

Review Assessment

of

St. Lucie County, Florida
Fort Pierce Shore Protection Project
Section 203 Integrated Feasibility Study and
Environmental Assessment
(June 2018)



July 2018

Executive Summary

St. Lucie County Florida, conducted a feasibility study to address hurricane and coastal storm damages in the area of Ft. Pierce. The study was conducted under Section 203 of the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662), as amended. The office of the Assistant Secretary of the Army for Civil Works (ASACW) has conducted a concurrent review of this submittal with the Headquarters, U.S. Army Corps of Engineers (Corps) with the purpose of determining federal interest and that the study demonstrates engineering, economic and environmental feasibility that all reports seeking construction authorization must demonstrate.

Based on the results of the review process, the Secretary has made the determination that the project is feasible. In the event that the recommended plan is authorized for federal participation, it is expected that all unresolved concerns contained within this Review Assessment would be addressed prior to project implementation. Unresolved concerns with the recommended plan are related to incremental analysis, nourishment intervals, screening of nonstructural measures, Executive Order 11988 compliance, environmental consequences, design sustainability, and cost estimates. Conditions for construction of the project include completion of NEPA and environmental compliance activities.

Table of Contents

Executive Summary	i
I. Background.....	1
II. St. Lucie County's Section 203 Recommended Plan.....	1
A. Location.....	1
B. Congressional Interest:	1
C. Senators:.....	1
D. Problems:	1
E. Project Objectives:	1
F. Recommended Plan:	2
G. Price Level:	2
I. Total Project Cost.....	2
J. Benefits:	2
K. Cost Share:	2
III. Section 203 Review Assessment Summary.....	3
A. Feasibility determination (Whether the project is feasible (i.e. technically sound, economically justified and environmentally compliant)?.....	3
B. Recommendations concerning the plan or design of the proposed project	3
C. Identify any conditions required for construction of the project	3
IV. Review History and Findings.....	3
A. June 2018 Feasibility Study.....	3
B. March 2017 Feasibility Study	8

I. Background

St. Lucie County Florida, conducted a feasibility study to address hurricane and coastal storm damages in the area of Ft. Pierce. The study was conducted under Section 203 of the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662), as amended. The office of the Assistant Secretary of the Army for Civil Works (OASACW) conducted a concurrent review of the submittal with the Headquarters, U.S. Army Corps of Engineers (Corps, also referred to as USACE) with the purpose of determining federal interest and that the study demonstrates engineering, economic and environmental feasibility that all reports seeking construction authorization must demonstrate.

This Review Assessment provides the results of the Washington-level review. This review has been conducted to determine whether the study and the process under which the study was developed, each comply with Federal laws and regulations; a determination of whether the project is feasible; and identification of any conditions that the Secretary may require for construction of the project.

II. St. Lucie County's Section 203 Recommended Plan

This section provides a summary of the recommended project, as contained within the Ft. Pierce, Section 203 Integrated Feasibility Study and Environmental Assessment (June 2018).

A. Location: The study area encompasses 2.4 miles of shoreline in Fort Pierce, Florida, from the south jetty at Fort Pierce Inlet (FDEP survey monument R-34) to approximately 600 feet south of R-46 (i.e., R-46.6).

B. Congressional Interest: Brian Mast (FL-18).

C. Senators: Bill Nelson and Marco Rubio (Florida)

D. Problems: St. Lucie County conducted this study to investigate alternatives for improving hurricane and coastal storm damages in vicinity of the Ft. Pierce inlet.

E. Project Objectives: The purpose of the study is to reduce storm damages associated with hurricane and costal storms. The recommended project seeks to improve the performance of the currently authorized shore protection project (SPP) to decrease the required nourishment frequency and, hence, reduce project costs while maintaining or improving the project benefits. Inherent in this objective is the continuation of the current SPP objectives, which include:

- Maximize storm damage reduction to property and infrastructure within the project area over a 50-year planning horizon (2021 – 2070).
- Maintain environmental quality in the project area and adjacent areas, including sea turtle and nearshore hardbottom habitat and aesthetics, over a 50-year planning horizon (2021 – 2070).

- Maintain recreational use of beach and nearshore areas in the project area including beach going, surfing, fishing, and wildlife viewing over a 50-year planning horizon (2021 – 2070).

F. Recommended Plan:

The Recommended Plan includes beach and dune nourishment along 7,000 ft of shoreline from the Ft. Pierce inlet's south jetty (R-34) to R-41. The design includes construction of a 120 ft-wide equilibrated berm from R- 34 to R-36, a 130 ft-wide equilibrated berm from R-36 to R-41, and a dune feature with a 20-ft wide dune crest at an elevation of 12.4 ft relative to the 1988 North American Vertical Datum (NAVD88). The project berm will have an elevation of 7.4 ft NAVD and a 1V:10H foreshore slope. The feeder beach design distributes sand downdrift to provide storm damage reduction benefits for the R-41 to R-46.6 segment. A hopper dredge will be used to fill the template with sand from Capron Shoal, an offshore source located approximately 4 miles from the project site.

The plan also includes construction of shoreline stabilization structures at the project's north end to address severe non-uniform erosion rates. The plan includes construction of five T-head groins (T1 – T5) within approximately 1,570 ft from the south jetty, a T-head weir (W6) approximately 1,800 ft from the south jetty, and a detached breakwater (B7) approximately 2,070 ft from the south jetty.

G. Price Level: October 2017

H. Interest Rate: 2.75%

I. Total Project Cost: \$131,066,611

J. Benefits: Benefits, in the form of reduced damages, land loss, and recreation are estimated at \$168,287,623,000, yielding net benefits of \$37,221,012 and a benefit-to-cost-ratio of 1.28 to 1.

K. Cost Share: Based on an analysis of shoreline ownership and access it is expected that initial construction will be cost shared approximately 46% Federal and a non-Federal rate of approximately 54%. For periodic nourishment, the Federal participation rate is approximately 35% and non-Federal rate is 65%.

III. Section 203 Review Assessment Summary

In accordance with section 203 of WRDA 1986, as amended, the Secretary is required to provide a report to Congress that describes the following:

A. Feasibility determination (Whether the project is feasible (i.e. technically sound, economically justified and environmentally compliant)?

The Secretary has determined that the recommended plan is feasible.

The study documents that the recommended plan is economically justified, but it does not provide information to defend the scale or estimated cost of the project being recommended. In the event that the recommended plan is authorized for federal participation, it is expected that unresolved issues contained within the Review Assessment would be addressed prior to implementation.

B. Recommendations concerning the plan or design of the proposed project.

All unresolved concerns with the plan and design of the project, as contained within this Review Assessment, would need to be addressed prior to implementation. Unresolved concerns with the plan are related to incremental analysis, nourishment intervals, screening of nonstructural measures, Executive Order 11988 compliance, environmental consequences, design sustainability, and cost estimates.

Although the current analysis supports the conclusion for justification of the sponsor's recommended plan, there remains a risk that future analysis could affect project justification or further modify the recommended features of the project. In addition, cost sharing amounts cannot be calculated until additional analysis is completed to identify the national economic development (NED) plan in accordance with the Principles and Guidelines and current law. Cost sharing requirements or the identification of an NED plan may result in a change to the sponsors preferred plan. These risks have the potential to affect budgeting and implementation of the project.

C. Identify any conditions required for construction of the project

Conditions for construction of the project include completion of NEPA and environmental compliance activities.

IV. Review History and Findings

Two Washington-level review cycles were conducted for the study. The following sections document the issue resolution process from those reviews.

A. June 2018 Feasibility Study. Review of the revised Feasibility Study generated new comments that had not been previously identified. The new comments pertain to the

long-term sustainability of the recommended plan and the cost estimate for implementation. Resolution of these comments were not required to determine project feasibility, but are noted for future corrective action.

1. Future Without Project Conditions – Tide Gauges.

Concern: The future conditions used in the report are developed using Daytona Beach Shores and Miami Beach tide gauges, which are closest to the project area, but which also have discontinuous records. Daytona Beach Shores has a discontinuous record ending in 1984, while Miami Beach has a record from 1931-1981 with a minor discontinuity. This is not mentioned anywhere, but certainly introduces uncertainty into the expected sea levels out 50 years based on these tide gauges, given that Fernandina Beach, Mayport, and Key West (long records but farther away) show increasing trends over the past 10-20 years (yr) and especially in the five-yr moving averages.

Basis of Concern: Use of discontinuous records could impact elevations important in planning and design, with subsequent implications to completeness, effectiveness, efficiency, and acceptability of the alternatives. Lack of compliance with Corps policy and technical guidance ER 1100-2-8162 and ETL 1100-2-1.

Significance of Concern: Moderate

Action Needed to Resolve Concern: Prior to implementation, conduct analysis of all tide gauges listed above with attention to their behavior over the period covered by Daytona /Miami. Consider using interpolated or otherwise combined records to develop more realistic trend data. If there is no noticeable sensitivity when using the additional longer and continuous gauge records, provide graphical evidence and a statement to this effect.

2. Future Without Project Conditions –Application of Sea Level Change Analysis Result.

Concern: There is no evidence in the Engineering Appendix or Main Report that the results of the sea level change analysis were applied in the remainder of the study. For example, there is a nice discussion of the erosion and volume reduction associated with sea level, but no mention of the additional volume required to renourish due to this erosion, which would trickle through to costs. The design of the groins would require a 100-yr life cycle per ER 1110-2-8159. There was no discussion about whether and how the 100-yr expected sea levels would impact the design, resulting elevations, or require adaptations to changing conditions over the 100 yr engineering horizon. Sensitivity to sea level was discussed on p. 18 of the Economics appendix but no backup information was provided. There is no justification for the sentence on p. 28 of the Economics Appendix that "The minimal effect of sea level rise does not alter this BCR."

Basis of Concern: Not considering expected sea level conditions could impact elevations and volume important in planning and design, with subsequent implications

to completeness, effectiveness, efficiency, and acceptability of the alternatives. Lack of compliance with ER 1110-2-8159, ER 1100-2-8162, and ECB 2106-25.

Significance of Concern: Moderate

Action Needed to Resolve Concern: Provide evidence of whether and how the results of the sea level change analysis were used in determining renourishment requirements over the 50-yr period of economic analysis. Be sure to address not only sea level itself, but the effects of sea level change on tides, surge, waves, and other local factors (e.g., interannual or interdecadal variability) which impact performance and reliability. Conduct analyses to describe current and future without project conditions related to the effects of expected sea level change over the engineering horizon of 100 yrs on the design of the groins and any adaptation measures that could be required to provide continued performance and reliability over that time period. Provide data and analysis to support the discussion of sensitivity to sea level (p. 18) and support the statement on p. 28 of the Economics Appendix that "The minimal effect of sea level rise does not alter this BCR."

