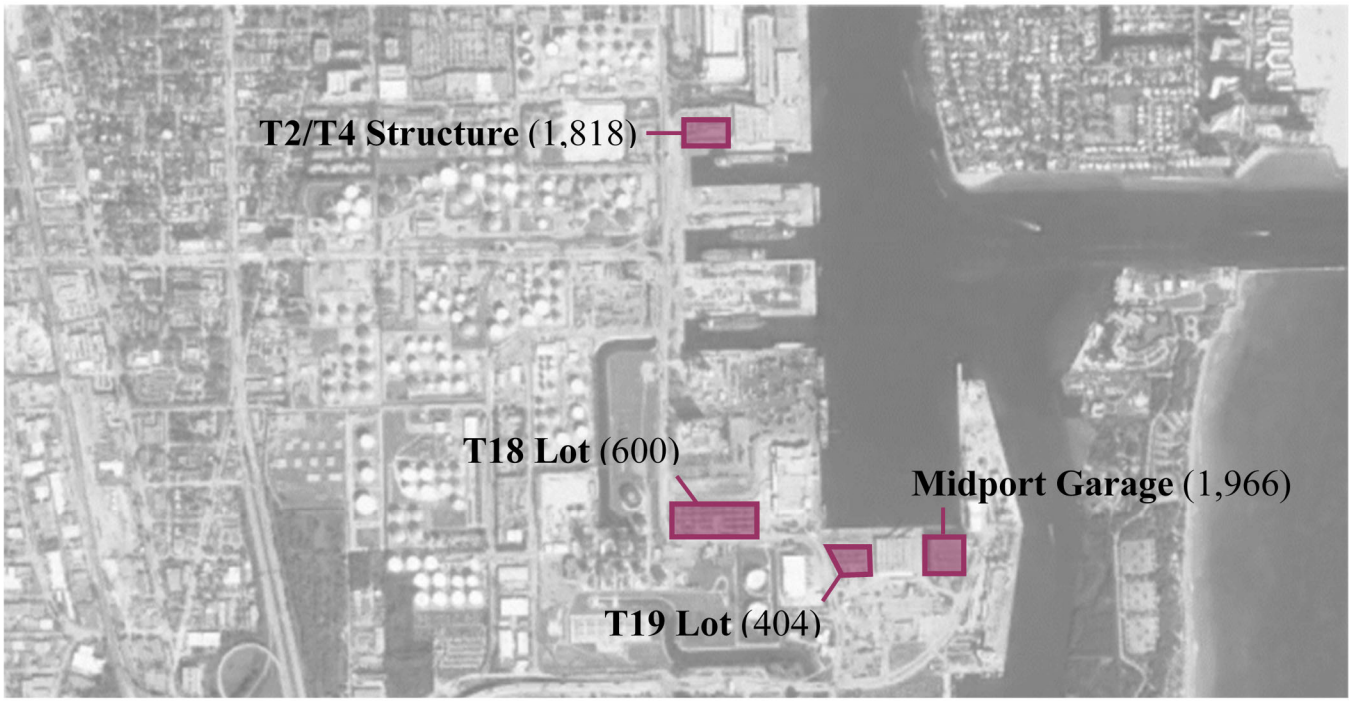
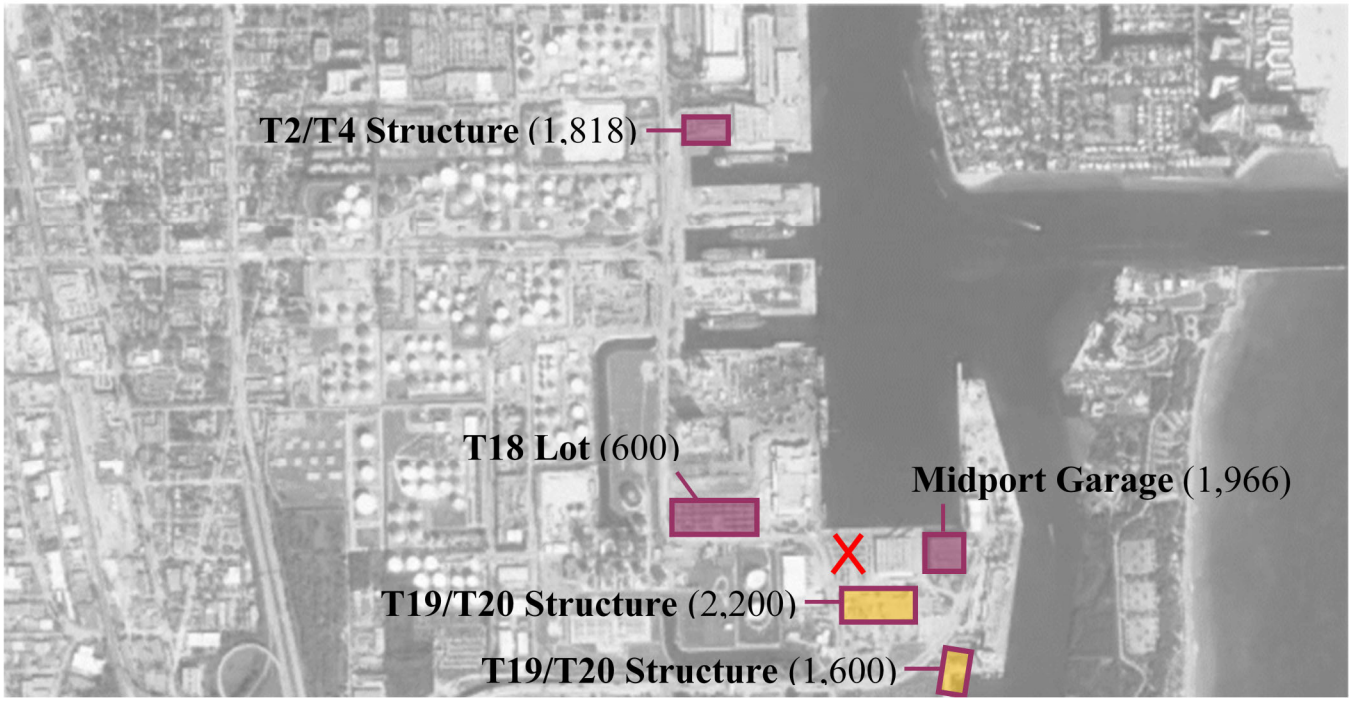


Figure ES.7.4: Port Everglades Cruise Parking Areas (Spaces) – 2038
Source: B&A



Parking Demand/Utilization

Future demand for parking at the Port, as reflected in the addition of two new parking structures in 2030 and 2038, respectively, is directly related to growth of cruise passengers over time as a function of both more future vessel calls and larger average cruise vessels in terms of passenger capacity. Other variables are also directly relevant, including:

- The percentage of fly-in vs. drive-in passengers
- Cruise length (i.e. number of nights), which impacts total parking cost as a percentage of ticket price
- Alternative parking options near the Port that achieve a lower price point than on-port parking options
- Autonomous (self-driving) vehicle technology

The cruise lines serving Port Everglades prefer near-dock parking facilities to provide immediate proximity to the Port's cruise terminals and so too a higher level of service to their cruise passengers. This is a competitive issue for Port Everglades given that Port*Miami* and Port Canaveral – the Port's primary competitors for cruise business – both offer terminal-adjacent parking for their cruise facilities. Near-dock parking options also minimize operational costs and inconveniences by avoiding the use of shuttles.

