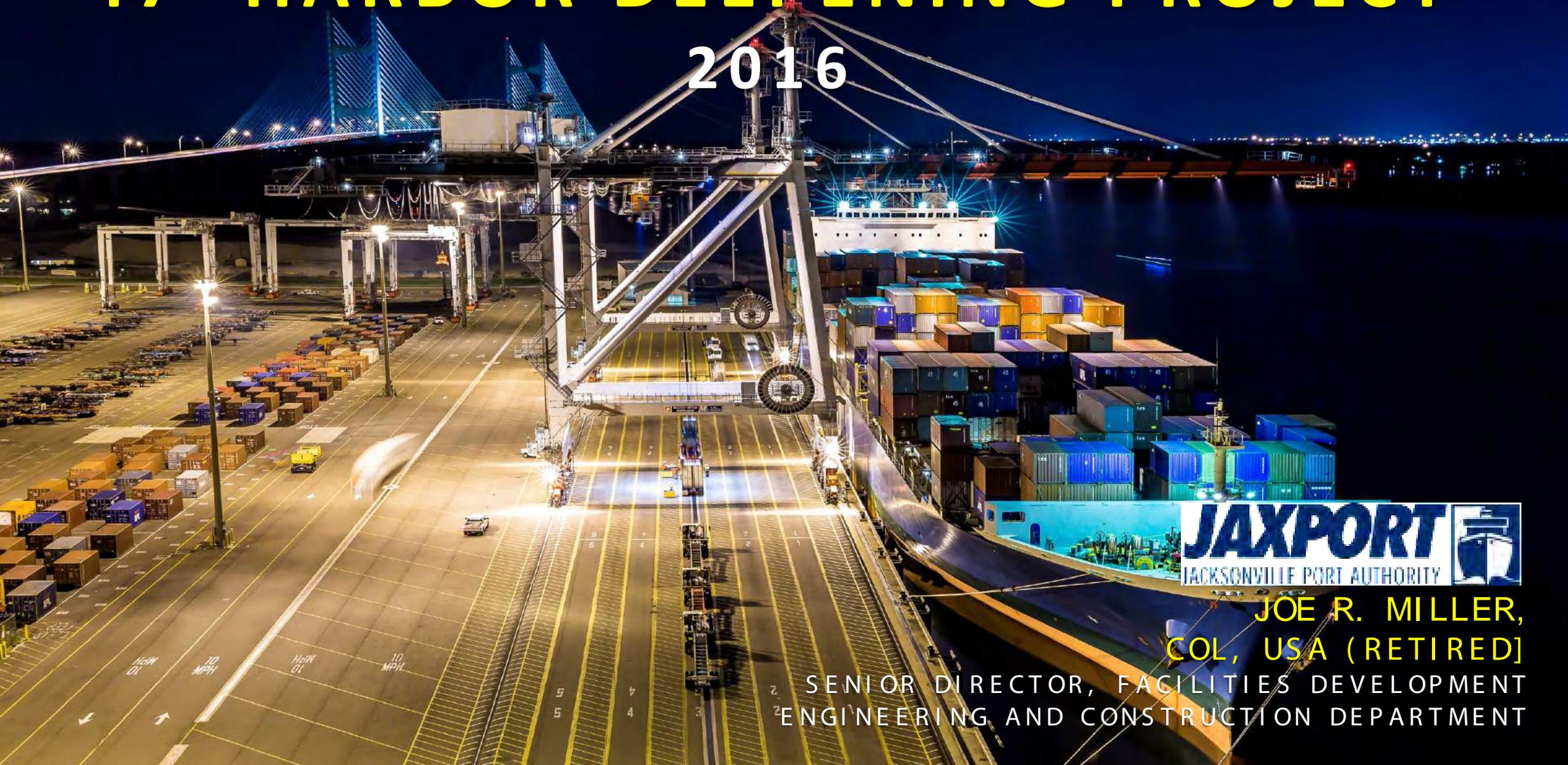


47' HARBOR DEEPENING PROJECT

2016



JOE R. MILLER,
COL, USA (RETIRED)

SENIOR DIRECTOR, FACILITIES DEVELOPMENT
ENGINEERING AND CONSTRUCTION DEPARTMENT

AGENDA



- ***PROJECT OVERVIEW***
- ***PROJECT SCOPE***
- ***SEDIMENT MANAGEMENT OPPORTUNITIES***
- ***PROJECT CHALLENGES (ENVIR, ENGR'G, ECON, MITIGATION, & DREDGING)***
- ***LESSONS LEARNED / APPLIED***
- ***QUESTIONS AND ANSWERS***



IS FLORIDA READY FOR THE FUTURE?

BY THE YEAR 2030, FLORIDA WILL:

**ADD
6 MILLION
MORE
RESIDENTS**

**NEED
2 MILLION
MORE
JOBS**

**ATTRACT
MORE THAN
150 MILLION
ANNUAL
VISITORS**

**HAVE
4 – 5 MILLION
MORE NEW
DRIVERS**

**DEMAND
76%
MORE
ENERGY**

**NEED
20%
MORE
WATER**

SOURCE: FLORIDA CHAMBER FOUNDATION

IMPROVING PORT EFFICIENCY IS CRITICAL

...BUT CHANNEL DEEPENING

IS ONLY A PART OF THE INFRASTRUCTURE INVESTMENT FORMULA



DEEPER CHANNELS & BERTHS PLUS DMMAs, ODMDSs



POST-PANAMAX SHIPS AND GANTRY CRANES



INTERMODAL CONTAINER TRANSFER FACILITIES / OTHER NEAR DOCK FACILITIES & EQUIPMENT



INTERSTATE AND HIGHWAY ACCESS



DISTRIBUTION CENTERS, WAREHOUSES, MANUFACTURING AND FOREIGN TRADE ZONES



WATERSIDE / ON-DOCK INFRASTRUCTURE



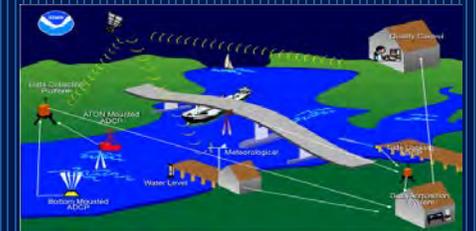
RAIL LINE LOADING, CONNECTIVITY AND SUPPORTING INFRASTRUCTURE



TRAFFIC FLOW/ CONTROL, GATE COMPLEXES & TERMINAL OPERATING SYSTEMS / SECURITY UPGRADES



SUPPORT AREAS, STORAGE YARDS, STORAGE TANKS AND FUEL FARMS



AIDS TO NAVIGATION (PORTS, SOLAS, eHydro GIS, eMIS, etc.)

