FREEPORT HARBOR, TEXAS CHANNEL IMPROVEMENT PROJECT

Civil Works Review Board (CWRB) Briefing

Galveston District

June 2011

Colonel Christopher Sallese

Commander

Galveston District

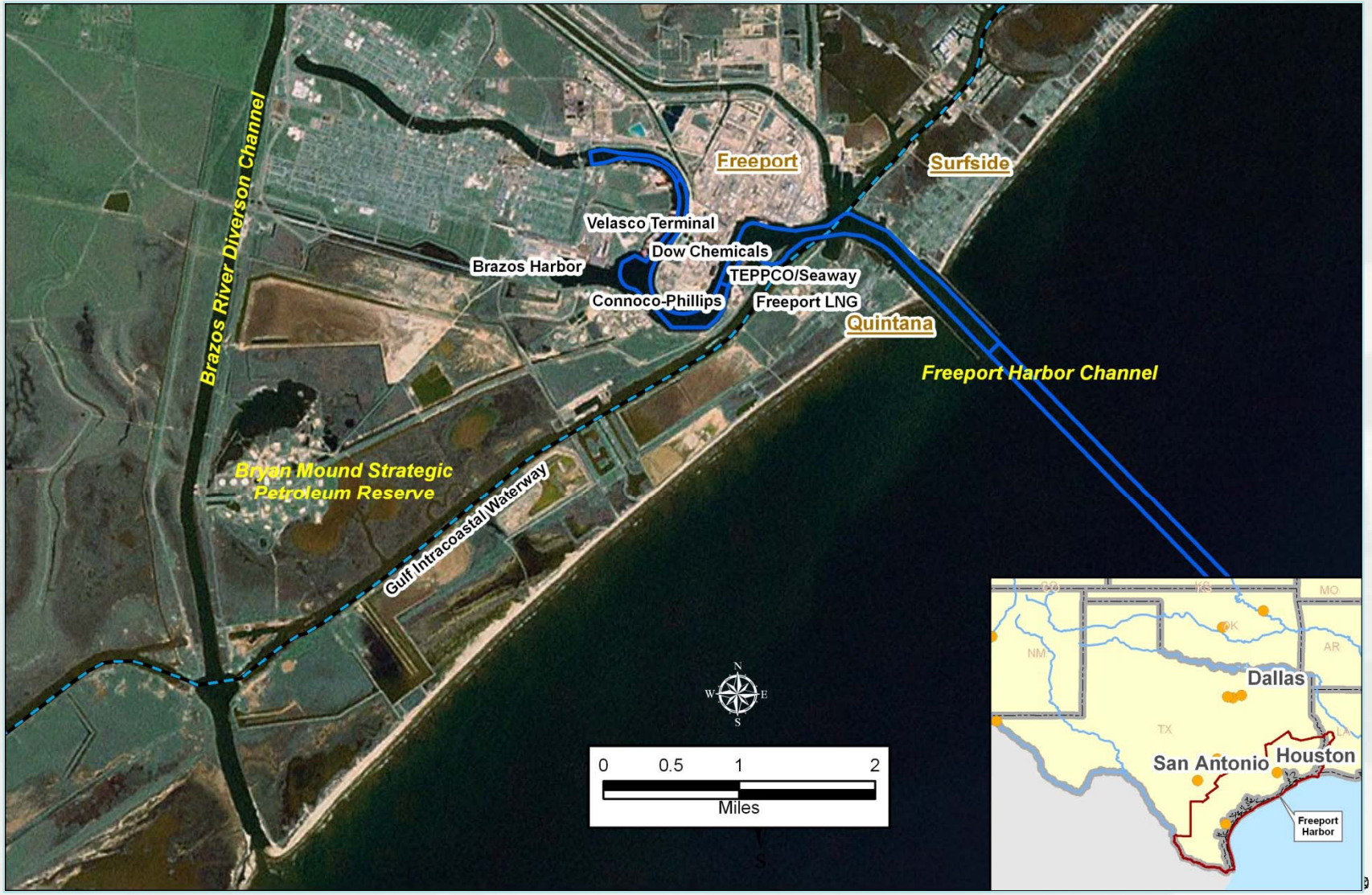
Briefing Purpose

- Provide an overview of the Freeport Harbor Channel Improvement Project (CIP)
- Answer questions and address comments
- Obtain CWRB approval to release report for State and Agency Review
- Discuss the next steps towards the Chief of Engineers' Report

Briefing Outline

- Overview of Feasibility Study and Recommended Plan
  - Vicinity Map/Project and Study Background
  - Study Authority
  - Sponsor, Study Participants, and Project Delivery Team
  - Study Purpose
  - Study Area Description
  - Existing Project Dimensions
  - Plan Formulation
- Recommended Plan
  - Navigation Features
  - Dredged Material Management Plan (DMMP)
  - Compensatory Mitigation Plan
- Environmental Compliance
- Economic Summary
- Public Involvement
- Agency Technical Review/Independent External Peer Review
- Environmental Operating Principles
- Risk and Uncertainty/Strategic Campaign Plan
- Recommendation
- Questions?

Area of Interest



Project History

- Federal channel improvement at Freeport was authorized by the River and Harbor Act (RHA), approved 14 June 1880. RHA provided for construction of jetties for controlling and improving the channel over the bar at the mouth of the Brazos River.
- Existing Freeport Harbor Project was authorized by the RHAs of May 1950 and July 1958. Acts provided for an Outer Bar Channel 38 feet deep and 300 feet wide from the Gulf of Mexico to a point inside the jetties and for inside channels 36 feet deep and 200 feet wide to and including the Upper Turning Basin.
- Subsequent authorization in 1970 and 1974 provided for the Jetty Channel to be relocated and deepened to 45 feet, widened to 400 feet and the North Jetty relocated northward.
- Current Study
  - Reconnaissance Report was completed in Oct 2002
  - FCSA signed in July 2003

Study Authority

This feasibility study was conducted under authority of Section 216 of the Flood Control Act of 1970.

- *Section 216. The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due to significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest.*

Non-Federal Sponsor

PORT FREEPORT℠
THE COAST IS CLEAR

- A.J. “Pete” Reixach, Jr., Executive Director/CEO
- Phyllis Saathoff, Managing Director
- David Knuckey, Director of Engineering and Construction

Study Participants

- U.S. Army Corps of Engineers - Galveston
- Non-Federal Sponsor – Port Freeport
- Environmental review coordinated with:
  - Environmental Protection Agency
  - US Fish and Wildlife Service
  - National Marine Fisheries Service
  - Texas General Land Office
  - Texas Commission on Environmental Quality
  - Texas Parks and Wildlife Department
  - Texas State Historic Preservation Officer

Project Delivery Team Performance

- Multidisciplinary Project Delivery Team (PDT) met monthly at minimum
  - District team included project management, planning, engineering, environmental, operations, real estate, and cost engineering
  - Non-Federal sponsor (Port Freeport)
- PDT assisted periodically by:
  - ERDC technical experts
  - Environmental contractors
- Deep Draft Navigation Planning Center of Expertise (DDNPCX) at Mobile District provided Agency Technical Review (ATR) and Independent External Peer Review (IEPR) of draft reports, and ATR and IEPR backcheck of final documents
- Cost Engineering Directory of Expertise (DX) at Walla Walla District provided ATR of cost estimates and backcheck
- SWD RIT – several progress reviews, draft report reviews (2009 - 2011)

Study Purpose

- Determine feasibility of providing navigational improvements to the Freeport Harbor Channel
- Maintain, protect and/or restore quality of terrestrial, cultural, coastal natural resources