Table ES.7.1 provides B&A's estimates of future cruise parking demand for Port Everglades by Plan milestone year; 100 staff/labor parking spaces per terminal are included. Consistent with the baseline parking analysis conducted as part of Element 1, future cruise-related parking demand for the Port has been assessed for two separate conditions during the 6-month peak season beginning in mid-November and ending in mid-April. These are:

- Seasonal daily average conditions
- Seasonal daily peak conditions

As noted in Element 3, since completion of the 2018 cruise market assessment, an additional "constrained likely" cruise forecast was developed in order to reflect additional input from Port management. This constrained likely forecast serves as the basis for all parking demand estimates completed as part of the 2018 Update.

Table ES.7.1: Projected Port Parking Demand/Utilization by Plan Milestone Year
Source: Port Everglades

Constrained Forecast	2018	2023	2028	2038
PAX	**3,741,408**	**4,216,522**	**5,208,885**	**6,562,543**
CALLS	596	731	903	846
Seasonal Daily Average				
Cars per Terminal	345	397	494	519
Staff/Labor	445	497	594	619
Total Ave Daily Demand	3,557	3,977	4,749	5,570
Available Parking Spaces	5,492	4,788	4,788	8,189
Total Demand % Available	**64.8%**	**83.1%**	**99.2%**	**68.0%**
Ave PAX per Ship	3,164	2,883	3,183	3,880
Ave Parkers per Ship	758	874	1,086	1,142
% PAX Parking	24.0%	30.3%	34.1%	29.4%
Seasonal Daily Peak				
Cars per Terminal	477	546	671	704
Staff/Labor	577	646	771	804
Total Peak Daily Demand	4,619	5,164	6,167	7,234
Available Parking Spaces	5,492	4,788	4,788	8,189
Total Demand % Available	**84.1%**	**107.9%**	**128.8%**	**88.3%**
Ave PAX per Ship	3,164	2,883	3,183	3,880
Ave Parkers per Ship	1,050	1,200	1,476	1,548
% PAX Parking	33.2%	41.6%	46.4%	39.9%

ES.7.2 Estimated Future Traffic

Truck Traffic

As part of the 2018 Update, B&A partnered with CTS Engineering, Inc. (CTS) to conduct a detailed traffic study. Figure ES.7.5 shows the study area. Future truck forecasts for the Port were developed by CTS based on the market assessments developed for all Port lines of business as part of Element 2. It was determined that the likely unconstrained scenarios should be used as the basis for developing future truck and cruise traffic demand within the study area rather than the subsequently developed constrained scenarios that were developed for cruise and containerized cargo, respectively. The rationale for this decision was that the unconstrained forecasts, which result in more volume in most years of the 20-year projection period than the constrained forecasts, effectively represent a “worst case” scenario vs. the constrained forecasts.

Truck and passenger traffic for roadways with direct access to Port Everglades via security checkpoints and those inside the Port were estimated using volume ratios between future year traffic and 2018 traffic based on the likely growth scenarios for each line of business at the Port. Annual Average Daily Traffic (AADT) for trucks and passenger vehicles were estimated separately. Table 4.2.3 shows the 2018 base year truck traffic and projected truck traffic and volume ratios between the future truck traffic and 2018 truck traffic on roadways with security gates for the years 2023, 2028, 2033 and 2038.

Figure ES.7.5: Port Everglades Traffic Study Area

Source: CTS Engineering, Inc.

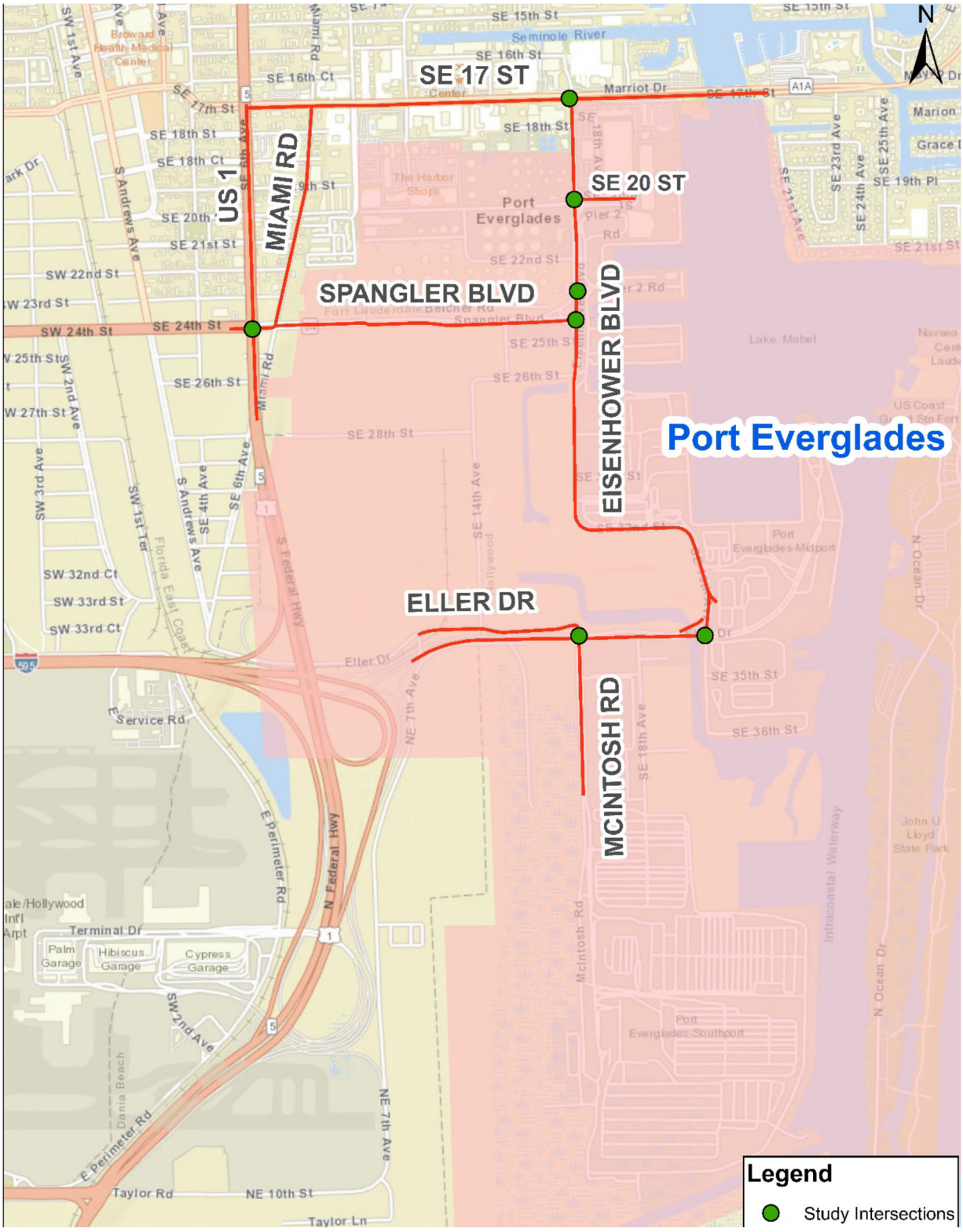


Table ES.7.2: Projected Port Truck Traffic by Gate by Plan Milestone Year
Source: CTS Engineering, Inc.