JAXPORT'S NEXT CHALLENGE AFTER DEEPENING...AUTOMATION

**GOAL: DELIVER A PROJECT THAT ADDRESSES ENGINEERING CHALLENGES,
CREATES ECONOMIC GROWTH & JOBS AND
PROTECTS THE ENVIRONMENT AND THE SJR**



PROJECT OVERVIEW

PROJECT DEPTHS: 40 FEET MLLW CURRENT PROJECT DEPTH; DREDGE TO 47 FEET FROM RIVER MILE 0 TO 13

DREDGING QUANTITIES: ~18 MILLION CUBIC YARDS OF MATERIAL TO NEW OCEAN DREDGED MATERIAL DISPOSAL SITE (ODMDS)

BLASTING: PROBABLE (DEPENDS ON SELECTED DREDGING CONTRACTOR'S AVAILABLE EQUIPMENT)

PROJECT DECREASED DREDGING FOOTPRINT BY SEVEN PLUS RIVER MILES TO AVOID ANY POSSIBLE SALINITY IMPACTS.

NEW TURNING BASINS

WIDENING AREAS

DEEPENING (includes widening & turning basin areas)

RECOMMENDED ADVANCE MAINTENANCE AREAS



HARBOR DEEPENING PROJECT ROI



13,844

JOBS: Direct, Indirect, Induced

1.95 million

TEUs: Twenty-foot equivalent units

\$1 invested = \$14.80

RETURNED TO THE ECONOMY

BLOUNT ISLAND MARINE TERMINAL

DAMES POINT MARINE TERMINAL

CONTRACT A
~\$35M - 45M
09/ 2016 - 05/2018

CONTRACT B
~\$170M - 190M
06/ 2017 - 05/2022

CONTRACT D
~\$110M - 130M
01/2020 - 09/2023

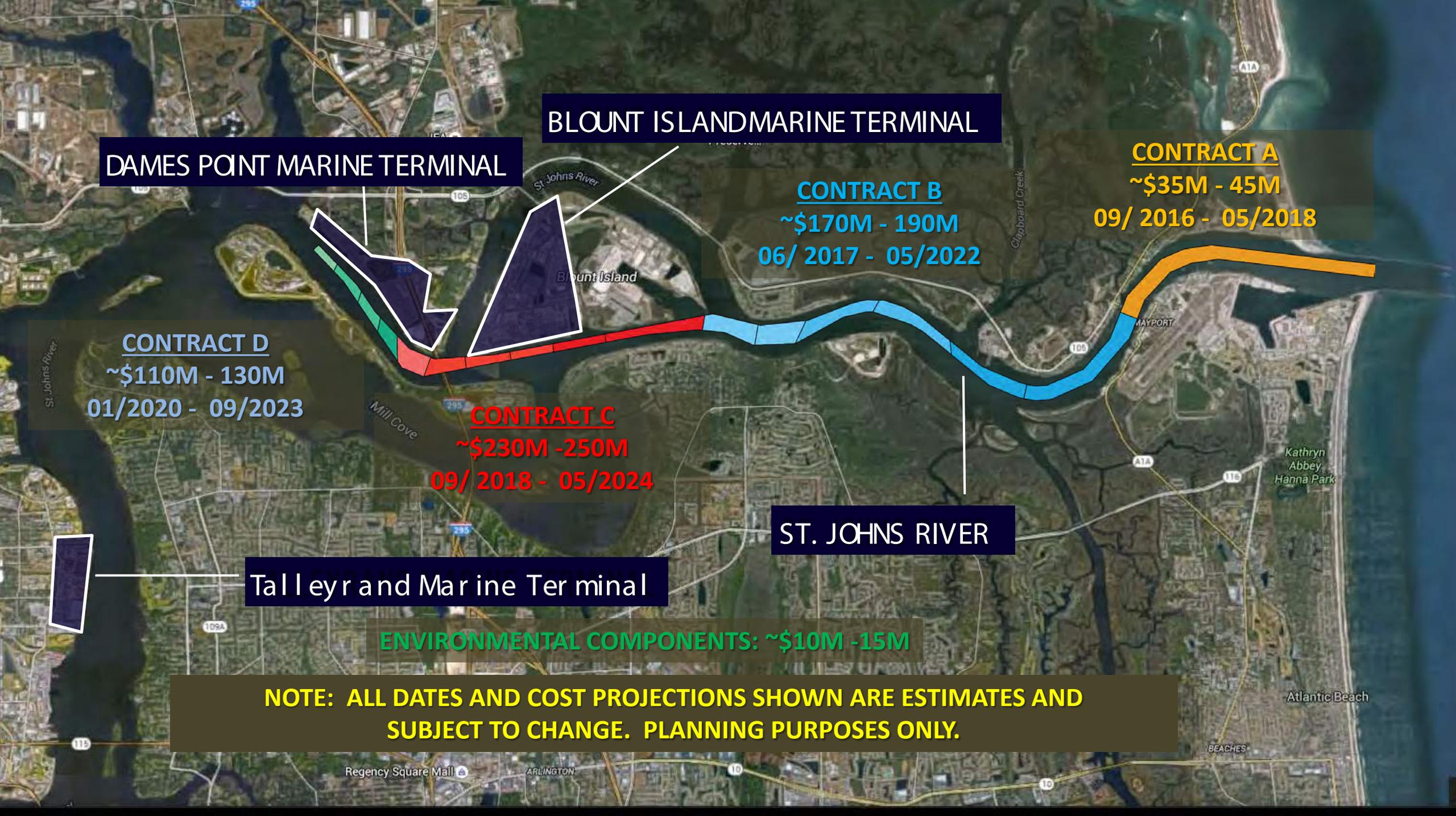
CONTRACT C
~\$230M - 250M
09/ 2018 - 05/2024