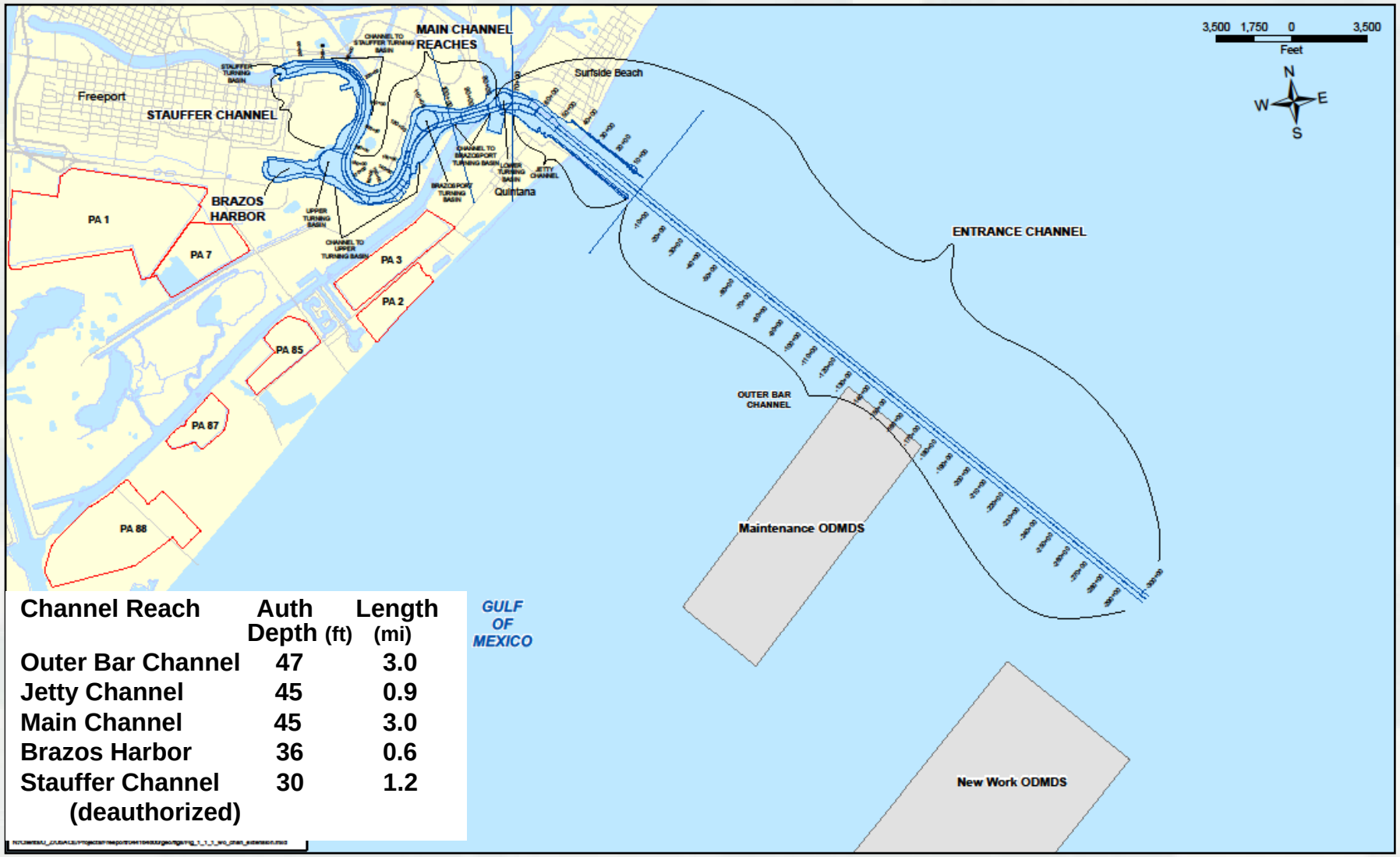
Study Area Description

- 70 square mile area
- Includes:
  - Brazoria County
  - Freeport, Surfside Beach, and Quintana
  - Freeport Harbor Channel
  - Brazos River
  - A portion of the Gulf Intracoastal Waterway
  - Gulf of Mexico shoreline on either side of Freeport Harbor Channel
  - 10 miles offshore into the Gulf of Mexico

Port Freeport Significance

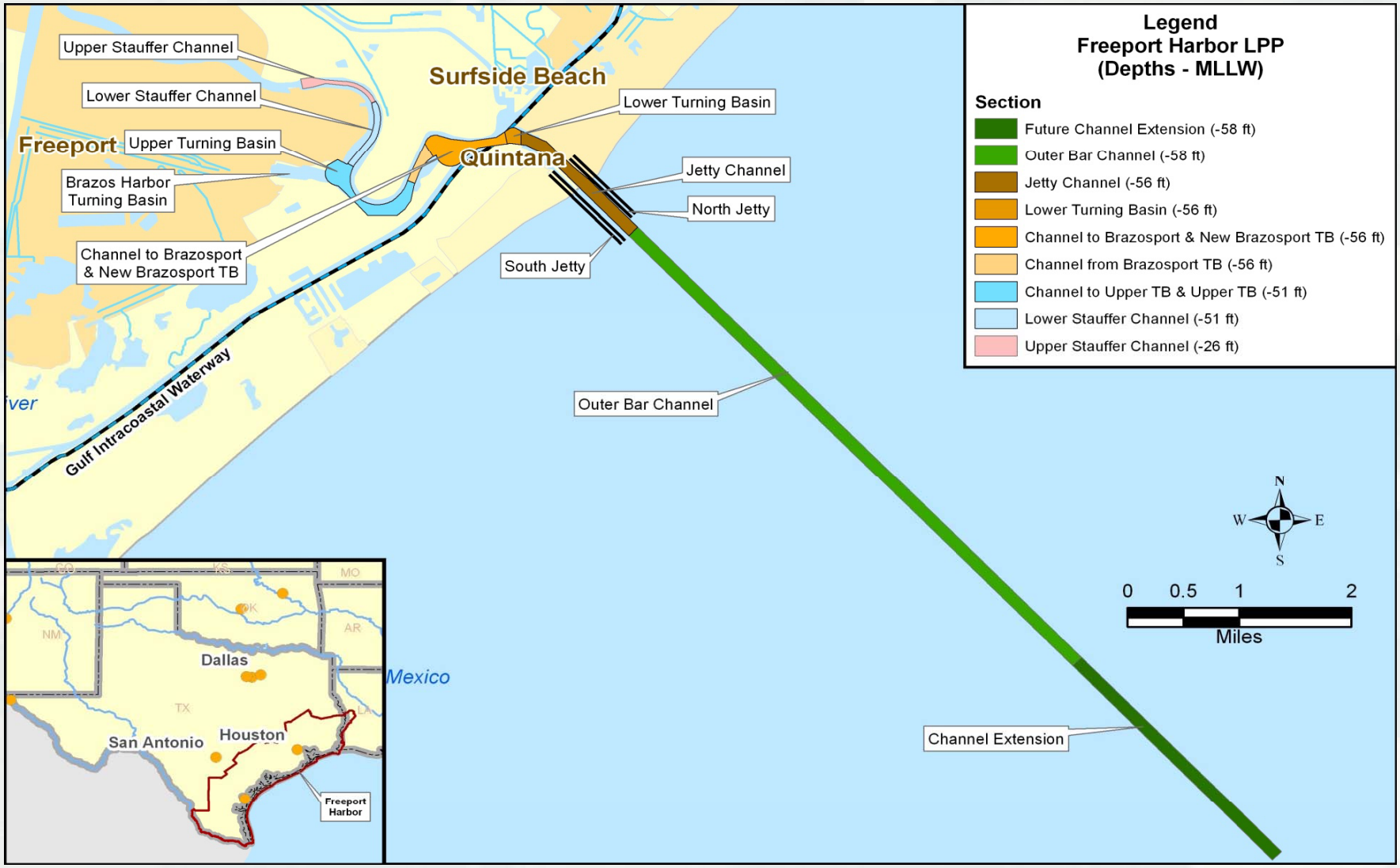
- Provides access to one of the largest petrochemical and plastics production complexes in the world
- Nation's 27th largest waterway in total tonnage
- 16th largest port in foreign imports and exports
- Supports the Nation's Strategic Oil Reserves

Freeport Existing Project



Channel Reach	Auth Depth (ft)	Length (mi)
Outer Bar Channel	47	3.0
Jetty Channel	45	0.9
Main Channel	45	3.0
Brazos Harbor	36	0.6
Stauffer Channel (deauthorized)	30	1.2

Recommended Plan

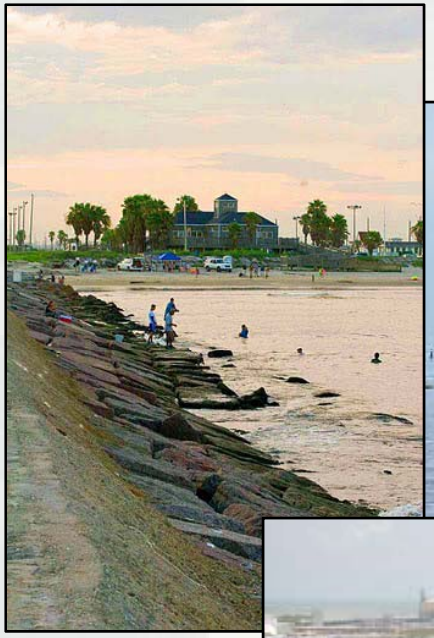


Pre-Study Problems and Opportunities

- Navigation and Commerce
  - Existing Freeport Harbor Channel designed for vessels with loaded drafts of 42 feet – the world fleet is currently significantly larger
  - Approximately 97% of crude oil imports currently shipped in vessels with design drafts ≥43 ft
  - Wind and cross current issues
  - Very large crude oil tankers from Middle East, Africa and Europe lighter before entering Freeport Harbor Channel – costly operation (approx. $35,000 per vessel, or about $7 million annually)
  - Potential annual reduction in direct shipment costs from Central and South America and Mexico is about $ 13.2 million

Pre-Study Problems and Opportunities

- Environmental
  - Gulf shoreline erosion
  - Air quality
  - Contaminated sediments
- Economic Opportunities
  - Opportunity to increase transportation efficiency
    - National Economic Benefits
    - Regional Economic Benefits
  - Opportunity to serve new Panama Canal fleet – third set of locks to be completed in 2014



Alternatives Considered

- No Action Alternatives
  - Widening project completed by non-Federal sponsor before construction of Federal CIP

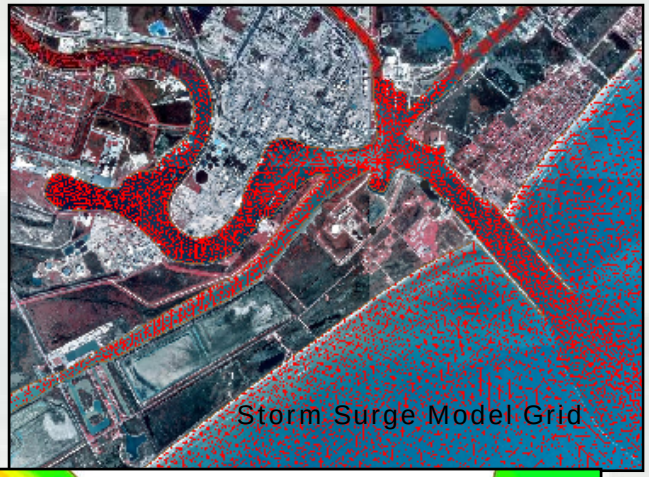
    (Permit issued 2 March 2009)
  - Widening project not constructed before Federal CIP
- Nonstructural Alternatives
  - ► Relaxation of Pilots Rules
  - ► Alternative Mode of Commodity Transport
    - Inactive proposal for Texas Offshore Port System (TOPS) – permit request withdrawn