3. Sea Level Rise Policy and Technical Guidance.

Concern: The main report refers to EC 1165-2-211 which was superseded in 2011 by EC 1165-2-212 and in 2013 by ER 1100-2-8162. The most current policy and technical guidance should be used in the planning and engineering analyses. The main report states on p. 126 that " However, policymakers have not decided whether the practice of protecting development should continue as sea level rises or be modified to avoid adverse environmental consequences and increased costs of shore protection." This may indeed be true for local policymakers – clarification is needed as to which policymakers are referred to here. Also on p. 126 is this statement: "Most shore protection structures are designed for the current sea level, and retreat policies that rely on setting development back from the coast are designed for the current rate of sea level rise (SLR). Those structures and policies would not necessarily accommodate a significant acceleration in the rate of sea-level rise." The Corps has a policy (ER 1100-2-8162) and methods for implementation (ETL 1100-2-1) which support decision-making about potential future actions including structure design that account for significant changes in sea level. We do this to be sure that the project plan accounts for observed and expected changes over the design life in a way that supports the expected return on the Federal investment.

Basis of Concern: Neglecting to consider Corps policy and technical guidance could impact elevations important in planning and design, with subsequent implications to completeness, effectiveness, efficiency, and acceptability of the alternatives.

Significance of Concern: Moderate

Action Needed to Resolve the Concern: Prior to implementation, conduct a SLR/Climate Change analysis of the plan, in accordance with relevant Corps guidance, for the purpose of validating the project features/specifications and their expected

performance throughout the project life-cycle (100 years). Current policy and guidance require consideration of rising sea level, including modification as necessary for major infrastructure (i.e., the groins) to continue to provide their authorized services out 100 yrs (per ER 1110-2-8159). This needs to be done prior to implementation to be sure the estimated costs and benefits are correct and that the loadings and threshold elevations are correct. Ignoring the policy and guidance may make the 4-yr renourishment interval look very optimistic, in which case the question arises, is constant renourishment an effective use of Federal cost-share funding? As for the groins, loading and threshold elevations will be driven by changing sea level, which alters tide, surge, wave, and other components of hydraulic loading.

4. Alternative Cost Estimates

Concern: No cost estimates (construction or total project) are shown/detailed in the main report or the cost appendix.

Basis for Concern: Without total project cost estimates developed for alternatives that are able to be compared, how do we know the correct alternative was selected? There are some tables with costs in the economic appendix but there is not a table that compares all alternatives carried forward.

Significance of Concern: High

Action Needed to Resolve Concern: Provide/show total project cost estimates for the alternatives carried forward from the initial screening process.

5. NED Cost Estimate

Concern: Cost estimate for shoreline structures is provided, but the dredging portion is hard to discern from the documents provided.

Basis for Concern: The dredging work for the NED plan is outlined briefly, but there aren't quantities input into an estimate in the cost appendix or the sub-appendix; the cost appendix just shows a mob cost a dredging unit rate. There needs to be an estimate that shows all of the planned construction costs and the non-construction costs of the contract (or contracts, if multiple are planned for initial construction). There is not a sufficient narrative for the estimate that mentions contractor structure, acquisition strategy, market conditions, etc. What are the unit prices for shoreline structures based on? Is profit included? Overhead percentages? Are any productivity factors applied? These are some of the questions that can't be answered based on the information provided.

Significance of Concern: High

Action Needed to Resolve Concern: Prior to implementation, the cost estimate (appendix) should be revised with all relevant information for the project, including features, unit costs, expected breakout of construction contracts and backup documentation, outlined above and in ER 1110-2-1302, Civil Works Cost Engineering.

6. Contingency/Risk Analysis

Concern: Contingency of 23% is taken from a prior risk analysis that was prepared by USACE Jacksonville District for the Fort Pierce SPP, not this particular project.

Basis for Concern: The prior risk analysis was based on a different cost estimate for a different project, though it is acknowledged that the project location is the same. However, since the cost basis for the previous project was likely different than what the current estimate is, there may be existing factors that contribute to greater (or lower) uncertainty for this particular study, such as cost basis (ie, historical unit prices), quantities, availability/capacity of borrow areas, etc.

Significance of Concern: High

Action Needed to Resolve Concern: Prior to implementation, recommend developing a new risk analysis and associated contingency percentage based on the cost estimate presented in Appendix B.

7. Account code for Environmental Monitoring

Concern: Costs included in the 30 account (PED) for environmental monitoring may need to be moved in the 06 account, Fish & Wildlife Facilities.

Basis for Concern: Per ER 1110-2-1302, Civil Works Cost Engineering, the 06 account Fish & Wildlife Facilities should include "...items such as ladders, elevators, locks and related facilities for passage of fish at dams and navigation locks and maintenance of fish runs; and provision for wildlife preservation. In support of wildlife, this feature includes environmental mitigation and monitoring costs." Costs associated with the monitoring of wildlife species should be included there – so monitoring for anything like nesting birds, manatees, etc. should be covered in 06.

Significance of Concern: Low

Action Needed to Resolve Concern: For information only.

8. Induced Flooding costs

Concern: Costs for mitigation of induced flooding beyond the Corps of Engineers standard do not appear to have been captured.

Basis for Concern: Though they would be separate from construction costs, would there be any mitigation required? This should be captured if it has not already been done.

Significance of Concern: Medium

Action Needed to Resolve Concern: Prior to implementation, verify and address if there would be any costs necessary, and if so, estimate the magnitude of those.

B. March 2017 Feasibility Study.

A GENERAL COMMENTS

1. Policy issues raised by project recommendation.

Concern: Section 203 is not an appropriate authority to study the extension of the period of cost shared nourishment. However, while extension of the period of cost shared nourishment is not appropriate under 203, studying the feasibility of adding groins is acceptable. Therefore, in this particular case, this Section 203 report will be reviewed, but the report must include a discussion regarding the period of nourishment in light of the specific Congressional direction that such extended nourishment not exceed 15 years.

Basis of concern: Project authorization and Section 1037 of WRRDA 2014 states: "...the Secretary shall, at the request of the non-Federal interest, carry out a study to determine the feasibility of extending the period of nourishment ...for a period not to exceed 15 additional years...."

Significance of concern: High, as it affects the ability to support the recommended plan.

Action needed to resolve concern: The report needs to be revised to reconcile the conflict between its recommendation to reauthorize the project for an additional 50 years of Federal participation in nourishment and the explicitly stated limitation of 15 years in Section 1037.

Local Sponsor Response: During a meeting with project stakeholders on Monday, October 16, 2017, USACE and ASA(CW) representatives confirmed that Section 203 is the appropriate authority for 50- year federal participation in a new modified project that includes construction of shoreline stabilization structures, which is anticipated to greatly improve project performance by doubling the nourishment interval from two years to four years, together with beach nourishment at a reduced frequency than currently authorized, which results in significant cost savings. Under this guidance, St. Lucie County will submit a revised report requesting authorization of the new modified project with a 50-year project life, as opposed to an extension of the current project.

ASACW/HQUSACE Initial Assessment: Comment is resolved.

ASACW/HQUSACE Final Assessment: Comment is resolved.

2. Policy issues raised by project recommendation.

Concern: As noted on page 7 of the report, shore protection at the project site was previously constructed and is currently authorized for 50 years of nourishment, ending in 2020. The draft GRR (as reflected in part 3.8.1 on page 70 of the report and elsewhere)

now recommends seeking authorization by Congress of a wholly new round of initial construction, as well as a second extension of nourishment for 50 more years. However, initial construction of the dune and berm for this area has been completed. The report should not refer to any further nourishment for this area as initial construction. Instead, this is an extension of nourishment. Even if the dune and berm profile were to change, this is still be treated as nourishment albeit with modified dimensions. For CSDR Congress recognized that both these features are sacrificial and that eventually the project will erode if not nourished. Thus, they provided for Federal cost sharing of the initial construction and for a limited period for cost sharing in nourishment. At the end of the period of Federal participation in nourishment, you don't start again with initial construction. Section 1037 of WRRDA 2014 dictates that Congressional authorization for an extension of the period of nourishment and other modifications to the project authorization (i.e. additional hardscapes or other project adjustments).

Basis of concern: Section 1037 of WRRDA 2014.

Significance of concern: High, as it affects the ability to support the recommended plan.

Action needed to resolve concern: The report needs to be revised to remove references to new initial construction.

Local Sponsor Response: As mentioned, during a meeting on Monday, October 16, 2017, St. Lucie County representatives received guidance from USACE and the ASA(CW) to submit a Section 203 report requesting 50-year authorization of the proposed structures and beach nourishment as a new modified project as opposed to an extension of the current project. Therefore, the revised report will retain the "initial construction" terminology for construction of the proposed structures and the associated beach fill placement (i.e., the first nourishment under the new 50-year period of federal participation).

ASACW/HQUSACE Initial Assessment: Comment will be resolved pending review of the revised report. Recommend the report include language that distinguishes between the original construction and construction of the proposed modifications, such as adding a qualifiers "initial construction of the proposed modification".

ASACW/HQUSACE Final Assessment: Comment is resolved.

3. Policy issues raised by project recommendation.

Concern: The recommendation assumes that no further nourishment of the project will occur following the currently authorized period of Federal participation in nourishment, which would appear to conflict with USACE planning policy requiring benefits to be calculated based on the most likely future without project condition. The report fails to address the apparent discrepancy between this assumption and Administration planning and budget policy as well as the current OMRR&R obligations of non-Federal interests.

Basis of concern: As noted in 1.6.1.2 on page 8 of the report in the report, the Administration has not supported funding of any new phases of currently authorized shore protection projects beyond the “ongoing phase . . . or to honor previous contractual agreements”. Moreover, under the current ongoing nourishment period for the project, the sponsor is presumably obligated to operate, maintain, repair, replace, and rehabilitate the project following the completion of construction and all nourishment cycles contemplated under existing agreement.

Significance of concern: High, as it affects the ability to support the recommended plan.

Action needed to resolve concern: The report needs to be revised to reconcile the conflict between its recommendation and current limitations imposed by Administration budget policy as well as the sponsor’s current OMRR&R obligations as well as its obligations under state law.

Local Sponsor Response: The assumption that no further nourishment will occur is valid, as the County won’t be able to financially support a non-federal project, and FDEP cost sharing, subject to annual state-wide project rankings, is not guaranteed. The County has an obligation to support the federal project by providing the non-federal cost share and complying with the FDEP permit conditions; the County does not have an obligation to fund and construct nourishment projects absent federal funding and participation. The County did not construct any nourishment projects between 1971 and 1980 (i.e., between initial construction and the first nourishment project) or between 1980 and 1999 (i.e., between the first and second nourishment projects) when federal funding was unavailable. The County’s non-federal nourishment actions have been limited to small-scale emergency truck haul projects to protect public infrastructure when storm damage appeared imminent; the Future Without Project (FWOP) simulation in Beach-fx incorporates emergency nourishment, as such projects would likely occur without a federal SPP.

ASACW/HQUSACE Initial Assessment: Comment is resolved. Upon review of the project agreement, Corps Counsel has determined that the OMRR&R provision does not require continued nourishment of the project.

ASACW/HQUSACE Final Assessment: Comment is resolved.