ST. JOHNS RIVER

Talley and Marine Terminal

ENVIRONMENTAL COMPONENTS: ~\$10M - 15M

NOTE: ALL DATES AND COST PROJECTIONS SHOWN ARE ESTIMATES AND SUBJECT TO CHANGE. PLANNING PURPOSES ONLY.



SEDIMENT MANAGEMENT OPPORTUNITIES

- ~ 18 M CY TO NEWLY USEPA APPROVED ODMDS
- EXISTING ODMDS SITE
- LIMITED QUANTITIES IN EXISTING DMMA_s, PLACE ON BEACH, PLACE ON NEAR SHORE APPROVED SEDIMENT DISPOSAL SITES
- DURING CONTRACTS C AND D USACE MAY CONSIDER:
 - POTENTIAL HABITAT RESTORATION (e.g., MILL COVE) OR
 - PLACEMENT IN SELECTED LOCATIONS TO ALLOW FOR FUTURE TERMINAL EXPANSION OPPORTUNITIES



ENVIRONMENTAL IMPACTS & MITIGATION



MINOR INCREASES IN SALINITY:



WETLANDS:

395 ACRES AFFECTED BY MINOR INCREASE IN SALINITY STRESS



SUBMERGED AQUATIC VEGETATION (SAV):

180 ACRES AFFECTED BY MINOR INCREASE IN SALINITY STRESS
NO LOSS PREDICTED



FISH DISTRIBUTION:

<5% CHANGE (MINOR IMPACT TO SPECIES DISTRIBUTION)

MITIGATION

- 638 acres of Conservation Lands
- Monitoring



SLIDE COURTESY OF USACE

ENVIROMENTAL ANALYSIS INPUT



PARKS AND RECREATION DEPARTMENT



Plus numerous Written / Email Input Comments from Citizens
Logos highlighted in **GOLD** provided major input and review comments.

MITIGATION OPTIONS CONSIDERED

- **Nutrient Reduction Projects**
 - **Regional Stormwater Treatment Facilities**
 - **Septic Tank Removal**
- **Ecosystem Restoration**
 - **Eelgrass Beds**
 - **Freshwater Wetlands**
 - **Rodman Reservoir**
- **Wetland Mitigation Banks**
- **Conservation Land Purchase**



Slide courtesy of USACE

MITIGATION PLANNING

- Hydrodynamic Modeling
 - Salinity, Water Level, and Water Age
- Ecological Modeling
 - Eelgrass, Wetlands, Fish and Macroinvertebrates (e.g. shrimp)
- Uniform Mitigation Assessment Method (UMAM)
 - Required by Florida State Statute
 - UMAM Determines Mitigation Acreage
- Mitigation Options Considered
 - Conservation Land Purchase
 - Ecosystem Restoration
 - Nutrient Reduction



Slide courtesy of USACE

DREDGING THE ST JOHNS RIVER (SJR)

MINIMAL
SALINITY
CHANGES



SIGNIFICANT
ENVIRONMENTAL
DAMAGE

RECOMMENDED BASE MITIGATION PLAN

ACQUISITION OF LANDS FOR CONSERVATION:

■ FRESHWATER CONSERVATION AREA

- ▶ ~IDENTIFIED FOR BOTH EELGRASS AND WETLAND EFFECTS

■ SALT MARSH CONSERVATION AREA

- ▶ ~IDENTIFIED FOR FISHERIES EFFECTS

SPECIFIC CONSERVATION PARCELS WILL BE DESIGNATED UPON THE APPROPRIATION OF FINAL PROJECT FUNDING AND COORDINATION WITH THE APPROPRIATE RESOURCE AGENCIES.

USACE CONTINUES TO COORDINATE WITH REGULATORY AGENCIES ON OTHER MITIGATION OPTIONS SUCH AS WETLAND AND EELGRASS RESTORATION PROJECTS.



Slide courtesy of USACE

POTENTIAL ADDITIONAL FUTURE MITIGATION

- **POST AUTHORIZATION CHANGE REPORT REQUIRED**

- APPROVED BY USACE HEADQUARTERS

- **WATER RESOURCES DEVELOPMENT ACT**

- PURSUANT TO SECTION 902 - APPROXIMATELY 20% OF THE PROJECT COST, OR \$136 MILLION, COULD BE APPLIED TO CONTRACTOR CLAIMS/MODIFICATIONS OR FOR ADDITIONAL MITIGATION IF WARRANTED.

- THE ACTUAL AMOUNT WILL BE CALCULATED DURING THE PROJECT PARTNERSHIP AGREEMENT (PPA).



