



PORT EVERGLADES 2014 MASTER/VISION PLAN

ELEMENT 6 PLAN IMPLEMENTATION

PRESENTED BY



PLAN IMPLEMENTATION

6.1 Introduction

This element discusses implementation of the *2014 Port Everglades Master/Vision Plan*, presents the Port's 5-Year capital improvement program (CIP), and summarizes the estimated costs of the Port's complete 20-year development program. It concludes with an affordability analysis of the Port's 5-year CIP and 10-year Vision Plan development program.

6.2 Impacts from 2014 Plan Implementation

As required by Chapter 163, Florida Statutes, port master plans must include an assessment of plan impacts on vehicular traffic, the natural environment, and other resources. Summarized below, are some of the traffic and environmental impacts that will result from the development program as well as certain traffic and circulation issues that need study.

6.2.1 Traffic Impacts

Several major projects that have either been completed or are scheduled for completion in 2014 or 2015 will have a positive impact in and around the Port. . These include:

- The Florida East Coast Railway (FEC) intermodal container transfer facility (ICTF).
- The Eller Drive overpass.
- McIntosh Road realignment.
- Relocating the Port's security gate to the south on Eisenhower Boulevard, removing the Broward County Convention Center from the Port's security area.

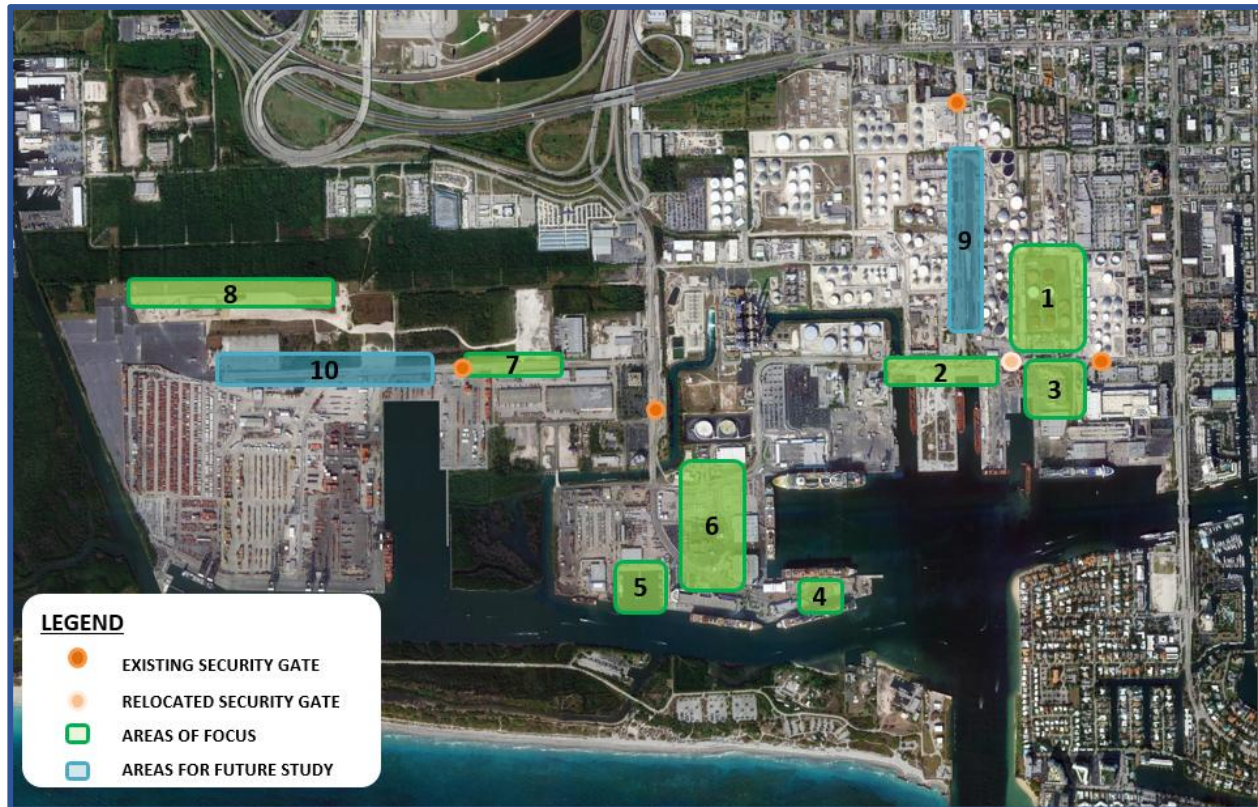
When completed later in 2014, the ICTF and the Eller Drive overpass will facilitate the use of rail to reduce traffic at the Port. As an essential complement to the ICTF, the Eller Drive overpass provides a grade separation for freight rail at the main access roadway to Port Everglades and eliminates a potential blockage on Eller Drive. By 2033, assuming single stacking and operations six days per week, an average of 3.6 container unit trains (generally, two departures and two arrivals) and 1.9 bulk unit trains handling crushed rock (one loaded departure and one empty arrival) are expected to cross Eller Drive. This project eliminates a potential on-grade rail crossing and the associated delay of truck, bus, taxi, and passenger car movements in and out of the Port. In 2033, container operations are expected to avoid more than 222,000 truck trips and bulk operations are expected to avoid an estimated 300,000 truck trips to and from the Port.

The realignment of McIntosh Road, which was completed in May 2014, was intended to speed the flow of trucks moving in and out of the Southport container terminals. Reduced queuing times and less congestion have resulted from this improvement project. When the Southport (McIntosh Road) gate lane addition is implemented, the northbound flow of exiting traffic from Southport will be increased, while the southbound flow of traffic entering Southport is maintained at an adequate level-of-service.

Relocating the existing security gate on Eisenhower Drive further south will eliminate non-Port traffic from queuing at that gate. The resulting removal of the Convention Center from the Port's secured area will significantly reduce the existing traffic that flows through the Port to and from the Center.

Other traffic and circulation access changes will result from Plan implementation over the 5-, 10 and 20-year planning horizons. Figure 6.2-1 highlights these areas, which are discussed below.

Figure 6.2-1
AREAS OF TRAFFIC IMPACT



Northport:

- Neo-bulk storage yard: Reconfigured access from Eisenhower Boulevard., west of Slip 3, resulting from the relocated security gate on Eisenhower Boulevard (1).
- Petroleum berth redevelopment: Reconfigured access from Eisenhower Boulevard., west of Slip 3 (2).
- Cruise Terminal 4 and parking garage: Access from Eisenhower Boulevard within the Port's secure area for buses, taxis, and POVs traveling to/from the terminal and the planned new parking garage (3).