Gate	Existing/Projected Weekly Truck Traffic				
	2018	2023	2028	2033	2038
McIntosh Road	15,977	17,502	20,727	23,600	26,548
Eller Drive	19,031	20,499	21,078	21,873	22,893
Spangler Boulevard	11,693	11,650	11,523	11,656	11,811
Eisenhower Boulevard	1,511	1,266	1,235	1,222	1,223
Gate	**Truck Traffic Ratio (vs. 2018)**				
	2018	**2023**	**2028**	**2033**	**2038**
McIntosh Road	-	1.095	1.297	1.477	1.662
Eller Drive	-	1.077	1.108	1.149	1.203
Spangler Boulevard	-	0.996	0.985	0.997	1.010
Eisenhower Boulevard	-	0.838	0.817	0.809	0.810

Passenger Vehicle Traffic

For non-truck traffic, the analysis conducted by CTS indicates that passenger vehicle volumes will increase as follows:

- 18 percent (2023)
- 40 percent (2028)
- 65 percent (2033)
- 95 percent (2038)

Future traffic for roadways outside Port Everglades, such as U.S. Highway 1 (US 1), State Route 84 (SR 84), Southeast 17th Street (SE 17th St) and Eisenhower Boulevard (Eisenhower) north of SE 17th St, was estimated using the conventional methodology as described in the 2014 FDOT Project Traffic Forecasting Handbook. The latest Southeast Florida Regional Planning Model, Version 7.071 (SERPM 7.071) was used for travel demand forecasting. SERPM 7.071 is validated to year 2010 conditions and includes a

future year 2040 scenario that contains the adopted cost feasible plans for Palm Beach County, Broward County, and Miami-Dade County. Forecasted AADT and truck percentages for future years 2023, 2028, 2033, and 2038 are presented in Table ES.7.3. For future turning movements entering/exiting Port Everglades, the 2018 truck and passenger vehicle turning volumes were adjusted using the volume ratios from the market analysis and peak-to-daily ratios from previous traffic studies.

Table ES.7.3: Projected Port AADT and Truck Percentages
Source: CTS Engineering, Inc.

Location	2023		2028		2033		2038	
	AADT	%Truck	AADT	%Truck	AADT	%Truck	AADT	%Truck
I-595 (west of McIntosh Rd)	19,100	39.7%	20,700	37.7%	22,500	36.0%	24,600	34.4%
Eller Dr (north of I-595)	3,900	4.8%	4,300	4.5%	4,800	4.2%	5,300	4.0%
McIntosh Rd (south of Eller Dr)	6,000	60.2%	7,000	61.1%	7,900	61.7%	8,900	61.6%
Eller Dr (east of McIntosh Rd)	15,600	26.4%	17,000	24.9%	18,700	23.5%	20,600	22.3%
SE 19th Ave (north of Eller Dr)	16,200	3.0%	18,000	2.8%	20,100	2.6%	22,600	2.4%
Eller Dr (east of SE 19th Ave)	1,400	2.0%	1,600	1.8%	1,800	1.7%	2,000	1.6%
SE 19th Ave (south of Eller Dr)	2,300	33.4%	2,500	31.6%	2,700	30.4%	3,000	28.6%
US 1 (north of Spangler Blvd)	57,600	4.4%	59,300	4.4%	61,000	4.4%	62,900	4.3%
Spangler Blvd (east of US 1)	12,300	19.2%	13,500	17.9%	14,800	16.8%	16,400	15.5%
US 1 (south of Spangler Blvd)	59,400	6.4%	61,500	6.4%	63,600	6.3%	65,800	6.3%

Location	2023		2028		2033		2038	
	AADT	%Truck	AADT	%Truck	AADT	%Truck	AADT	%Truck
SE 24th St (west of US 1)	20,700	7.5%	21,800	7.3%	23,100	7.0%	24,600	6.8%
Eisenhower (north of SE 17th St)	6,300	2.0%	6,400	2.0%	6,600	2.0%	6,800	2.0%
SE 17th St (east of Eisenhower)	32,900	3.6%	33,800	3.6%	34,700	3.6%	35,700	3.6%
SE 17th St (west of Eisenhower)	47,900	3.7%	49,400	3.7%	50,900	3.6%	52,500	3.6%
Eisenhower (south of SE 17th St)	3,600	9.5%	4,000	8.8%	4,400	8.2%	5,000	7.4%
Eisenhower (north of Spangler Blvd)	3,800	9.6%	4,200	8.9%	4,700	8.1%	5,300	7.4%
Spangler Blvd (west of Eisenhower)	6,200	19.2%	6,800	18.0%	7,500	16.7%	8,300	15.5%
Eisenhower (south of Spangler Blvd)	3,600	3.1%	4,000	2.8%	4,500	2.6%	5,100	2.4%

ES.7.3 Rail Usage Projections

The near-dock FEC ICTF at Port Everglades is a tremendous asset to the Port for a variety of reasons. Since opening in 2014, the FEC ICTF at Port Everglades has handled more international cargo than domestic cargo every single year. In FY2017, the most recent 12-month data available, the ICTF handled 63,142 international moves (113,656 TEUs), compared to 50,030 domestic moves. This represents 14.5 percent of Port Everglades' FY2017 loaded container throughput and 10.6 percent of total throughput. The principal reason that intermodal volume moving via the ICTF at Port Everglades is not higher relates to the size and geographic extent of Port Everglades' current hinterland. The time to market and cost-per-unit advantages of intermodal rail vs. over-the-road trucking typically do not manifest within 250 miles of a port, for either imports or exports. Since the vast majority of containerized imports and exports that currently move through Port

Everglades have a point of origin or final point of consumption within South or Central Florida, rail is not competitive with trucking, from either a time or cost perspective.