Slide courtesy of USACE

DREDGING THE ST JOHNS RIVER (SJR)

**USACE'S EFDC
HYDRODYNAMIC
MODELS
USED IN THE
FEASIBILITY STUDY
REPORT/SEIS**



**BEST AVAILABLE,
STATE OF THE ART SCIENCE, NUMERICAL
MODELING PROGRAMS AVAILABLE**

**MODELS USED ARE
ACCEPTED AND UTILIZED NATIONALLY &
INTERNATIONALLY**

**RESULTS WERE
EXTENSIVELY PEER REVIEWED
AND APPROVED FOR USE**

DREDGING THE ST JOHNS RIVER (SJR)

BLASTING AND ROCK REMOVAL OPERATIONS

WILL HAVE NO IMPACT

**ON THE
FLORIDAN AQUIFER
AND**

WILL NOT EXPOSE

**THE SURFICIAL AQUIFER
TO INCREASED SALTWATER INTRUSION
(PER U.S. GEOLOGICAL
SURVEY)**

REPRESENTS

**NO SIGNIFICANT RISK
TO THREATENED AND ENDANGERED
SPECIES**

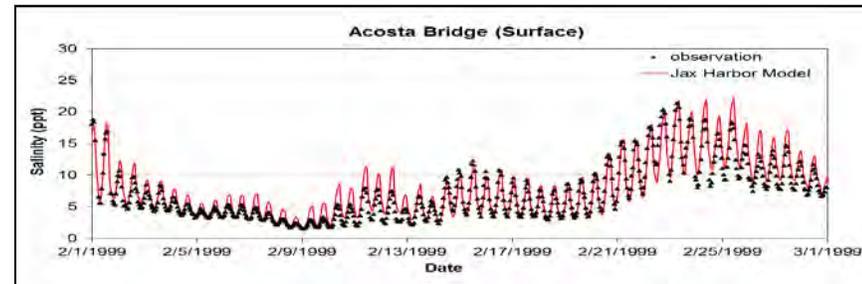
**...DUE TO ADDED
SAFETY AND ENVIRONMENTAL SAFEGUARDS
AND
PROCEDURES EMPLOYED BY USACE
AND ITS
DREDGING CONTRACTORS**

HYDRODYNAMIC/ SALINITY MODEL

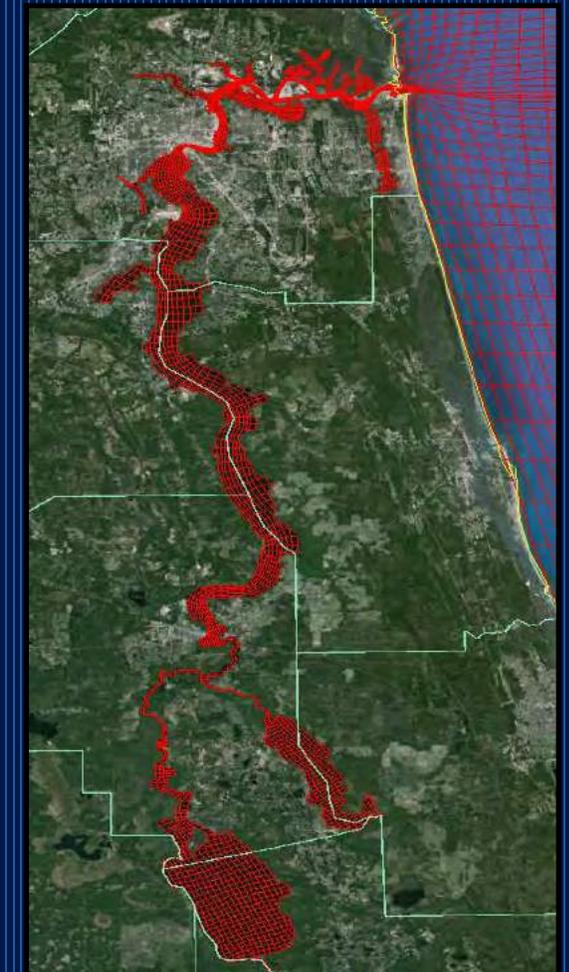
KEY POINTS ABOUT CREDENTIALS

- THE EFDC MODEL IS A ROBUST, STATE-OF-THE-ART HYDRODYNAMIC MODEL.
- EXTENSIVELY TESTED, DOCUMENTED AND APPLIED.
- HYDRODYNAMIC MODEL LITERATURE REVIEW IS AVAILABLE UNDER PROJECT DOCUMENTS ON THE USACE WEBSITE :

[HTTP://WWW.SAJ.USACE.ARMY.MIL/MISSIONS/CIVILWORKS/NAVIGATION/NAVIGATIONPROJECTS/JACKSONVILLEHARBORCHANNELDEEPENINGSTUDY.ASPX](http://www.saj.usace.army.mil/missions/civilworks/navigation/navigationprojects/jacksonvilleharborchanneldeepeningstudy.aspx)
- EFDC MODEL IS BEING APPLIED AT OTHER FEDERAL NAVIGATION PROJECTS.
- EFDC MODEL USED IN THE ST. JOHNS RIVER WATER SUPPLY IMPACT STUDY WAS REVIEWED BY THE NATIONAL RESEARCH COUNCIL.



COMPUTED VS OBSERVED SALINITY - DRY PERIOD CALIBRATION

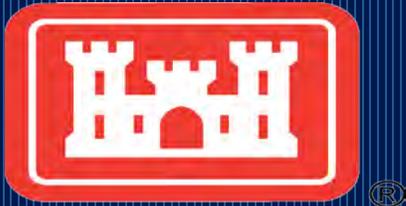


Feasibility Study EFDC
Grid



Slide courtesy of USACE

ECOLOGICAL AND WATER QUALITY MODELING PROJECT TEAM



JASON HARRAH
STEVEN BRATOS
MIKE HOLLINGSWORTH
PAUL STODOLA
ANDY LOSCHIAVO
US ARMY CORPS OF ENGINEERS
JACKSONVILLE DISTRICT



DR. STEVEN SCHROPP, Ph.D.
DR. DAVID STITES, Ph.D.
DR. MICHAEL KABILING, Ph.D.
TAYLOR ENGINEERING, INC.
SALINITY MODELING AND
OTHER WATER QUALITY MODELING