4. Lack of adequate technical review documentation.

Concern & Basis of concern: Per ER 1165-2-209, App B, par j, the non-Federal interests “must certify the quality and technical accuracy of the feasibility study” by “documenting the quality control, quality assurance, and technical reviews that were conducted... In addition, the study must meet the requirements for independent peer review”. The only certification included with the submittal was a technical review certification on a May 2007 version of the report. In addition to the problem of the certification not being for the current report, that certification also only asserts that staff members from Taylor Engineering not directly involved in the preparation of the document reviewed the report and all significant issues were resolved. However, no supporting documentation as to what these comments were and how they were resolved were included, nor does the documentation indicate what the relevant qualifications of the reviewers are. The documentation does not meet the standards employed by the Corps for Agency Technical Review. Additionally, it does not appear that a Type I Independent External Peer Review (IEPR) was conducted, nor was information provided as to why a Type 1 IEPR exclusion would be warranted.

Significance of concern: High. Without adequate documentation the Review Team is unable to attest to or support the technical quality of the report (including cost).

Action needed to resolve concern: Sponsor should include full documentation of peer review of the current report, including a) relevant qualifications of reviewers, b) individual comments and concerns raised by the review and how they were resolved, and c) documentation of Type 1 IEPR, OR documentation to support an exclusion from such a review.

Local Sponsor Response: Cliff Truitt and Jerry Scarborough, highly qualified Taylor Engineering employees, are conducting an internal technical review (ITR); their qualifications are appended to this document. The revised report will include documentation of the ITR process.

We understand Type I IEPR is only mandatory if any of the following are true:

- a) Significant threat to human life. The decision document phase is the initial concept design phase of a project. Therefore, when life safety issues exist, a Type I IEPR that includes a Safety Assurance Review is required;
- b) Where the estimated total cost of the project, including mitigation costs, is greater than \$200 million based on a reasonable estimate at the end of the reconnaissance phase. If a project has a cost estimate of less than \$200 million at the end of the reconnaissance phase, but the estimated costs subsequently increase to more than \$200 million, a determination will be made by HQUSACE whether a Type I IEPR is required;
- c) Where the Governor of an affected State requests a peer review by independent experts; or

- d) Where the DCW or the Chief of Engineers determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

The above criteria are not true for the NED Plan discussed in the original report; thus, an IEPR is not required.

ASACW/HQUSACE Initial Assessment: Comment is unresolved. EC 1165-2-214 states that selection of technical reviewers will be based on “expertise, experience, and skills, including specialists from multiple disciplines as necessary to ensure comprehensive review”. For coastal storm risk management (CSRМ) projects, ATR teams generally include reviewers with expertise in plan formulation, economics, environmental compliance, geotechnical engineering, coastal engineering, cost engineering, and real estate. Based on the resumes provided, it does not appear that a complete technical review team has been developed to cover all relevant disciplines. Additional reviewers would likely need to be utilized to ensure a comprehensive technical review.

The review documentation to be provided should include a discussion of why Type I IEPR should be waived. The documentation should include specific rationale on why the study does not meet any of the mandatory triggers listed above in the comment response. Note that a Type I IEPR waiver is not allowable if the project includes an EIS. At a minimum, a Type II IEPR, which includes a Safety Assurance Review (SAR), will be required for future implementation documents. Corps policy directs that an SAR be conducted for any project involving public safety.

The report and/or the submittal of the report must articulate the steps taken to ensure a comprehensive technical review was conducted for the report.

Local Sponsor Response: Sub-Appendix H-2 includes documentation of the technical review. The appendix includes the review comments — provided by the specialists in plan formulation, economics, environmental compliance, geotechnical engineering, coastal engineering, cost engineering, and real estate — and Taylor Engineering’s responses to the comments. Additionally, the Sponsor provides the following summary of their Peer Review effort:

Independent Technical Review

Per ER 1165-2-209, App B, par j, the non-Federal interests “must certify the quality and technical accuracy of the feasibility study...by documenting the quality control, quality assurance, and technical reviews that were conducted for all information presented in the feasibility study.” Accordingly, Sub-Appendix H-2 includes documentation of the independent technical review conducted by specialists in plan formulation, economics, environmental compliance, geotechnical engineering, coastal engineering, cost engineering, and real estate. As documented in Sub-Appendix H-2, specialists included

independent staff members from Taylor Engineering not involved in the study as well as experts external to Taylor Engineering. The peer review documentation includes the original review comments from the specialists and Taylor Engineering's responses to the comments.

Independent External Peer Review (IEPR)

In addition to the technical review for quality control and quality assurance, the study must meet the requirements for peer review. St. Lucie County understands a Type II IEPR, which includes a Safety Assurance Review (SAR), will be required for future implementation documents but not for Federal approval of this Section 203 feasibility study. However, a Type I IEPR is not required for this study. As discussed below, the proposed project does not meet any of the four mandatory triggers for a Type I IEPR:

(a) Significant threat to human life. The decision document phase is the initial concept design phase of a project. Therefore, when life safety issues exist, a Type I IEPR that includes a Safety Assurance Review is required;

Discussion: The proposed project includes beach nourishment and construction of shoreline stabilization structures for coastal storm risk management. The project does not pose a significant threat to human life. Thus, a Type I IEPR is not required. As mentioned, St. Lucie County understands a Type II IEPR, which includes a Safety Assurance Review (SAR), will be required for future implementation documents but not for Federal approval of this Section 203 feasibility study.

(b) Where the estimated total cost of the project, including mitigation costs, is greater than \$200 million based on a reasonable estimate at the end of the reconnaissance phase. If a project has a cost estimate of less than \$200 million at the end of the reconnaissance phase, but the estimated costs subsequently increase to more than \$200 million, a determination will be made by HQUSACE whether a Type I IEPR is required;

Discussion: The Cost Engineering Appendix documents a total 50-year project cost of \$131,066,611, well below the \$200 million threshold. Thus, a Type I IEPR is not required.

(c) Where the Governor of an affected State requests a peer review by independent experts; or

Discussion: The Governor of Florida has not requested an independent peer review; thus, a Type I IEPR is not required. The Florida Department of Environmental Protection (FDEP) has reviewed the proposed project and has approved St. Lucie County's scope of work (for state cost sharing purposes) for preparation of this Section 203 feasibility study. The proposed project, similar to other projects that have been approved by FDEP and constructed by local sponsors, is a typical solution to address the issues at hand. Thus, the Governor has not requested a peer review.

(d) Where the DCW or the Chief of Engineers determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

Discussion: St. Lucie County has held numerous public meetings to inform and solicit feedback from the public and has made the draft report available for public review and comment. There has not been a public dispute over either the size,

nature, or effects of the project or the economic or environmental costs or benefits of the project. Thus, a Type I IEPR is not required.

Based on the above discussion, this study qualifies for a Type I IEPR waiver. Of note, a Type I IEPR waiver is not allowable if the project includes an EIS; however, the proposed project does not include an EIS.

ASACW/HQUSACE Final Assessment: Comment is resolved.

5. Study authority.

Concern. Page i. of the executive summary and part 1.2 on page 1 of the draft GRR do not include a complete explanation of the statutory authority which support the study or the plan recommendations. The study was prepared under the authority of Section 203 of WRDA 1986, as amended (33 U.S.C. 2231), but this is not expressly stated.

Basis of concern: ER 1105-2-100, Appendix G; Exhibit G-1, para. 1 (“General Requirements for . . . Feasibility Phases . . . Study Conduct. Studies conducted in accordance with all applicable laws and policies.”); Exhibit G-1, para. 5 (“Legal and institutional problems to project implementation are to be identified, and a plan to resolve them is to be presented”); para. G-6.h.(1)(b) (“Document compliance with applicable statutes and policies”) Exhibit G-4 (“Include the full text of the study resolution(s) or other authority”); & G-5 (“Include the full text of the study resolution(s) or other authority”); G-7 (“Include the full text principle resolution(s) or other authority.”).

Significance of concern: Low.

Action needed to resolve concern. The report needs to be revised to clearly cite and explain the use of Section 203 as the authority for the study and the recommended plan.

Local Sponsor Response: The revised report includes the following sentence to the Study Purpose and Scope paragraph on page i of the Executive Summary and Section 1.3 on page 1 of the report: “St. Lucie County prepared this study under the authority of Section 203 of WRDA 1986, as amended (33 U.S.C. 2231). The NED Plan includes construction of shoreline stabilization structures, which is anticipated to greatly improve project performance by doubling the nourishment interval from two years to four years, together with beach nourishment at a reduced frequency than currently authorized, which results in significant cost savings. The NED Plan represents a new modified project, which falls under the authority of Section 203.”

ASACW/HQUSACE Initial Assessment: Comment is resolved.

ASACW/HQUSACE Final Assessment: Comment is resolved.

6. Credit for Federal share of study.

Concern. The report does not appear to acknowledge or address the impact on the sponsor’s cost share of Section 203(d) of WRDA 1986, which authorizes a sponsor to be credited toward its required cost share for construction in an amount equal to the portion

of the cost of the study that would have been the responsibility of the United States if the study were developed by the Corps.

Basis of concern. ER 1165-2-208 para. 5.c. (“Section 203 provides that if a project for which a feasibility study developed by non-Federal interests is authorized after the Secretary submits the report to the Congress, the Secretary shall credit toward the non-Federal share of the cost of construction of such project an amount equal to the portion of the cost of developing the study that otherwise would have been the responsibility of the United States if such study had been developed by the Secretary. The costs of the non-Federal interests are subject to audit to determine allowability, allocability, and reasonableness. Under the Corps of Engineers SMART Planning policy and the “3x3x3 rule” established by Planning Bulletin 2014-01, in general, \$3 million is the maximum total cost of feasibility studies undertaken by the Corps of Engineers. Therefore, for a feasibility study undertaken by a non-Federal interest, credit may not exceed \$1.5 million, which would have been the maximum Federal cost for a feasibility study, unless a greater amount for credit is specifically authorized in law.”).

Significance of concern: Medium, as it could affect the cost sharing for the project.

Action needed to resolve concern. The report should be revised to address the impact of any credit granted for the sponsor’s costs in preparing the GRR toward its required share of the project upon authorization.

Local Sponsor Response: Table E.1 in the Executive Summary of the revised report includes the following footnote that acknowledges the County’s potential credit:

“¹The local sponsor is potentially eligible for a credit, equal to the sponsor’s cost to conduct this study, towards the non-Federal share of construction costs; this potential credit does not affect the calculated cost sharing percentages.”

ASACW/HQUSACE Initial Assessment: Comment is resolved.

ASACW/HQUSACE Final Assessment: Comment is resolved.

7. Sponsor letter of intent.

Concern. The report does not appear to include a current sponsor letter affirming its support for the recommended plan.

Basis of concern: A written letter of intent is also required from the sponsor to ensure that sufficient local support for the project will enable it to be implemented, as required by ER 1105-2-100, Appendix G, at G-9 (“The non-Federal sponsor’s acceptance of, or desired departures from, the terms of the applicable model PCA must be presented, including: 1) applicable cost sharing and financial policies; 2) policies regarding provision and valuation of non-Federal lands, easements, rights-of-way, and disposal areas provided by non-Federal sponsors; 3) policies governing non-Federal project construction, and 4) other provisions required by law and policy for new start construction projects.”).