Midport:

- Cruise Terminal 25 Improvements/Expansion: Potential changes to the routing of buses, taxis and POVs within the designated limits of the ground transportation areas (4).
- Cruise Terminal 29 Improvements/Expansion and Tracor Basin Fill (5):
 - Cruise and cargo access separation, e.g., cruise access circulation parallel to Berths 27, 28, and 29 and cargo access from the south extension of 19th Avenue south of Eller Drive.
 - Connectivity between Cruise Terminal 29 and the Midport cruise operations to improve the operating efficiencies of Cruise Terminal 29 within the overall footprint of the Midport cruise area. This would result in access from East Eller Drive.
- Multimodal Facility – Phase 1 and Phase 2 (6):
 - Adding a new parallel road and cruise passenger multimodal center south of Cruise Terminal 19 will reduce taxi and POV traffic on East Eller Drive and eliminate bus traffic from that roadway segment.
 - Developing the first phase of the cruise passenger intermodal center at Midport, programmed in the 10-Year Vision Plan, and the second phase, to be developed in the 20-Year Vision Plan, will have positive cumulative effects on the circulation of cruise-related vehicles. When fully completed, the center, comprising an integrated passenger intermodal zone, or at-grade ground transportation area, will provide a central location for the loading/unloading of buses, shuttles, and taxis. Above the ground transportation area will be structured parking for POVs. The multimodal center will eliminate buses traveling farther east on Eller Drive to alleviate traffic congestion in front of the cruise terminals on the Midport peninsula. Baggage trucks from Fort Lauderdale-Hollywood International Airport (FLL) will both deliver and pick-up luggage directly at each cruise terminal. Provision trucks will also access the wharfs directly for each cruise terminal.
 - Entering buses into a centralized multimodal facility at 19th Avenue, west of East Eller Drive, will reduce traffic on that roadway segment.

Southport:

- As mentioned above, the Southport (McIntosh Road) gate lane addition will increase the northbound flow of exiting traffic from Southport while maintaining an adequate level-of-service for southbound traffic entering Southport (7).
- Developing the crushed rock (aggregate) facility, programmed in the 20-Year Vision Plan, will allow some of Florida's needs for this commodity to be fulfilled without

generating additional truck trips. Since the rock will leave the Port by rail, the import of this commodity will not generate additional truck trips. The facility will transport 4 million tons of crushed rock by rail, rather than using the 200,000 trucks that would otherwise be needed. The use of rail, therefore, will eliminate 400,000 truck trips to/from the Port and the regional roadway system (8).

Over the years, as discussed in Element 1, Port Everglades and FLL, in conjunction with the Florida Department of Transportation (FDOT) have pursued the development of the Broward County Intermodal Center (IMC) and Automated People Mover (APM) system. Since August 2009, the process has been on hold, pending development of a complete funding plan. Once potential funding is identified, the County and FDOT may restart the process and proceed to obtain a Finding of No Significant Impact (FONSI), which would then allow the County to seek federal funds for the project.

The Port's Master and Vision Plans are compatible with the recommended locally preferred alternative (LPA) for the APM system and right-of-way for the system has been preserved on Port property. The two proposed stations for a future APM coincide with both the Midport and Northport cruise passenger multimodal centers. The APM station at Northport will serve the Broward County Convention Center as well as Cruise Terminals 2 and 4.

Other traffic and circulation needs to be considered include:

- Implementing a Port-wide way-finding program to improve traffic flow and vehicular safety within all areas of the Port.
- Staging of petroleum trucks within the Port's gates, possibly along Spangler Road within underutilized rights-of-way or other areas (9).
- Staging of taxis within the Port secure area to allow for timely dispatch to meet peak demand periods of the cruise passenger handling process.
- Addressing the traffic circulation needs of all the vehicles servicing the Midport cruise terminals, particularly the "lollipop" area.
- Implementing final access to the 9A, 9B container yards and the relocated Foreign-Trade Zone based on traffic flows to/from Southport on McIntosh Road and the final site development layout of these Port operating areas (10).

6.2.2 Environmental Impacts to Natural Resources

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 environs can be found in Element 1, prepared in Phase I. This section discusses the environmental impacts resulting from the Port's 5-Year Master Plan and 10- and 20-Year Vision Plans, and discusses mitigation requirements for those impacts.

Three of the proposed projects in the Plan will require permits from environmental regulatory agencies:

- Filling the Tracor Basin to increase berth length, create a container yard, and improve connectivity to the Midport cruise facilities.
- Deepening and widening of the Port entrance channel and deepening the harbor to accommodate larger and deeper-draft vessels.
- Reconfiguring Berth 33, with the required fill.

The first of these changes will involve placing fill and stabilizing structures into submerged lands. Studies of marine resources within the Port (see Section 1.10 in Element 1) find no benthic resources in this location. Therefore, it is not anticipated that mitigation for loss of benthic resources would be required for these projects. Resource agencies, including the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (FWS), who have a significant commenting role with federal environmental permitting, will, however, have specific concerns regarding construction methodology in relation to potential impacts to mobile marine species found within Port waters. This is discussed below under Listed Species.

The major change component is the deepening and widening program, which is the subject of the USACE Port Everglades, Florida Feasibility Study with the *Draft Environmental Impact Statement* (EIS) released on June 28, 2013. Since the document was released, the Port, the USACE, and the NMFS have been continuing to work towards an agreement on the impact evaluation and mitigation process.

Seagrasses. The waters surrounding Port Everglades provide habitat for a variety of seagrasses, including *Halophila decipiens* (Paddle grass), *Halodule wrightii* (Cuban shoal grass), and the federal endangered species *Halophila johnsonii* (Johnson's grass); and associated green and calcareous algae such as *Penicillus* and *Halimeda* spp, Port seagrass distribution base line studies are summarized in Section 1.10.3, Figures 1.10-9 and 1.10-10, and Table 1.10-2 in Element 1.

The USACE draft EIS estimates that impacts to 4.01 acres of seagrass beds will result from the deepening and widening program,, and assesses a total UMAM functional loss score of negative 2.436 to this impact which must be compensated.

Broward County has limited suitable habitat for seagrass beds and seagrass mitigation. Therefore, three off-site mitigation options located in Broward, Miami-Dade and Palm Beach counties were analyzed in the draft EIS. The USACE selected the option to conduct seagrass mitigation at West Lake Park in Broward County (see Figure 6.2-2), as it is in proximity to the Port (thus reducing Broward's net loss of seagrass habitat), and is the most cost-effective option.