Alternatives Considered

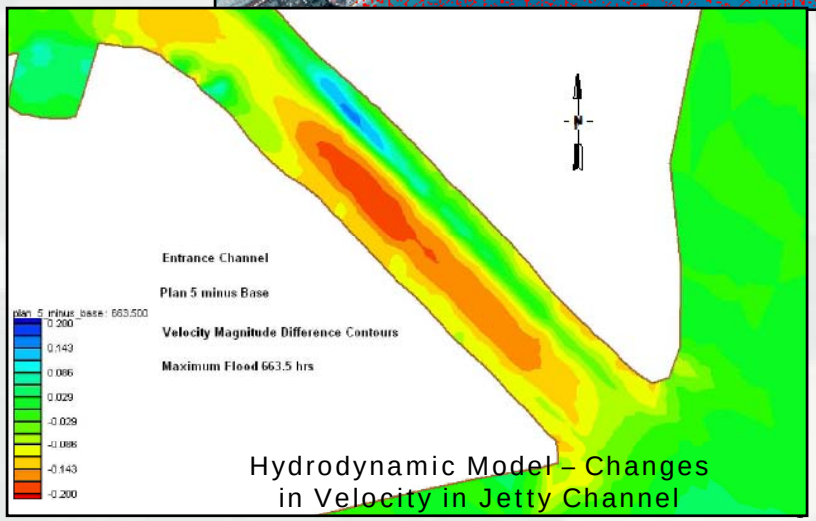
- Structural Alternatives
  - More than 50 combinations of different channel depths and widths
  - Deepening to 50, 55, and 60-foot depths
  - Widening from 400 to 600 feet for all depths

Technical Studies

- Ship simulation modeling
- Hydrodynamic-salinity modeling
- Sediment modeling
- Gulf shoreline impact study
- Ocean disposal modeling
- Storm surge modeling
- Ecological modeling
- Air emissions studies
- Cultural resource surveys



Storm Surge Model Grid

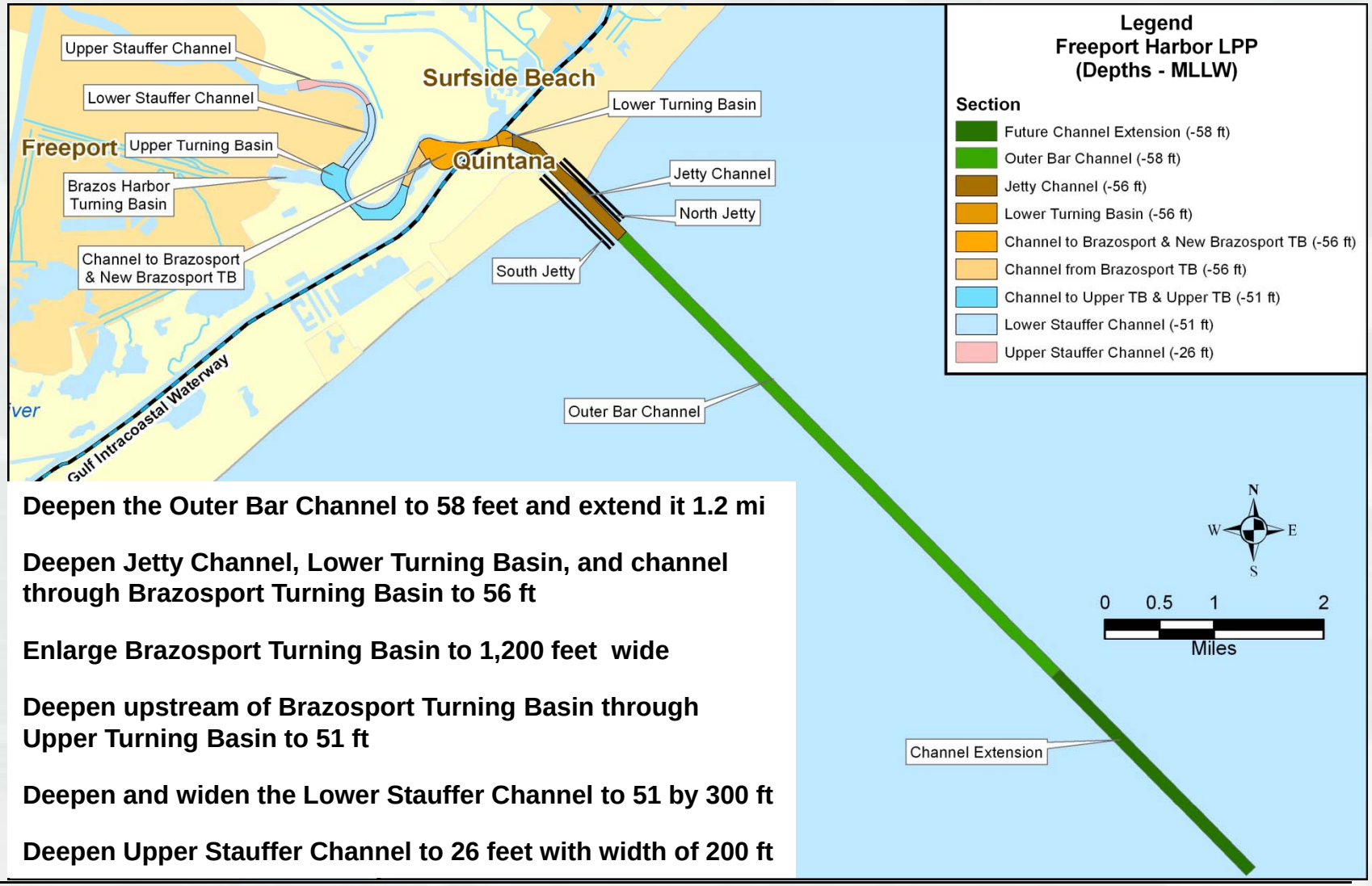


Hydrodynamic Model – Changes in Velocity in Jetty Channel

Recommended Plan Features

- Deepening of Freeport Harbor Channels and Turning Basins
- Dredged Material Management Plan
- Compensatory Mitigation Plan

Navigation Features



Deepen the Outer Bar Channel to 58 feet and extend it 1.2 mi

Deepen Jetty Channel, Lower Turning Basin, and channel through Brazosport Turning Basin to 56 ft

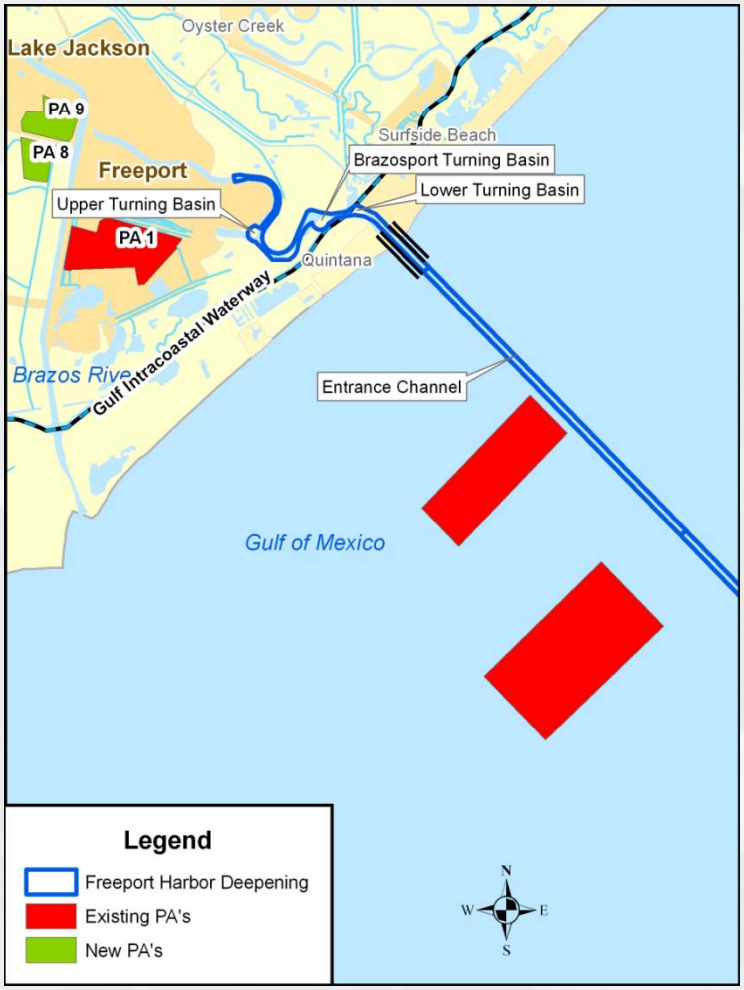
Enlarge Brazosport Turning Basin to 1,200 feet wide

Deepen upstream of Brazosport Turning Basin through Upper Turning Basin to 51 ft

Deepen and widen the Lower Stauffer Channel to 51 by 300 ft

Deepen Upper Stauffer Channel to 26 feet with width of 200 ft

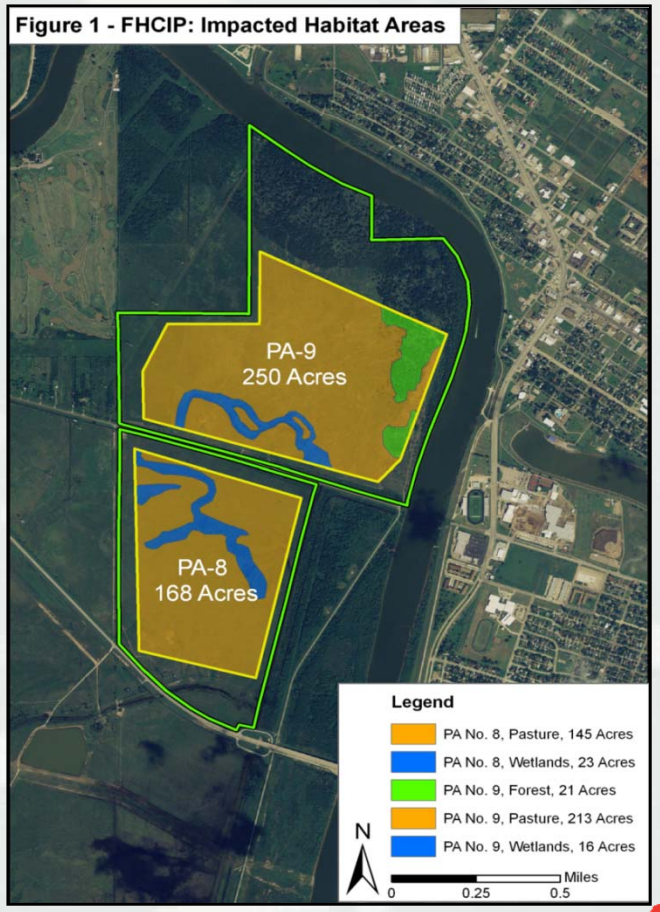
Dredging Quantity Estimates



- New work (construction) quantity – 17.3 mcy
  - 12.7 million cubic yards (mcy) from hopper dredging extension channel and deepening of entrance navigation channel
  - 4.6 mcy from hydraulic pipeline deepening of inshore navigation channels and basins
- Maintenance dredging quantities
  - 50-yr total increases by 176 mcy
  - Average annual cost increase by about $6 million