Looking to the future, the constrained containerized cargo projection favored by Port Everglades management does not anticipate substantial new penetration of out-of-state markets by Port Everglades for dry cargo. For perishable cargo, there is potential to grow out-of-state market shares, and rail could play a key role in that. In FY2017, 18.7 percent of total Port Everglades loaded volume (TEUs) consisted of perishables, making Port Everglades Florida's top port for perishables and the fifth most important container port in the U.S. for perishables by volume. If Port Everglades continues to play such a key role in the perishables supply chain in the future, then there is reason to believe that intermodal rail could help the port to reach new out-of-state markets, certainly for perishable imports, but also potentially for perishable exports, such as frozen (or chilled) meat and poultry from the U.S. Midwest. Rail could also be used increasingly for ro-ro export cargo; specifically, new U.S.-manufactured automobile exports to Latin America and the Caribbean. In terms of the annual number of rail moves at Port Everglades, however, ro-ro cargo amounts to a very small percentage of the total with utilization being driven almost entirely by containerized cargo.

Table ES.7.4 presents projected annual throughput data for the ICTF based on the constrained containerized cargo projection developed by the Port and B&A subsequent to the unconstrained forecasts developed as part of Element 2. This rail volume projection assumes a compound annual growth rate (CAGR) of 1.03 percent between 2018 and 2038 compared to a CAGR of 1.02 percent for containers during the same period. This slight difference reflects a very modest increase in rail vs. truck market share over the 20-year planning horizon to account for proportionately modest growth in over Port market share (i.e. perishable imports, new automobile exports).

Table ES.7.4: Annualized Rail Throughput Projections (TEUs) – Constrained Projection
Source: B&A

Year	Total TEUs (Constrained)	ICTF TEUs (Constrained)	% Total Container Volume
2018	1,108,465	**110,495**	10.0%
2019	1,080,000	**116,097**	10.7%
2020	1,080,000	**121,843**	11.3%
2021	1,105,000	**127,663**	11.6%
2022	1,130,000	**133,547**	11.8%
2023	1,180,000	**139,477**	11.8%
2024	1,291,492	**145,446**	11.3%
2025	1,342,831	**151,442**	11.3%
2026	1,384,577	**156,762**	11.3%
2027	1,426,227	**162,076**	11.4%
2028	1,467,883	**167,395**	11.4%
2029	1,509,719	**172,743**	11.4%
2030	1,551,845	**178,136**	11.5%
2031	1,588,525	**182,762**	11.5%
2032	1,625,263	**187,399**	11.5%
2033	1,662,036	**192,042**	11.6%
2034	1,698,907	**196,699**	11.6%
2035	1,735,913	**201,377**	11.6%
2036	1,773,091	**206,079**	11.6%
2037	1,810,383	**210,798**	11.6%
2038	1,847,891	**215,549**	11.7%
CAGR (2018-2038)	1.02%	**1.03%**	

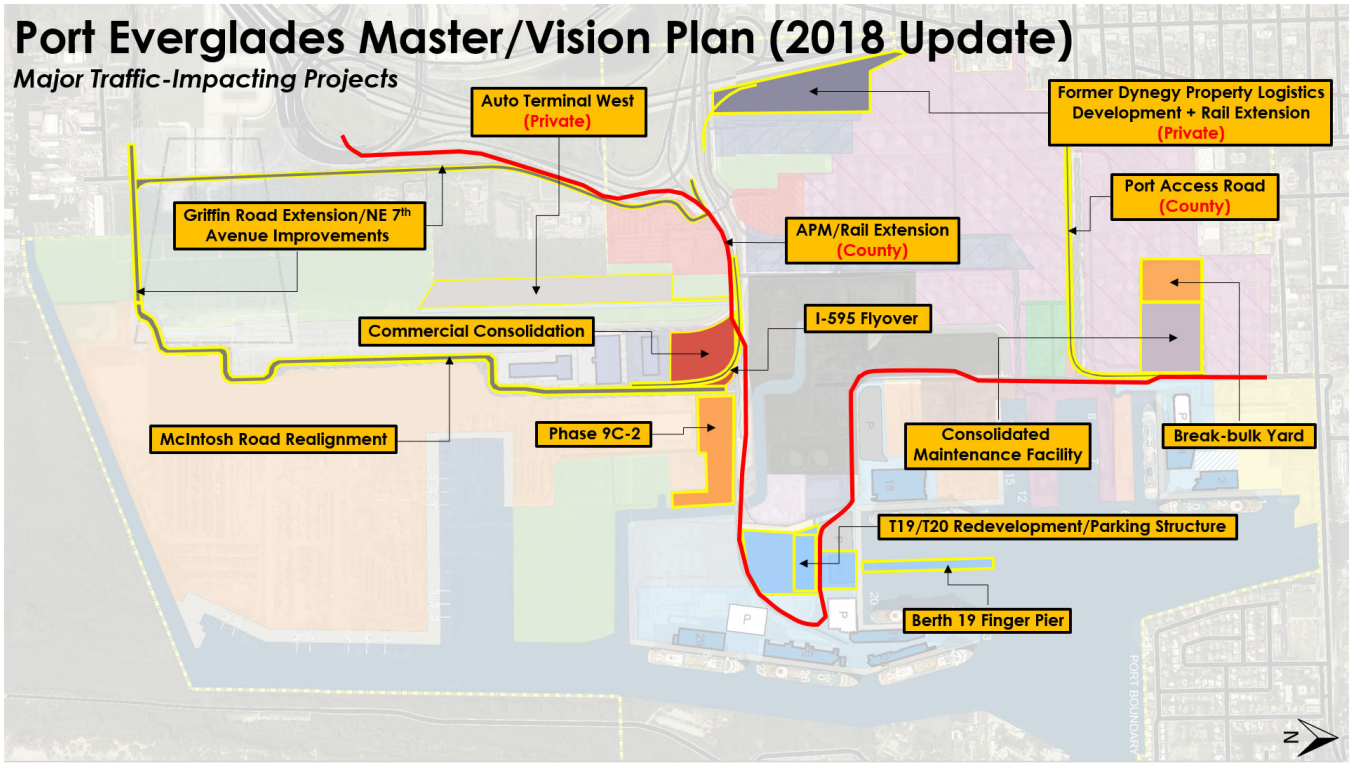
ES.7.4 Environmental Impact Assessment

Vehicular Traffic

Several major projects included in the 5-year Master Plan as well as the 10- and 20-year Vision Plans will have a significant impact on traffic patterns in and around the Port. These projects are shown together in Figure ES.7.5.

Table ES.7.5: 2018 Update – Traffic-Impacting Projects

Source: B&A



All projects shown above will require new or revised stormwater surface management permits with Broward County. Some may also have tree impacts that will need to be addressed with the local municipalities under their pre-permitting ordinances. Any areas that are heavily used by wading birds, wood storks and/or spoonbills, have seagrass, include manatee sanctuaries or require mangrove mitigation will require environmental permits as well. As previously mentioned, as part of the 2018 Update B&A partnered with CTS to conduct a detailed traffic study. The goals of this study were to:

- Evaluate the impacts of relevant 5-, 10- and 20-year projects included in the 2018 Update to future traffic both within the Port and on the surrounding roadway network
- Provide recommendations related to existing and proposed roadway infrastructure, including improvements and alternatives to ensure unimpeded passenger and cargo movement in and around Port Everglades

Two scenarios were evaluated to achieve these goals. The first (no-build) scenario assumed status quo conditions (i.e. none of the projects in the 2018 Update will be implemented) through 2038. The second (build) scenario assumed all projects in the 2018 Update will be implemented as proposed in the years identified. Traffic analyses were performed for both the no-build and build scenarios for each year. What follows is a summary of findings of the traffic study conducted by CTS related to the Port's key intersections. A much more detailed analysis is presented in Element 4.