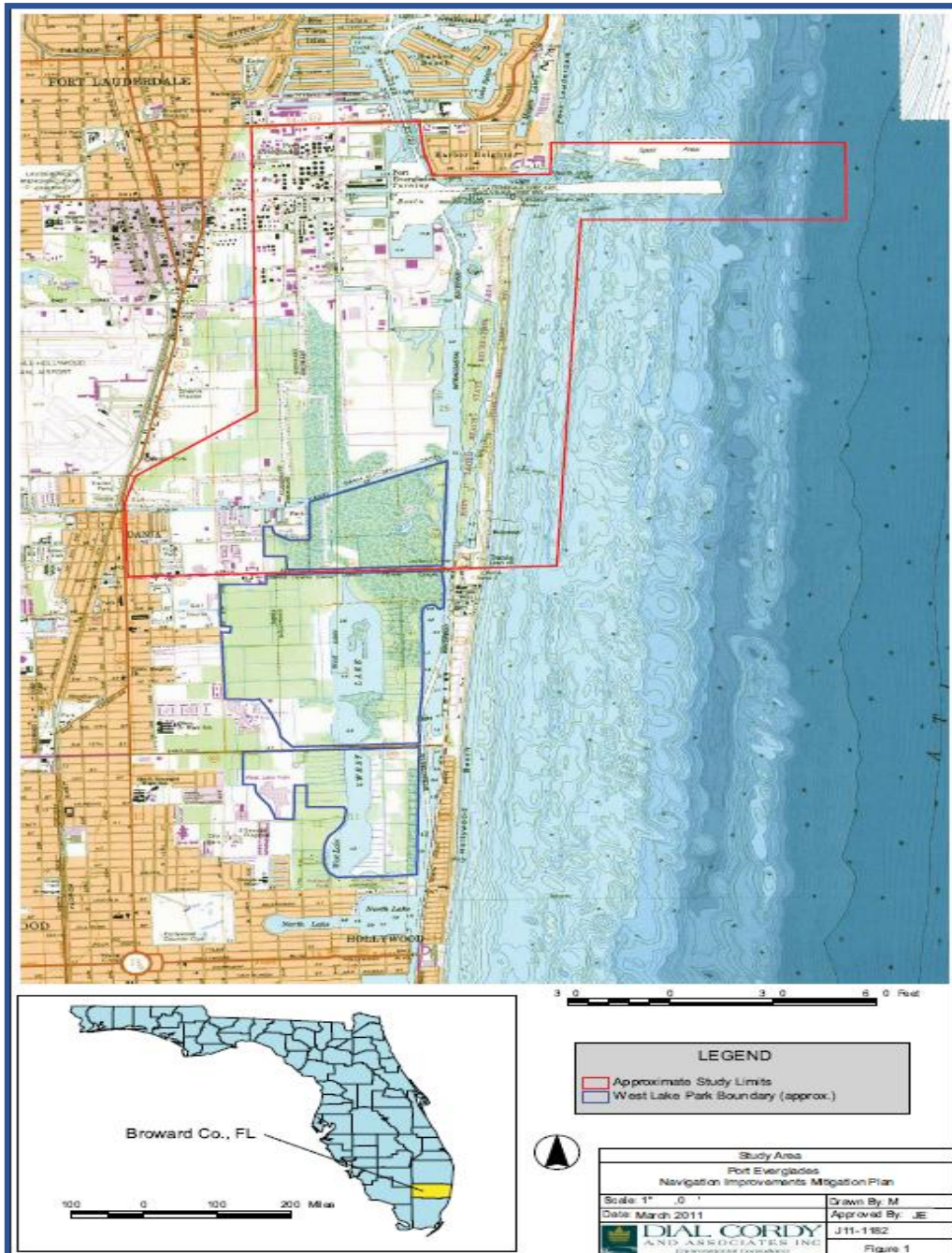
The West Lake Park project was designed and permitted through a partnership between Port Everglades, FLL, and the Broward County Parks and Recreation Division, with functional gain units resulting from implementation of the restoration plan applicable to public projects conducted by Broward County. (See Section 1.10.2 in Element 1 for additional information regarding the West Lake Park project.)

Progress at West Lake Park that would result in seagrass functional gain credits involve creating 7.5 acres of seagrass, restoring 0.5 acres of seagrass habitat through removal of derelict barges, and protecting 30.0 acres of seagrass/manatee habitat. These measures will result in improved water quality, clarity, and substrate conditions for seagrass and submerged aquatic vegetation.

Monitoring of the restoration sites to assure success will be conducted quarterly for a five-year period, and the USACE draft EIS includes a contingency plan if success criteria are not realized.

A total of 3.0 seagrass functional gain credits is estimated in the USACE draft EIS to result from the West Lake Park projects described above, none of which are constructed as yet, nor are any seagrass credits yet utilized for other Broward County projects. Therefore, it appears that adequate seagrass credits are available at West Lake Park to compensate for the 2.436 functional loss units resulting from the deepening and widening project.

Figure 6.2-2
PORT EVERGLADES MITIGATION PLAN LOCATION MAP (DC&A 2013.)
 (Blue contour line delineates West Lake Park, showing proximity to Port Everglades.)



Mangroves. Mangroves are the dominant wetland and largest habitat type within the study area. This habitat mostly comprises red mangrove (*Rhizophora mangle*) or mixed stands of red mangrove and black mangrove (*Avicennia germinans*), with other associated species including white mangrove (*Languncularia racemosa*) and buttonwood (*Conocarpus erectus*). Mangroves have many ecological functions that include shoreline protection and stabilization,

species refuge, breeding grounds and serving as a food source for wildlife and marine species. In addition, these habitats are scarce within Broward County due to urbanization and removal of mangrove habitat. (Section 1.10.2 and Figure 1.10-4 in Element 1 describe mangrove resources within the Southport turning notch area.)

The USACE draft EIS estimates unavoidable impacts to 1.16 acres of mangroves not related to the Southport turning notch extension, with a functional loss score of negative 0.87 units.

The USACE will implement mangrove mitigation at West Lake Park. (See Section 1.10 in Element 1 for more details regarding mangrove work at West Lake Park and credits available as specified in agency permits.) Current tallies of mangrove functional gain credits available show 26.91 remaining credits. The turning notch work will require application of 1.569 credits, leaving ample remaining credits to address compensatory mitigation for the additional mangrove impacts resulting from the deepening and widening project.

The USACE draft EIS describes monitoring of mitigation areas over a five-year period to ensure success criteria are met, and also provides a contingency plan if criteria are not met.

Listed Species. Table 1.10-1 in Element 1 lists the protected species found or potential present within the Port. The Port is committed to addressing the protection of wildlife and marine species within its property and along the waterways. This commitment includes implementation of federal, state, county, and local species protection plans, adherence to special construction techniques and/or guidelines that address wildlife concerns, and participating in scientific programs associated with resource protection.

The USACE draft EIS commits that implementation of the deepening and widening program will comply with applicable standards and protective measures for listed species, as stated in the most current South Atlantic Regional Biological Opinion (SARBO). For specific elements of this project not covered by the SARBO, NMFS will be consulted and separate biological opinions may be prepared.

SARBO requires dredging activities, during transit to/from disposal sites and during disposal operations, to maintain a lookout for any endangered species and carefully avoid them, and reduce speed in limited visibility. Activities relating to the Ocean Dredged Material Disposal Site (ODMDS) could affect certain species, but the USACE draft EIS finds it is not likely to adversely affect any of the threatened and endangered species listed in Table 1.10-1.

Mobile Marine Species, including Manatees, Smalltooth Sawfish and Turtles.

Manatees congregate in the vicinity of the Port at locations such as the FPL Discharge Canal and Intracoastal Waterway next to the existing conservation easement. Manatees also utilize portions of West Lake Park south of the Port property. (See Element 1, Figure 1-10.3 for reported manatee sightings of manatees and Figure 1-10.2 for manatee essential habitat within the Port area.)

Historically, removal of the dry-stack boat storage facility from its site on the FPL Discharge Canal eliminated 400 boats that previously entered the warm waters of the Discharge Canal to

access the facility, which has helped safeguard both manatees and their young that frequent these waters and the manatee nursery in this portion of the Canal. This also reduced potential boating impacts to federally-listed species including Smalltooth sawfish and marine turtles.

As described in Section 1.10-4, the extensive Port operational and construction initiatives to protect manatees include addressing FWS Standard Manatee Conditions for In-Water Work (2011) and NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions (2006) during construction.

The three projects subject to environmental permitting proposed in the 2014 Plan will involve construction activities that are currently required to undergo additional NMFS review through Section 7 consultation of federal dredge and fill permits. One issue in this review is the noise impact of construction methodologies on mobile marine species. With the deepening and widening program, this will primarily involve blasting. With the Midport berth and Tracor Basin filling, the noise concern would likely involve the method of revetment installation and whether it would include pounding structures into place.

The Port continues to protect endangered sea turtle species that utilize the nearby waters and beaches. The Port recently conducted a pilot test of high-mast light alternatives and found it possible to reduce the number of fixtures, decreasing light spill yet maintaining lighting to meet Occupational Safety and Health Administration (OSHA) work safety standards. Further investigation of lighting attenuation is under way.

