PORT EVERGLADES HARBOR BROWARD COUNTY, FLORIDA

Civil Works Review Board (CWRB)

Environmental Impact Statement

Presented by: Colonel Alan Dodd Jacksonville District

27 February 2015





PORT EVERGLADES BOTTOM LINE UP FRONT



- Strategic location for international freight and domestic distribution
- #32 in U.S. for overall tonnage: ~21 million tons
- #13 in U.S. for container traffic
- Consistently among the top 2 to 3 busiest cruise ship ports worldwide
- South Florida's main port for receiving petroleum products (serving 12 counties)
- USCG Station: Commissioned 40 years ago; primary missions are search, rescue, drug interdiction
- U.S. Navy South Florida Ocean Measurement Facility

RECOMMENDED PLAN

- 48-foot deepening with widening in select areas (Locally Preferred Plan – LPP)
- 2.9 BCR (at 3.375%)
- Minimal increase in O&M

- Total Federal Cost: \$190 million
- Total Non-Federal Cost: \$184 million
- Mitigation Cost: \$53 million

PORT EVERGLADES VITAL PORT/STRATEGIC LOCATION

LOGISTICS

- Transportation nexus (highway, rail, air) for international, national and regional access
 - Rail: New Florida East Coast Railway provides direct access to the Intermodal Container **Transfer Facility**
 - Interstates: I-595, I-75, I-95, Florida Turnpike

DEMAND

S.E. U.S. most rapidly growing region

MULTIPLE USES/VITAL PORT

- #13 in container traffic nationwide
 Leading cruise port worldwide
- U.S. Coast Guard & U.S. Navy presence

LINIUA EAST COAST



New near-dock Intermodal Container Facility (ICTF) in Southport to transfer international cargo





PORT EVERGLADES STUDY HISTORY

Authorization: House Document 126, 103rd Congress, 1st Session, and House Document 144, 93rd Congress, and by a resolution of the House Committee on Transportation dated May 9, 1996: "...to determine whether any modifications of the recommendations contained therein are advisable at the present time in the interest of navigation and related purposes, with particular reference to navigation into and within the part of the project known as the Southport Channel."

Non-federal Sponsor: Broward County, Florida



BUILDING STRONG



BROWARD COUNTY

Mr. Steven Cernak, P.E., PPM Chief Executive & Port Director

7

Port Everglades The Need To Go Deep



Port Everalades by the Numbers

- #1 Seaport in Florida by revenue \$153 million FY2014
- **#1** Container port in Florida by volume 1,013,344 TEUs FY2014
- **#1 Seaport for exports in** <u>Florida</u> \$13.4 billion CY2013
- **#1** Refrigerated cargo port in <u>Florida</u>-125,272 TEU's FY2014
- **#2** Petroleum port in Florida -112.4 million barrels FY2014
- **#1 U.S. gateway for trade with Latin America FY2014**

(15.3 percent of all Latin American & Caribbean trade in the U.S.)

- #3 Foreign-Trade Zone (warehouse/distribution exports) in the U.S. CY2013
- **#7 Refrigerated cargo port in the U.S**. FY2014
- #2 Cruise port for multi-day passengers in the World -4 million pax FY2014



The Big 3: Petroleum, Cargo, Cruise



Port Everglades = Job\$



11,433 direct jobs (FY2013)

Average salary \$38,500: cargo • \$45,300 • cruise \$30,000

- A total income of more than \$440 million is generated by Port activities
- 202,709 Florida iobs are supported, earning approximately \$7.8 billion in wages
- More than \$733 million in state and local taxes generated by Port activities



Key Stakeholder Groups

Port Everglades Association

Hollywood Chamber of Commerce

Audubon Society & Other Environmental Groups

> Greater Fort Lauderdale Chamber of Commerce



Port Everglades Pilots Association

Local Colleges and Universities

Greater Fort Lauderdale Alliance

Dania Beach Chamber of Commerce

Port Everglades Advocacy Team

EVERGLAD

Environmental Stewardship





Petroleum - We Fuel South Florida

- Revenues of \$29.4 million in FY2014
- 112.4 million barrels in FY2014
- 564 ship calls in FY2014







Containerized Cargo - Leading Florida Export: 505,033 Import: 507,311



- Revenues of more than \$32.5 million
- 20+ ocean carriers, 12 terminal operators
- 1860 ship calls in FY 2014





Cruise - Smooth Sailing Ahead 4 million passengers in FY2014

- Revenues of \$59.4 million in FY2014
- 10 cruise lines, 30 homeported ships
- 877 ship calls in FY 2014







Vital Port- Strategic Location



How We Connect Internationally 150 Ports 70 Countries 20 Ocean Carriers





Moved 1.01 million TEUs in FY2014 Crossroads of North-South & East-West Trade

Rapidly Growing Population

Huge consumptive year round market quadruples in the winter months.