Existing Conditions

- Based on the analysis, all intersections included in the study are currently operating at level of service (LOS) D or better during the morning peak hours
- During the weekday midday peak hour, all intersections are operating at LOS C or better except the intersection of US 1 and SR 84/Spangler Boulevard, which is operating at LOS F
- During the weekend midday peak hour, when cruise traffic is heaviest, all intersections are operating at LOS D or better except the intersection of Eller Drive and McIntosh Road, which is operating at LOS F
    - The queues on the eastbound approach at this intersection extend all the way onto I-595 during this period due to high cruise traffic volumes

No-Build

- Under the no-build scenario, due to vehicle processing times at the security checkpoints on Eller Drive and McIntosh Road, queues on the eastbound approach were found to spill back onto I-595
    - During the weekday morning and weekend midday peak hours, the queues of the eastbound through movement were found to impact the eastbound right-turning movements

- During the weekday midday peak hour, the queue of the eastbound right-turning movement was found to spill back onto I-595 and affect the eastbound through movement
- Delays for the northbound left-turning movement were found to exceed 120 seconds by 2038
- Queues on the northbound approach were found to extend to the McIntosh Road security checkpoints during the weekday midday peak hour by 2038
- The intersection of Eller Drive and SE 19th Avenue was found to operate at LOS F by 2038 during the weekend midday peak hour

Build

- The future build scenario includes a number of projects, particularly in Southport, that will improve the capacity and operations of the roadway network in and around Port Everglades; these roadway improvements include:
  - I-595 flyover
  - Griffin Road extension/NE 7th Avenue improvements
  - McIntosh Road realignment
  - Removal of the security checkpoints on McIntosh Road immediately following the opening of the secondary Southport access point included as part of the Griffin Road extension project
  - Improvements to the intersection at Eller Drive and SE 19th Avenue

Impacts to the Natural Environment

The waters and lands in and around Port Everglades provide habitat for numerous plant and aquatic species. A detailed discussion of the various species and natural resources in the Port environment can be found in Element 1. Element 4 discusses impacts resulting from the projects included in the 5-year Master Plan and 10- and 20-year Vision Plans as proposed in the 2018 Update and discusses mitigation requirements for those impacts specific to the aspects identified in Table ES.7.5.

Table ES.7.5: Summary of 2018 Update Impacts to the Port's Natural Environment
Source: B&A

	Upland Habitats	Beaches and Dunes	Freshwater Wetlands	Mangroves	Seagrasses	Artificial Susbtrates	Coral, Reef and Hardbottom	Shorebirds & Wading Birds	Manatees	Sea Turtles	American Crocodile	Mobile marine species	Smalltooth Sawfish
Berth & Apron					X	X	X		X	X	X	X	X
Channel	X	X		X	X	X	X	X	X	X	X	X	X
Cruise Terminal								X					
Logistics	X		X					X					
Parking								X					
Transportation	X		X	X				X					

Most of the projects within the categories shown in ES.7.5 affecting wildlife and habitat will require environmental permits from regulatory agencies including the U.S. Army Corps of Engineers (USACE), Florida Department of Environmental Protection (FDEP), and Broward County Environmental Protection and Growth Management Division (EPGMD). Any potential impacts to species listed under the Endangered Species Act (Act) must be consulted on under Section 7 of the Act, with the National Marine Fisheries Service (NMFS) and/or the U.S. Fish and Wildlife Service (USFWS). Coral relocation will require a Special Use License (SAL) from the Florida

Fish and Wildlife Conservation Commission (FWC). Additional details on the impacts of the Port Everglades Deepening and Widening project, and proposed mitigation, can be found in the Environmental Impact Statement and associated documents for that project.

Water Resources

Most of the projects included in the 2018 Update of the Port Everglades Master/Vision Plan consist of expanded or reconfigured cargo yards, renovated cruise terminals, new parking structures, development of currently undeveloped land and new roadways, all of which involve increasing impervious areas within the Port. These projects will impact surface water and will require new or revised surface water management permits. Under Multisector Generis Permit (MSGP) a NPDES permit is required to address stormwater management under permit FLR05B255 charge to implement SWPPP with pollution prevention measures, treatment or removal techniques, monitoring, BMPs and other practices to control water quality by periodically monitoring TN, TP, chlorophyll-H, and copper.

Climate Change, Resiliency and Sustainability

The Port has been proactive in the response to climate change, resiliency and sustainability and has continued its program to reduce its carbon emissions and monitor the effect of program initiatives. The Port continues to explore methods of reducing the amount of solid and liquid waste generated during operations by implementing a variety of recycling and waste reduction programs, such as eliminating the use of mineral spirits and aerosols. Currently, the Port continues its recycling program for glass, plastic, colored and white paper, waste oil, absorbent rags, spent absorbent, batteries, tires, fluorescent tubes, print cartridges, and cardboard in the administrative building and are expanding these initiatives to other buildings and terminals.

As part of the critical infrastructure of Broward County, the Port will implement the Broward County Climate Change Element recently adopted into the County's Comprehensive Plan. The goals and policies in this element provide specific direction to local government agencies, including the Port, on critical issues to address in the context of climate change, including action items that affect immediate planning at the Port.

To evaluate the eventual effects of global climate change on the Port's shoreline, the Broward County Environmental Planning and Growth Management Department (EPGMD) and local municipalities are working together on several initiatives to be considered in the evaluation of future developments at Port Everglades. These include:

- Southeast Florida Regional Climate Change Compact Unified Sea Level Rise Projection
- Evaluation of Drainage Infrastructure Capacity Under Projected Sea Level and Climate Conditions in Broward County, FL
- Future Conditions – 100-year Flood Elevation map
- Regional Resilience Standard for Tidal Flood Barriers
- Countywide Risk Assessment and Resilience Plan for Capital Improvements
- Resilient Design for Convention Center and Hotel Complex
- City of Hollywood- Vulnerability assessment
- Green infrastructure
- Greenhouse gas (GHG) emissions

Air Quality

Port-related impacts to air quality are driven by four major sources:

- Vessels
- Vehicles (trucks, passenger vehicles, buses and other rolling stock)
- Locomotives
- Yard equipment

Historically, increases in vessel or vehicle traffic, or in aggregate hours of operation of yard equipment, have led to a roughly proportionate increase in emissions. However, the global cruise industry, the international trade community and the State/Federal government are all making significant strides in reducing per-unit emissions by phasing in alternative fuel types and new technologies. This 2018 Update does not include a comprehensive or quantitative assessment of air emissions at Port Everglades. From a more qualitative perspective, however, it is clear that the projected growth in vessel calls and vehicle trips at Port Everglades along with the need to introduce additional yard equipment to help increase container terminal density and throughput will result in an

increase in air emissions if not managed and/or mitigated. The focus of Element 4 is vessels and yard equipment rather than vehicles and locomotives due to the fact that the Port is better positioned to take measures to influence vessel and yard equipment emissions than vehicle or locomotive emissions, which are driven entirely by State and/or Federal regulations and standards.