Coral and Hard Bottom Habitats. As discussed in Section 1.10-3 of Element 1, the waters surrounding Port Everglades provide habitat for a variety of corals, including *Siderastrea siderea*, *Stephanocoenia intersepta*, and two endangered *Acropora* species.

As agreed by an agency and expert working group convened by the USACE that deliberated between 2002 and 2005, an evaluation of unavoidable impacts to hard bottom habitats resulting from the deepening and widening program and required mitigation was conducted utilizing a Habitat Equivalency Analysis (HEA). The HEA is used to determine compensatory mitigation through quantifying ecological value lost and the time it will take to restore it. The proposed project contains two impact scenarios:

- Scenario 1—direct impacts of 32.30 acres from dredging and from anchors/cables, and required mitigation of 27.30 acres.
- Scenario 2—direct impacts of 15.17 acres from dredging alone, and required mitigation of 19.49 acres.

The USACE evaluated 11 options and selected a mitigation plan that will utilize quarried dredged rock to construct artificial reefs. This plan involves deployment of piles of limestone that have either been quarried and transported to the mitigation areas, or dredged from the channel construction areas, placed parallel to existing reef tracts. Up to 12,235 coral colonies greater than 10 centimeters in diameter and free of disease, along with boring sponges, would be relocated from impact areas to the mitigation sites, which would be prepared in advance of dredging. The final mitigation is still in negotiations with the respective agencies.

The USACE draft EIS estimates the time interval required to reach substantial functional productivity from creation of rock rubble reefs is 30 to 50 years. With transplantation of corals from impact sites to the rock reef infrastructure, the interval is shortened to 23 to 30 years. Due to the large acreage required for mitigation (19.49 to 27.30 acres), and limited available benthic floor space at permitted artificial reef sites, the mitigation areas may have to be distributed among two or three sites, including areas around PortMiami.

Artificial reef mitigation sites would be assessed and monitored at random for at least five years for degree of reef material settling and populations of algae, invertebrates, and fishes. These assessments will be compared to control sites with natural reefs. Additional measures are proposed if success criteria are not reached.

Coastal Flooding and Sea-Level Rise. Changes in sea level have the potential to massively reconfigure geomorphology, change tidal variation, alter salinity patterns, and impact ecological processes in South Florida's coastal habitats, including wetlands, mangrove forests, and seagrass beds. Though sea-level rise rates have historically been measured from 5 to 10 centimeters per 100 years, that rate has accelerated tenfold in the past hundred years.

To anticipate the eventual effects of global climate change on the Port's shoreline, BCEP&GMD mapped the incremental effects of sea-level increases adjacent to the Port, identifying areas at risk for sea-level rise in one-foot increments; up to three feet (see Figure 1.10-11 in Element 1). Current projections find that two feet of sea-level rise could occur as soon as 2060.

Sea-level rise would affect low lying areas with existing vegetation; including mangroves in the environmentally protected areas and shallow seagrass beds present in various locations in the vicinity of the Port. The effects of the projected rate of change may not be inherently visible within the constraints of the Port's 20-Year Vision Plan, but it is imperative that long-term planning strategies look toward the future.

Mangroves. Coastal mangrove tracts can provide protection from storm surges to adjacent land and human populations, and prevent damage to freshwater ecosystems and agricultural areas from saltwater intrusion. As sea levels rise, so does the frequency and duration of inundations and drying periods of coastal mangrove wetlands as well as hyper-saline conditions. Mangrove communities naturally adapt to these changes by the landward margins migrating into adjacent areas, but this movement is limited by these hydro-periods, sediment availability, and obstacles that block any landward migration.

Depending on the ability of mangrove species to colonize new habitat at a rate that keeps pace with the rate of relative sea-level rise, some sites will revert to narrow mangrove fringes or experience complete loss of mangrove communities (Gilman et al, 2006). This could mean the loss of many biological functions, including wading bird habitat and nurseries for marine species.

Based on an analysis conducted by the Broward County Environmental Protection and Growth Management Department, a one-foot rise in sea level will impact the vast majority of mangrove

communities in the Port area. Development of the land surrounding the mangrove pockets in Port Everglades prevents the natural landward migration of the mangrove communities with rising sea levels; however, the projected time frame for a one-foot sea level rise exceeds that of even the 20-Year Vision Plan.

The Southport turning notch project will remove some mangroves from the County's priority planning area for sea-level rise and add a larger area of mangroves. The created mangrove habitat will, however, be entirely protected, with no structures or infrastructure built there, maintaining the protective functions provided by the habitat.

Seagrasses. Sea-level changes can affect seagrass habitats by changing salinity concentrations, increasing depth and flow patterns and affecting light attenuation. Salinity changes can shift existing habitats, affect seed germination, propagule formation, photosynthesis, growth, and biomass (Short and Neckles, 1999). Changes in water depth can impact flow patterns and deposition of sediments in and around seagrass beds. Alteration of the sediment composition is expected to cause shifts in community structure. Some seagrass species have been shown to persist in nutrient-rich sediments high in organic content, whereas others occur in patches characterized by more sandy sediments. An increase in the deposition of sandy beach and offshore sediments in seagrass beds can be expected to promote a shift in species composition. Increased water depth will reduce the amount of light reaching existing seagrass beds, affecting productivity, and could result in community decline.

Underground Stormwater Systems. Other areas that could be affected by the rise in sea level are the underground stormwater management systems, consisting of exfiltration piping and trenches that are used to filter surface water runoff. These systems need to be above the water table to filter pollutants from stormwater runoff. Underground exfiltration systems are typically used in paved parking areas and container storage yards to maximize the paved area for use by port operations.

Global Climate Change Initiatives. The Port's proactive response to the threats of global climate change is to develop a 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 is recycling 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. All communication is now done electronically to reduce paper waste.

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.

Greenhouse Gas Emissions. Comprehensive Plan. Policy 19.1.1 defines specific goals to reduce greenhouse gas emissions to 7 percent below 1997 levels by 2015 and 17 percent below 2005 levels by 2020. The Port's ongoing efforts directed at mitigating greenhouse gases are consistent with and contributing to this goal.

In September 2010, the Florida Department of Environmental Protection awarded Port Everglades a \$750,000 Diesel Emissions Reduction (DERA) grant. With an additional contribution from the Port and the Port pilots, the Port used these DERA funds to retrofit, upgrade, or replace diesel engines to reduce emissions. By 2011 these actions eliminated:

- 254 metric tons of greenhouse gas emissions.
- 1,437 pounds of nitrogen oxide (NO) emissions.
- 733 pounds of particulate matter emissions.
- 46 pounds of particulate matter.
- 7,373 pounds of carbon monoxide emissions.

The program also reduced fuel usage at the Port by approximately 42,653 gallons, furthering Comprehensive Plan Objective 19.2, which is focused on reducing fossil fuel use. It also created a team at the Port who are continuing to actively work to further goals of the program.

Shore Power. In addition, the Port is considering the implementation of shore power to reduce air emissions from ships at berth. FPL has provided a cost estimate, based on the capability to handle up to four ships connected to the electrical grid at one time. Given the ships currently at the Port, the four-feeder solution would provide the most flexibility to offer shore power to as many of these ships as possible. Table 6.2-1, on the next page, summarizes this cost estimate.