- Permanent State population 19.5 million
- Florida's growth rate is one of the faster in the country (ranked 7th) at 1.36%.
 - If growth continues at roughly the same rate, by the time that the next Census is undertaken in 2020, numbers should have comfortably burst through 20 million, and probably even past 21 million.
 - Seasonal/visitor population of 94.3 M in 2013

5-Year Master Plan Projects FY15-19 CIP Totals \$635M

Neobulk Storage Yard

Foreign Trade Zone Relocation

McIntosh Road Gate Lane Addition

Southport Turning Notch Extension

Southport Phase 9B Container Yard

New Crane Rails (Berths 30, 31, 32)



Berths 1, 2, 3 New Bulkheads

USACE Deepening & Widening Design

Slip 2 Westward Lengthening

Slip 1 New Bulkheads & Reconfiguration

CT#25 Improvements/ Expansions

Super Post-Panamax Cranes (2)

West Lake Mitigation

Southport Turning Notch Extension 100% SPONSOR FUNDED



Petroleum Expansion Project 100% SPONSOR FUNDED





Petroleum: Slip 1 (inside dotted line) expansion includes new bulkheads and reconfiguration of Berths 9 and 10 (Est. Completion 2018) Slip 3 is in our 10+ year work plan





Nashville/Memphis = 3 days by rail 70% of U.S. Population = 4 days by rail















NAVIGATING SOUTHPORT ACCESS CHANNEL AND BERTHS 24 THROUGH 26

PORT EVERGLADES NAVIGATION: PRESENTED BY CAPTAIN SAM STEPHENSON

Ellie Lady visited Port Everglades in 2013







Port Everglades A Strong Financial Partner

Moody's Investors Service recently upgraded the rating on the Broward County Seaport Enterprise Port Facilities Revenue.

The rating upgrade reflects:

- THE PORT'S STRONG FUNDAMENTALS WITH RESPECT TO ITS SIZE AND REGION OF OPERATION,
 - CONTINUED STABLE FINANCIAL PERFORMANCE,
- REVENUE DIVERSITY WITH ESTABLISHED CRUISE AND CARGO ACTIVITIES,
 - A STRONG MANAGEMENT TEAM,
 - AND COMPETITIVE POSITION.

The rating also incorporates the port's adequate liquidity, several long-term agreements ensuring medium term financial stability and a declining debt profile which can absorb additional debt through prudent management of the capital program. This is one of the reason that Port Everglades is a strong financial partner and fully capable of funding the non-federal share of this very important project.



Problems Opportunities	Existing Conditions	Future Without-Project	Objectives Constraints	Plan Formulation	Recommended Plan	
ECONC	OMICS	ENGIN	EERING	ENVIRO	IMENTAL	
 Annual Tonnage: 21 million (2nd in Florida) South Florida's main port for petroleum products Annual Containers: 640,000 (13th in Continental U.S.) Trade Routes: Increase in cargo throughput on major Transatlantic and South American routes 		 Strong Unpredictable Currents in the Entrance Channel Congestion in Channel Upland Disposal Sites: limited capacity Expanded ODMDS Infrequent O&M 		 Threatened and Endangered species (e.g., corals, manatees, sea turtles, smalltooth sawfish) Essential Fish Habitat (e.g., corals, mangroves, seagrasses) 		
Petroleum	Containership	Trade Routes	gestion & Difficult Turn	ns	Dves	



POPULATION IN SOUTH FLORIDA PROJECTED TO GROW INCREASING DEMAND FOR PETROLEUM & OTHER PRODUCTS



ProblemsExisting
ConditionsFutureObjectives
ConstraintsPlan
FormulationRecommended
Plan

Objectives:

- Federal Objective: Contribute to national economic development (NED) consistent with protecting the nation's environment
- Project Objective: Reduce navigation transportation costs and increase maneuverability in channel

Constraints:

 Avoid, minimize, and mitigate impacts on environmental resources and the U.S. Coast Guard Station