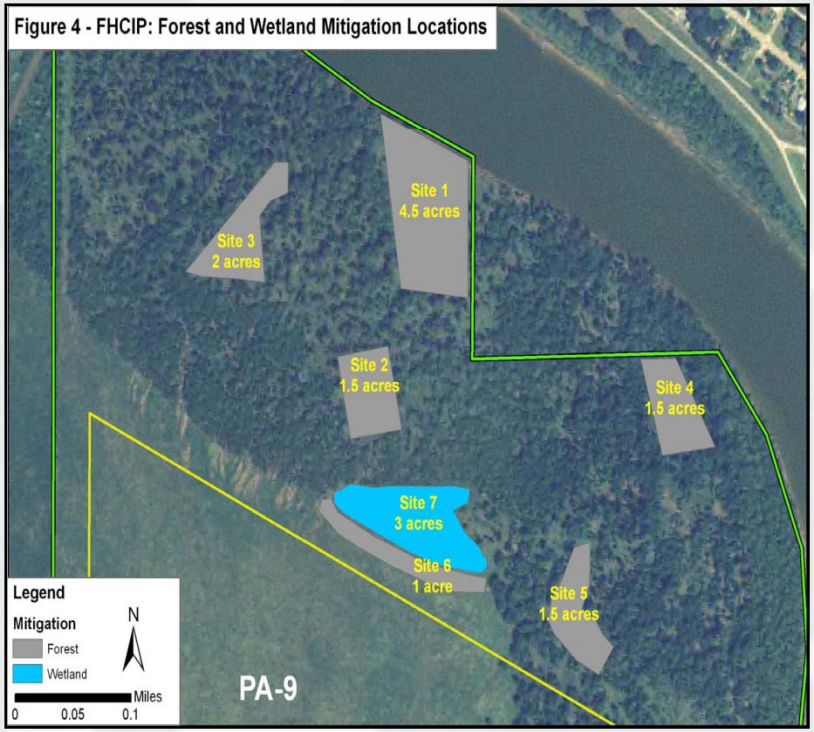
Environmental Impact

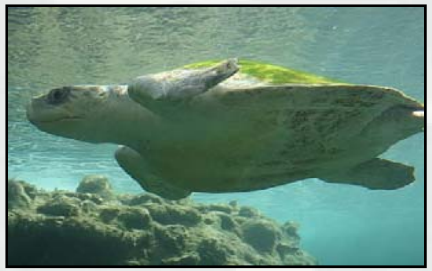
- Placement area construction adversely impacts
  - 39 acres of marginal wetlands
  - 21 acres of low quality forest
- Potential impacts to threatened and endangered sea turtles during offshore dredging
- NO_X emissions during construction comply with the State Implementation Plan
- Very small increase in tide range and tidal surge
- Minimal increase in Gulf shoreline erosion
- No salinity, water, elutriate and sediment quality impacts or significant cumulative impacts



Fish and Wildlife Mitigation

- Unavoidable habitat impacts mitigated by
  - Preservation of 131 acres of riparian forest and creation of 12 acres of new forest
  - Creation of 3 acres of wetland
- Adoption of reasonable and prudent measures to minimize incidental take of sea turtles





Environmental Compliance

- Draft Feasibility Report (DFR)/Draft EIS (DEIS) released in December 2010
- Received EPA EC-2 rating (Environmental Concerns and Requests Additional Information in the Final EIS)
- Section 7 Endangered Species Act consultation – ongoing
- Section 401 Water Quality Certification received
- Historic Properties Programmatic Agreement executed with TX SHPO for Section 106 compliance
- Consistent with Texas Coastal Zone Management Program
- Compliant with all other applicable Federal and state regulations and Executive Orders

Environmental Summary

- Project environmental impacts are minimal
- All project impacts are mitigated
- No opportunities for beneficial use because of unsuitable material and cost

Boardwalk over dunes at Quintana County Park

LPP Selection

LPP has shallower Outer Bar, Jetty and Main Channel than the NED

- Depth is 56 ft (LPP) compared to 61 ft (NED)
- Benefit curve continues rising above LPP depth of 56 ft

LPP has deeper Lower Stauffer Channel than NED

- Depth is 51 ft (LPP) compared to 46 ft (NED)
- Non-Federal Sponsor will pay 100 percent of the increased cost over the NED

Economic Comparison LPP/NED

(October 2009 price level; 4.125% interest rate; in $1000's)

	NED	LPP
First Cost ($)	361,662	284,713
Total Annual Cost ($)	25,920	20,515
Avg. Annual Benefits ($)	42,429	23,894
Net Excess Benefits ($)	16,509	3,378
BCR	1.6	1.2

Estimated Costs for Recommended Plan

(October 2009 price level; 4.125% interest rate)

	Total First Cost	Fully Funded Cost
Federal Construction		
Lands & Damages	$77,000	$84,000
Fish and Wildlife Mitigation	124,000	140,000
Navigation Ports & Harbors	181,261,000	204,961,000
Project Expenditures		2,891,000
Planning, Engineering & Design	26,404,000	28,567,000
Construction Management	16,788,000	19,025,000
Federal Construction	**224,654,000**	**255,668,000**
Non-Federal (LERRs/Facilities)		
Lands & Damages	1,751,000	1,911,000
Relocations	-0-	-0-
Navigation Ports and Harbors	56,935,000	62,304,000
Aids to Navigation	1,373,000	1,542,000
Project Expenditures	-0-	3,053,000
Non-Federal Construction	**60,059,000**	**68,810,000**
Total Project Cost	**$284,713,000**	**$324,478,000**

Cost Share for Recommended Plan

TOTAL COST (Baseline) = $284.7 mil

	Federal Share	Non-Federal Share
Deep Draft Nav. from 18 – 20 ft.	$ 0.6	$ 0.01
Deep Draft Nav. from 20 – 45 ft.	7.3	2.5
Deep Draft Nav. from 45 – 55 ft.	106.9	108.6*
Lands, Easements, ROW & Relocations	0.1	1.8
TOTAL COSTS	$ 114.9	$112.9

GNF Costs - deepening less than 20 feet - 90% Fed/10% non-Fed
GNF Costs - deepening between 20 and 45 feet - 75% Fed/25% non-Fed
GNF Costs - deepening greater than 45 feet - 50% Fed /50% non-Fed
*$1.8 difference in dredging cost for NED vs LPP for Lower Stauffer; to be paid by non-Federal sponsor

Cost Apportionment

By Channel Reach

Cost Apportionment Navigation	First Cost	Fully Funded Cost
Federal Navigation:		
Freeport Channel	106,690,000	119,368,000
Lower Stauffer Channel	5,776,000	6,410,000
Upper Stauffer Channel	2,232,000	2,476,000
Lands & Damages	77,000	82,000
Mitigation	102,000	113,000
Total Federal Navigation	**114,877,000**	**128,449,000**
Non-Federal Navigation		
Freeport Channel	106,767,000	119,473,000
Lower Stauffer Channel	3,630,000	4,027,000
Upper Stauffer Channel	663,000	735,000
Land & Damages	1,751,000	1,904,000
Mitigation	90,000	100,000
Total Non-Federal Navigation	**112,901,000**	**126,239,000**
Total Navigation	**227,778,000**	**254,688,000**

Lower Stauffer Channel (LPP)

NED Plan Cost: $7.566 million; LPP Cost: $9.406 million. Sponsor will pay $1.840 million.

Public Involvement

- Scoping meeting –15 Jan ‘04
- DFR and DEIS released for 45-day public comment period ending 5 Feb ‘11
- Public meeting on DFR/DEIS held on 13 Jan ’11
- All comments and responses have been incorporated into report
  - Local Texas governments expressed support
  - Majority of public comments related to Gulf shoreline impacts and air quality
- No significant comments were received that affected plan formulation or selection

Feb 2011 Public Meeting in Freeport, Texas

Agency Technical Review

- ATR led by the DDNPCX (Mobile District)
- Substantive comments recommended:
  - ► More on screening process and data
  - ► More detail on lightering vs. light loading of vessels
  - ► Lack of documentation of safety benefits
- All review comments were resolved and closed
- Cost estimates reviewed and certified by the Walla Walla Cost Engineering DX on 2 Mar 2010
- Final FR/EIS ATR documentation and costs certified 2 Jun 2011

Independent External Peer Review 2008

- IEPR managed by DDNPCX and conducted by Battelle
- IEPR completed 20 Oct 2008, in accordance with prior EC 1165-2-209
- 22 comments (18 concurred, 4 non-concurred)
- Resolution Panel of subject matter experts formed. Concerns resolved to satisfaction of Resolution Panel.
- IEPR certified 24 Dec 2009 in accordance with EC 1165-2-209

Independent External Peer Review Back-Check - 2011

- 22 original comments; 3 new sensitivity comments added by Back-Check
- Significant issues identified by IEPR
  - Economics – additional justification of commodity growth forecasts, analysis of most recent data and trends, recommended additional analysis of current and future vessel fleet, vessel drafts and loading practices, and requested numerous additional sensitivity analyses
  - Environmental – potential effects on hydrology and water quality; potential for contaminated sediments, BU of dredged material
- Final IEPR Back-Check Report received 25 Apr 2011
  - 21 concur and 4 non-concur (2 original economic and 2 new economic sensitivity comments)
  - Most IEPR recommendations adopted and reports revised to address comments