Depending on the desired scope of the project, there are various ways to provide power to the ships. For example, based on the costs in Table 6.2-1, providing shore power just to the ships berthing at Cruise Terminal 18, would cost just under \$11 million (\$4.76 million plus \$250,000 plus \$800,000 plus \$5 million) not including the contribution-in-aid-of-construction from FPL.

LEED.¹ Comprehensive Plan Objective 19.3 lists specific goals to improve resiliency and energy efficiency of buildings and public infrastructure. Specific policies require LEED concepts in all new County-owned facilities by 2015 and reevaluating base finished floor elevation standards in relation to projected sea-level rise scenarios. Policy 19.3.4 specifically lists seaport infrastructure with respect to the vulnerability analysis of all facilities, including buildings, stormwater systems, and power generation and transmission infrastructure. Port planning will directly address this objective, and incorporate the required considerations as an integral component of all planning processes (Policy 19.3.10).

Resiliency Planning. Comprehensive Plan Objective 19.4 addresses protection and adaption of natural systems, including policies that require vulnerability assessment of habitats. The Port has and will continue to consider this in regard to mangrove and seagrass habitats

¹ Leadership in Energy and Environmental Design

within its jurisdiction. Policy 19.4.12 specifically identifies wetland mitigation areas for resiliency planning, which is directly relevant to the in-progress turning notch project and to the USACE deepening and widening program.

Table 6.2-1
SHORE POWER INSTALLATION COST ESTIMATE
(In \$ millions)

Type of Cost	Cost	Comment
FPL Installation	\$10	
Transmission and Substation	\$8	Insufficient capacity at current substation to handle large loads ships produce. Requires new build-out of current substation with new 23kV transformers (four feeders). Costs include two transformers (\$4.76 million for the first and \$2.3 million for the second, plus \$250,000 for each of the four feeders. One transformer can handle up to two feeders (ships); two can handle up to four feeders. Feeder costs incurred on both the substation side and the distribution side.
Distribution	\$2	Running of four feeder cables through Port-installed six-way duct bank from substation to Port-installed dockside facility.
Port Installation	\$7.5	
Port Dockside Facility	\$5	Based on 2009 ABB proposal costs: 1) Multiple dry type transformers for step down of power; 2) Point of interconnection; 3) Metering cabinet; 4) Cabling from facility to dockside crane system for ship connection.
Cable Duct Bank	\$2.5	Port will need to have third-party vendor install six-way duct bank from substation to Port dockside facility. This would allow up to four feeders (ships) to be connected via one run. Duct bank feeders cost about \$500,000 each on the distribution side for given distance from substation. Direct bury feeders cost about \$800,000 each. Direct bury is cheaper than a duct bank, but not scalable; the concrete must be ripped up every time a feeder is added.
Contribution-in-Aid-of Construction	(\$4)	Regulations allow FPL to provide a contribution in aid of construction costs, based on projected revenue from installed capital.
Net Cost to Port	\$13.5	

The USACE draft EIS addressed this issue, concluding that the County's intermediate sea-level rise projection of 1.1 feet by the project lifetime of 2069 would be unlikely to adversely affect mangrove communities at the West Lake Park mitigation site, and that seagrass beds would be maintained although photosynthetic efficiency may decrease due to increased depth.

Water Resources. Comprehensive Plan Objective 19.5 addresses water resources, with Policy 19.5.13 requiring building, modifying, or relocating water, wastewater, and stormwater transmission infrastructure to address sea-level rise. As much of the Port Everglades stormwater infrastructure is at very low elevations, it will be important to incorporate retrofitting as land uses are redeveloped and to design for higher elevations as new structures are created at the Port.

Estuarine Pollution Sources: Oil Spills, Air Emissions. Reducing traffic congestion and trip generation as part of the 5-Year Master Plan will address Comprehensive Plan Objective 19.3 by reducing air emissions throughout the Port and the region. Importing crushed rock aggregate will reduce the existing environmental issues with present quarries in Florida. The new facility, planned at the Port as part of the 20-Year Vision Plan, will be enclosed for dust containment and not generate any air pollutants from the rock.

Also over the course of the 2014 Plan, expanding the three slips at Northport and reducing the widths of Piers 1 and 2 will remove a portion of the petroleum contamination currently contained within the piers. Any remaining product will be contained within new bulkheads with greater lifespan and durability.

Beach and Dune Systems: 5-, 10-, and 20-Year. The beaches and dunes along the eastern margin of the Port have long been recognized as sea turtle nesting grounds. Coastal lighting in developed areas has been shown to impact the activities of nesting turtles, prompting changes to and reduction of the Port's lighting systems. To reduce interaction with crawling and nesting turtles along the beach adjacent to the Port, changes have been made to reduce the intensity of lights in the Midport area visible from the park to the east. Dockside lighting at Berths 24 through 27 and 29, both pole- and building-mounted, were adjusted downward to safely light the dock areas while limiting scatter.

Circuits were reconfigured with controls added to the building automation system for the roof-level parking deck at Cruise Terminal 29, the Midport parking garage, and the decorative lighting on the Harbormaster Tower. Lighting in these facilities is scheduled to remain fully turned off when not in use for the duration of turtle nesting season.

Reducing lighting in Southport is more challenging because the high-mast lights are either on or off. The Port recently conducted a pilot test of high-mast light alternatives and found it is possible to reduce the number of fixtures, decreasing light spill while still maintaining adequate lighting to meet OSHA work safety standards. This change also has the additional benefit of increasing energy efficiency. Further investigation of lighting attenuation is progressing.

6.3 Plan Costs and Funding

6.3.1 Decision-Matrix Evaluation Summary

As discussed in Section 4.4, the project decision-matrix was used to evaluate the new and modified projects considered for inclusion in the 2014 Plan, whether in the 5-Year Master Plan and resulting capital improvement program (CIP) or in the 10-Year and 20-Year Vision Plans. The 5-Year CIP presented in this element has been developed with Port staff and represents a program that is capable of being implemented within the established time frame. Projects in the 5-Year CIP were selected because of their qualifications as “sustainable” and “value-added.” “Value-added” means the projects provide added value to the Port. “Sustainable” refers to the projects’ contribution to social (i.e., economic impacts identified in the Plan) and environmental factors in addition to the traditional return on investment dollars.

As discussed in Section 4.4, the decision-matrix summarizes how each project scores across three attributes measured by six metrics. Each metric is reported as high (H), medium (M), or low (L), as shown in Table 6.3-1:

**Table 6.3-1
DECISION-MATRIX CRITERIA**

Category		Measure			
Competitiveness		Economics		Stewardship	
Capacity	Operational Flexibility	Port return on investment	Regional economic benefits	Asset Preservation	Environmental preservation
H/M/L	H/M/L	H/M/L	H/M/L	H/M/L	H/M/L

Table 6.3-2, on the next page, summarizes how the decision-matrix evaluated each of the nine new or modified projects proposed for inclusion in either the 5-year Master Plan and CIP or the 10-Year Vision Plan. Detailed information on the project costs for these nine projects is provided in Appendices H and I; ROI data are provided in Appendix J. Appendices K and L provide information on the economic analyses.

6.3.2 5-Year Capital Improvement Program

The 5-Year Master Plan identifies the infrastructure the Port needs to meet the 5-year projected market demand and the locations of the respective infrastructure components. This infrastructure has been further translated into specific construction projects with project costs and the years in which each project is needed. The project costs for design/inspection services and construction have then been scheduled for one or more of the five fiscal years, 2015 through 2019, in the CIP.