DR. COURTNEY HACKNEY, Ph.D.
UNIVERSITY OF NORTH FLORIDA
WETLAND VEGETATION



DR. KEN MOORE, Ph.D.
UNIVERSITY OF VIRGINIA
SUBMERGED AQUATIC VEGETATION



DR. BILLY JOHNSON, Ph.D., PE, D.WRE
COMPUTATIONAL HYDRAULICS AND
TRANSPORT LLC
WATER QUALITY MODELING



DR. HANS PAERL, Ph.D.
UNIVERSITY OF NORTH CAROLINA
PLANKTON



DR. MARK PETERSON, Ph.D.
UNIVERSITY OF SOUTHERN MISSISSIPPI
FISH



DR. PAUL MONTAGNA, Ph.D.
TEXAS A&M UNIVERSITY
BENTHIC MACROINVERTEBRATES

DREDGING THE ST JOHNS RIVER (SJR)

**USACE'S HYDRODYNAMIC
MODELS
AND
FEASIBILITY STUDY
REPORT/SEIS**

=

**INDEPENDENTLY PEER REVIEWED
BY
BATTELLE INSTITUTE
FINAL REPORTS FINDINGS AND
RECOMMENDATIONS
WERE
*UNANIMOUSLY APPROVED
BY THE CWRB ...
WITH NO QUALIFIERS***



Slide courtesy of USACE

INDEPENDENT EXTERNAL PEER REVIEW TEAM

PATRICIA STRAYER
BATTELLE
IEPR TEAM LEADER



DAVID SANFORD
MANCHESTER MARITIME ASSOCIATES, LLC
PLAN FORMULATION

SIGNIFICANT EXPERIENCE WITH CIVIL WORKS AND WATER RESOURCES PROJECTS RANGING FROM FLOOD DAMAGE PREVENTION AND EMERGENCY MANAGEMENT TO INLAND AND COASTAL NAVIGATION, PLANNING, POLICY, OPERATIONS, AND CONSTRUCTION. EXTENSIVE EXPERIENCE WORKING WITH PORTS IN THE DEVELOPMENT AND MANAGEMENT OF DREDGED MATERIAL PLACEMENT FACILITIES FOR BOTH CONTAMINANTS AND CLEAN MATERIAL. HE PROVIDED ADVICE TO PORT INDUSTRY MEMBERS ON FEDERAL LEGISLATION AND POLICY AND ON USACE PLANNING, POLICY, CHANNEL MAINTENANCE, AND DREDGED MATERIAL MANAGEMENT.



DR. WILLIAM McANALLY, P.E., PH.D., D.CE
DYNAMIC SOLUTIONS, LLC
HYDRAULIC ENGINEERING

RECOGNIZED EXPERT IN HYDRAULICS, SEDIMENT TRANSPORT, NAVIGATION EFFECTS, HYDRAULIC MODELING, HYDRODYNAMIC MODELING, SEDIMENT TRANSPORT ANALYSIS AND MODELING, COASTAL AND INLAND NAVIGATION STUDIES



Slide information courtesy of USACE

DANIEL MAHER
DSM CONTRACTING, LLC

ECONOMICS

SIGNIFICANT EXPERIENCE WITH LARGE WATER RESOURCE PLANNING STUDIES, INCLUDING DEEP DRAFT NAVIGATION FEASIBILITY STUDIES, EVALUATING AND CONDUCTING NED ANALYSES AND BCR REVIEWS



PAUL LAROSA, P.E.
ANCHOR QEA, LLC

GEOTECHNICAL ENGINEERING

SIGNIFICANT EXPERIENCE IN AQUATIC ENVIRONMENTS, COASTAL PROCESSES, SEDIMENT TRANSPORT, EROSION CHARACTERISTICS, EROSION ANALYSIS, DREDGING DESIGN, AND INTEGRATION OF REMEDIAL AND HABITAT IMPROVEMENT DESIGNS

JON STAIGER, PH.D.
COASTAL ENGINEERING CONSULTANTS, INC.

ENVIRONMENTAL

SIGNIFICANT EXPERIENCE WITH ECOLOGICAL RESPONSES TO NAVIGATION CHANNEL IMPROVEMENTS, COORDINATING MARINE TURTLE AND MARINE MAMMAL PROTECTION WITH REGULATORY AGENCIES AND WAS INVOLVED IN PERMITTING AND MONITORING CHANNEL DREDGING PROJECTS AND THE ENVIRONMENTAL IMPACTS ON THE AFFECTED HABITATS. OF PARTICULAR CONCERN WERE THE EFFECTS OF TURBIDITY PLUMES AND INADVERTENT SPOIL DISCHARGE ON SEAGRASS BEDS, MANGROVE AND MARSH AREAS, AND HARD-BOTTOM AND INFAUNA ASSEMBLAGES. HE WAS ALSO RESPONSIBLE FOR ENSURING THAT PUBLIC AND PRIVATE PROJECTS WERE COMPLIANT WITH NEPA, THE ENDANGERED SPECIES ACT, ESSENTIAL FISH HABITAT, AND THE MARINE MAMMALS PROTECTION ACT.



CORRECTIVE ACTION PLAN

(ADAPTIVE MANAGEMENT)

- ADDRESSES IMPACTS ANALYSIS UNCERTAINTY AND ASSOCIATED ENVIRONMENTAL RISK
- ESTABLISHES NUMERIC SALINITY AND BIOLOGICAL THRESHOLDS (ASSESS FROM MONITORING) THAT WOULD TRIGGER MODELING AND MITIGATION ACTIONS
- OUTLINES PATH FORWARD SHOULD ADDITIONAL SALINITY CHANGES OCCUR AS A FUNCTION OF THE DEEPENING PROJECT BEYOND THAT MITIGATED FOR



Slide courtesy of USACE

* INCLUDES MORE MITIGATION

ECONOMIC ANALYSIS INPUT



OFFICE OF
MANAGEMENT
AND BUDGET



US ARMY CORPS OF ENGINEERS

- DEEP DRAFT NAVIGATION PLANNING CENTER OF EXPERTISE
- COST ENGINEER CENTER OF EXPERTISE
- INSTITUTE OF WATER RESOURCES
- WATERBORNE COMMERCE STATISTICS CENTER