BUILDING STRONG®



Problems	Existing	Future	Objectives		es Plan	Recommended
Opportunities	Conditions	Without-Project	Const	rain	ts Formulation	n Plan
Problems Opportunities	Existing Conditions	OEC 45'	Objec Const		es Plan Formulation Formulation PORTEV MEASURES Mo Action Additional Tugs Clear Berthed Vessels Clear Berthed Vessels Clear Berthed Vessels Clear Berthed Vessels Light-loading Cargo Light-loading Vessels Lightering Off-shore Petroleum Widen OEC Deepen OEC & IEC Widen MTB	Recommended Plan ERGLADES MEET PROJECT OBJECTIVES?
SAC	2) Det cha	ermine benefittin annel segments fo	ig or	JRAL	Deepen MTB Deepen NTB	
	Sector Cor	binations of dept	oth	CTI	Deepen STB	
Ŭ TN 42'	e and	width alternative	es	IRU	Widener	
	logNTB-	North Turning Basin		S	Widen SAC	
BE AN ARE	R MTB	Main Turning Basin			Deepen SAC	$\checkmark \bullet$
	₹STB-	South Turning Basin			Widen TN	\checkmark
	SAC	Southport Access Ch	annel		Deepen TN	\checkmark •
		Inner Entrance Chan	nel		Dania TB	
	OEC	Outer Entrance Char	nnel		Widen/Deepen Dania	a
Westlake Park	-DCC-	Dania Cut-off Canal Initial Project Foot 30	print	•	Meets objectives if comb BU	ined with other measures



Problems	Existing	Future	Objectives	Plan	Recommended
Opportunities	Conditions	Without-Project	Constraints	Formulation	Plan





ECONOMIC ANALYSIS

FY15 Discount Rate 3.375% & October 2014 Price Level



NED: National Economic Development LPP: Locally Preferred Plan



BUILDING STRONG_®





Problems Opportunities	Existing Conditions	Future Without-Project	Objectives Constraints	Plan Formulation	Recommendec Plan		
RECOMMENDED PLAN (LPP) 48 FEET							
SUMMARY OF PROJECT COST (FY 15 Discount Rate 3.375% and October 2014 Price Level)							
NED Plan (47 feet) Recommended Plan/LPP (48 feet							
First Cost (902 Basis): \$ 305,300,000		305,300,000	First Cost (902 Basis): \$ 322,700,000				
Associated Costs:		\$50,700,000 • Associated Cos		Costs:	\$51,400,000		
Total Cost:		356,000,000	Total Cost:		74,100,000*		
Federal Sh	nare: \$1	189,900,000	Federal Sh	nare: \$1	89,900,000		
Non-feder	ral Share: \$1	66,100,000	Non-feder	ral Share: \$1	84,200,000		
 Mitigation 	: \$	50,900,000	 Mitigation 	: \$	52,800,000		
BCR: 2.9			• BCR: 2.9				

Average annual increase in O&M cost: \$55,500

Notes:

- Associated Costs Include: Non-Federal Costs (Local Service Facilities and Berthing Area Costs) and Aids to Navigation
- General Navigation Features (GNF) & First Costs are the same as there are no LERR costs associated with the project
- Federal Share (75% of 45 feet and 50% from 45 to 47 feet) *
- Non-Federal Share (25% to 45 feet and 50% from 45 to 47 feet) + \$18,000,000 (100% of additional cost for the LPP) *







Problems	Existing	Future	Objectives	Plan	Recommended
Opportunities	Conditions	Without-Project	Constraints	Formulation	Plan

ENGINEERING

Project Datums: In compliance with current regulations (vertical: MLLW tied to NAVD 88; horizontal: NAD 83)

Dredging:

- Quantities: ~5.5 million cubic yards of material
- Materials: Subsurface material including shallow sands and massive rock units
- Placement: ODMDS and Reef/Hardbottom mitigation areas

Outer Entrance Channel: Additional 7 feet of underkeel clearance required due to cross currents in the entrance channel

Widening Areas: Optimized to minimum required dimensions through ship simulation

Operations and Maintenance: No discernible difference between 47 and 48 feet


Problems	Existing	Future	Objectives	Plan	Recommended
Opportunities	Conditions	Without-Project	Constraints	Formulation	Plan

SEA-LEVEL CHANGE

- Used current guidance (ER 1110-2-8162)
- Results of analysis for the 50-year period, 2017-2067:
 - Baseline: 0.39 feet
 - Intermediate: 0.84 feet
 - High: 2.25 feet

Conclusion for Navigation:

Based on these sea-level change projections and elevations of current and planned port facilities, minor impacts on port facilities and no impacts on navigation





Problems	Existing	Future	Objectives	Plan	Recommended
Opportunities	Conditions	Without-Project	Constraints	Formulation	Plan

REAL ESTATE



Coast Guard Reconfiguration

A permit for real property use by other Federal agencies will be executed between USCG and the Department of the Army for construction purposes