Table 6.3-2
DECISION MATRIX: MASTER PLAN PROJECTS BY PHASE

Project	Year	Competitiveness		Economics		Stewardship	
		Capacity	Operational Flexibility	Port ROI	Regional Economic Benefits	Asset Preservation	Environmental Preservation
Petroleum Slip Expansion	5-Year CIP	M	H	H	H	H	M
Neo-Bulk Storage Yard	5-Year CIP	H	M	H	L	M	H
Cruise Terminal 25 Improvements/Expansion	5-Year CIP	M	H	L	M	H	H
Southport Turning Notch Extension	5-Year CIP	H	H	H	H	H	M
Southport Phase 9B Container Yard	5-Year CIP	H	M	H	L	M	H
Southport Gate Lane Addition	5-Year CIP	M	H	*	L	M	H
Cruise Terminal 29 Improvements/Expansion	10-Year Vision Plan	M	H	L	L	H	H
Tracor Basin Fill	10-Year Vision Plan	H	H	L	M	M	M
Berth 33 Reconfiguration	10-Year Vision Plan	M	H	M	M	M	H

* The Southport Gate Lane Addition offers important operational flexibility to the Port, but does not generate revenue; directly, as a result, a financial ROI cannot be calculated.

The 5-Year CIP lists the project costs in three categories; namely:

- General Infrastructure.
- Master Plan Projects.
- Other Port Capital Improvements (Maintenance, Renewal, and Replacement).

The General Infrastructure and Other Port Capital Improvements (Maintenance, Renewal, and Replacement) categories consist of limited scope projects of a maintenance and infrastructure renewal nature. The Master Plan Projects category includes the projects that have been identified by this master planning program and are needed to meet the projected market demands. These include the ACOE Dredging Project, which consists of projects that support recommendations from the USACE deepening and widening program.

The cost of the Master Plan Projects in the recommended CIP (\$435.62 million) is not the same as the total cost of the projects identified in the 5-Year Master Plan (\$470.21 million) in Element 5 because of differences in how projects are built into the CIP. Element 5 includes the full cost of a project, regardless of whether 1) partial funding was allocated for it in a prior CIP, 2) other parties such as the federal government or the state might share in the cost; or 3) the project's costs might extend over years beyond those covered by the CIP.

Table 6.3-3 summarizes how the project costs have been allocated across the years:

Table 6.3-3
RECOMMENDED 5-YEAR CAPITAL IMPROVEMENT PROGRAM SUMMARY
(In 2014 \$millions)

FY 2015 to 2019, 5-Year Capital Improvement Plan						
	FY15	FY16	FY17	FY18	FY19	Total
General Infrastructure	5.25	5.05	2.55	2.55	2.55	17.95
Master Plan Projects	104.48	102.71	102.34	17.35	108.74	435.62
Other Port Capital Improvements	67.12	33.08	32.20	15.50	10.53	158.44
Reserves	3.00	3.00	3.00	10.98	3.57	23.55
Total	179.85	143.84	140.09	46.38	125.39	635.55
Private Investment	27.00	27.00	-	-	-	54.00

Over the five-year period, the project costs in each of the three categories are:

- General Infrastructure \$ 17.95 million.
- Master Plan Projects \$435.62 million.
- Other Port Capital Improvements \$158.44 million.

The total public portion of the recommended CIP cost over the five fiscal years is \$635.55 million (including reserves), as shown in Table 6.3-3.

The CIP also identifies the following six project funding sources.

- **State Grants:** anticipated grants that have not been secured for expenditure within the five-year period, with the exception of FY 15.
- **Interest Income:** interest earned by the Port on reserves and other funds and accounts over the course of the year.
- **Bond Proceeds/Interim Financing:** the amount of the CIP that is currently unfunded and not funded through anticipated grants, but may be available through the potential issuance of debt.
- **Internal Funding (transfer from operating fund):** net revenue from existing Port operations, plus net revenue from Port operations as a result of new projects constructed in the five-year period, plus reallocated funds from previous projects.
- **Fund Balance (previous internal funding):** funds remaining at the end of a fiscal year which are carried over to support the budget at the end of the next fiscal year.

- **Private Investment:** the estimated participation in the cost of infrastructure improvements by tenants /stakeholders. This cost has been added to the CIP since these private investment projects add value to the Port's infrastructure base and become a base for the Port to derive net revenue.

The projected amounts, over the five-year period, for each of the six funding sources are:

▪ State Grants	\$119.4 million.
▪ Interest Income	\$ 0.4 million.
▪ Bond Proceeds/Interim Financing	\$275.0 million.
▪ Transfer from Operating Fund	\$211.4 million.
▪ Fund Balance	\$ 35.2 million.
▪ Private Investment	\$ 54.0 million.

The first five funding sources total \$635.518 million in public funds. In addition \$54.0 million in private funds is anticipated over the fiscal period. Together this funding is slightly more than the total of the 5-year CIP, as summarized in Table 6.3-4.

Table 6.3-4
FUNDING SOURCES OF RECOMMENDED 5-YEAR CAPITAL IMPROVEMENT PROGRAM
(In 2014 \$millions)

FY 2015 to 2019, 5-Year Capital Improvement Plan						
REVENUES	FY15	FY16	FY17	FY18	FY19	Total
State Grants	16.57	29.56	35.56	2.00	35.75	119.44
Interest Income	0.44	-	-	-	-	0.44
Less 5%*	(0.85)	(1.38)	(1.88)	(0.10)	(1.74)	(5.94)
Bond Proceeds/Interim	78.33	86.67	61.66	-	48.34	275.00
Transfer from Operating Fund	50.13	28.99	44.74	44.48	43.04	211.39
Fund Balance	35.23	-	-	-	-	35.23
Total Public	179.85	143.84	140.09	46.38	125.39	635.55
Private Investment	27.00	27.00	-	-	-	54.00

*Under State statute, revenues are budgeted at 95 percent of anticipated receipts.

Table 6.3-5, on the following pages, details the Port's recommended 5-Year CIP for FY 2015 through FY 2019.