Significance of concern: Low to medium.

Action needed to resolve concern: The Sponsor should provide a current letter of intent and add a reference to it in the report as well as include it as a referenced attachment.

Local Sponsor Response: Appendix J of the revised report will include the letter of intent.

ASACW/HQUSACE Initial Assessment: Comment is resolved, pending back-check of the revised report.

Local Sponsor Response: Sub-Appendix H-1 includes the letter of intent.

ASACW/HQUSACE Final Assessment: Comment is resolved.

8. Sponsor statement of financial capability.

Concern: The report does not appear to include a sponsor self-certification of financial capability.

Basis of concern: See CECW-PC memorandum dated 12 June 2007, Lean Six Sigma (L6S) Actions to Improve the Project Cooperation Agreement Process – Non-Federal Sponsor's Self-Certification of Financial Capability (eliminating USACE financial analyses of sponsors) ("a non-Federal sponsor will sign the Non-Federal Sponsor's Self-Certification of Financial Capability For Decision Documents (enclosure 3) for such purpose.").

Significance of concern: Low to medium.

Action needed to resolve concern: A sponsor financial self-certification should be provided and cited in the report as a referenced attachment.

Local Sponsor Response: Appendix K of the revised report will include the financial self-certification.

ASACW/HQUSACE Initial Assessment: Comment is resolved, pending back-check of the revised report.

Local Sponsor Response: Sub-Appendix H-1 includes the financial self-certification.

ASACW/HQUSACE Final Assessment: Comment is resolved.

9. Executive Order 11988.

Concern: The main report has a single paragraph pertaining to Executive Order (EO) 11988. ER 1165-2-26 highlights 8 steps that must be followed and properly documented to ensure project decisions are in compliance of EO 11988. Of particular concern, the

early screening of nonstructural measures demonstrating that no alternatives to a project in the floodplain exist.

Basis of concern: Reference ER 1165-2-26.

Significance of concern: Significant. It is unclear if formulation and public involvement are sufficient to satisfy EO 11988 requirements.

Action needed to resolve concern: Conduct and follow the 8-steps as outlined in ER 1165-2-26.

Local Sponsor Response: We request clarification regarding specific action/documentation needed to resolve the concern. The content and organization of the report and plan formulation are very similar to other recent CSRM feasibility studies completed by USACE and satisfy the 8 steps outlined in ER 1165-2-26. As mentioned in the Executive Summary, St. Lucie County has held numerous public meetings regarding the study.

ASACW/HQUSACE Initial Assessment: Comment is unresolved. A meeting with the sponsor can be held if further clarity of the guidance is needed. Typically a summary section is included in decision documents which outlines the required 8-steps and describes where and how the steps were followed in the report. The greatest concern is that nonstructural alternatives did not appear to be given appropriate consideration in lieu of a structural alternative. For example, Table 3.1 appears to screen out most, if not all, of the nonstructural alternatives based on local objectives including recreation and protection of tourism-based economy. Also, it does not appear that nonstructural alternatives were looked at as standalone given the stated planning objective, "Objective 1: Maintain the functionality of the currently authorized SPP, but increase the nourishment interval from two years to a minimum of four years by implementing shore stabilization structures." The intent of the executive order is to consider, assess, and communicate alternatives to construction in floodplains. Based on the above, it is unclear that appropriate consideration has been done.

Related to the stated concerns about alternatives screening (also covered in comment B-3 below), it has been determined that in 2014 the St. Lucie County and the city of Fort Pierce submitted a proposal to the Corps of Engineers which was included in the Section 7001 (of the Water Resources Reform and Development Act of 2014) Report to Congress. The proposal was for a project to include inlet sand bypassing and shoreline stabilization structures. The proposal included a letter of support from the Florida Department of Environmental Protection, dated December 2, 2014, which generally stated that implementation of adequate sand bypassing would alleviate the need for erosion control structures and that the project would rank highly on the State's annual funding priorities. This proposal (alternative) is not discussed in the current report. Therefore it is not clear why this is no longer being considered. The current report must present a complete explanation of the plan formulation process: full suite of alternatives (structural and nonstructural) considered to address the water resource problem(s),

description of screening criteria used for evaluation and rationale for rejecting any alternative. If it is too speculative whether bypassing would be conducted and therefore shouldn't be part of the FWOP (per the response to comment B-3 below) condition; then bypassing should at least be a measure considered in the formulation process. Bypassing appears to be a reasonable and practicable alternative, and by NEPA standards and 404(b)(1) guidelines standards (in addition to plan formulation standards), the report should have a valid reason to eliminate it. It is necessary to explain and justify what appears to be a discrepancy between the current project recommendation and the 2014 proposal.

Local Sponsor Response: Section 3.11 of the main report addresses Compliance with Executive Order (EO) 11988. We made substantial revisions to the plan formulation discussion throughout Chapter 3, including a completely revised Table 3.1 describing the preliminary screening process. The screening process includes the sediment impoundment basin as an alternative but discusses the reasons why it cannot be considered as part of the NED Plan at this time.

ASACW/HQUSACE Final Assessment: The concern remains unresolved at this time – see response to comment B1. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed prior to implementation.

B PLAN FORMULATION

1. Future Without Project Condition.

Concern: The assumptions underlying the Future Without Project (FWOP) condition are unclear and the assessment of environmental conditions within the FWOP are inadequate and inappropriate. In addition to other comments that the FWOP does not consider the NFS conducting required OMRR&R or State of Florida plans/requirements for sand bypassing at the inlet, the report also makes multiple claims throughout the document that landowners will resort to armoring in the FWOP, leading to additional impacts. However, pg. 43 of the report states that “it was assumed that no local armoring would occur” in the FWOP and for Beach-fx modeling. For most of Chapter 2 the FWOP/no-action alternative is described as “not expected to differ from Existing Conditions.” This inaccurate assumption does not take into consideration any reasonably foreseeable actions that are expected to occur through 2070 including trends in coastal storms (increasing frequency and/or intensity), non-Federal OMRR&R, bypassing/inlet management, or ongoing threats to or recovery/restoration of environmental resources, etc.

Basis of concern: The FWOP condition/no-action alternative is critical both in terms of compliance with the P&Gs and a legally sufficient NEPA document, as the alternative that other alternative plans are compared against. Without a clear and accurate picture of the FWOP, then the benefits and environmental consequences/EQ effects of the proposed plan cannot be ascertained. See 2-4b. (3) and (4) of ER 1105-2-100; Section 3.4.7.(c)(1)-(6) of the P&G; also Question 3 of CEQ's 40 most asked questions of NEPA.

Significance of concern: High, as it affects plan justification.

Action needed to resolve concern: Ensure assumptions of the FWOP are clear up front in the document and consistent throughout the report. Revise discussions of the FWOP/no-action alternative in Chapter 2 considering the most-likely condition of each resource in 2070, considering any non-Federal actions that may affect the status (recovering, declining, and stable) of that environmental resource.

Local Sponsor Response: The revised report corrects the inconsistency on page 43. As noted in the same paragraph on page 43, the Beach-fx FWOP simulations included emergency armoring for eligible properties; thus, the environmental reporting in Chapter 2 is correct. As mentioned in the above response to General Comment 3, the assumption that no further nourishment will occur is valid, as the County won't be able to financially support a non-federal project and does not have an obligation to do so. The County has an obligation to support the federal project by providing the non-federal cost share and complying with the FDEP permit conditions; the County does not have an obligation to fund and construct nourishment projects absent federal funding and participation. The County did not conduct any nourishment projects between 1971 and 1980 (i.e., between initial construction and the first nourishment project) or between 1980 and 1999 (i.e., between the first and second nourishment projects) when federal funding was unavailable. The FWOP analysis cannot include bypassing from the sediment deposition basin, as the basin has not been constructed and proven effective. Once the basin is constructed and proven effective, a future report can address and incorporate any resulting project changes. While the State of Florida specifies sand bypassing goals for Ft. Pierce Inlet, the Federal government is responsible for mitigating the adverse effects of the Federal Ft. Pierce Inlet; the NED plan discussed in the report, which is based on adequate and appropriate assessments and assumptions, satisfies the Federal government's responsibility and the State's bypassing objectives.

ASACW/HQUSACE Initial Assessment: Comment is resolved pending review of revisions made to the report. It is recommended that the report also indicate why sand bypassing was screened as a measure for the reasons indicated above.

Local Sponsor Response: As mentioned in the response to the previous comment, we made substantial revisions to the plan formulation discussion throughout Chapter 3, including a completely revised Table 3.1 describing the preliminary screening process. The screening process includes the sediment impoundment basin as an alternative but discusses the reasons why it cannot be considered as part of the NED Plan at this time.

ASACW/HQUSACE Final Assessment: The Review Team cannot resolve this comment. Should the proposal be authorized by Congress, it is recommended that any post-authorization analysis of the plan consider the smaller sediment bypassing basin as part of FWOP condition, and carry forward the full sediment bypassing basin as a viable measure for further analysis and confirmation/identification of the NED plan. Information provided by the non-federal interest continues to demonstrate that the

smaller sediment bypassing basin is reasonably likely to occur within the 50 year period of analysis and should therefore be considered as part of the FWOP per paragraph 2-4.b. of ER 1105-2-100. The non-federal interest contends that bypassing is not a valid measure based on uncertainty over its effectiveness until the pilot is in place and proven effective. However, sand bypassing has been effective as part of an inlet management plan in other nearby inlets along the Atlantic coast of Florida (Jupiter Inlet, Sebastian Inlet, and Boca Raton Inlet) by at least partially mitigating the effects of the inlet on longshore transport, thereby reducing the total cubic yards of sand needed from offshore or upland sources for renourishment events or helping extend the time period between larger renourishment events. Section 161.142 of Florida Statutes supports bypassing for similar reasons and states, "Accordingly, the Legislature finds it is in the public interest to replicate the natural drift of sand which is interrupted or altered by inlets to be replaced and for each level of government to undertake all reasonable efforts to maximize inlet sand bypassing to ensure that beach-quality sand is placed on adjacent eroding beaches. Such activities cannot make up for the historical sand deficits caused by inlets but shall be designed to balance the sediment budget of the inlet and adjacent beaches and extend the life of proximate beach-restoration projects so that periodic nourishment is needed less frequently." Using principles of risk and uncertainty, it still appears that bypassing has been prematurely eliminated as a viable measure as a part of a complete plan. This lends doubt as to whether the non-federal interest's recommended plan is truly the NED plan.

2. Future Without Project Condition.

Concern: The entire analysis is predicated on the assumption that the previously authorized project stops at 50-years and the non-Federal sponsor and other non-Federal entities have neither continued responsibility nor incentive for maintaining the authorized dune and berm. Section 3.4 of the Economic Appendix states, "To simulate the most-likely without project scenario, this study assumed that the existing artificial berm will completely erode in 10 years." This assumption is incorrect, as the project remains an authorized Federal project even after the period of Federal participation in nourishment ends. The assumption that, in the absence of Federal participation in continued nourishment, erosion would be allowed to continue and non-Federal entities (city, county, state) would make no effort to perform further nourishment seems unlikely as it would appear to be ignoring the threat to public and private infrastructure as well as impacts on tourism revenue. It also seems at odds with Florida laws including the Local Government Comprehensive Planning Act of 1975 and the 1985 Growth Management Act, as described on page 55 of the report.