- **Vessels**
  The vessels calling Port Everglades vary substantially across essentially all categories, including age, size, energy consumption and engine efficiency, among others. Because of this, different vessels contribute to different degrees to air emissions. There are currently three principal means of reducing air emissions from vessels:

  - Shore power
  - Scrubbers
  - Alternative fuels

  In evaluating these three approaches to reducing vessel-related air emissions, a fair assessment would seem to be that shore power represents a past solution, with scrubbers representing the predominant interim solution and LNG (or other alternative fuels) being the most viable long-term solution currently envisioned. If sustained over time, the differential in cost between powering a given cruise vessel using shore power vs. doing so using ships' engines as the current practice would serve as a business deterrent, since it would effectively increase the cost of calling Port Everglades by imposing a shore power premium that Port Everglades' principal competitors – including Port*Miami* and Port Canaveral, among others – do not impose. The high costs associated with developing shore power infrastructure at multiple Port Everglades berths would also add well over $100 million to the port's long-term capital program, and would create a very large opportunity cost since a $100+ million increase in capital expenditures for shore power would most likely have to be offset by a $100+ million reduction in other capital expenditures, including other projects that are more urgent in nature from a competitiveness and efficiency standpoint. For these and other reasons, shore power does not appear to be economically viable at Port Everglades.

- **Yard Equipment**
  Apart from vessels, the other major source of air emissions at the Port that the Port may be able to influence is yard equipment. Yard equipment includes STS cranes as well as other heavy-duty rolling stock used to move cargo, such as rubber-tire gantry cranes (RTGs), reach stackers, forklifts, etc. Electrified and/or alternative fuel models of most such equipment is already commercially available and Port Everglades has already implemented numerous strategies to manage air emissions generated by yard equipment. All of the Port's STS cranes in Southport connect to the local FPL grid and run on electricity, for example as do all RTGs currently in service in Southport. Going forward, the Port can continue to partner with its marine terminal operators and other parties to ensure that best environmental practices are followed, including the prioritization of low- or "zero" emission yard equipment. As a landlord port, Port Everglades does not have the ability to force its tenants to purchase specific types of equipment. Nor is it likely in the Port's best interest to do so from a competitive perspective. However, a variety of incentives can likely be used to move individual tenants toward more sustainable operating practices on their leaseholds, thereby resulting in lower air emissions over time.

ES.7.5 Business and Asset Utilization Strategies

Summary of Strategic Considerations
The Port's business strategies must consider the following:

- Status and integration of ongoing projects
- The Port's updated 5-year Master Plan (CIP) and 10- and 20-year Vision Plans
- The Port's likely future market position (i.e. most probable trade/cruise markets) and correlating volumes
- Implementation and timing of the U.S. Army Corps of Engineers (USACE) deepening and widening project
- Ways to adapt current operations to capture the full benefit of major projects as they come into service, especially the STNE, the USACE deepening and widening project and modifications to the Port's Midport cruise infrastructure – including construction and activation of the new Automated People Mover (APM)
- Ongoing challenges related to air-draft and crane-height restrictions in Southport

- Higher density container terminals and greater operational efficiencies
- Affordability and phasing of proposed infrastructure improvements so as to balance available funding with construction costs and maximize return on investment
- Impact of construction to replace aging bulkheads and modernize petroleum pipelines
- Near- and long-term traffic and parking management
- Design parameters to increase operational savings
- New approaches to land leases, user agreements and overall development of Port assets, including opportunities to more creatively partner with private and other third-party stakeholders to achieve common goals
- Balance between commerce and security

Key Concepts

There are six key business and asset utilization concepts that the Port must incorporate into its ongoing planning efforts to meet near-term and long-term growth objectives while ensuring sustainable financial and operating practices. These are summarized as follows:

- The Port must continue to increase its capacity in order to meet projected future demand, particularly for the cruise and containerized cargo lines of business
- Capital improvements should enhance flexibility and facilitate higher utilization of infrastructure assets, particularly berths and supporting upland areas (i.e. marine terminals, cruise terminals, parking structures)
- Diversification of commodity throughput should be maintained but also prioritized consistent with the individual business line market assessments completed as part of Element 2
- Operational efficiencies, such as mitigating traffic congestion and increasing petroleum-receiving system efficiencies should be prioritized in order to ensure the Port remains competitive
- Land use efficiencies (i.e. container terminal densification/reduced container dwell times) and traffic management solutions (i.e. terminal appointment systems) within and relating to leased areas, particularly in Southport, should be encouraged, incentivized and/or required as part of future lease negotiations
- Integration among Broward County's many assets – including Port Everglades, Fort

Lauderdale-Hollywood International Airport, Broward County Convention Center, Port users, the local maritime/marine industry, the broader Broward County business community and the environmental community, among others – will help to align goals across County agencies and different stakeholder groups, and so too ensure that the Port continues to be able to grow

ES.7.6 Financial Strategies

As with past Master/Vision Plan updates, the principal financial strategy guiding the development of the 5-year Master Plan portion of the 2018 Update applies the asset utilization strategies outlined above to analyze and prioritize key requirements and incorporate sustainable and high value-added projects into the CIP to meet those requirements. This strategy recognizes that projected gross revenue from a project cannot be the only criterion used to evaluate the project since other criteria, such as those included in the project decision matrix presented in Element 3 must also be used to assess the overall benefit of the project more holistically, including its economic and environmental impacts. There are four key financial concepts that the Port must use to meet its near-term and long-term growth objectives while ensuring sustainable financial and operating practices. These are:

- Port revenues should be maximized – with an emphasis on opportunities to generate new revenue streams – within competitive constraints and Port operating costs – including labor, utilities and other expenses – should be minimized where possible to increase net income
- Utilization of alternative funding sources, such as Federal and State grants as well as public-private partnerships, should continue to be pursued aggressively and implemented whenever possible to ensure that the Port achieves its future vision in close partnership with other vested Port interests (i.e. shared financial risk) and to ensure that the Port sustains acceptable levels of debt coverage
- A project decision matrix that evaluates and assigns relative values to competitiveness, economics and sustainability should be used to make go/no-go decisions on all proposed infrastructure projects
- Port revenues must, at minimum, cover bond requirements and fund investments to maintain assets in a state of good repair as well as make much needed capital improvements, consistent with the 2018 Update of the Master/Vision Plan

Apart from pursuing the maximum return on investment possible from negotiated agreements with its core tenants and users, Port Everglades should pursue new revenue opportunities wherever practical. B&A believes there are at least three such potential opportunities for new revenue. These include:

- Parking/Port Access Fees
- Commercial Office/Building Leases
- Alternative/secondary use of cruise terminals

Alternative Funding Sources

Port Everglades has been successful in the past in securing private, State, and Federal funding in the form of public/private co-investment, grants and loans that have helped to develop several critical projects, including among others:

- Cruise Terminal 18 (T18) (public/private co-investment)
- ICTF (private)
- STNE (Federal)
- Eller Drive-I-595 connector (State)

The 2018 Update assumes that Port Everglades will continue to be successful not only in securing State and Federal grant dollars but in achieving a greater degree of public/private co-investment in its facilities in partnership with its tenants and other users. These third-party partnerships are vital to the feasibility of the overall Plan.