**Table 6.3-5
5-YEAR RECOMMENDED CAPITAL IMPROVEMENT PROGRAM
(In 2014 \$millions)**

	FY15	FY16	FY17	FY18	FY19
REVENUES					
State Grants*	16,568,000	29,562,000	35,562,000	2,000,000	35,750,000
Interest Income	436,000	-	-	-	-
Less 5%	(850,200)	(1,378,100)	(1,878,100)	(100,000)	(1,737,500)
Bond Proceeds/Financing	78,329,740	86,670,260	61,664,120	-	48,335,880
Transfer from Operating Fund	50,133,400	28,989,030	44,743,000	44,483,320	43,039,010
Fund Balance	35,230,650	-	-	-	-
TOTAL REVENUES	<u>179,847,590</u>	<u>143,843,190</u>	<u>140,091,020</u>	<u>46,383,320</u>	<u>125,387,390</u>
*Revenues include grant funds included in the FY2015 Adopted Budget for the State of Florida representing 49% cost share for the Southport Turning Notch Extension project pursuant to the Strategic Port Investment Initiative.					
APPROPRIATIONS					
<u>General Infrastructure Facilities</u>					
Miscellaneous Infrastructure Improvements	2,500,000	3,000,000	500,000	500,000	500,000
Utility Infrastructure Improvements	550,000	550,000	550,000	550,000	550,000
Annual Fender, Mooring & Bollard Improvements	700,000	500,000	500,000	500,000	500,000
Port Capital Maintenance	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Maintenance Dredging - Slip 3	500,000	-	-	-	-
Subtotal	<u>5,250,000</u>	<u>5,050,000</u>	<u>2,550,000</u>	<u>2,550,000</u>	<u>2,550,000</u>
<u>2014 Master Plan Projects - Midport Improvements</u>					
Cruise Terminal 25 Multimodal Facility - Phase 1	1,250,000	12,500,000	12,500,000	-	-
New Bulkheads at Berths 16, 17, & 18	-	-	1,500,000	-	16,000,000
New Bulkheads at Berths 21 & 22	-	-	1,150,000	1,150,000	11,600,000
New Bulkheads at Berths 16, 17, & 18	-	-	-	1,900,000	9,300,000
Subtotal	<u>1,250,000</u>	<u>12,500,000</u>	<u>15,150,000</u>	<u>3,050,000</u>	<u>36,900,000</u>
<u>2014 Master Plan Projects - Northport Improvements</u>					
Terminal 4 Parking Garage	-	-	-	-	2,000,000
New Bulkheads at Berths 1, 2 & 3	-	1,150,000	1,150,000	11,300,000	11,300,000
Neo-Bulk Storage Area	700,000.00	3,500,000	3,500,000	-	-
Slip 1 New Bulkheads at Berths 9 & 10 Phase I	17,500,000	29,450,000	29,450,000	-	-
Slip 2 Westward Lengthening	15,750,000	-	-	-	-
FPC/FSTED Grant Administrative Fees	37,000	-	-	-	-
Subtotal	<u>33,987,000</u>	<u>34,100,000</u>	<u>34,100,000</u>	<u>11,300,000</u>	<u>13,300,000</u>
<u>2014 Master Plan Projects - Southport Improvements</u>					
Southport Turning Notch Extension- Contracts 1 & 2	34,000,000	36,750,000	36,750,000	-	-
Mitigation for Westlake Improvements (Southport Turning Notch)	4,900,000	-	-	-	-
Super Post Panamax Cranes	9,000,000	7,500,000	7,500,000	-	-
McIntosh Road Improvements	140,000	1,420,000	-	-	-
Phase 9a Container Yard	8,000,000	-	-	-	-
Phase 9b Container Yard	-	900,000	8,800,000	-	-
Container Yards	-	-	-	3,000,000	13,500,000
Densification/Improvements	-	-	-	3,000,000	13,500,000
FPC/FSTED Grant Administrative Fees	-	40,000	40,000	-	40,000
Subtotal	<u>56,040,000</u>	<u>46,610,000</u>	<u>53,090,000</u>	<u>3,000,000</u>	<u>13,540,000</u>

Table 6.3-5 (Continued)
5-YEAR RECOMMENDED CAPITAL IMPROVEENT PROGRAM

	FY15	FY16	FY17	FY18	FY19
<u>2014 Master Plan Projects - Portwide</u>					
USACE Deepening & Widening	4,500,000	-	-	-	45,000,000
Mitigation for Westlake (USACE Deepening & Widening)	8,700,000	9,500,000	-	-	-
Subtotal	<u>13,200,000</u>	<u>9,500,000</u>	<u>-</u>	<u>-</u>	<u>45,000,000</u>
<u>Other Port Capital Improvements/Reserves</u>					
Annual Crane Parts & Support	300,000	300,000	300,000	300,000	300,000
Annual Spare Parts for Loading Bridges	250,000	100,000	100,000	100,000	100,000
Capitalized Interest	868,000	868,000	868,000	868,000	868,000
Crane Improvements/Replacements	4,805,000	-	5,000,000	5,000,000	-
FPC/FSTED Grant Administrative Fees	30,000	30,000	30,000	70,000	30,000
General Architectural/Engineering Services	300,000	300,000	300,000	300,000	300,000
General Terminal Improvements	1,352,000	2,000,000	2,000,000	2,000,000	2,000,000
In-House Labor & Overhead	1,778,000	1,778,000	1,778,000	1,778,000	1,778,000
Inlet Management Plan	-	3,420,000	-	-	-
Matching Funds for Port Security Grant	500,000	500,000	500,000	500,000	500,000
Miscellaneous Terminal Improvements	1,330,000	1,000,000	1,000,000	1,000,000	1,000,000
New Public Works Facility Building	400,000	3,600,000	-	-	-
Northport Parking Garage Phase V Improvements	1,850,000	-	-	-	-
Port Information Technology Systems	1,373,000	300,000	125,000	100,000	100,000
Port Security Improvements	200,000	200,000	200,000	200,000	200,000
Renew/Replace Equipment	1,416,000	1,093,000	1,093,000	1,065,000	1,065,000
Seaport Engineering & Construction Division Expenses	2,068,590	2,094,190	2,157,020	2,221,730	2,288,380
Southport Gantry Cranes Civil/Electrical/Site	33,500,000	15,500,000	16,750,000	-	-
Terminal 18 Meg & Tunnel Modifications	4,800,000	-	-	-	-
Terminals 18 & 21 Passenger Loading Bridges & Mooring Improvements	10,000,000	-	-	-	-
Subtotal	<u>67,120,590</u>	<u>33,083,190</u>	<u>32,201,020</u>	<u>15,502,730</u>	<u>10,529,380</u>
<u>Reserves</u>					
Reserve for Renewal/Replacement	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Reserve for Programmed Projects	-	-	-	7,980,590	568,010
Subtotal	<u>3,000,000</u>	<u>3,000,000</u>	<u>3,000,000</u>	<u>10,980,590</u>	<u>3,568,010</u>
TOTAL APPROPRIATIONS	<u>179,847,590</u>	<u>143,843,190</u>	<u>140,091,020</u>	<u>46,383,320</u>	<u>125,387,390</u>
PRIVATE INVESTMENT PROJECTS					
Foreign Trade Zone Relocation	27,000,000	27,000,000	-	-	-
TOTAL PRIVATE INVESTMENT	\$27,000,000	\$27,000,000	-	-	-

6.3.3 10-Year Vision Plan Development Program

Table 6.3-6 shows the order-of-magnitude project costs in the Port's complete 10-Year Vision Plan Development Program. The costs of the Vision Plan projects and USACE deepening and widening program were taken from Element 5.

**Table 6.3-6
PROJECT COSTS IN 10-YEAR VISION PLAN DEVELOPMENT PROGRAM
(In 2014 \$millions)**

10-Year Vision Plan 2020-2023		
Port Area	Project	Cost
Northport	Slip 1 New Bulkheads-Phase 2 (Berths 7, 8, 8A)	\$29.50
	Cruise Terminal 4 Parking Garage	\$ 36.00
	Berth 14, 15 New Bulkheads	\$ 27.40
Midport	Berth 16, 17, 18 New Bulkheads	\$ 25.50
	Cruise Terminal 29 Improvements/Expansion	\$26.25
	Multimodal Facility-Phase 1	\$39.30
	Tracor Basin Fill	\$48.40
	Berth 21, 22 New Bulkheads	\$20.50
Southport	Super Post Panamax Cranes (2)	\$30.00
	Container Yard Densification Improvements	\$33.70
	Berth 33 Reconfiguration	\$56.40
Portwide	USACE Deepening and Widening Construction	\$368.00
TOTAL		\$740.95

6.3.4 20-Year Vision Development Program

Table 6.3-7 shows the order-of-magnitude project costs in the Port's complete 20-Year Vision Development Program. The costs of the Vision Plan projects were taken from Element 5.