BUILDING STRONG®



Problems	Existing	Future	Objectives	Plan	Recommended
Opportunities	Conditions	Without-Project	Constraints	Formulation	Plan

ENVIRONMENTAL: REDUCED IMPACT (ACREAGE) OVER TIME

	COMPONENT	2000 (ac)	2004 (ac)	2008 (ac)	2012 (ac)	2013 (ac) DRAFT EIS	2015 (ac) FINAL EIS
	Seagrasses	40.28	1.38	*4.3	*4.01	4.01	4.21
	Mangroves	52.89	12.3	10.44	1.2	1.16	1.16
	Hardbottom High Relief	25.61	10.82	10.5	11.09	10.10	9.87
PER MA	Hardbottom Low Relief	13.97	14.89	4.57	5.55	5.07	4.74
	Hardbottom (Below Dredge Depth) 10%					0	*.71
1	Indirect Effects w/in 150m of channel during construction (3yrs)				2.27	2.27	2.19

Primarily due to changes in bed coverage



SUBMERGED BULKHEAD WITH RIPRAP CAP

allows for continual flushing of mangrove habitat inland of structure



ENVIRONMENTAL MONITORING: HARDBOTTOM RESOURCES

1) Post-construction (Effects of dredging and indirect effects of turbidity and sedimentation along the channel): 5 years conducted

2) Artificial reef construction (boulders with relocated corals from impact site): 5 years



3) Coral mitigation propagation (enhancement of existing reef): 3 years of monitoring for each component totaling 10 years for all outplanting

TIMELIN	IE: CORAL N	IITIGATION P	ROPAGATIO	N		NHA ZA
Year 1	Start up nursery					States 10
Year 2	Outplant area 1					A Stades
Year 3	Monitor area 1	Outplant area 2			38	A CAR
Year 4	Monitor area 1	Monitor area 2	Outplant area 3			
Year 5	Monitor area 1	Monitor area 2	Monitor area 3	Outplant area 4	216	ignorn Corai
Year 6		Monitor area 2	Monitor area 3	Monitor area 4	Outplant area 5	
Year 7			Monitor area 3	Monitor area 4	Monitor area 5	Outplant area 6
Year 8				Monitor area 4	Monitor area 5	Monitor area 6
Year 9					Monitor area 5	Monitor area 6
Year 10						Monitor area 6



ENVIRONMENTAL MITIGATION: MANGROVES/SEAGRASSES

Westlake Park: Last remaining natural mangrove ecosystem in Broward County.



Westlake Park Seagrass and Mangrove Mitigation

WEST LAKE PARK

- Ongoing county restoration project (USACE regulatory permit)
- USACE permit makes credits available to Broward County
- The West Lake Park restoration is the most cost-effective mitigation alternative and the most consistent with mitigation policy
- Construction, monitoring and adaptive management to be performed by the non-federal sponsor
- The PPA will include sponsor commitment to guarantee seagrass and mangrove mitigation for the life of the project







ENVIRONMENTAL COMPLIANCE

DEIS prepared and coordinated

Endangered Species Act Coordination (USFWS)

Endangered Species Act Coordination (NMFS)

Essential Fish Habitat Coordination (NMFS)

Cultural Resources Coordination



Coastal Zone Consistency





PUBLIC/AGENCY INVOLVEMENT

FROM 1999 TO 2014: OVER 30 MEETINGS

Scoping

- Scoping letters issued, 2001
- Notice of Intent (NOI) to prepare a Draft Environmental Impact Statement (DEIS) published in Federal Register, 2001

Agency Coordination

- Cooperating Agency Letters: September 11, 2007
- Meetings and Site Visits: 1999 to 2014
- Endangered Species Act (ESA) coordination with USFWS (August 20, 2013) and NMFS (May 1, 2014)
- Magnuson-Stevens Fishery Conservation and Management Act (EFH) coordination with NMFS (April 17, 2014)

ENVIRONMENTAL OPERATING PRINCIPLES

NATIONAL PRIORITIES



Foster sustainability



Proactive consideration of environmental consequences



Mutually supporting economic and environmentally sustainable solutions



Accountability for activities which may impact human and natural environments

Collaborative leveraging of scientific, economic, and social knowledge to understand environmental context



Consideration of environment and risk management in context of project and program lifecycle



Open, transparent process respecting views of individuals and groups interested in Corps activities