Basis of concern: ER 1165-2-130.

Significance of concern: Significant. Addressing this policy concern will have a major impact on whether a plan can be recommended for authorization.

Action needed to resolve concern: Update the analysis to reflect a realistic level of effort to maintain the protection provided by the project as the Future Without Project Condition and revise the plan formulation and recommended plan accordingly.

Local Sponsor Response: As mentioned in the above response to General Comment 3, the assumption that no further nourishment will occur is valid, as the County won't be able to financially support a non- federal project and does not have an obligation to do so. The County has an obligation to support the federal project by providing the non-federal cost share and complying with the FDEP permit conditions; the County does not have an obligation to fund and construct nourishment projects absent federal funding and participation. The County did not conduct any nourishment projects between 1971 and 1980 (i.e., between initial construction and the first nourishment project) or between 1980 and 1999 (i.e., between the first and second nourishment projects) when federal funding was unavailable. The County's non-federal nourishment actions have been limited to small-scale emergency truck haul projects to protect public infrastructure when storm damage appeared imminent. The Beach-fx FWOP simulations included such emergency nourishments.

The reference to the fill eroding in 10 years is an outdated statement that the original report failed to correct. The FWOP simulation actually assumed the fill would erode in 20 years; the revised report will update the outdated/inconsistent language that referenced "10 years". This assumption is valid based on prior project performance. As documented in Table 3.8 of Appendix A, several minor channel maintenance dredging events occurred during the 1980's and early 1990's following the 1980 federal nourishment project. These projects failed to prevent the fill from eroding away; by the early to mid- 1990's, severely eroded conditions characterized the entire study area, prompting the County to conduct emergency truck haul projects and other emergency measures while awaiting renewal of federal participation.

ASACW/HQUSACE Initial Assessment: Comment is resolved. See response to comment A-3.

ASACW/HQUSACE Final Assessment: Comment is resolved.

3. Planning objectives.

Concern: Plan formulation and selection is fundamentally flawed, as it was based off of one planning objective that is too specific to allow for a meaningful evaluation in terms of the P&G, an objective NEPA analysis, nor a Section 404(b)(1) guidelines alternatives analysis (40 CFR 230.11(a)). Further, the planning process for this report seems to be inappropriately skewed towards erosion abatement and maintaining a recreational beach/supporting tourism, whereas USACE's mission is focused on Coastal Storm Risk Management, with recreation being incidental (see 3-4 and 3-4 b.(2) of ER 1105-2-100). Page 47 of the report lists the planning objective as "Maintain the functionality of the currently authorized SPP, but increase the nourishment interval from two years to a minimum of four years by implementing shore stabilization structures." Therefore, any measure or alternative that doesn't include shore stabilization structures and a minimum 4 year nourishment interval would not meet the objective. This pre-maturely eliminated multiple feasible and reasonable measures from the plan formulation process including all non- structural measures (elevation, acquisition, flood proofing), dunes and

vegetation, and sand covered soft structures. The formulation is also flawed in that it did not consider sand bypassing as an alternative to hard structures in the hot spot just south of the jetty, which the report acknowledges as something the State of Florida has recommended; or if there is a need for measures to address other sources of coastal storm damage such as flooding/storm surge on the back side of the barrier island.

Basis for concern: See Appendix B 2.a. of ER 1165-2-209 which requires that problems and opportunities “should not prescribe a particular alternative, and should facilitate formulating all reasonable alternative that would potentially satisfy the need for a project.” Also see Question 4c of CEQ’s 40 most asked questions of NEPA, which states “the statement must be objectively prepared and not slanted to support the choice of the agency’s preferred alternative over the other reasonable and feasible alternatives.”

Significance of concern: High, as it affects plan formulation and selection, as well as NEPA and CWA Section 404 compliance.

Action needed to resolve concern: Revise the planning objectives for the study to address the problem(s) and opportunity(ies) related to Coastal Storm Risk Management within the study area. Conduct an objective formulation process inclusive of non-structural and structural measures, combining measures as needed to develop complete, efficient, effective, and acceptable alternative plans that can be objectively evaluated and compared consistent with the P&G, NEPA requirements, and Section 404(b)(1) guidelines.

Local Sponsor Response: The recommended plan is based on Beach-fx results, which pertain to coastal storm risk management (CSRM), not recreation; recreation benefits were calculated separately after identification of the NED Plan. The analysis did not pre-determine a nourishment interval; as discussed in Appendix A, results of numerical modeling indicated structures could retain fill for 4 years, at which point the fill was completely eroded away in certain areas. The study only reports the Beach-fx results of structures with a 4-year nourishment interval, as this proved the optimum scenario. The Beach-fx model iterations included results with 2-year and 3-year nourishment intervals for scenarios with and without structures; however, the benefits and costs proved less favorable. The early screening of non- structural solutions is valid and consistent with similar recently completed USACE CSRM feasibility studies. The revised report will include additional explanation/discussion as necessary to clarify the plan formulation and screening process. The report cannot include bypassing from the sediment deposition basin, as the basin has not been constructed and proven effective. Additionally, the basin’s maximum estimated annual contribution to bypassing is less than the documented annual erosion rate (and less than FDEP’s recommended annual bypassing rate); thus, structures will be required regardless to meet the Beach-fx results. An effective basin could help extend the nourishment interval beyond 4 years and greatly improve the BCR, thus a future study should consider the effects of the sediment impoundment basin after construction and performance monitoring.

ASACW/HQUSACE Initial Assessment: Comment is unresolved. The response provided did not address the crux of the comment that the one planning objective is too narrowly defined to allow for an objective plan formulation process, objective NEPA analysis, or objective 404(b) (1) guidelines analysis. We would be willing to meet with the sponsor to provide further assistance on this matter. As a reference, the Planning Manual (IWR report 96-R-21) provides a good discussion on planning objectives on pages 79-95. In particular, see page 86 – “Though specific, an objective should not specify an absolute target as the only level of the desired result;” and “objectives should not include solutions, i.e., neither individual management measures, alternative plans, nor programs... Objectives should not specify the measures or plans that can be used to meet the objective.”

Local Sponsor Response: As mentioned, we made substantial revisions to the plan formulation discussion throughout Chapter 3. We added a new Table 3.2 containing additional Beach-fx results for the incremental analysis of beach nourishment and revised the Section 3.8 discussion. Section 3.5 of the Economics Appendix also includes a revised discussion of the screening process that identified the Recommended Plan.

ASACW/HQUSACE Final Assessment: The comment remains unresolved and the concern in the initial assessment still applies. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be prior to implementation.

4. FDEP and St. Lucie County partnership implementation actions.

Concern: The implementation actions listed on Page 54 list “Evaluate possible alternatives to facilitate bypassing of sand from the shoreline north of the inlet to the down drift beaches.” Later in the report on pages 101- 102, and Page 7, references that the non- Federal sponsor provides local sponsorship to the State of Florida for implementing the State’s Fort Pierce Inlet Management Plan. In 2004, Taylor Engineering completed a study for the non-Federal sponsor to identify an annual bypassing operation that could either meet the state adopted bypassing requirements or, at a minimum, supplement the Corps SPP just south of Fort Pierce Inlet. “The study identified two alternatives – north jetty sand tightening with mobile sand bypassing plant and north jetty sand tightening with nearshore dredging – reasonable attractive alternatives to bypass sand across the inlet.” In addition, page 101 continues to state that the non- Federal sponsor has “recently” (i.e. 2010) completed a feasibility study of a third alternative – construction of a sediment basin in the inlet. Finally, on page 107 – Coastal Zone Management Act of 1972, notes “that the current State of Florida permit for shore protection project requires the local sponsor to provide the State with a sediment bypassing plan. “To that end, the State of Florida and the local sponsor are examining the potential for a sediment deposition basin within Fort Pierce Inlet.”

Basis of concern: The report is silent on the current (i.e. 2017) status of the State’s Fort Pierce Inlet Management Plan for including a sediment deposition basin in the inlet and

what assumptions with regard to the FWOP and FWP conditions were made during this study of future improvements to the Fort Pierce shore protection project.

Significance of concern: High. Could impact the recommended plan and accurately estimate the project costs and benefits. It appears that the last report of bypassing report was 2010.

Action needed to resolve concern: It is highly recommended that the report provide more complete discussion of the inlet management plan, an update on the status of dredging a deposition basin in the inlet, and what effects (if any) the implementation of this features would have on the recommended plan.

Local Sponsor Response: As mentioned in our response to the previous comment, we cannot include bypassing from the sediment deposition basin, as the basin has not been constructed and proven effective, nor has construction funding been appropriated. The past recommendation of north jetty sand tightening and a mobile bypassing plant did not have sufficient support from the local community for implementation. The revised report will provide additional explanation to clarify these points.

ASACW/HQUSACE Initial Assessment: Comment is resolved pending review of revised report.

Local Sponsor Response: Chapter 3 includes a more thorough accounting of the sediment deposition basin.

ASACW/HQUSACE Final Assessment: This concern remains unresolved– see assessment for Comment B1. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed prior to implementation.

5. Screening of Nonstructural Plans.

Concern: The plan formulation screens out all nonstructural measures, most often using local objectives as a rationale. The purpose of a Federal project is to reasonably maximize net National Economic Development (NED) benefits. As written, the report does not provide sufficient detail for screening nonstructural measures from Federal consideration.

Basis of concern: ER 1105-2-100 Paragraph 2-3.c.(5); Paragraph 2-3d.(2).

Significance of concern: Significant. Could have an impact on plan recommendation.

Action needed to resolve concern: Provide more sufficient and appropriate rationale for screening of nonstructural measures or fully analyze those nonstructural measures. Also, please note the overlap with the comment on Executive Order 11988.

Local Sponsor Response: As mentioned, the early screening of non-structural solutions is valid and consistent with similar recently completed USACE CSRMs

feasibility studies. The revised report will include additional explanation/discussion as necessary to clarify the screening process.

ASACW/HQUSACE Initial Assessment: Comment is unresolved. More explanation discussion is needed to resolve the concern. As noted in response to comment A-9, it appears that the nonstructural plans were not fully considered and screened based on local objectives of recreation and tourism.

Local Sponsor Response: The previously mentioned revisions to Chapter 3 (particularly revisions to Section 3.6 and Table 3.1) address the above comment regarding screening of non-structural solutions.

ASACW/HQUSACE Final Assessment: The comment remains unresolved. Sufficient information is not included in the report to screen out all of the nonstructural measures and make a determination if the recommended plan is truly the NED Plan. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed prior to implementation.