**Table 6.3-7
PROJECT COSTS IN 20-YEAR VISION DEVELOPMENT PROGRAM
(In 2014 \$millions)**

20-Year Vision Plan: 2024-2033		
Port Area	Project	Cost
Northport	Berths 1A, 1B, 1C, & 1D New Bulkheads	\$9.90
	Slip 2 New Bulkheads and Widening (Berths 4, 5, 6)	\$50.10
	Slip 3 New Bulkheads and Widening Phase 3 (Berths 11, 12, 13)	\$84.30
Midport	Berth 19, 20 New Bulkheads	\$17.00
	Multimodal Facility-Phase 2	\$112.40
	Berth 23 New Bulkhead	\$3.70
	Berths 24 and 25 New Bulkheads	\$12.40
	Berths 26 and 27 New Bulkheads	\$20.70
Southport	Crushed Rock (Aggregate Facility) (Public-Private Partnership)	\$61.80
	Super Post Panamax Cranes (1)	\$15.00
TOTAL		\$387.30

6.3.5 Conclusion

It is anticipated that the Port's 20-Year Vision Development Program, at full build-out over the 20-year planning horizon, if warranted by market demand, will have an order-of-magnitude cost of approximately \$1.6 billion, as summarized in Table 6.3-8, \$137 million more than the 2009 20-Year Vision Development Program. Overall, the anticipated expenditures are higher in the first 10 years of the current plan, compared with the prior plan. This reflects the Port's need to repair and recapitalize a number of bulkheads that have reached the end of their useful life, as well as expenditures for the USACE deepening and widening program.

**Table 6.3-8
COMPARISON OF 2014 AND 2009 PLAN COSTS**

Plan Time Frame	Costs	
	2014 Plan (In 2014\$ millions)	2009 Plan (In 2011\$ millions)
5-Year Master Plan	\$470.21	\$453.08
10-Year Vision Plan	\$740.95	\$547.22
20-Year Vision Plan	\$387.30	\$461.00
Total	\$1,598.46	\$1,461.30

The Port's Development Program, including the 5-Year Master Plan and the 10- and 20-Year Vision Plans is, however, a road map laid out to achieve the market demand projected at the time this 2014 Plan was prepared. The global marketplace and the maritime community's competitive response to that marketplace is constantly evolving. Thus, this Plan is presented as a flexible document, requiring periodic re-examination and re-evaluation of the parameters that affect the Port's development. Future projects need to provide the infrastructure necessary to serve the re-evaluated market assessment and Go/No Go decisions should be made through the strategic decision-making process defined in this planning program to achieve the economic goals of Broward County and its dynamic Port.

6.4 Affordability Analysis

The Port Everglades Department conducted a planning and financial "affordability" analysis to determine the potential mechanisms to finance the projected 5-Year Master Plan and 10-Year Vision Plan projects from 2015 through 2024. The purpose of the analysis was to provide an informed estimate of the potential financial impact of implementing these projects through the 10-year planning horizon. This is necessary to demonstrate that the Port can 1) meet the requirements of existing bond covenants from past investments that were financed in part through debt, and 2) maintain existing operations while undertaking these new investments. To obtain this estimate, a comprehensive analysis was performed to determine potential revenues and expenses over the 10-year period; net income was then compared with the potential debt the Port would have to carry forward to finance the projects.

- **Future Revenue Calculations.** Future revenues comprise three sources: anticipated revenues from the Port's ongoing businesses and revenues generated from new projects as they come online, supplemented by capital grants. To calculate future revenues for existing business lines, Port staff utilized the FY 2015 estimated revenues as base numbers and applied an annual growth factor. The base revenue numbers were calculated based on the FY2011–FY2015 approved recommended budget and collected from the various revenue centers. An annual 2.5 percent tariff increase was assumed to calculate total future revenues for each year. Revenue from new projects utilized projections on how each new project would come on-line, adding volumes gradually over time. The market forecasts were utilized as a check to ensure that the sum of existing and new project volumes in a business line did not exceed the projected market total for the Port.
- **Future Expense Calculations.** To calculate future expenses, Port staff applied a ratio of operating expenses as a percentage of revenues. The calculated revenues minus the expenses provided the net operating income necessary to meet minimum requirements of existing debt service as well as meet additional bond tests.
- **Debt Service Estimates.** New debt service was estimated in consultation with the Port's Finance Division; it is sized and structured to reflect the pattern of expenditures, repayment of past debt, maintenance of required reserves, and the need to maintain coverage ratios. In the FY2015-FY2019 time frame, the Port is forecasting to issue

bonds to pay for estimated project costs net of anticipated grants and pay-go contributions from the operating fund. In the FY2020-FY2024 time frame, the Port is forecasting to issue additional bonds to pay for estimated project costs net of anticipated grants. Port bond covenants require minimum coverage ratios of 110 percent and 125 percent of operating income divided by annual debt service requirements.

The detailed worksheets of the affordability analysis are provided in Appendix I.

Tables 6.4-1 and 6.4-2 summarize the results of the analysis for projected bond covenant debt coverage in FY 2015 to FY 2019 and FY 2020 to FY 2024, respectively. The analysis calculated the debt service coverage based on existing and new bond debt that would be required to fund the combined total of ongoing investments to maintain the port, Master/Vision Plan projects and the USACE channel deepening and widening program, assuming the Port's share of the program is being funded as debt service by the Port. **The results show the bond covenant debt service coverage test requirements met and exceeded the required 110 percent and 125 percent tests for FY 2015 through FY 2024.**

Table 6.4-1
PROJECTED DEBT SERVICE COVERAGE
(FY 2015 – 2019)
(In 2014 \$thousands)

	FY2015	FY2016	FY2017	FY2018	FY2019
Revenues	149,362	154,046	160,672	177,157	195,863
Expenses	80,760	83,183	85,678	93,478	102,552
Net amount available for debt service	69,602	71,863	75,993	84,679	94,311
Existing Senior Lien Debt Service	28,758	28,762	19,225	19,230	19,235
New Senior Lien Debt Service		-	10,984	14,682	18,379
Subtotal Senior Lien Debt Service	28,758	28,762	30,209	33,912	37,614
Subordinate Lien Debt Service	3,304	3,298	3,305	3,304	3,305
Total Debt Service	32,062	32,060	33,514	37,215	40,919
Test (125%)	2.42	2.50	2.52	2.50	2.51
Test (110%)	2.17	2.24	2.27	2.28	2.30

Table 6.4-2
PROJECTED DEBT SERVICE COVERAGE
(FY 2020 – 2024)
(In 2014 \$thousands)

	FY2020	FY2021	FY2022	FY2023	FY2024
Revenues	217,928	243,645	272,617	305,312	341,864
Expenses	113,733	126,937	142,052	159,340	178,913
Net amount available for debt service	105,196	117,708	131,565	146,972	163,952
Existing Senior Lien Debt Service	19,230	19,229	19,231	19,229	19,231
New Senior Lien Debt Service	31,078	43,777	43,777	43,777	43,777
Subtotal Senior Lien Debt Service	50,308	63,006	63,008	63,007	63,008
Subordinate Lien Debt Service	3,302	3,307	3,303	3,306	3,305
Total Debt Service	53,611	66,313	66,313	66,314	66,314
Test (125%)	2.09	1.87	2.09	2.33	2.60
Test (110%)	1.96	1.78	1.98	2.22	2.47