Reduce deficit



Create jobs/restore economy



Improve resiliency and safety



Preserve and protect the environment



Maintain global competitiveness



Increase energy independence



Improve quality of life



BUILDING STRONG®



REVIEWS

Tentatively Selected Plan (TSP) Milestone Meeting: May 2013 Draft Report DQC/Legal Certification: June 2013 Draft Report ATR/HQ Policy Review/IEPR/VE Analysis: August 2013 ECO-PCX and HQ Approval for Use of Ecological Models: February 2015 Cost Certification: October 2014 LPP ASA(CW) Approval: October 2014 Final ATR/DQC/IEPR/Legal Cert: November/December 2014 DE Transmittal Notice: January 2015





RESOLUTION OF IEPR NON-CONCURS WITH VERTICAL TEAM ALIGNMENT

ENGINEERING

\checkmark Shoaling Rate Estimates

- Sediment Transport analysis (independent expert) supports conclusion in feasibility report
- Sensitivity analysis determined higher estimates of Panel member do NOT impact BCR

Cumulative Impacts to Shoreline/Sediment Transport

Entrance Channel already acts as a sediment trap, preventing bypassing of material; no change to erosion rate expected under the with-project condition

Blasting/Cost Risk

Comprehensive review found associated cost risk analysis compliant with all USACE policies

ECONOMIC

- Commodity Forecasts
 - Economics Appendix updated
- ✓ Transportation Benefits
 - Economics Appendix updated

ENVIRONMENTAL

- Additional Information on Coral Propagation
 - Information provided, including a summary of an analysis to be completed during PED





BUILDING STRONG_®

RISK MANAGEMENT

STUDY PHASE

- The Walla Walla MCX completed a CSRA and determined that a 26.3% contingency should be included
- VE Study, DQC, ATR and IEPR completed with improvements incorporated

CONSTRUCTION PHASE

- Risk register and risk management plan are living documents
- PED activities will include data collection, VE, and Industry Days
- Implement Lessons Learned from previous deepening contracts



- Best acquisition strategies developed to minimize costs and increase quality (eg., structure, scope and number of contracts)
- Plans & Specifications for all contracts will undergo DQC, ATR, and BCOES reviews



PROJECT IMPLEMENTATION (Key Dates)

Feasibility Phase:

- Chief of Engineers Report: May 2015
- Administration Review (ASA and OMB)
- ASA Transmittal to Congress

Preconstruction Engineering and Design (PED) Phase:

Subject to Funding: 2015-2017

Construction Phase:

Subject to Authorization and Appropriations: 2017-2022



CONCLUSIONS

National Infrastructure Improvements

- Recommended Plan: Deepen 6 feet from 42 to 48 feet
- Direct return on investment (BCR 2.9)

Economic Benefit

Project Cost at FY15 price levels yields \$31M in net annual benefits

Comprehensive Mitigation Plan:

- Includes ~2.4 seagrass functional units and ~1 mangrove functional unit and creation of ~5 acres of artificial reef, transplantation of ~11,500 corals, outplanting of ~103,000 nursery raised corals/~18 acres
- Coordinated extensively with stakeholders
- Monitoring

Project Support

- Study support and participation by local community, state, and Federal agencies
- Committed stakeholders and non-federal sponsor (Broward County)





CLOSING COMMENTS





SAD Division Commander

BLUF: Approve final report, release State/Agency review, complete Chief's Report, and submit for authorization.

Strategic Value:

- Main port for supplying petroleum to South Florida
- Leading cruise port worldwide
- Federal Investment of \$190 million returns over \$31 million in average annual net benefits
- Economic benefit (BCR 2.9)...allows larger ships, reduces transportation costs, improves efficiency, supports
 economic growth for the region and nation
- Study received extensive support and participation by local community, state, and Federal agencies
- Mitigation and Monitoring Plans prepared in partnership with National Marine Fisheries Service

Feasibility Report is legally and policy compliant:

- Two ATRs conducted by DDNPCX, all comments resolved, and ATR certified
- IEPR completed. 42 comments over 2 IEPRs. 6 comments closed as a non-concur. Corps vertical team aligned on agency responses to all comments.
- Cost DX certified/VE completed/HarborSym used for Economic modeling / Environmental UMAM Model Certified for use.