C ENVIRONMENTAL

1. Environmental Consequences:

Concern: The environmental consequences chapter of the report is insufficient to comply with NEPA or CEQ evaluation procedures of the P&G in that it does not consider any environmental impacts from the placement of the T-groins and breakwater and only assesses the recommended plan against the no-action alternative. Even if these hard structures are proposed to be completely within the footprint of the beach fill design template, they will become exposed over time between nourishment intervals and will lead to impacts not previously considered in other NEPA documents/feasibility reports. These structures can obstruct access to nesting beaches for sea turtles, cause adverse visual/aesthetic impacts, interfere with recreation potentially creating a safety hazard for swimmers, and completely eliminate intertidal and subtidal habitat (depending on location of MHW) within their footprint. While mitigation was conducted for hard bottom impacts of the original design template, it is not clear if these hard, permanent structures would lead to new impacts not considered with just beach nourishment (in that hard bottom and other submerged resources could recolonize the area between nourishment events, but will not be able to do so within the footprint of the T-groins or breakwater).

Basis of concern: Appropriate assessment of environmental consequences per 40 CFR 1502.16 "the environmental effects of alternatives including the proposed action." See Question 7 in CEQ's 40 most asked questions of NEPA; Section 3.3.5(h) of the P&G; Sections 3.4.10 and 3.4.11 of the P&G.

Significance of concern: High, as it affects environmental acceptability of the recommended plan.

Action needed to resolve concern: Re-write the environmental consequences chapter to assess all effects of the recommended plan and the final array of alternatives consistent

with the requirements in NEPA 40 CFR 1502.16 and CEQ evaluation procedures within 3.4.11 of the P&G including the duration, location, and magnitude of those effects. Any conclusions in this chapter including whether compensatory mitigation is required should be based on all of the effects of a given alternative, paying particular attention to those impacts not previously considered for the existing beach fill template with a 2 year nourishment cycle using Capron Shoal as a borrow source.

Local Sponsor Response: The revised report includes appropriate edits in Chapter 4 to address the above review comment.

ASACW/HQUSACE Initial Assessment: Comment is resolved pending review of revisions made to the report.

Local Sponsor Response: We revised Chapter 4 to include additional information.

ASACW/HQUSACE Final Assessment: The Review Team cannot resolve this comment as satisfactory consideration to environmental consequences has not been conducted and documented. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed and the associated environmental compliance activities must be completed prior to implementation of the project.

2 Agency Consultation.

Concern: Note that updated consultation will need to be completed to comply with several environmental requirements including Section 7 of the Endangered Species Act, Fish and Wildlife Coordination Act, Essential Fish Habitat amendments to the Magnuson Stevens Fisheries Conservation and Management Act, Section 401 water quality certification, Coastal Zone Management Act, and other Federal environmental laws. The report describes how consultation/compliance was initiated for some of these requirements in the 2007-2008 timeframe. However, changed circumstances over the last 10 years including listing of new species and updated evaluation procedures will require re-initiation of consultation. It also appears that analysis of impacts to fish and wildlife including a determination that compensatory mitigation is not needed (EFH, FWCA), CZM consistency, and the proposed use of programmatic BiOps (ESA) did not consider impacts from T-groin/breakwater construction. Environmental compliance needs to cover all impacts associated with the recommended plan to be legally and policy compliant.

Basis of concern: Legal and policy compliance with environmental laws and regulations. Environmental compliance requirements will need to be satisfied prior to USACE endorsement of any final report.

Significance of concern: Medium/High, as it affects environmental acceptability of the plan.

Action needed to resolve concern: See ER 1165-2-209, Appendix B 2.h.(1). It is recommended that the NFS enter into a MOA (per Section 1126 of WRDA 2016) with the local USACE district office to formally initiate consultation under these requirements as they are inherently governmental and compliance cannot be satisfied by a non-Federal entity. If the NFS elects to not pursue a MOA for environmental compliance, then the NFS needs to submit the necessary information to initiate these consultations (draft environmental compliance documents such as a Biological Assessment inclusive of T-groin and breakwater impacts) with a Section 203 feasibility report.

Local Sponsor Response: St. Lucie County intends to enter into a MOA with USACE Jacksonville District for assistance with agency consultation.

ASACW/HQUSACE Initial Assessment: No further action is required. Upon further review by Army Counsel, it was determined that section 1126 does not provide authority for the Army to enter into an MOA to accept non-Federal funds to complete inherently governmental actions, such as agency consultation. Further, since this is a non-Federal study conducted pursuant to section 203, there is no requirement for the non-Federal interest to perform these functions. However, we encourage the non-Federal interest to provide as much information regarding environmental considerations as possible to further future environmental compliance actions should this project be authorized by Congress.

ASACW/HQUSACE Final Assessment: The Review Team is unable to certify environmental acceptability of the proposed project, given that environmental compliance and consultations have not occurred on the entirety of the proposal. Since at this point the Section 203 Report is not a Federal Action, NEPA and other Federal environmental compliance has been determined not to be required at this time.

However, should the proposal be authorized by Congress, the proposal will become a Federal action subject to NEPA and other Federal environmental compliance. While the study includes references to multiple previous NEPA documents and environmental consultations, there appears to be multiple gaps in environmental compliance for the current proposal. Future NEPA and other environmental compliance may rely heavily on previous information and incorporate such information by reference, but updated compliance/consultation will likely be required as part of any post-authorization analysis for the following requirements:

- National Environmental Policy Act
- Endangered Species Act
- Fish and Wildlife Coordination Act
- Essential fish habitat consultation
- Marine Mammal Protection Act
- Clean Water Act (404 compliance and 401 certification)
- Coastal Zone Management Act

3 404(b)(1).

Concern: The Section 404(b)(1) analysis is insufficient to make a determination of

compliance with the guidelines. Appendix G provides no discussion of impacts associated with T-groin/breakwater placement and does not include an analysis of alternatives demonstrating that the selected plan is also the least environmentally damaging practicable alternative. Appendix G also provides no discussion of actions to minimize adverse effects consistent with 40 CFR 230.10(d) and Subpart H of the 404(b)(1) guidelines (40 CFR 230.70-230.77).

Basis of concern: 40 CFR 230.5(c) states “Examine practicable alternatives to the proposed discharge...or discharging into an alternative aquatic site with potentially less damaging consequences.” 40 CFR 230.10(a) “no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impacts on the aquatic ecosystem” 40 CFR 230.10(d) “no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem. Subpart H identifies such possible steps.”

Significance of concern: Medium/High, as it affects environmental acceptability of the plan.

Action needed to resolve concern: In the beginning of Appendix G, provide an analysis of the final array of alternatives’ impacts on the aquatic environment to make a determination whether the recommended plan is the least environmentally damaging in accordance with 40 CFR 230.10(a)-(d) prior to going into the factual determinations. Provide an adequate description of all practicable steps that have been taken to minimize potential adverse impacts on the aquatic ecosystem, consistent with 230.10(d) and Subpart H of the 404(b)(1) guidelines. Ensure that the 404(b)(1) guidelines compliance determination includes all impacts of each of the alternatives, inclusive of the permanent loss of waters of the U.S. associated with T-groin and breakwater construction.

Local Sponsor Response: The revised report includes the recommended edits to Appendix G.

ASACW/HQUSACE Initial Assessment: Comment is resolved pending review of revisions made to the report.

Local Sponsor Response: We added a significant amount of additional information to Appendix G and Chapter 4 of the main report.

ASACW/HQUSACE Final Assessment: Comment is unresolved based on the information provided. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed and the associated environmental compliance activities must be completed prior to implementation of the project.

4. Completeness of NEPA Documentation.

Concern: Some components of a complete NEPA document are missing from the report including a NEPA purpose and need statement (40 CFR 1502.13), a list of preparers (40 CFR 1502.17), and an adequate discussion of the built environment as part of the affected environment/existing conditions in Chapter 2. The discussion of the built environment only covers hurricane evacuation routes and does not cover existing buildings, land use, and other critical infrastructure (police/fire stations, hospitals, transportation corridors, water supply/treatment facilities, power plants/substations, etc.) that are critical components in assessing coastal storm risk. Further, this discussion is lacking socioeconomic data such as demographics, population, and environmental justice that are relevant to managing coastal storm risk for that population.

Basis of concern: A legally sufficient NEPA document will include all components required in the CEQ regulations (40 CFR 1500 et seq) and USACE NEPA implementing regulations at 33 CFR 230 & ER 200-2-2.

Significance of concern: Medium.

Action needed to resolve concern: Add a statement indicating the NEPA purpose and need for the study to Section 1.3 of the report. Add a list of preparers to the report. Develop Section 2.4 of the report to include a brief discussion of existing structures/land use including any critical infrastructure as well as a discussion on demographics within the study area.

Local Sponsor Response: The revised report includes the requested information in Section 1.3 and includes a new Section 2.4.1 as shown below to address land use and existing structures. Similar to other USACE feasibility studies (e.g., South St. Lucie and Flagler County), this report includes the socioeconomic data in Appendix C — Economics. However, to address the review comment, the revised report also includes this information in Section 2.4.4 as shown below. Appendix I of the revised report includes a list of preparers.

"2.4.1 Land Use and Structures

Existing Conditions

No structures (e.g., piers, docks) exist in the project area on the beach or in the nearshore. Three beachfront parks (Jetty Park, South Beach Park, and Kimberley Bergalis/Surfside Park) occur within the project area. The remainder of the upland along the project area is largely residential area with single family or multi-family residences and rental units. Several small commercial buildings and restaurants occur immediately south of Jetty Park at the north end of the project area. U.S. Hwy A1A runs parallel to the shoreline typically about 150 to 250 ft inland of the beach. No critical public structures (e.g., police or fire stations, hospitals, power substations, water supply or treatment facilities) exist within the project area.

Future Without-Project Conditions (No-Action Alternative)

Further beach erosion will threaten the land uses and structures along the beach.”

“2.4.4 Demographic Characteristics

According to the US Census Bureau, the 2010 population of St. Lucie County was 277,789 with a land area of 571.93 square miles. Over the past several years, the county has seen rapid population growth. Between 2000 and 2010, the county grew by approximately 44%. Since then, the population has grown by 7.5% to reach an estimated 298,563 in July 2015. The ethnic makeup of St. Lucie County is relatively homogeneous, with Caucasians (non-Hispanic) composing approximately 59.0% of the population. The largest minority groups are African American and Hispanic, which make up approximately 20.3% and 17.9% of the population. All other racial groups combined comprise about 2.8% of the total population. The median age for residents is 43.3 and those aged 60 years and over represent 27.4% of the population. Overall, St. Lucie County is largely an adult population with those aged 18 years and older at 77.7%.

Future Without-Project Conditions (No-Action Alternative)

The FWOP condition is not expected to differ from existing conditions.”

ASACW/HQUSACE Initial Assessment: Comment is resolved pending review of revisions made to the report.

Local Sponsor Response: The revised report includes the above additions. Chapter 7 includes the list of preparers.

ASACW/HQUSACE Final Assessment: Comment cannot be resolved with the information provided. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed and the associated environmental compliance activities must be completed prior to implementation of the project, including review by the public and State & Agencies.

D ECONOMICS

1. Depth Damage Functions.

Concern: The Report uses depth-damage functions for large buildings that were created specifically for this study. It is unclear from the analysis whether these damage curves have been peer reviewed.