Environmental Operating Principles

- ✓ **Strive for Environmental Sustainability –** Design of project features addresses potential changes over time (e.g., sea-level rise, shoreline erosion, etc.)
- ✓ **Consider Environmental Consequences –** Direct and indirect effects of the project on the environment quantified using ecological modeling and compensatory mitigation provided for all unavoidable impacts
- ✓ **Seek Balance and Synergy –** Provides economic benefits to the Nation and region while minimizing project impacts to greatest extent practicable
- ✓ **Accept Responsibility** – Complies with all Federal and State laws and applicable Executive Orders
- ✓ **Mitigate Impacts –** Fully compensates for all unavoidable environmental impacts
- ✓ **Understand the Environment –** Engaged all stakeholders, interest groups and agencies in an inclusive and open process to develop environmentally sustainable project
- ✓ **Respect Other Views –** Views of the public and agencies were solicited throughout the process

Risk and Uncertainty

- Considered in the following analyses
  - Economic benefit calculations – numerous sensitivity analyses indicate Recommended Plan BCR is greater than 1.0 for most likely scenario
  - Storm surge effects – minimal risk established by sensitivity analysis
  - Shoaling rates – rates based on sediment study; DMMP capacity sufficient for 50 years
  - Relative sea-level rise – risk to engineering features is minimal
  - Fish and wildlife mitigation – risk minimized by monitoring and contingency plan
  - Cost analysis – statistical modeling established contingency range of 26 to 37%
- Risk and uncertainty communicated in FR/EIS

Strategic Campaign Plan

- **Goal 2: Deliver Enduring and Essential Water Resources Solutions through Collaboration with Partners and Stakeholders**
  - Freeport Harbor Channel study analyzed potential effects over a 70-square-mile area.
  - Close collaboration with local sponsor and agencies throughout study.
  - State and Federal resource agency professionals familiar with the highly complex coastal ecosystems of Texas integrally involved in the evaluation and development of the Recommended Plan.

- **Goal 3: Deliver Innovative, Resilient, Sustainable Solutions to the Armed Forces and the Nation**
  - Developed plans to be sustainable over long-term
  - Utilized latest development in engineering, economic, and environmental modeling
  - Review and inspection of work will be conducted during design and construction
  - Project design based upon risk analyses conducted throughout study
  - Independent review of the project documents and analyses was performed internally by USACE and externally by professionals from academia and expert consultants.

Future Timeline

CWRB Approval
- June 2011

30 day State and Agency Review
- Sep 2011 -
- Oct 2011

Signed Chief of Engineers' Report
- December 2011

Submittal to ASA(CW) for Review
- December 2011

Tentative WDRA 2012

Pre-Construction, Engineering and Design
- October 2012-
- October 2014

Panama Canal Modifications Complete 2014

Construction Phase
- October 2014 -
- October 2018

Recommendation

That the Civil Works Review Board approve the release of the Freeport Harbor Channel Improvement Feasibility Report and Environmental Impact Statement for State and Agency Review.

QUESTIONS?

PORT FREEPORT CHANNEL IMPROVEMENT PROJECT

CIVIL WORKS REVIEW BOARD
WASHINGTON, DC
June 28, 2011

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THE COAST IS CLEAR

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

THE BEGINNING

- Port Freeport and the U.S. Corps of Engineers embarked on this journey some 8 years ago.
- It started with a strategic meeting of port personnel. At the time, we were at a crossroads and asking "What kind of port do we want to develop?"
- Did we want to continue to be a niche port with a minimal impact on the local economy and minimal job creation?

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

THE BEGINNING

- We looked at our assets
  - More than 7,000 acres of land
  - Close to the open sea
  - 50 miles from a major commercial zone and 4th largest city
  - Within a stone's throw of a major petrochemical complex
  - Rail service and adequate highway infrastructure
  - But most of all, a supportive constituency from both industry and the public.

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

THE BEGINNING

- Containerization was at an all time high. Did we want to play a role in that segment of the shipping industry?
  - The overwhelming answer to that question was “yes.”
- Slowly, the future began to take shape.
  - We needed a multi-purpose terminal on deep water that could handle both general cargo as well as containers, hence Velasco Terminal. Construction of Phase I was completed at a cost of $50 million.

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

THE BEGINNING

- Deep water was next. Would containers stand alone and support deep water?
  - Probably, to some degree. So we visited with our petro-chemical industry leaders and oil company leaders and the answer was “yes, they could use a deeper channel”
- How deep?
  - From local industry, we were told 55 ft.
  - From the container shipping industry, we were told 50 ft.

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U.S. ARMY CORPS OF ENGINEERS

- Next stop, U.S. Army Corps of Engineers and a recon study to determine if there was a federal interest in taking our channel down to 55ft.
  - The recon study indicated substantial federal interest in moving forward with the project.

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THE PORT OF CHOICE

- As we went through the process we saw any number of things coming together to create the port of choice for the 21st century.

- We are building the port of the future, not to be saddled with the flaws of the past.

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THE PORT OF CHOICE

- Velasco Terminal, a $350 million facility, when completed, will be a state of the art terminal capable of handling 780,000 TEU's annually.
- Highway infrastructure improvements will make access to the Port more efficient; partnering with the State and county.
- The Union Pacific Railroad recently replaced the old swing bridge over the Old Brazos River which will improve rail service to and from the Port at a cost of $15 million.
- Extensive pipeline network connecting the port and the petrochemical industry to other markets in the U. S.

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THE PANAMA CANAL

- The Panama Canal should be completed by 2014 allowing the larger container ships access to the Gulf and South Atlantic ports.

- The final piece to our puzzle will be a 55 ft. channel for the petro-chemical and oil industry and a 50 ft. channel for containers.

Photo courtesy of www.indybay.org

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ECONOMIC ADVANTAGES

- Our economist tells us, at full build out, Velasco Terminal will generate approximately 7,476 direct, indirect and induced jobs, to add to the already 56,139 direct, indirect and induced jobs created by Port Freeport as well as the economic value annually of $10 billion and state and local taxes of $396 million.

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PETRO-CHEMICAL/CRUDE

- Sitting in the midst of one of the world's largest petro-chemical complexes, Port Freeport works in harmony with it's corporate neighbors such as :

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

PETRO-CHEMICAL/CRUDE

- Dow Chemical Texas Operations (Freeport)
  - Recently announced a joint venture with Mitsui to build a new chlor-alkali plant valued at $1 billion
  - Constructing a new, world-scale, propylene production facility for start-up in 2015
  - Increasing ethane feedstock flexibility for an ethylene cracker in 2016
  - Constructing a new world-scale ethylene production plant in the U.S. Gulf Coast, for start-up in 2017.
  - Dow **exports 48%** of all the products they manufacture by deep draft vessels which compliments the President's goal to double exports in 5 years.
  - Dow accounts for approximately 15 million tons of product – import and export

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PETRO-CHEMICAL/CRUDE

- ConocoPhillips/Teppco Seaway
  - Imports approximately 12 million tons of crude annually which is then pumped by pipeline not only to it's refinery in Sweeny, Texas, but to refineries throughout the mid-west, Oklahoma, Missouri, Illinois, Ohio and Michigan

55FT CHANNEL WIDENING AND DEEPENING

PETRO-CHEMICAL/CRUDE

- Freeport LNG
  - Recently announced a $2+ billion liquefaction project allowing them to export domestic product in addition to their current LNG import/export operations, again complimenting the President's goal of doubling exports in 5 years.

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PETRO-CHEMICAL/CRUDE

- Bryan Mound Strategic Petroleum Reserve
  - Port Freeport is home to one of two federal Strategic Petroleum Reserve storage sites in Texas
  - Bryan Mound is a subterranean salt dome with 20 underground chambers, capable of holding a total of 226 million barrels, for use in national emergencies.
  - The Gulf of Mexico was a logical choice for oil storage sites
    - Salt domes are known to be an inexpensive and secure means of petroleum storage.
    - Gulf Coast is the location of many U.S. refineries and distribution points for tankers, barges and pipelines serving the many parts of the U.S.

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PETRO-CHEMICAL/CRUDE

- And many other chemical refiners who use the Freeport channel on a regular basis.

- Port Freeport and its stakeholders truly add value to the area, the region and Nation.

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

ADVANTAGES

- Improve navigation and safety for our Port, always an important factor.
- Allow for 2-way traffic for certain class vessels.
- Allow for crude carriers to maximize vessel loading at 800,000 bbls verses the current light loading of only 500,000 bbls, thereby taking advantage of economy of scale
- Allow the larger crude carriers to discharge their crude at a safe and secure berth vs. lightering that goes on now.
- Allow the larger 7,000 TEU container vessels access to Velasco Terminal verses 4,500 TEU vessel at the current 45’ draft

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

OTHER ADVANTAGES

- Marine Highway using the Gulf Intracoastal Waterways
- Promotes economic development
- Time is of the essence with the Panama Canal locks widening and deepening project scheduled to be completed 2014
- Longer it takes to build this project the more it's going to cost
- Low interest rates

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

NON-FEDERAL WIDENING PROJECT

- Port Freeport is also pursuing a separate project to widen the Freeport Harbor Entrance Channel
- $35 million project being funded by local interests
- Will accommodate the largest LNG tankers in service today providing additional economies of scale.
- Project complements our vision of the Port of the Future