Tables ES.7.6-ES.7.8 identify minimum third-party funds that are expected to be available to support the implementation of the proposed 5-year Master Plan and 10- and 20-year Vision Plans. In addition to the non-Port funds identified in Tables 4.5.1-4.5.3, there will be numerous opportunities to pursue additional State and Federal funds during the coming 20 years. These opportunities include Better Utilizing Investments to Leverage Development (BUILD – formerly known as TIGER) grants, Diesel Emission Reduction Act (DERA) grants, Transportation Infrastructure Finance and Innovation Act (TIFIA) loans, Infrastructure for Rebuilding America (INFRA) program funds and Maritime Administration (MARAD) Port Infrastructure Development grants, among other opportunities, and additional FDOT/FSTED grants at the State level.

Most Federal funds are awarded through a highly competitive application and

lobbying process, meaning there is no guarantee that the Port will be successful in securing additional Federal funding for its projects. However, several ports – including at least two in Florida – have been very successful in securing competitive Federal grant awards so the Port should continue to pursue such opportunities aggressively using a strategic approach that increases the chance of success. It may also be possible for the Port to achieve higher levels of direct investment by Southport tenants to support the additional work required to consolidate land, improve operations and increase overall container terminal throughput there. Such opportunities should be explored on an ongoing basis and integrated into the lease negotiation process.

Table ES.7.6: Anticipated Project Funding by Source – 5-Year Master Plan
Source: Port Everglades; B&A

Project	$ (000)					
Funding Source	Port	Private	County	FDOT/ FSTED	Federal	TOTAL
T2/T4 Parking Garage	$112,401					**$112,401**
Maintenance Facility Consolidation	$17,500			$3,500*		**$21,000**
Slip 1/Phase 1 (Berths 9/10 Bulkheads)	$88,809	$40,000		$8,691		**$137,500**
Port Access Road			$35,000			**$35,000**
T21 Redevelopment	$69,000	$51,418		$3,500*		**$123,918**
Ro-Ro Yard Relocation/ Expansion	$9,549					**$9,549**
3 SPP STS Cranes	$45,207			$9,400		**$54,607**
PEV ILC	$2,500	$27,500				**$30,000**

** Anticipated future FSTED funds*

Project	$ (000)					
Funding Source	Port	Private	County	FDOT/ FSTED	Federal	TOTAL
Phase 9A	$18,500					**$18,500**
STNE	$335,744			$97,433**		**$433,177**
SP Crane Rail	$64,371			$15,211		**$79,582**
3 SPP STS Cranes	$41,400					**$41,400**
USACE Deepening & Widening (USCG Recon)	$9,800				$29,300	**$39,100**
USACE Deepening & Widening	$57,634			$94,826	$231,577	**$384,037**
Former Dynegy Logistics Development		$50,000				**$50,000**
Auto Terminal West		$20,000				**$20,000**
I-595 Flyover	$6,897			$39,081*		**$45,978**
Berths 1A, 1B, 2, & 3 Bulkheads	$22,000			$3,500*		**$25,500**
Berths 7, 8, 8A & 32 Bulkheads (Design)	$3,400					**$3,400**
Berths 16-18 Bulkheads	$15,330			$10,866*		**$26,196**
Berths 21 & 22 Bulkheads	$21,058					**$21,058**
Entrance Channel North Wall	$12,000					**$12,000**
TOTAL	**$953,100**	**$188,918**	**$35,000**	**$286,008**	**$260,877**	**$1,723,903**

** Anticipated future FSTED funds*
*** Includes $34.5 million bond*

Table ES.7.7: Anticipated Project Funding by Source – 10-Year Vision Plan

Source: Port Everglades; B&A

Project	$ (000)					
Funding Source	**Port**	**Private**	**County**	**FDOT/ FSTED**	**Federal**	**TOTAL**
Break-bulk Yard	$3,100			$3,500*		**$6,600**
Slip 1/Phase 2 (Berths 7, 8, 8A & 32 Bulkheads)	$37,000			$3,500*		**$40,500**
Tracor Basin Fill	$64,526			$3,500*		**$68,026**
Ro-Ro Yard Expansion	$1,106					**$1,106**
T29 Redevelopment	$61,959	$61,959				**$123,918**
T26 Redevelopment	$61,959	$61,959				**$123,918**
T29/T26 Parking Structure	$41,190					**$41,190**
Phase 9C-1	$3,765					**$3,765**
Griffin Road Ext/NE 7th Ave Improvements	$21,234					**$21,234**
McIntosh Road Realignment	$18,439					**$18,439**
Container Terminal Reconfiguration	$37,628					**$37,628**
APM/Rail Extension (TBD)	$0					
Berth 29 Bulkheads	$13,800			$3,500*		**$17,300**
Berths 4-6 Bulkheads	$29,800			$3,500*		**$33,300**

** Anticipated future FSTED funds*

Project	$ (000)					
Funding Source	Port	Private	County	FDOT/ FSTED	Federal	TOTAL
Berths 14 & 15 Bulkheads (Design Only)	$2,810			$3,500*		**$2,810**
TOTAL	**$398,316**	**$123,918**	**$0**	**$17,500**	**$0**	**$539,735**

** Anticipated future FSTED funds*

Table ES.7.8: Anticipated Project Funding by Source – 20-Year Vision Plan

Source: Port Everglades; B&A

Project	$ (000)					
Funding Source	Port	Private	County	FDOT/ FSTED	Federal	TOTAL
Slip 3 Expansion (Berths 11-13 Bulkheads)	$132,480			$3,500*		$135,980
Ro-Ro Yard Expansion	$5,098					$5,097,756
Berth 19 Finger Pier	$121,120			$3,500*		$124,620
T19 / T20 Redevelopment	$103,562	$107,062		$3,500*		$214,124
T19 / T20 Parking Structure	$53,266			$3,500*		$56,766
Phase 9C-2	$17,691			$3,500*		$21,191
1 Small STS Cranes	$11,167			$3,500*		$14,667
Commercial Consolidation	$137,498					$137,498