STATE OF FLORIDA ECONOMIC IMPACT

680,000

JOBS SUPPORTED BY FLORIDA SEAPORTS

\$96 BILLION

FLORIDA SEAPORTS ECONOMIC ACTIVITY IN THE STATE

NE FL REGIONAL ECONOMIC IMPACT

JACKSONVILLE'S PORT COMPLEX

- #1 CONTAINER PORT IN FLORIDA
- #1 VEHICLE EXPORTER PORT IN U.S.
- #2 BULK PORT IN FLORIDA

65,000

JOBS SUPPORTED BY PORT ACTIVITY

\$19 BILLION

ANNUAL ECONOMIC IMPACT



POTENTIAL FUNDING STREAM

| COST SHARE ALLOCATION – PER CHIEF OF ENGINEERS REPORT | | | |
|---|----------------|----------------|----------------|
| FY | Total | Federal | Non-Fed |
| FY14 | \$ 3,000,000 | \$ 2,250,000 | \$ 750,000 |
| FY15 | \$ 4,150,000 | \$ 3,150,000 | \$ 1,000,000 |
| FY16 | \$ 46,600,000 | \$ 23,400,000 | \$ 23,200,000 |
| FY17 | \$ 119,700,000 | \$ 65,900,000 | \$ 53,800,000 |
| FY18 | \$ 119,700,000 | \$ 65,900,000 | \$ 53,800,000 |
| FY19 | \$ 119,700,000 | \$ 65,900,000 | \$ 53,800,000 |
| FY20 | \$ 120,000,000 | \$ 66,100,000 | \$ 53,900,000 |
| FY21 | \$ 119,000,000 | \$ 65,500,000 | \$ 53,500,000 |
| FY22 | \$ 1,300,000 | \$ 900,000 | \$ 400,000 |
| FY23 | \$ 3,800,000 | \$ - | \$ 3,800,000 |
| FY24 | \$ 3,800,000 | \$ - | \$ 3,800,000 |
| FY25 | \$ 3,800,000 | \$ - | \$ 3,800,000 |
| FY26 | \$ 3,800,000 | \$ - | \$ 3,800,000 |
| FY27 | \$ 3,800,000 | \$ - | \$ 3,800,000 |
| FY28 | \$ 3,800,000 | \$ - | \$ 3,800,000 |
| FY29 | \$ 3,800,000 | \$ - | \$ 3,800,000 |
| FY30 | \$ 3,800,000 | \$ - | \$ 3,800,000 |
| Total(s) | \$ 683,550,000 | \$ 359,000,000 | \$ 324,550,000 |

NOTE: DOES NOT INCLUDE \$83.4M FOR BULKHEAD IMPROVEMENTS



Slide courtesy of USACE

- THE FUNDING STREAM IS BASED ON A FULLY FUNDED PROJECT COST THAT WAS DEVELOPED USING INFLATION FACTORS PROVIDED BY OMB.
- COST WILL FLUCTUATE UNTIL THE CONSTRUCTION CONTRACT(S) IS(ARE) AWARDED AND PAID IN FULL, INCLUDING ANY MODIFICATIONS THAT MAY BE REQUIRED IN THE FUTURE.
- THE OVERALL PROJECT COST SHARE RATE TAKES THE 75-25 PED COST SHARE RATE INTO ACCOUNT AS WELL AS THE 10% PAYBACK OF NED COSTS DURING THE CONSTRUCTION PERIOD AS OPPOSED TO A 30-YEAR PERIOD AFTER CONSTRUCTION HAS BEEN COMPLETED.

JAX HARBOR DEEPENING 47' PLAN

KEY SCHEDULE DATES:

- | | |
|--|-----------|
| ✓ INITIATE PLANS/SPECS | JAN 2015 |
| ✓ PED PHASE CONTRACT A ENDS | NOV 2015 |
| ✓ USEPA APPROVES ODMDS / PUBS DECISION IN FEDERAL REGISTER | NOV 2015 |
| ✓ FDEP ISSUES NOI TO ISSUE PERMIT | FEB 2016 |
| ✓ FDEP & JPA "CORRECTIVE ACTION PLAN" LOCAL SPONSOR AGREEMENT EXECUTED | FEB 2016 |
| ☐ FUNDING SECURED FROM FEDERAL / STATE / LOCAL GOVERNMENTS | TBD |
| ☐ PPA APPROVED BY JAXPORT BOARD | TBD |
| ☐ FDEP ISSUES PERMIT, USACE PLANS/SPECS CERTIFIED* | TBD |
| ☐ CONSERVATION LANDS REAL ESTATE PURCHASES COMPLETED | ~AUG 2016 |
| ☐ READY TO ADVERTISE: (NON-FED STATE AND LOCAL FUNDS NEEDED NLT) | ~SEP 2016 |
| ☐ DREDGING CONTRACT A ADVERTISED | ~SEP 2016 |
| ☐ CONTRACT A BIDS RECEIVED | ~DEC 2016 |
| ☐ SOURCE SELECTION COMMITTEE EVALUATES BIDS | ~JAN 2017 |
| ☐ AWARD CONTRACT A | ~FEB 2017 |
| ☐ NTP ISSUED | ~MAR 2017 |
| ☐ CONTRACTOR MOBILIZES | ~APR 2017 |
| ☐ CONSTRUCTION CONTRACT A COMPLETE | ~JUN 2019 |

NOTE: * MUST BE CERTIFIED BEFORE ADVERTISEMENT IN APRIL 2016

LESSONS ~~LEARNED~~ / APPLIED

- **EXTENSIVE PUBLIC OUTREACH / INPUT – FAR EXCEEDED NORMAL REQUIREMENTS**
- **STATE OF THE ART HARBOR SYM MODELING USED – BEST AVAILABLE**
- **NO SHORT CUTS TAKEN; NO CHECKS, STEPS OR REVIEWS OMITTED**
- **CONSTANT /CONTINUOUS COORDINATION / INPUT FROM / WITH LOCAL, STATE AND FEDERAL RESOURCE AGENCIES**
- **VARIOUS REVIEWS DONE SIMULTANEOUSLY VERSUS SEQUENTIALLY – SAVED TIME!!!!**
- **ENTIRE CORPS VERTICAL CHAIN OF COMMAND & VARIOUS CENTERS OF EXPERTISE INVOLVED FROM BEGINNING**
- **PORT AUTHORITY (SPONSOR) AND USACE MET CONSTANTLY / COMMUNICATED DAILY – NO SURPRISES**
- **PROJECT SCOPE REDUCED TO BALANCE ECONOMIC, ENGINEERING AND ENVIRONMENTAL CONSIDERATIONS / CONCERNS**

THANK YOU FOR LISTENING!!