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

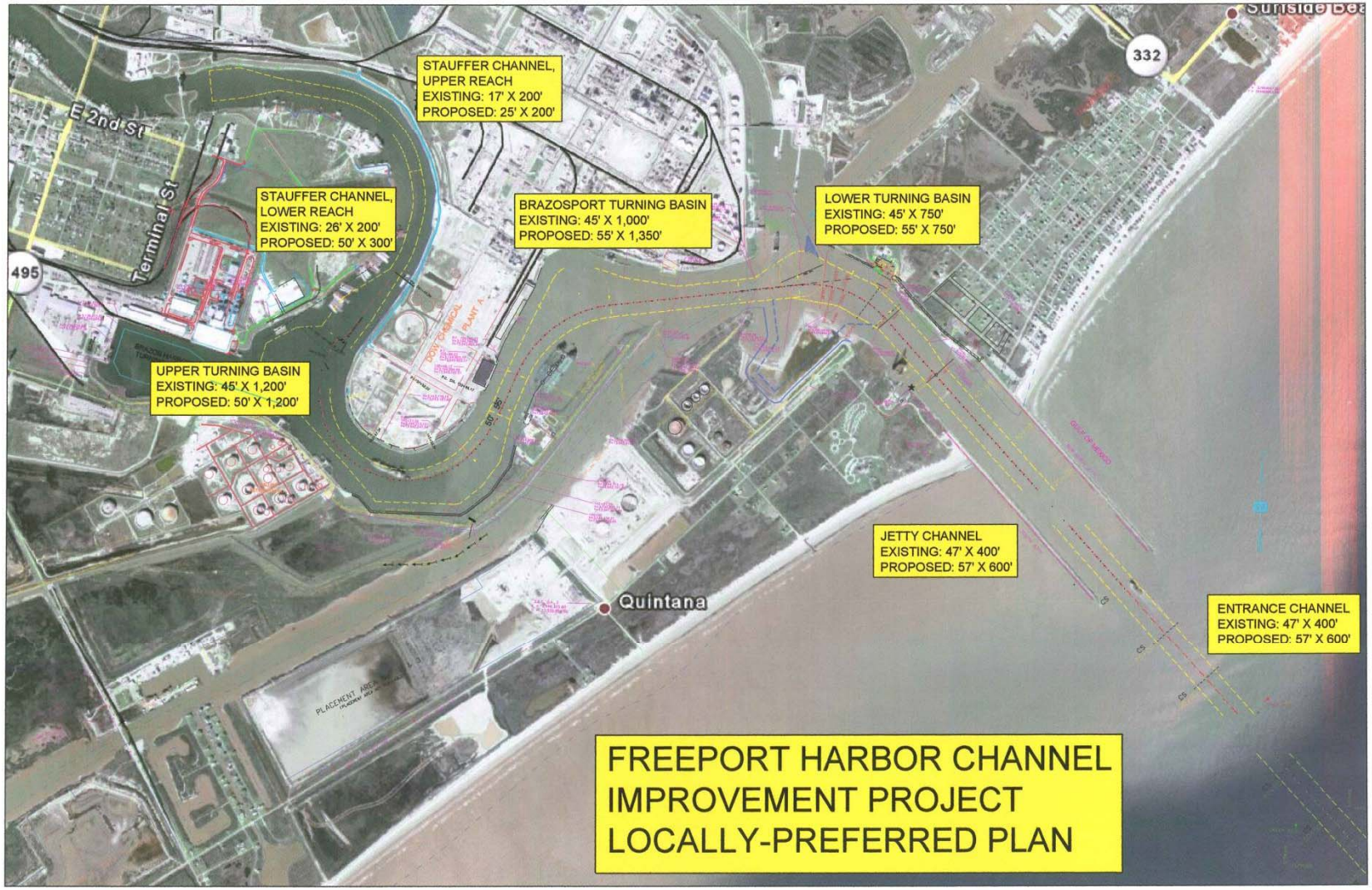
AS WITH THE WIDENING PROJECT, WE ARE STRONGLY COMMITTED TO THE FREEPORT CHANNEL IMPROVEMENT PROJECT!

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

CONCLUSION

- Combined, the federal government and the Port have contributed approximately $7.2 million to this project to date.

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT



FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

CONCLUSION

- This is a good project in terms of:
  - Environmentally friendly
  - No overhead obstructions
  - No pipeline issues
  - An abundance of dredge material placement areas
  - Short dredging project of 11.8 miles.

- The $324 million price tag is an investment in our nation that will pay enormous dividends for decades.

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

THANK YOU

- Once again thanks to all in the Corps, from headquarters, division in Dallas and the District in Galveston - Thanks for all the hard work you've put into developing these documents

- We thank our consultants, Younger and Associates, Steinberg and Associates and Herbie Maurer and Associates.

- And our economist, John Martin of Martin and Associates for all of their hard work to get us this far.

QUESTIONS?

www.portfreeport.com

Freeport Channel Improvement Project, Texas

Southwestern Division

- The Texas Coast
- MSC Position on Freeport
- Quality Assurance
- Support/Recommendations