Quality Assurance:

- Continuous involvement in development of economic methodologies throughout Feasibility Study.
- Extensive engagement with the federal resource agencies to resolve problems / issues

A team effort..... thanks to the entire team (internal/external, horizontal/vertical)



BUILDING STRONG®



USACE National Deep Draft Navigation Planning Center of Expertise

Port Everglade Harbor Feasibility Study Review Management Agency Technical Review and Independent External Peer Review

Todd Nettles Technical Director South Atlantic Division Mobile District





BUILDING STRONG®

Deep Draft Navigation PCX – Review Verifications

Economic Analysis conducted with DDNPCX oversight
 Corps certified model HarborSym used to calculate economic benefits - Model certified by HQUSACE Model Certification panel – June 2012
 Draft Agency Technical Review – 17 Jul 13
 Final Agency Technical Review – 5 Nov 14
 Independent External Peer Review – 9 Dec 14



Agency Technical Review Draft Report

- ATR of Draft Report completed 17 July 2013.
 - 143 total comments received mostly in the area of Cost, Environmental, Plan Formulation and Geotechnical
 - ► No significant technical deficiencies identified.
 - Key comments on:
 - Providing a more details on study methodologies, assumptions, and conclusions.
 - Cost Schedule Risk Analysis
 - Justification of additional channel depth in the outer entrance channel
 - Engineering comment resolved using Engineering guidance (Corps and PIANC) along with ship simulation to determine the additional channel depth required
- All comments closed and no outstanding issues.





Agency Technical Review Final Report

- ATR of the Final Report completed 5 November 2014
 - 43 comments posted during final review
 - ► 4 comments were checked critical all Real Estate
 - PDT addressed comments by providing additional clarity regarding what is expected of the Non-Federal sponsor, how land is going to be acquired, and who is responsible for the activities involved in the process
 - Operations, Geotechnical, Environmental, and Plan Formulation comments focused on the need to add additional information for document clarity
 - Environmental comments were related to the ODMDS and the need for a backup plan if the proposed site was not approved by the EPA for placement of sediment
 - PDT resolved the comment by identifying a one time site for construction material should it become necessary
 - Hydraulics & Hydrology confirmed that issues in draft report had been addressed



All comments closed and no outstanding issues.



Independent External Peer Review

- Draft Report October 2013 IEPR
 - ► 22 Comments
 - 2 non-concurs both engineering related
- Final Report December 2014 IEPR
 - 20 Comments

economic analysis

- 4 non-concurs (2 Economic*
 - 1 Environmental and 1 Engineering)

These are the two discussed in detail. NDDNPCX is responsible for





IEPR – Economics Comment – Commodity Forecast

- Comment: Commodity forecasts are not sufficiently documented, and the approach appears to overstate the forecast for key benefitting commodities.
- Response: LPP Liquid Bulk and Containerized cargo generate approximately 95% of total benefits during the period of analysis
 - ► Commodity forecast growth rates used IHS Global Insight south Atlantic forecast
 - Benefits based on 3 "trade concepts" evaluating empirical data from 2008 through 2011
 - Container tonnage has exceeded forecasted growth as of 2014 by 17%
 - Liquid Bulk tonnage for 2014 is within 5% of forecasted tonnage
 - Dry Bulk/General Cargo tonnage in 2014 exceeded forecasted tonnage by 13%
 - Long term growth rates
 - Container tonnage 2029 thru 2040 @ 2.5% annually; 2040 thru 2060 @ 0.8% annually
 - Liquid Bulk tonnage 2029 thru 2060 @ 0.2% annually
 - Dry Bulk/General Cargo tonnage 2029 thru 2060 @ 0.8% annually
- Consultation: PDT discussions with vertical chain (HQUSACE, IWR, SAD). All agreed to with PCX response.





IEPR – Economics Comment Transportation Benefits

- Comment: The estimates of transportation cost benefits do not provide a breakdown by benefitting vessel type or by commodity, nor do they distinguish between benefits due to larger vessel size, heavier vessel loading, and reduced delays
- **Response**: Additional information was included in the economic appendix.
 - Liquid Bulk Petroleum products
 - 58 percent of total project benefits
 - With project vessel fleet shifts to 100,000 to 120,000 DWT vessels
 - Containerized Cargo
 - 37 percent of total project benefits
 - With project vessel fleet shifts to Post Panamax Generation II vessels
 - Post Panamax Generation I/Panamax vessels become more efficient
 - Fleet forecast assumptions developed with assistance from IWR
 - Remaining 5 percent of benefits associated with Dry Bulk/General Cargo
 - Non-disclosure agreement, provided Vessel Operating Costs to panel reviewer
- Consultation: PDT discussions with vertical chain (HQUSACE, IWR, SAD).
 All agreed to with PCX response.