JOE R. MILLER

***SENIOR DIRECTOR, FACILITIES DEVELOPMENT
ENGINEERING AND CONSTRUCTION DEPARTMENT***

***JACKSONVILLE PORT AUTHORITY
283 I TALLEYRAND AVENUE
JACKSONVILLE, FLORIDA 33206
P: 904.357.3001 E: JOE.MILLER@JAXPORT.COM***



JAXPORT

Jacksonville port authority
harbor deepening project

2016

JOE R. MILLER, COL, USA (RETIRED)

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ENGINEERING AND CONSTRUCTION DEPARTMENT





BACKUP SLIDES

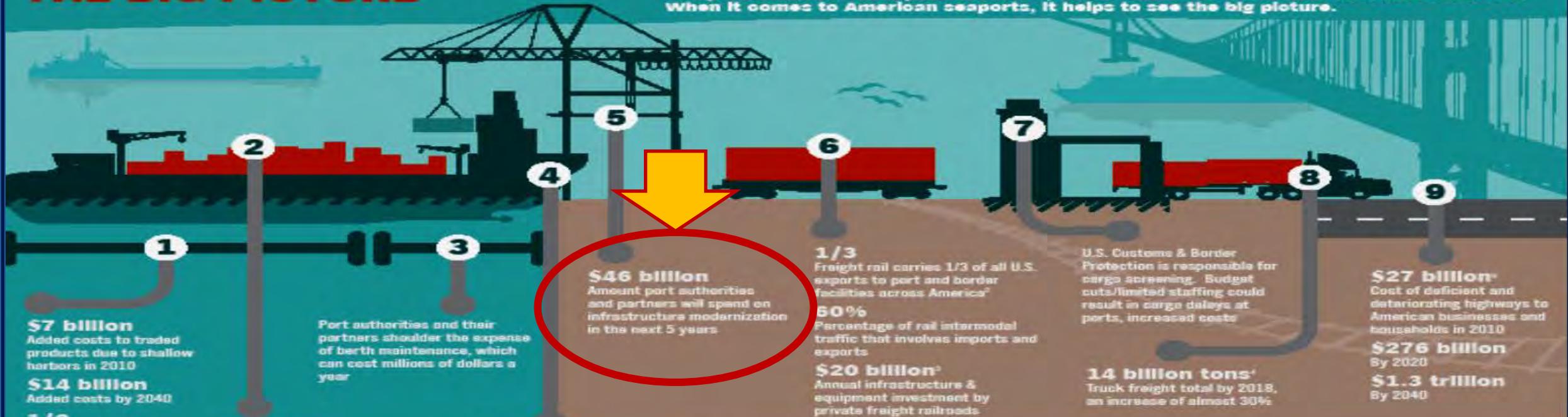
PORTS AND NAVIGATION

AAPA
www.aapa-ports.org

SOURCE: AAPA

ENDANGERED SEAPORTS: THE BIG PICTURE

A \$46 billion investment gap by 2040 threatens U.S. seaports – critical economic lifelines that rely on connecting transportation infrastructure to deliver prosperity for millions of Americans. With America's trade volume expected to quadruple after 2030, and port connections in poor condition, now is the time to invest in vital infrastructure. When it comes to American seaports, it helps to see the big picture.



A \$4 trillion loss to U.S. GDP by 2040 is projected for failure to invest in America's crumbling transportation infrastructure.

Urge Congress to support federal investment in seaports today.

- 1 FEDERAL CHANNEL**
(Funded by Harbor Maintenance Tax)
- 2 CARGO**
- 3 BERTH**
- 4 OCEAN-GOING VESSEL**
- 5 PORT FACILITIES**
- 6 FREIGHT RAIL**
- 7 SECURITY SCREENING EQUIPMENT**
- 8 TRUCKS**
- 9 FEDERAL/STATE HIGHWAYS & CONNECTORS**
(Funded by gas taxes)

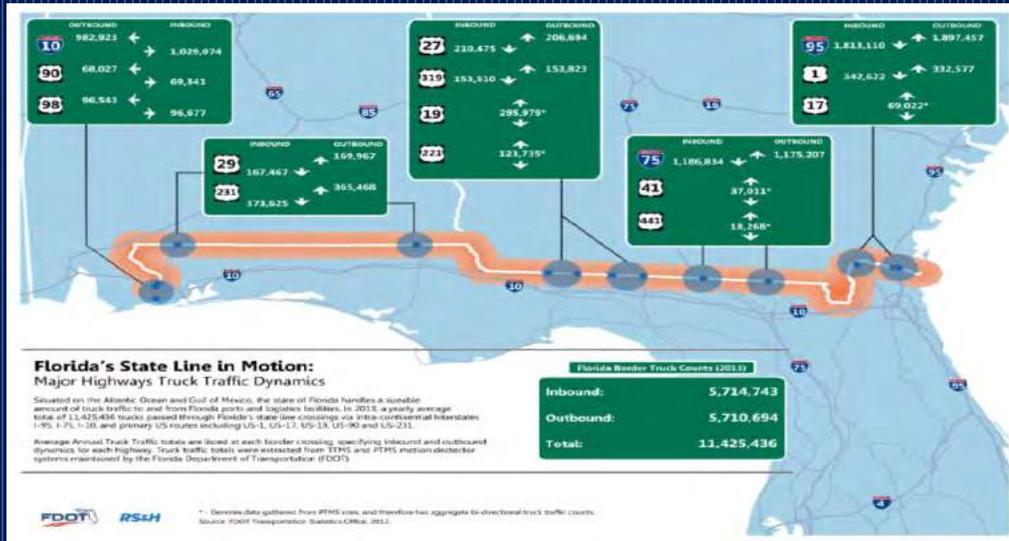
Statistical source report where indicated: The American Society of Civil Engineers (ASCE), Failure to Act: The Economic Impact of Current Investment Trends in Airports, Inland Waterways, and Marine Ports Infrastructure, 2012 (revised 10/11)
¹The Association of American Railroads, www.aar.org
²U.S. Customs and Border Protection, Washington Post, February 24, 2011
³The American Trucking Association, www.trucking.org
⁴ASCE, Failure to Act: The Economic Impact of Current Investment Trends in Surface Transportation Infrastructure, 2011