BG Thomas W. Kula
Southwestern Division

US Army Corps of Engineers
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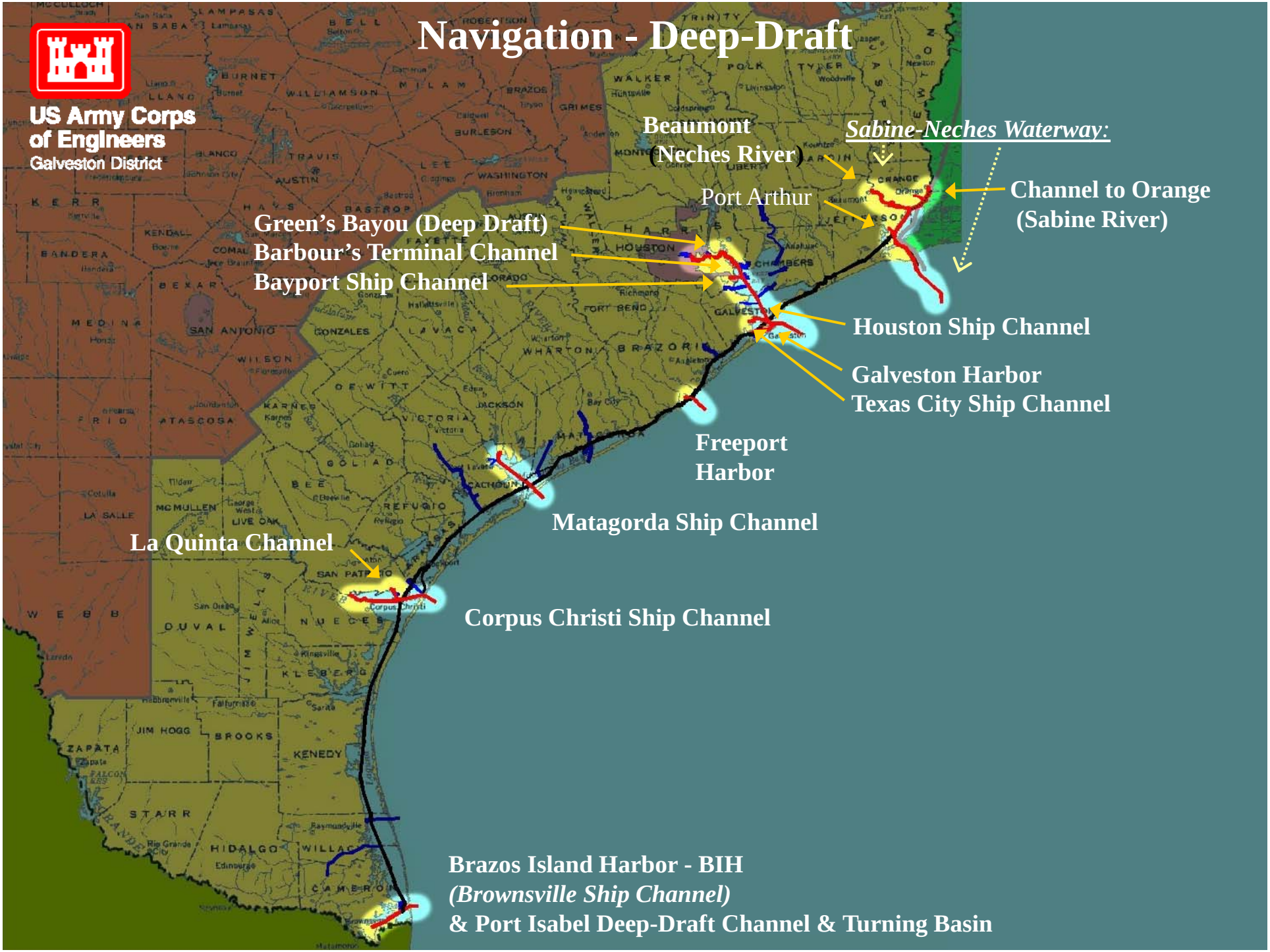
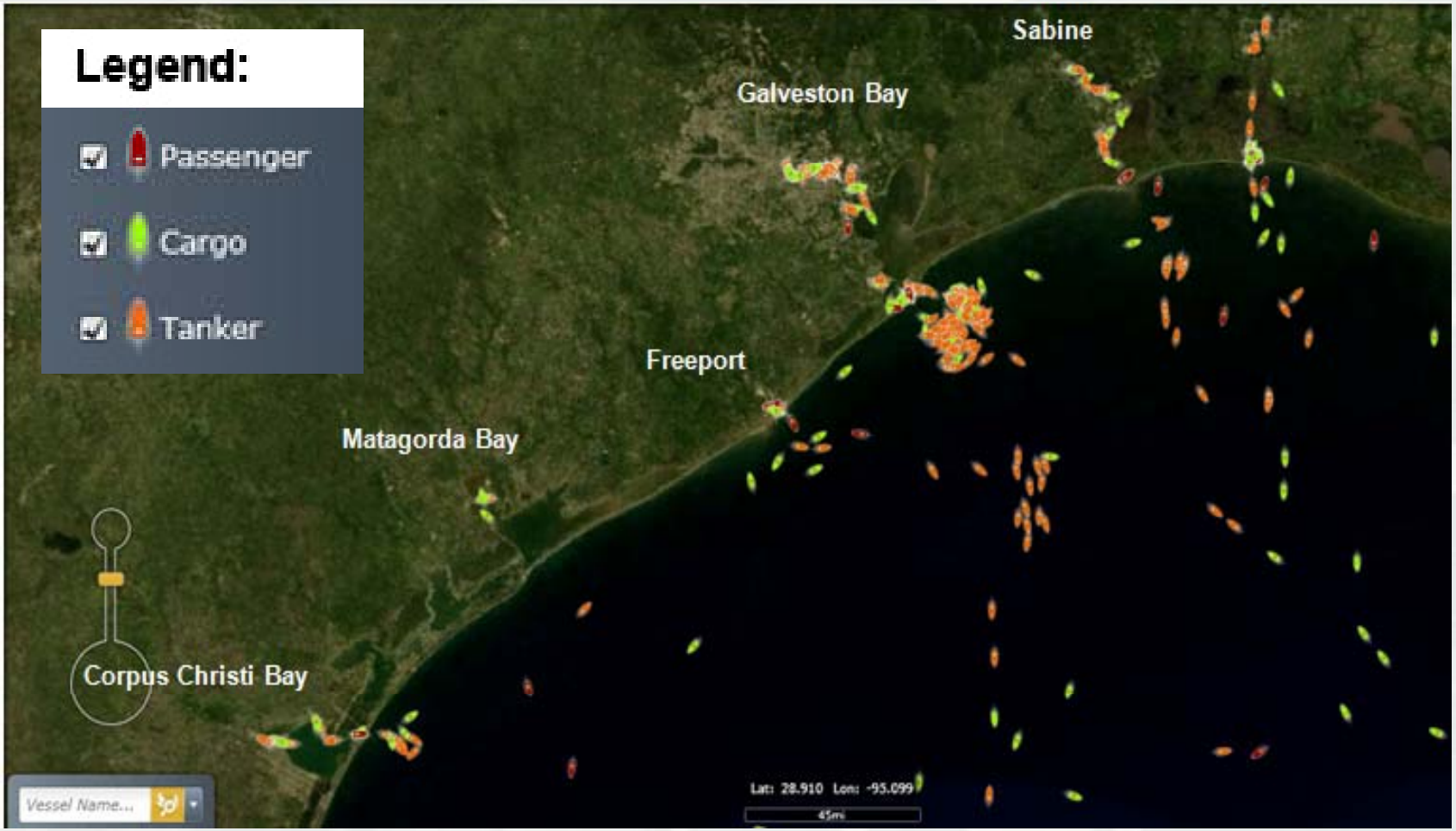
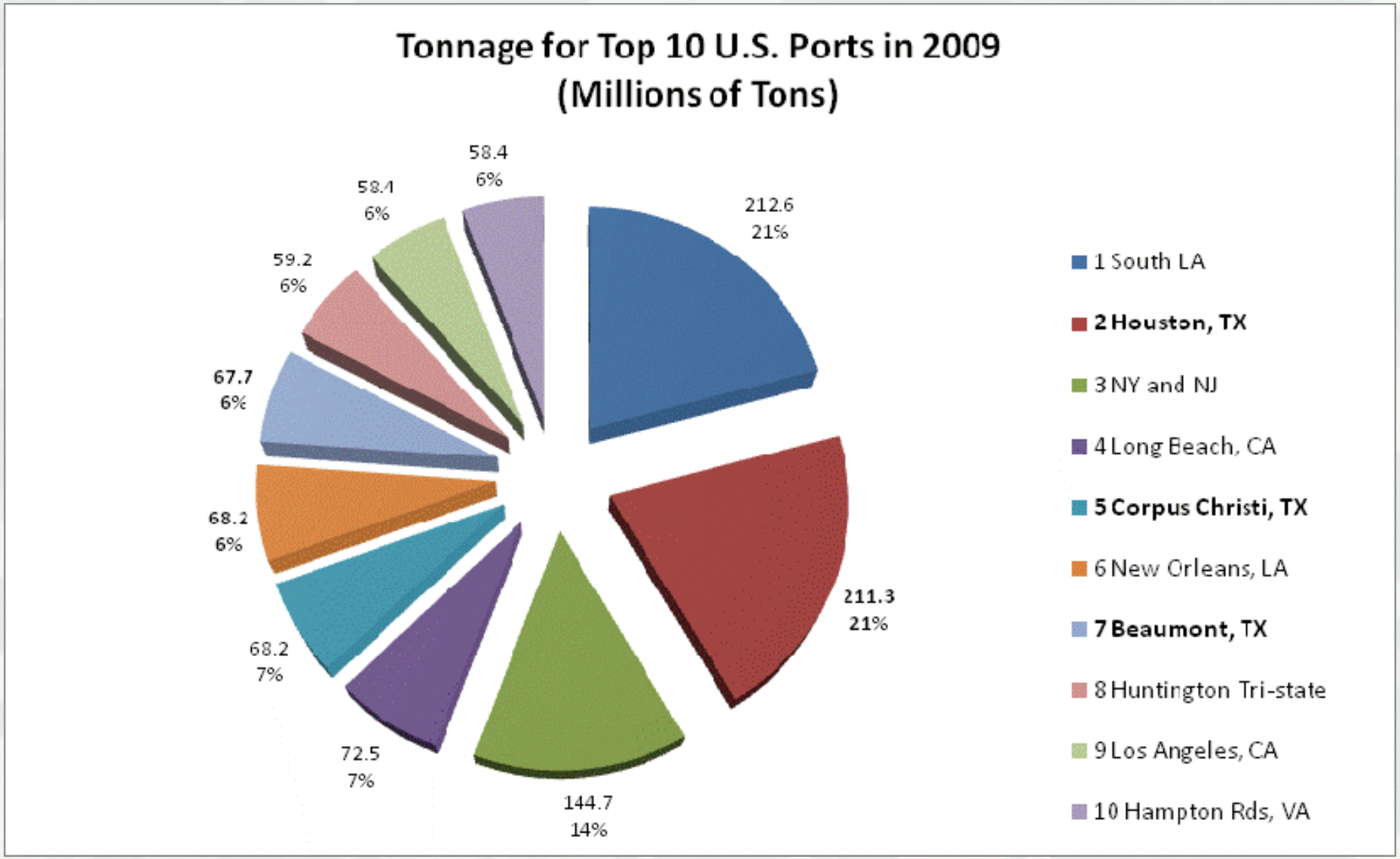
Navigation - Deep-Draft



Ships Off the Texas Coast




Tonnage for Top 10 U.S. Ports in 2009
(Millions of Tons)
212.6
21%
211.3
21%
144.7
14%
72.5
7%
68.2
7%
68.2
6%
67.7
6%
59.2
6%
58.4
6%
58.4
6%
1 South LA
2 Houston, TX
3 NY and NJ
4 Long Beach, CA
5 Corpus Christi, TX
6 New Orleans, LA
7 Beaumont, TX
8 Huntington Tri-state
9 Los Angeles, CA
10 Hampton Rds, VA

Southwestern Division Position

- Concur with Colonel Sallese's findings and recommendations
- Fully support the recommended project
- Confirm report complies with applicable policy and law in place at this time
- Anticipate favorable response to the draft Chief's Report
- Agree reviews throughout the process have improved and strengthened the project

Quality Assurance

Centers of Expertise Involvement:

- Cost Estimating DX
- Deep Draft PCX (PM for ATR, IEPR)
- ERDC
- Requirements all met – Appreciate the support and teamwork from everyone

Quality Assurance

Division & HQ Policy Reviews:

FSM	Jul 2005
AFB	Apr 2009
FRC - Draft Report	Aug 2010
ASA(CW) Approval – LPP	Nov 2010
HQ and Public Review	Dec 2010
Final Report	Jun 2011

…..a 9 year journey….so far….

Rationale for SWD Support

- District Counsel legal certification 12 April 2011
- Policy Compliant
- Recommended project is economically justified and environmentally compliant
- Project is consistent with the Environmental Operating Principles
- Project supports Strategic Campaign Plan

  Goals 2 and 3
- Strong Local Sponsorship

SWD Recommendations

- Release Report for State and Agency Review
- Update the Review Plan for PED and construction
- Complete Chief of Engineers Report
- Posture for the next WRDA
- Develop strategy to move the project forward in a timely manner with adequate funding streams
- Capitalize on the Panama Canal expansion by 2014

Southwestern Division

Questions?

Agency Technical Review (ATR)

- Project review led by Deep Draft Navigation PCX with additional reviewers in Savannah, New Orleans, and Mobile Districts.
- 17 Dec 2009, ATR certified. All 143 review comments were resolved and closed.
- 02 June 2011, ATR Backcheck and Limited ATR certified. All 144 comments were resolved and closed.
- 3 Jun 2011 - Cost Estimating DX certified cost estimate. The certification distinguished the LPP and the NED plans, both with and without channel widening.

Battelle
The Business of Innovation

Independent External Peer Review (IEPR) – Freeport Harbor

Battelle

Karen Johnson-Young, Program Manager

Richard Uhler, Project Manager

IEPR – Freeport Harbor

- Final IEPR Report Submitted on August 20, 2008
- Comment-Response Results Documented on April 25, 2011
- Five Experts on IEPR Panel
  - Economics – *Dan Smith*
  - Plan Formulation – *Ken Casavant, Ph.D.*
  - Hydrological Engineering – *Robert Dean, Ph.D.*
  - Geotechnical Engineering – *Charles Aubeny, Ph.D.*
  - Environmental Processes – *George Guillen, Ph.D.*
- IEPR Results
  - 25 Final Panel Comments: 13 high significance, 10 medium significance; 2 low significance

IEPR – Freeport Harbor (continued)

- **Important issues**
  - The project benefit-cost ratio depends on what appears to be overly optimistic commodity forecasts for crude petroleum, petroleum products, and chemicals.
  - The claimed Lower Stauffer Channel container cargo benefits appear invalid.
  - The Upper Stauffer Channel dredging benefits rest on the unsupported opinion of vessel service yards hoping to recapture business lost to Galveston.
  - There is no evidence of demand for greater vessel drafts for petroleum products or chemicals.
  - The report is missing critical reality checks and sensitivity analysis.