Basis of concern: Appropriate site specific depth-damage functions being applied; see ER 1105-2-100 Paragraph E-24.f.(2)(f).

Significance of concern: Minor/Moderate.

Action needed to resolve concern: Provide adequate peer review documentation of the depth damage functions.

Local Sponsor Response: The revised report includes documentation of an ITR, which peer-reviewed the depth-damage functions.

ASACW/HQUSACE Initial Assessment: Comment will be resolved upon review of the additional information.

Local Sponsor Response: Sub-Appendix H-2 includes the technical review comments regarding the depth damage functions. The economics specialist provided review comments regarding the Economics Appendix and separate review comments regarding the Sub-Appendix C-2 Christopher P. Jones Draft White Paper – Large Building Flood Damage Functions.

ASACW/HQUSACE Final Assessment: Comment is resolved.

2. Interest During Construction.

Concern. It is unclear from the economic analysis if Interest During Construction (IDC) was included in the economic costs.

Basis of concern: IDC is an important economic cost that must be accounted for in plan selection and justification; ER 1105-2-100 Appendix D Para D-3.e. (11).

Significance of concern: Moderate/Significant. If alternative plans have significantly different construction schedules then this could impact plan selection. It will also impact the benefit-to-cost ratio.

Action needed to resolve concern: Update the economic analysis to appropriately include Interest During Construction (IDC).

Local Sponsor Response: St. Lucie County will ensure that the economic costs in the revised report include IDC. The County intends to request USACE Jacksonville District (via a MOA) or other independent personnel to review the cost calculations.

ASACW/HQUSACE Assessment: Comment will be resolved upon review of the additional information.

Local Sponsor Response: As documented in Sub-Appendix H-2, the economics specialist provided the following review comment regarding IDC:

Interest during construction is computed and shown for projects for which costs and benefits are expressed in present value at a point in time after initiation of construction.

Costs (and benefits) occurring before this point in time must be converted to a present value equivalent in the same way that costs and benefits taking place after this point in time are converted. IDC is simply the interest part of the time value conversion equivalent. In the case of this project, all costs and benefits are converted to equivalent time values at the beginning of the 50-year period of analysis, the beginning of FY2021. There are no costs occurring prior to this point in time, so there is no "IDC." For some used to the convention of reporting and calculating IDC, who may not be familiar with the underlying concept, the absence of an IDC line item in the B/C evaluation may seem like a problem, standing out as a "red flag." It is not a problem. Any point in time can be used for these calculations. The numbers will be different, but the B/C ratio will be exactly the same, as will the alternative with the largest net benefits. The internal rate of return will also be the same, as will the rank order of alternatives, etc. The findings of the economic evaluation will also for all practical purposes be the same whether FY2017 or FY2021 prices are used throughout. The important thing is consistency in the present value calculations and in the price level used in the evaluation process.

ASACW/HQUSACE Final Assessment: The Review Team cannot resolve this comment. IDC is a required component of economic analyses. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed prior to implementation.

3. Incremental Analysis.

Concern: The plan formulation and economic analysis appear to have only looked at incremental analysis for various dune and berms sizes. It is unclear that incremental analysis of length of project and number and size of T-groins was conducted. For example, according to Table 2 of the Economic Appendix, Reaches 4 and 5 account for approximately 82% of the economic value. It must be demonstrated that a project in those reaches alone would not provide higher net NED benefits than the full project length. Size and number of T-Groins must also be incrementally evaluated.

Basis of concern: Reference ER 1105-2-100 Paragraph f.(4) and Paragraph 2-4.e.

Significance of concern: Significant. Calls into question the recommended plan.

Action needed to resolve concern: Conduct an incremental analysis and clearly demonstrate that the recommended plan is incrementally justified. It is not incrementally justified, then the portions that are not must be removed from the NED Plan and taken out of the recommendation or a Locally Preferred Plan (LPP) must be approved by the ASA(CW) at 100% non-Federal sponsor responsibility. Please note that the Future Without Project Condition comment will impact the incremental analysis.

Local Sponsor Response: Beach-fx is a planning tool with no capability to directly simulate the effect of structures. Thus, an incremental analysis of the number and size of structures is not feasible with Beach-fx (USACE's mandatory economic model). The structure design and numerical modeling performed is sufficient for a feasibility study. Taylor Engineering developed the current design based on accepted

methodologies specified in USACE's Coastal Engineering Manual; USACE Jacksonville District reviewed and approved of the design during review of the 2008 GRR. The design and permitting phase subsequent to approval of this study would further evaluate and refine the structure design. The structures as currently designed (and cost estimated) prove more economical than nourishment only. The incremental analysis would only improve upon the design and BCR.

We can run Beach-fx to analyze various project lengths. However, as mentioned in the report, the distribution of value by length is uniform throughout the project area; the lower total values for Reach 1-3 reflect the much shorter reach lengths compared to Reach 4-5. The FWOP damages in Reach 1-3 are greater than their proportional length of the project area, likely due to the higher background erosion rates in this area. Additionally, as mentioned above, Beach-fx is a planning tool, not a design tool. The extensive knowledge we have of the project's performance, particularly that the fill acts as a feeder and effectively nourishes 2.3 miles of beach with only 1 mile of fill placement, must be considered in conjunction with the Beach-fx results to identify a logical project design. The project mitigates for erosion caused by a federal inlet, and excluding the highest erosion area adjacent to the south jetty does not seem logical.

ASACW/HQUSACE Initial Assessment: Comment is unresolved. Policy established in the Principles and Guidelines as well as in the Planning Guidance Notebook require an incremental analysis of separable elements. Those are defined by law as having independent hydrologic effects and stand alone benefits. For storm damage reduction projects, this includes length of sand placement (berm and dune) as well as the number of groins. The Federal objective is to maximize net National Economic Development benefits subject to protecting the environment. Without this analysis, the recommended plan cannot be supported.

Although the report states that the NED plan includes the "optimized" berm and dune dimensions, there is no data presented to support this assertion. The revised report should include (in the Economics Appendix at least) summary data showing the average annual costs and benefits by reach for each of the various berm and dune alternatives that were analyzed. In addition, the report should show that a sufficient number of alternatives were analyzed in order to demonstrate that the NED plan has been properly "bracketed", ie, that there are not smaller or larger plans that would have produced higher net benefits.

This is a practice that all storm damage reduction projects are held to. For example, the recently conducted St Lucie County feasibility study included numerous alternatives by length and size that demonstrated economic justification while optimizing design. Another example is the St John's County feasibility study. Those reports can be provided as reference upon request.

With respect to Beach-fx, the model, a methodology has been developed by the USACE ERDC laboratory to attempt to account for the shoreline changes of groins. The groin

effects would have to be estimated outside Beach-fx and then modeled as a planned nourishment, with the groin effects entered as a berm width change. The value of the groins would be demonstrated by life cycle cost savings with and without the groins. Recommend a meeting with the sponsor and the appropriate ERDC personnel to work through the issue.

Local Sponsor Response: Section 3.12 includes a discussion of Incremental Justification of the Recommended Plan. As mentioned, the Economics Appendix and Chapter 3 include additional information regarding the incremental analysis of beach nourishment scenarios. Sub-Appendix A-4 includes the Incremental Analysis of Structures. Sub-Appendix A-5 includes the 2002 Design Documentation Report that provides additional information regarding the design of the structures but fell short of providing details of the incremental analysis mentioned in the document.

ASACW/HQUSACE Final Assessment: The concern remains unresolved. The information provided does not adequately address the comment nor does it address Federal Interest in the plan selected based on incremental analysis. It is noted that the information shows overall justification of the project, but it does not support the scale of the project being recommended. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed prior to implementation.

4. Nourishment Interval.

Concern: The analysis appears to have only looked at 2 year and 4 year nourishment intervals. Nourishment intervals should be optimized to maximize net NED Benefits. Greater nourishment intervals than 4 years should be analyzed to demonstrate that it is not more efficient to do less frequent nourishments. This is considered equivalent to an incremental analysis.

Basis of concern: Reference ER 1105-2-100 Paragraph f.(4) and Paragraph 2-4.e.

Significance of concern: Significant. Could impact the recommended plan.

Action needed to resolve concern: Conduct an analysis of intervals greater than 4 years to clearly demonstrate that 4 years estimates is the NED Plan. Please note that the Future Without Project Condition comment will impact the incremental analysis.

Local Sponsor Response: As mentioned above, the analysis did not pre-determine a nourishment interval. As discussed in Appendix A, results of numerical modeling indicated structures could retain fill for 4 years, at which point the fill was completely eroded away in certain areas. The study only reports the Beach-fx results of structures with a 4-year nourishment interval, as this proved the optimum scenario. The Beach-fx model iterations included results with 2-year and 3-year nourishment intervals for scenarios with and without structures; however, the benefits and costs proved less favorable. Beach- fx is not capable of modeling structures; thus, the study had to mimic the effect of structures by reducing the planform change rate in

Beach-fx for Reaches 1–3. The rates could be reduced even further to attempt to achieve a 5-yr nourishment interval to demonstrate the additional cost effectiveness; however, the current model results provide a BCR sufficient for federal authorization, and the numerical model results indicated nourishment appeared necessary after 4 years. Future efforts such as a subsequent design phase for the structures and construction and performance monitoring of the sediment impoundment basin will strive to decrease the federal nourishment frequency and, hence, project costs. The recommended beach fill design for the nourishment-only case is based on an incremental analysis of beach fill widths that did not limit the nourishment interval.

ASACW/HQUSACE Initial Assessment: Comment is unresolved. It is unclear from the response if the concern has been addressed. It appears from the response that the criteria for a nourishment is the design berm with advanced fill rather than life cycle erosion with nourishment triggers. Follow-on discussions with subject matter experts are suggested.

Local Sponsor Response: In the main report, we added a new Table 3.2 containing additional Beach-fx results for the incremental analysis of beach nourishment scenarios and revised the Section 3.8 discussion. Section 3.5 of the Economics Appendix also includes a revised discussion of the screening process that identified the optimal plan.

ASACW/HQUSACE Final Assessment: The concern remains unresolved. The information provided does not adequately address the comment nor does it address Federal Interest in the plan selected based on incremental analysis. It is noted that the information shows overall justification of the project, but it does not support the scale of the project being recommended. In the event that the recommended plan is authorized for federal participation, it is expected that this unresolved issue would need to be addressed prior to implementation.

5. Parking and Access.

Concern: The parking and access appendix F demonstrates very limited parking beginning at Seaway Inlet Dr and south to monument R-038. According to Figures 2.2a and 2.2b of the appendix, there are only 18 parking spaces for greater than 2,560 linear feet of shoreline; note that lengths stop on figure 2.2b show the actual length is greater than that. This minimal number of parking spaces calls into question the extent of access the public has to the shoreline. At a minimum, it must be documented that parking is sufficient to meet recreational demand claimed in the project benefits.

Basis of concern: Reference ER 1165-2-130 Paragraph 6.h.(2).

Significance of concern: Significant. Lengths of shoreline with insufficient parking may not warrant Federal participation.