“GATEWAY TO THE SOUTHEAST” “FRONT DOOR TO FLORIDA”

JAXPORT AND NORTHEAST FLORIDA

JAXPORT ENJOYS A STRATEGIC ADVANTAGE GIVEN ITS LOCATION AT THE CONFLUENCE OF THREE MAJOR HIGHWAYS AND THREE MAJOR RAILWAYS.

MORE THAN 60 MILLION CONSUMERS ARE LOCATED WITHIN A ONE-DAY TRUCK DRIVE.



4.4 m
Trucks/YR



2.4 m
Trucks/YR



DEEPENING PROJECT IMPACTS ON THE SJR ARE MINIMAL

2012

Health report on the lower St. Johns River basin

A report on the health of the northern section of the St. Johns River shows some hopeful signs, say researchers, though there are still some trouble spots. Here are some highlights showing how different measures of the river's health stack up - and where they may go in the future.

| RIVER HEALTH INDICATOR | 2012 | Expected future trend | FISHERIES | 2012 | Expected future trend |
|------------------------------------|------|-----------------------|----------------------------|------|-----------------------|
| WATER QUALITY | | | Red drum** | | Stable |
| Dissolved Oxygen (DO) | | Stable | Spotted seatrout | | Stable |
| Nutrients (Nitrogen & phosphorous) | | Stable | Largemouth bass** | | Stable |
| Turbidity | | Improving | Freshwater catfish | | Worsening |
| Algal blooms | | Worsening | Sheepshead | | Stable |
| Bacteria (Fecal coliform) | | Improving | Striped mullet | | Uncertain |
| Metals in the water column | | Improving | Southern flounder | | Uncertain |
| AQUATIC LIFE | | | Blue crab | | Uncertain |
| Submerged aquatic vegetation | | Worsening | Shrimp | | Uncertain |
| Wetlands | | Uncertain | Stone crab | | Stable |
| Macroinvertebrates | | Uncertain | CONTAMINANTS | | |
| Florida manatee | | Stable | Toxic release inventory*** | | Improving |
| Bald eagle | | Improving | Polyaromatic Hydrocarbons | | Improving* |
| Wood stork | | Improving | Metals | | Stable |
| Shortnose sturgeon | | Uncertain | Polychlorinated biphenyls | | Stable |
| Non-native aquatic species | | Worsening | Pesticides | | Stable |

? Trending uncertain
 Satisfactory status
 Unsatisfactory status

* Northern section
 ** Recreational fishery only
 *** Point source of contaminants in the Lower St. Johns region
 Source: Florida Department of Environmental Protection, St. Johns River Water Management District, Fish and Wildlife Commission, City of Jacksonville, individual researchers, and others.

Steve.Nelson@jacksonville.com

WHAT IS NEEDED IS A COMPREHENSIVE LOWER SJR BASIN WATER QUALITY ASSESSMENT/STUDY

- ❑ IMPLEMENT COMPREHENSIVE WATER QUALITY SAMPLING/MONITORING REGIME/PROGRAM
- ❑ INSPECT AND PHASE OUT/ELIMINATE SEPTIC TANKS AND THEIR LEAKAGE/RUNOFF INTO TRIBUTARIES
- ❑ UPGRADE/REHAB MAIN SEWER LINES, LIFT STATIONS AND MANHOLES
- ❑ INSPECT/UPGRADE PRIVATE/PUBLIC WATERWATER FACILITIES
- ❑ IMPLEMENT CAPITAL PROJECTS PROGRAM TO REDUCE/ELIMINATE FLOODING AND URBAN STORMWATER RUNOFF
- ❑ IDENTIFY/REMOVE ILLICIT CONNECTIONS TO STORMWATER SYSTEMS
- ❑ REDUCE/LIMIT FUTURE WITHDRAWALS FROM ST JOHNS RIVER OR FLORIDAN AQUIFER
- ❑ ELIMINATE/REDUCE CONSTRUCTION SITE RUNOFF THRU BMPs
- ❑ REDUCE/ELIMINATE EXCESSIVE FERTILIZER, HERBICIDE, FUNGICIDE AND PESTICIDE APPLICATIONS TO REDUCE NITROGEN POLLUTION
- ❑ IMPLEMENT BEST MANAGEMENT PRACTICES TO REDUCE/ELIMINATE AGRICULTURAL RUNOFF
- ❑ IDENTIFY/IMPLEMENT STEPS TO REDUCE POTENTIAL IMPACTS OF SEA LEVEL RISE
- ❑ IMPLEMENT CONSERVATION PRACTICES TO REDUCE IMPACTS OF DROUGHTS
- ❑ IMPLEMENT SJR ECOSYSTEM PUBLIC AWARENESS PROGRAMS
- ❑ DREDGE SELECTED TRIBUTARIES/WATER BODIES TO REMOVE/ELIMINATE CONTAMINANTS AND TOXIN SOURCES
- ❑ EVALUATE IMPACTS OF REMOVAL OF RODMAN DAM & ENVIRONMENTAL RESTORATION OF OKLAWAHA RIVER