- **Comment/Response Process Results**
  - USACE response to Final Panel Comments: 20 concurs, 5 non-concurs
  - Panel's response to USACE: 21 concurs, 4 non-concurs

HQUSACE POLICY REVIEW CONCERNS

Civil Works Review Board

Freeport Harbor Channel Improvement Project

Texas

Commercial Navigation

Lee Ware
Office of Water Project Review
Planning and Policy Division
Washington, DC – 28 June 2011

HQUSACE Team Reviews:

- FSM was held on 6 July 2005
- AFB was held on 3 April 2009, AFB-PGM 17 July 2009
- FRC was held on 11 August 2010
- Draft Report Review (concurrent w/public) 12 January-11 Feb 2011, PGM 8 March 2011
- Draft Final Report- 6 April 2011, PGM 19 May 2011
- Final Feasibility Report /EIS: current review began 14 June 2011, being completed by HQ team

Policy Issues from AFB, Draft, and Final Report Reviews

- Planning Objectives and Constraints
- Future Without Project Conditions, Widening
- **Economic Analysis and Projections**
- Price Levels, Discount Rate
- **Beneficiaries and Associated Project Costs**
- **Agency Technical Review**
- **Model Certification**
- Plan Formulation and Selection, ASA Waiver
- Mitigation
- Environmental Compliance
- **Total Project Cost for Authorization**
- DMMP
- Cost Engineering/MCACES, O&M Costs
- **Datum Conversion**
- **Cost Sharing**
- Local Cooperation and Financial Certification
- Real Estate Plan

Economic Analysis and Projections

- **CONCERN**: Many economic concerns were raised during the policy review regarding the vessel fleets (tankers, containerships, supply vessels) and commodity forecasts (oil, petrochemicals, containers), loading factors, and vessel operating costs for the various channels. These included uncertainties of projections given the changes in market conditions, effects of the oil spill, Panama Canal expansion, etc.

- **REASON:** Commodity/fleet projections and cost assumptions are important in that they form the basis for the estimated transportation cost savings (benefit) analyses. Appendix E of ER 1105-2-100 details the analytical steps to be followed in accomplishing economic studies for deep draft navigation studies.

- **RESOLUTION:** The report was revised to address numerous economic comments through expanded discussions and multiple sensitivity analyses that help to address the uncertainties of forecasts relative to project justification.

- **RESOLUTION IMPACT:** Concerns have been resolved.

Beneficiaries & Associated Project Costs

- **CONCERN:** AFB and Draft Report documentation did not clearly indicate the facilities benefiting from channel modifications and the associated costs/assumptions for berth and bulkhead modifications.

- **REASON:** Although not project costs, associated costs for Local Service Facilities (LSF) are NED costs included in the economic analysis. The relative locations of the facilities and their associated costs can be critical to plan formulation, project justification, and policies regarding multiple beneficiaries and Federal interest. (Section D-3. f., ER 1105-2-100)

- **RESOLUTION:** Additional information was included in the final report that shows the locations of benefiting facilities and describes the berth dredging and bulkhead modification costs associated with the navigation improvements.

- **RESOLUTION IMPACT:** Concern is resolved.

Agency Technical Review

- **CONCERN:** Review of the draft final report package identified that Agency Technical Review had not been conducted prior to submission.

- **REASON:** ATR is required on the final report submission per Appendix C of EC 1165-2-209. The final report and supporting analyses form the basis for the Chief's interagency coordination and recommendations to the Assistant Secretary of the Army (Civil Works) and Congress.

- **RESOLUTION:** The PCX coordinated an expedited Agency Technical Review of the final report and provided an updated certification on 2 June as part of the revised submittal.

- **RESOLUTION IMPACT:** The concern is resolved.

Model Certification

- **CONCERN:** The final report summary indicated that the DDNPCX approved the economic spreadsheet model used on this study. Under the prior guidance in EC 1105-2-407, PCXs were responsible for the model approval or certification process. However, recent ATR documentation did not clearly state that the PCX had approved the model for use and raised a policy question. Further investigation has concluded that the model approval process undertaken in 2009 had not been completed.

- **REASON:** The goal of certification is to assure models produce technically and theoretically sound results. Under current guidance in EC 1105-2-412, PCXs submit model documentation to HQ. CECW-P provides final approval or certification in consultation with the Model Certification Panel.

- **RESOLUTION:** OWPR has requested that the model documentation be submitted to HQ for consideration by the Model Certification Panel in order to satisfy current requirements.

- **RESOLUTION IMPACT:** The concern is being addressed and S&A review should follow model approval.

Total Project Cost for Authorization

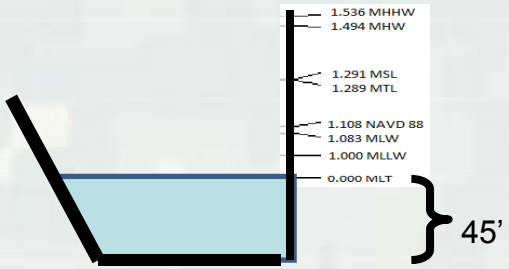
- **CONCERN:** The draft report included the associated project costs (Local Service Facilities and Navigation Aids) in the total project costs for authorization.

- **REASON:** Although associated project costs are NED costs that are included in the economic analysis, they are not included in the project costs for authorization, which forms the basis for Section 902 of WRDA 1986 cost limit calculations. General Navigation Features (GNF) and Lands, Easements, Rights of Way, and Relocations (LERR) are in included in the authorized project costs.

- **RESOLUTION:** The report was revised to include specific language on the project costs for authorization. Project costs and cost sharing were revised to include only the GNF and LERR costs.

- **RESOLUTION IMPACT:** The concern is resolved pending some minor revisions.

Datum Conversion



- **CONCERN:** The original work and report documentation was referenced to the local legacy datum Mean Low Tide (MLT) which is 1' lower than Mean Lower Low Water (MLLW) at Freeport. This was a concern relative to project depths for authorization, consistency with national datum standards, and application of cost sharing rules.

- **REASON:** ETL 1110-2-349 and EM 1110-2-1003 stress the need to convert local datums such as MLT to MLLW for consistency of U.S. port information and continuity with NOAA/U.S. Coast Guard navigation charts.

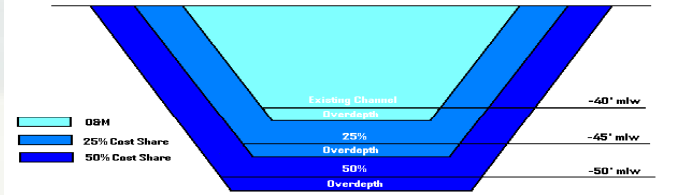
- **RESOLUTION:** The report was revised to explain and reference both datums in key sections related to project description and recommendations. Blended cost sharing was revised based on MLLW depths.

- **RESOLUTION IMPACT:** The concern is resolved.

Cost Sharing

EXAMPLE OF BLENDED COST SHARING

Existing Project 40' Authorized Depth, New Project 50' Authorized Depth



- **CONCERN:** The draft/draft final reports incorrectly included associated costs in the cost sharing calculations. Calculations involving blended cost sharing by depth ranges also needed clarification. The Freeport cost sharing is complicated based on the depth ranges of various channels, datum conversion, and the rules for Locally Preferred Plans.

- **REASON:** Cost sharing percentages vary based on project depth ranges in accordance with WRDA 1986, as amended. They are applied to General Navigation Features (GNF) and those features cost shared according to GNF. The cost sharing rules are applied based on MLLW depths. LPPs are cost shared similar to NED when smaller and Federal share is limited to NED plan when larger. (Appendix G, ER 1165-2-131; ER 1105-2-100)

- **RESOLUTION:** The report was revised to address prior concerns on GNF, blended cost sharing, datum effects, and LPP rules.

- **RESOLUTION IMPACT:** The concern is resolved pending some minor revisions.

HQUSACE POLICY COMPLIANCE REVIEW TEAM RECOMMENDATION

Contingent approval to release of the draft Chief's Report – Feasibility Report and EIS for S&A Review.

- Subject to model approval and document revisions reflecting current review of the Final Report.

FREEPORT HARBOR, TEXAS CHANNEL IMPROVEMENT PROJECT LESSONS LEARNED

Civil Works Review Board (CWRB) Briefing

Galveston District

June 2011

Colonel Christopher Sallese

Commander

Galveston District

SWG Lessons Learned

- Independent External Peer Review
  - Issue – What level of analysis is sufficient considering new review requirements?
  - Discussion – For the IEPR of this project, the District was asked to provide several iterations of analyses, with each analysis leading to new questions and new analysis requests. The District questioned whether the additional analyses were necessary to satisfy USACE planning requirements and determined that the new, extensive analysis was not likely to provide information that would affect the existing recommended plan.
  - Resolution – Created ad-hoc Resolution Panel of USACE subject matter experts to evaluate comments and responses, and determine what is reasonable and necessary for technical and policy compliance.

SWG Lessons Learned

- Parallel processing of separate permitted and Federal projects in same project area
  - Issue – The complexity of planning issues for concurrent, interrelated projects can lead to confusion, inefficiencies and delays in study completion.
  - Discussion – In this case, planning for a permitted channel widening proceeded concurrently with a USACE study of channel deepening. Since the widening would be constructed first, it became an alternative future without-project condition for the Federal deepening study. Changes in either study had the potential to significantly affect alternatives analysis and engineering/design for the other.
  - Resolution – Frequent and regular coordination between PDTs, early engagement of RIT, and in-depth involvement of non-Federal sponsor and permittee in planning process are needed to ensure that project changes are coordinated with both PDTs and RIT, and to ensure regulatory and policy compliance.

SWG Lessons Learned

- Lengthy Preliminary Screening
  - Issue: In-depth screening of numerous alternatives can be significant in evaluating deep draft navigation improvements due to considerations of both depth and width.
  - Discussion: The Freeport study evaluated more than 50 different combinations of depths and widths in order to identify the most effective alternatives to be advanced into detailed screening. This amount of analysis adds to the time required to complete a feasibility study.
  - Resolution: Additional guidance would be helpful on what level of preliminary screening would be acceptable during policy review in order to reduce both the size of documents and the time and cost necessary to perform the analysis.

Southwestern Division

LESSONS LEARNED

- It takes a BIG TEAM
- Sponsor, District, Division and HQUSACE, CXs, Labs, States and Other Agencies
- Teamwork needs to continue to move this project from plan to reality