** Anticipated future FSTED funds*

Project	$ (000)					
Funding Source	Port	Private	County	FDOT/ FSTED	Federal	TOTAL
Berths 19 & 20 Bulkheads	$16,000			$3,500*		$19,500
Berth 23 Bulkhead	$3,600					$3,600
Berths 24 & 25 Bulkheads	$17,000			$3,500*		$20,500
Berths 26 & 27 Bulkheads	$16,600			$3,500*		$20,100
TOTAL	**$659,581**	**$107,062**	**$0**	**$35,000**	**$0**	**$801,643**

** Anticipated future FSTED funds*

ES.7.7 Goals, Objectives and Policies

The Deepwater Port Component (DPC) of the Broward County Comprehensive Plan aims to clearly define a core vision for the Port's coordination, operation, and development under the following four focus areas:

- Economic Vitality
- Safety & Security
- Environmental Stewardship
- Community Engagement

The Port Everglades Master/Vision Plan serves as the State-mandated port master plan for the Port Jurisdictional Area (PJA). The Local Government Comprehensive Planning and Land Development Regulation Act requires that port master plans include goals, attainable objectives, and specific implementation policies to measure a port's progress in achieving its adopted goals. The DPC is therefore not a substitution for the 20-year Master/Vision Plan but, rather, shares the long-term objectives of the plan and sets the foundation by which this vision can be achieved. Table ES.7.9 summarizes the goals, objectives, and policies which will be incorporated into the Goals, Objectives, and Policies section of the

DPC of the Coastal Management Element in Broward County's Comprehensive Plan.

Table ES.7.9: Summary of Port Everglades Goals, Objectives and Policies
Source: B&A

Goal	Objective	Policy
DPC Goal 1: Economic Vitality		
	1.1: Infrastructure Development	
		1.1.1: Short-term Infrastructure Improvements
		1.1.2: Infrastructure Maintenance
		1.1.3: Multi-purpose Terminals
		1.1.4: Interconnected Land Uses
		1.1.5: Intermodal Facilities
		1.1.6: Foreign-Trade Zone
		1.1.7: Future Development
		1.1.8: Convention Center Integration
	1.2: Cargo and Cruise Industry Expansion	
		1.2.1: Marketing Plans
		1.2.2: Marketing Activities
		1.2.3: Private Businesses
	1.3: Land Use Compatibility and Development Regulation	
		1.3.1: Development Consistency
	1.4 Deepwater Access	
		1.4.1: Maintenance Dredging
		1.4.2: Channel Deepening and Widening
	1.5: On-Port Road and Rail Network	
		1.5.1: On-Port Road
		1.5.2: On-Port Rail
		1.5.3: Traffic Monitoring

		1.5.4: High Speed Intermodal Connections
		1.5.5: Off-Port Rail
		1.5.6: Connectivity with FLL and BCCC
	1.6: Transportation Agency Coordination	
		1.6.1: MPO Transportation Improvement Program
		1.6.2: FDOT District 4 Annual Work Program
		1.6.3: Broward County Capital Plan
		1.6.4: Florida Seaport Transportation and Economic Development Program
		1.6.5: Infrastructure Maintenance
		1.6.6: Water-Dependent Access
		1.6.7: Interagency Coordination
	1.7: Budgetary Process	
		1.7.1: Competitive Pricing
		1.7.2: Port ROI
		1.7.3: Expense Benchmarking
		1.7.4: Coastal Storm Area
	1.8: Capital Improvement Program	
		1.8.1: 5-Year CIP Updates
		1.8.2: 10- and 20-Year Vision Plan Updates
	1.9: Funding Opportunities	
		1.9.1: Economic Impact Awareness
		1.9.2: State and Federal Funds
		1.9.3: Public/Private Partnerships
		1.9.4: Sound Financial Management
DPC Goal 2: Safety and Security		
	2.1: Protection from Natural Hazards	
		2.1.1: Development in Flood Zones

		2.1.2: Florida Building Code Compliance
	2.2: Coastal Storm Areas (CSA)	
		2.2.1: CSA Designation
		2.2.2: Prohibited CSA Development
	2.3: Hurricane Preparedness	
		2.3.1: Evacuation Times
		2.3.2: Evacuation Routes
		2.3.3: EMD/USCG Coordination
		2.3.4: Hurricane Simulation Participation
	2.4: Hazardous Materials	
		2.4.1: Handling and Cleanup
		2.4.2: Oil Spills
		2.4.3: Public Communication
	2.5: Safe Operating Environment	
		2.5.1: Health and Safety Measures
		2.5.2: Compliance with Applicable Standards
	2.6: Port Security	
		2.6.1: Port Security Plan
		2.6.2: Interagency Coordination
		2.6.3: Security Checkpoints
		2.6.4: Dockside Access
		2.6.5: Anti-Threat Technology
	2.7: Emergency Management	
		2.7.1: Port Emergency Management Plan
		2.7.2: Interagency Coordination
		2.7.3: Safe and Efficient Vehicular Movement
	2.8: Post-Disaster Redevelopment	

		2.8.1: Procedures
		2.8.2: Hazardous Condition Removal/Public Safety
DPC Goal 3: Environmental Stewardship		
	3.1: Natural Resource Preservation and Protection	
		3.1.1: Cumulative Impacts on Coastal Resources
		3.1.2: Habitat Inventory and Protective Policies
		3.1.3: Manatee Habitat
		3.1.4: Mitigation Plans
		3.1.5: Portwide Best Management Practices (BMPs)
		3.1.6: Dredged Material Disposal and Management
		3.1.7: Consistency with Comprehensive Plans
		3.1.8: Long-Term Planning
	3.2: Estuarine Quality	
		3.2.1: Estuarine System Protection
		3.2.2: Avoidance and Minimization of Water-Quality Degradation
		3.2.3: Water Quality Monitoring
		3.2.4: Drainage
		3.2.5: Annual Hydrographic Survey
		3.2.6: Tidal Flushing and Circulation
		3.2.7: Stormwater Management BMPs
	3.3: Water-Dependent Uses	
		3.3.1: Prioritization of Water-Dependent Uses
	3.4: Beach and Dunes	
		3.4.1: Coastal Construction Control Line
		3.4.2: Sand Bypass System
		3.4.3: Interagency Agreements and Coordination
		3.4.4: Beach Renourishment

	3.5: Sustainability	
		3.5.1: Greenhouse Gas Emissions
		3.5.2: Energy Efficiency/Conservation
		3.5.3: Climate Change
		3.5.4: Historical and Archaeoligical Resources
DPC Goal 4: Community Engagement		
	4.1: Plan Implementation	
		4.1.1: Interagency Coordination
		4.1.2: Port Everglades Transportation Area Compatibility
	4.2: Coordination with Other Broward County Departments	
		4.2.1: Compatibility with Broward County's Comprehensive Plan
		4.2.2: Airport-Seaport coordination
		4.2.3: Level of Service (LOS) Standards
		4.2.4: Interlocal Agreements
	4.3: Community, Agency and Stakeholder Coordination	
		4.3.1: Municipal Coordination
		4.3.2: Interagency Cooperation
		4.3.3: Regional Collaboration