USACE National Deep Draft Navigation Planning Center of Expertise

The NDDNPCX recommends the release of the report





BUILDING STRONG®

Independent External Peer Review (IEPR) Port Everglades Harbor Feasibility Study, Broward County, Florida

Presented to the USACE CWRB on February 27, 2015



IEPR - Panel and Schedule

Port Everglades Panel Members	Panel Discipline
Daniel Smith (Panel Lead)	Economics
William McAnally, P.E., Ph.D.	Hydraulic or Civil Engineering
Robert Gilbert, P.E., Ph.D.	Geotechnical Engineering
Kenneth Casavant, Ph.D.	Plan Formulation
Walter Jaap	Biology
Felicia Rein, Ph.D.	Biology
Ronald Vann	Real Estate

Port Everglades IEPR was conducted in two phases:

- Phase 1: June October 2013. The Panel reviewed the draft Feasibility Report and draft
- **Phase 2:** September 2014 January 2015. The Panel reviewed selected revisions to the EIS, the revised Socio-Economic Appendix to the Feasibility Report, and the public and agency comments.

IEPR Bottom Line Up Front

Of the 42 Final Panel Comments, the Panel concurred with all but six of the PDT Evaluator Responses.

The IEPR Panel has unresolved concerns about the project costs, the project benefits, and the shoreline erosion potential of the project and believes that the final Feasibility Report and EIS must address these concerns before proceeding to the design phase.

- Phase 1:
 - the Panel believes that the PDT has used an incorrect method to estimate the sediment budget, thereby underestimating future channel sedimentation.
 - the Panel found that considerable uncertainty remains on the amount of rock that will require blasting and they do not believe that this uncertainty is accounted for in the cost and schedule.
- Phase 2:
 - the Panel is unable to assess the reliability or reasonableness of the commodity forecast results due to a lack of additional documentation
 - the Panel is unable to determine if the estimated transportation cost savings are valid because information was not provided on actual tonnages, benefit amounts, and details on the sources of benefits for specific commodities and vessel classes.
 - the Panel disagrees with the PDT's conclusion that there will be no cumulative adverse effect from the removal of material from the littoral zone and its placement offshore.
 - the Panel believes that the PDT has not fully explained how coral nursery costs were determined.



IEPR - Results

PHASE 2		
Addendums to Final IEPR Report submitted on October 20, 2014 and December 1, 2014		
 Results: 20 Final Panel Comments 1 high significance 4 medium/high 7 medium 4 medium/low 4 low 		
ed on:		
December 15, 2014		
Results:		
 PDT Evaluator Responses 6 concurs, 14 non-concurs 		
 Panel BackCheck Responses – 16 concurs, 4 non-concurs 		

IEPR - Notable Findings (Phase 1)

- 1. Projected maintenance dredging requirements for the channels and berthing areas may be underestimated and do not appear to have been included in the life-cycle cost of the Tentatively Selected Plan (TSP). (Medium Significance; Non-concur)
- 2. Alternatives to blasting for hard rock excavation, as well as the project cost risks associated with blasting, have not been examined fully. (Medium Significance; Non-concur)
- 3. The cost, schedule, and overall implementation of the Port Everglades project would have been affected if the U.S. Environmental Protection Agency's (EPA's) designation of an expanded ocean dredged material disposal site was not completed in time for project construction. (Concur)
- 4. Opportunities for upland disposal, beneficial use, and multiple placement of dredged material were not examined fully; therefore, potential costs and benefits were not necessarily realized. (Concur)
- 5. The Broward County sand bypassing project's potential impact on the conditions in the Outer Entrance Channel (OEC) had not been thoroughly evaluated, despite the significant implications for littoral transport rates and maintenance costs. (Concur)
- 6. There was an inconsistency between the Tentatively Selected Plan (TSP) and the engineering analyses regarding the extent, cost, and schedule of bulkhead work required before fully implementing the TSP. (Concur)



IEPR - Notable Findings (Phase 2)

- 1. Commodity forecasts are not sufficiently documented, and the approach appears to overstate the forecast for key benefiting commodities. (High Significance; Non-concur)
- The estimates of transportation cost benefits do not_{prov} ide a breakdown by benefitting vessel type or by commodity, nor do they distinguish between benefits due to larger vessel size, heavier vessel loading, and reduced delays. (Medium/High Significance; Non-concur)
- 3. The analyses presented in revised Section 4.0 of the Final Environmental Impact Statement (FEIS) do not support the conclusion that "there would be no cumulative adverse effect on the geology or coastal sediment budget/transfer for the area". (Medium Significance; Non-concur)
- 4. Details about coral nursery development, operation, and evaluation are not provided in the revised FEIS; therefore, the competency of this form of mitigation cannot be verified. (Medium Significance; Non-concur)
- 5. The sensitivity analysis did not provide sufficient detail and did not consider the uncertainties involved in commodity forecasts prior to the 2023 base year, in the vessel fleet forecasts, or in the realization of projected transportation cost savings. (Concur)



PORT EVERGLADES HARBOR BROWARD COUNTY, FLORIDA Civil Works Review Board (CWRB)

Jeremy LaDart Office of Water Project Review Planning and Policy Division Washington, DC – 27 February 2015



HQUSACE Team Reviews:

- TSP Briefing- 31 May 2013.
- Draft Report Review– July 2013
- Final Feasibility Report/EIS January 2015.