Action needed to resolve concern: Clearly demonstrate that sufficient parking exists to meet recreation demand claimed or readjust the cost apportionment appropriately to the non-Federal sponsor.

Local Sponsor Response: The revised report will include an updated parking and access analysis.

ASACW/HQUSACE Initial Assessment: Comment will be resolved upon review of the additional information. More documentation to satisfy the minimum requirements is needed. Minimum requirements must be demonstrated to support Federal cost share or those areas that do not meet requirements will be 100% non-federal cost share.

Local Sponsor Response: Appendix F contains an updated Public Access and Cost Share analysis.

ASACW/HQUSACE Final Assessment: Comment is resolved.

E COST & COST SHARING

1. Cost Share – Use of Section 111.

Concern: The cost apportionment contained in the Main Report and Appendix F adjusts the Federal cost share from 44% to 77.76% citing a Section 111 determination from 1982. Sec 111 of the Rivers and Harbors Act of 1968 is not a standing authority to adjust cost share in perpetuity. The authority allows for specific mitigation features that can be tied to Harbor Projects and has a maximum per project Federal cost of \$10M as of the Water Resources Reform and Development Act (WRRDA) 2014.

Basis of concern: 33 U.S.C. 426i.

Significance of concern: Significant. The comment will affect the estimate of project cost sharing.

Action needed to resolve concern: The recommendation should not include Sec 111 cost share to the newly recommended project. Update the cost share to reflect the legal requirements.

Local Sponsor Response: St. Lucie County understands that carrying forward the prior Sec 111 determination is not appropriate for this Section 203 study; thus, the revised report will not include the Sec 111 cost share. St. Lucie County intends to pursue the Sec 111 cost share through the appropriate authority following approval of the Section 203 study.

ASACW/HQUSACE Initial Assessment: Comment will be resolved when revisions can be reviewed. Updated cost share removing the Sec 111 will satisfy the concern.

Local Sponsor Response: Appendix F contains an updated Public Access and Cost Share analysis. Costs shares documented in the main report (Table ES.1) and used in the Cost Engineering Appendix reflect the results in Appendix F.

ASACW/HQUSACE Final Assessment: Comment is resolved.

2. Cost Share for Undeveloped Public Lands.

Concern: The cost apportionment contained in the Main Report and Appendix F uses 50/50 per ER 1105-2-100/ER 1165-2-130. The concern is that, due to Section 2008(c) of WRDA 2007, ER 1105-2-100/1165-2-130's guidance on applying a 50/50 cost share for hurricane and storm damage reduction measures for undeveloped public lands is not valid if the benefits justifying the measures are hurricane and storm damage reduction benefits and not recreation benefits and should be cost shared 65/35.

Basis of concern: 33 U.S.C. 426i.

Significance of concern: Moderate. The comment will affect the estimate of project cost sharing.

Action needed to resolve concern: The cost share for undeveloped public lands should be corrected to 65/35. Update the cost share to reflect the legal requirements.

Local Sponsor Response: The revised report will apply the recommended 65/35 cost share.

ASACW/HQUSACE Initial Assessment: Comment will be resolved when revisions can be reviewed. Updated cost will satisfy the concern.

Local Sponsor Response: Appendix F contains an updated Public Access and Cost Share analysis with the revised cost share.

ASACW/HQUSACE Final Assessment: Comment is resolved.

3. Cost Share for Periodic Nourishment.

Concern: The cost apportionment contained in the Main Report and Appendix F do not appear to account for the cost share of initial placement versus periodic nourishment. Initial placement is cost shared 65/35 (where justified) but periodic nourishment is cost shared 50/50 (where justified).

Basis of concern: ER 1105-2-100/ER 1165-2-130.

Significance of concern: Significant. The comment will affect the estimate of project cost sharing.

Action needed to resolve concern: For the final recommended plan, the project costs and cost apportionment should be divided into initial placement and periodic nourishment and applied appropriately. Update the cost share to reflect the legal requirements.

Local Sponsor Response: The revised report will apply the recommended 65/35 and 50/50 cost shares.

ASACW/HQUSACE Initial Assessment: Comment will be resolved when revisions can be reviewed. Updated cost will satisfy the concern.

Local Sponsor Response: Appendix F contains an updated Public Access and Cost Share analysis with the revised cost share.

ASACW/HQUSACE Final Assessment: Comment is resolved.

4. Price Level.

Concern: The report uses a cost price level of FY 2021 for the recommended plan. The appropriate cost for use is the constant dollar at current price level, which is the fiscal year of the submission.

Basis of concern: ER 1105-2-100 Appendix D D-3.d.(2) and Director of Civil Works Memorandum dated 25 August 2011 SUBJECT: Corps of Engineers Civil Works Cost Definitions and Applicability.

Significance of concern: Moderate.

Action needed to resolve concern: Adjust the cost estimate to the appropriate price level at the time of the submission. For example, an FY17 submission should be FY17 price level or an FY18 submission should be an FY18 price level. Note that the economic analysis must also be portrayed using the appropriate price level.

Local Sponsor Response: The comment appears contradictory to the guidance provided in ER 1165-2- 209 which states the following: "All NED/NER costs (and if applicable, benefits) must be computed at their present value at the time of the base year..." Regardless, we will adjust the costs in Table ES.1, Table 3.2, Section 3.8.5, and Table 3.6. Appendix C — Economics provides costs in both FY2017 and FY2021 price levels.

ASACW/HQUSACE Initial Assessment: Comment is unresolved. The comment is not contradictory to ER 1165-2-209. This comment is referring to price level for the cost estimate that will be recommended for authorization and will establish the Sec 902 Limit for the project. Costs and benefits are developed at current price levels and then discounted and annualized for the NED (Economic) costs. Additional information from subject matter experts can be provided upon request.

Local Sponsor Response: The revised report reflects a FY2018 price level.

ASACW/HQUSACE Final Assessment: Comment is resolved.

5. Cost sharing and items of local cooperation.

Concern: Part 3.8.4 on page 72 of the report and part 6.0 on page 110 of the report include a discussion of cost sharing and a list of items of local cooperation for the project that do not appear to comply with current law and policy. For example, both these parts

of the report include what appears to be a hybrid cost sharing percentage that attempts to combine full Federal funding of construction and nourishment costs asserted to be attributable to mitigation of damages from a Federal navigation project (based on a study in 1982 pursuant to Section 111 of the River and Harbors Act of 1968, 33 U.S.C. 426i) along with non-Federal cost sharing of additional work under Section 103 of WRDA 1986. As noted by other reviewers, the Federal cost of the project exceeds the current Federal participation limit under Section 111. Moreover, the cost sharing asserted for the cost-shared portion of work under Section 103 appears to be based upon the pre-WRDA 1999 authorization of the project, which presumably would not apply to a newly sought authorization for initial construction and future nourishment of the project. In addition, the list of items of cooperation appear to omit any mention of the bar on use by the sponsor of Federal funds for its share, or the requirement to provide its required cost share during the period of design as well as construction.

Basis of concern: ER 1105-2-100 para. 4-3(b)(2) ("The non-Federal sponsor cost sharing requirements, including their responsibilities for implementation and operation of the project must be clearly documented.").

Significance of concern: Medium.

Action needed to resolve concern: Both part 3.8.4 on part 6.0 of the report should be revised to correctly reflect the required cost sharing for the project. In addition, the list of items of local cooperation should be revised in part 6.0 to reflect current law and policy. Included below is an example of a list which comports with Corps policy and statutory cost sharing requirements, which can be used as a starting point for the District to revise to the extent needed to prepare a list applicable to the project:

a. Provide a minimum of 35 percent of initial project costs assigned to coastal and storm damage reduction, plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits, and 50 percent of periodic nourishment costs assigned to coastal and storm damage reduction, plus 100 percent of periodic nourishment costs assigned to protecting undeveloped private lands and other private shores which do provide public benefits, and as further defined below:

- (1) Provide, during design, 35 percent of design costs allocated to coastal and storm damage reduction in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;*
- (2) Provide all lands, easements, rights-of-way, including suitable borrow areas, and perform or assure performance of all relocations, including utility relocations, as determined by the Federal government to be necessary for the initial construction, periodic nourishment or operation and maintenance of the project;*
- (3) Provide, during construction, any additional amounts necessary to make its total contribution equal to 35 percent of initial project costs assigned to coastal and storm damage reduction plus 100 percent of initial project costs assigned to protecting undeveloped private lands and other private shores which do not provide public benefits;*

- b. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the outputs produced by the project, hinder operation and maintenance of the project, or interfere with the project's proper function;
- c. Inform affected interests, at least yearly, of the extent of protection afforded by the flood risk management features; participate in and comply with applicable Federal floodplain management and flood insurance programs; comply with Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12); and publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in adopting regulations, or taking other actions, to prevent unwise future development and to ensure compatibility with protection levels provided by the flood risk management features;
- d. Operate, maintain, repair, replace, and rehabilitate the completed project, or function portion of the project, at no cost to the Federal government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and state laws and regulations and any specific directions prescribed by the Federal government;
- e. For so long as the project remains authorized, ensure continued conditions of public ownership and use of the shore upon which the amount of Federal participation is based;
- f. Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms;
- g. At least twice annually and after storm events, perform surveillance of the beach to determine losses of nourishment material from the project design section and provide the results of such surveillance to the Federal government;
- h. Give the Federal government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;
- i. Hold and save the United States free from all damages arising from the initial construction, periodic nourishment, operation, maintenance, repair, replacement, and rehabilitation of the project, except for damages due to the fault or negligence of the United States or its contractors;
- j. Keep, and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, and other evidence are required, to the extent and in such detail as will properly reflect total cost of the project, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and local governments at 32 CFR, Section 33.20;
- k. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal government determines

to be necessary for the initial construction, periodic nourishment, operation and maintenance of the project;

l. Assume, as between the Federal government and the non-Federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way required for the initial construction, periodic nourishment, or operation and maintenance of the project;

m. Agree, as between the Federal government and the non-Federal sponsor, that the non-Federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and, to the maximum extent practicable, operate, maintain, repair, replace, and rehabilitate the project in a manner that will not cause liability to arise under CERCLA;

n. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended, (42 U.S.C. 1962d-5b) and Section 101(e) of the WRDA 86, Public Law 99-662, as amended, (33 U.S.C. 2211(e)) which provide that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

o. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended, (42 U.S.C. 4601-4655) and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way necessary for construction, operation, and maintenance of the project including those necessary for relocations, the borrowing of material, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said act;

p. Comply with all applicable Federal and state laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)); and

q. Not use funds from other Federal programs, including any non-Federal contribution required as a matching share therefore, to meet any of the non-Federal sponsor's obligations for the project unless the Federal agency providing the funds verifies in writing that such funds are authorized to be used to carry out the project.

Local Sponsor Response: The revised report will apply the cost shares discussed under comments 1-3 above and will include the recommended edits to part 6.0.

ASACW/HQUSACE Initial Assessment: Comment is resolved.

Local Sponsor Response: See Chapter 6.

ASACW/HQUSACE Final Assessment: Comment is resolved.