HQUSACE Team Members:

Jeff Lin John Cline Mark Matusiak Scott Murphy Mayely Boyce Andrea Walker Terry Stratton* Anne Sturm Jerry Webb



*MSC resource utilized for HQ Policy Review.



Policy Issues from Draft and Final Report Reviews

- Channel Realignment
- Discount Rate
- Price Level
- Fleet Transition
- Load Factor Analysis
- **U.S. Coast Guard Reconfiguration**
- Sea Level Change
- O&M Costs
- Screening of Alternatives
- ODMDS Expansion
- Base Year
- Cost Sharing
- Cost Terminology
- Hardbottom Mitigation
- □ Local Service Facilities
 - Sponsor Statement of Financial Capability







Channel Realignment

CONCERN: The correct application of federal and non-federal costs associated with the widening could not be determined.

BASIS: The recommended plan includes both channel realignment to accommodate berthing areas (non-federal responsibility) and channel widening to accommodate larger vessels (cost shared). It was difficult to determine from the report which dredging quantities and costs were attributable to each action.

RESOLUTION: The district confirmed the appropriate cost share was applied and provided additional narratives within the report.

RESOLUTION IMPACT: Concern is resolved.





U.S. Coast Guard Reconfiguration

CONCERN: The report presented inconsistent recommendations and did not clearly document the path forward.

- **BASIS:** The widening component of the recommended plan will impact several U.S. Coast Guard (USCG) facilities. The report presented the cost share for the USCG facilities in inconsistent ways and was not explicit about the path forward for USACE to conduct the work on another federal agency's land.
- **RESOLUTION:** The proposed Chief's Report was revised to document the reconfiguration as a cost shared General Navigation Feature (GNF), and a permit for use of real property by other federal agencies will be executed between the U.S. Coast Guard and the Department of the Army for construction purposes.

RESOLUTION IMPACT: Concern is resolved.



ODMDS Expansion

CONCERN: The Expansion of the Ocean Dredged Material Disposal Site (ODMDS) is required for construction.

BASIS: Construction of the recommended plan involves dredging of approximately 5.5 million cubic yards of material. Expansion of the ODMDS will be required, and the EPA will not likely issue the final permit prior to signing of the Chief's Report.

RESOLUTION: USACE received a letter from the EPA indicating that the ODMDS expansion process is on track and no known issues exist at this time.

RESOLUTION IMPACT: Concern is resolved.




Cost Terminology

CONCERN: The report recommended an incorrect Project First Cost that included local service facilities (LSF) and aids to navigation (ATONS).

BASIS: While LSF and ATONS are a financial cost, they are costs borne by others and are not included in the Project First Cost to be recommended for authorization and establishment of the 902 Limit (DCW memorandum dated 25 August 2011, subject: Corps of Engineers Civil Works Cost Definitions and Applicability).

RESOLUTION: The report was revised to illustrate the appropriate Project First Cost.

RESOLUTION IMPACT: Concern is resolved.





Hardbottom Mitigation

CONCERN: The Draft Report included a hardbottom mitigation recommendation that would not have been policy compliant.

BASIS: The Draft Report presented both a Corps developed, policy compliant mitigation plan for hardbottom impacts, as well as a non-policy compliant alternate plan developed by NMFS.

RESOLUTION: Extensive additional coordination was conducted with NMFS, leading to a new mitigation plan in the Final report. The new mitigation plan was demonstrated to be cost effective as well as appropriate for the level of impact being incurred.

RESOLUTION IMPACT: Concern is resolved.





HQUSACE POLICY REVIEW TEAM RECOMMENDATION

Release draft Chief's Report and Report/Environmental Impact Statement for State and Agency Review.





LESSONS LEARNED

- Senior Level Engagement with NMFS
 - Collaborative Effort on the Mitigation and Monitoring Plans
- Use of USACE Corporate Model: HarborSym
 - Implement use of certified models as they become available
- Engage Senior Level of Vertical Team Early
 - Reviews at the senior level to prevent delays later in the study



