TR2021COE001

Independent External Peer Review of the New York and New Jersey Harbor Deepening Channel Improvements Draft Integrated Feasibility Report and Environmental Assessment

Final Report

19 February 2021

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Prepared for: Department of the Army
U.S. Army Corps of Engineers
Deep Draft Navigation Planning Center of Expertise
South Atlantic Division

Blanket Purchase Agreement No. W912HQ20A0004
Delivery Order No. W912HQ20F0131

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Executive Summary

This Independent External Peer Review (IEPR) Final Report provides the results of an IEPR of the documents associated with the *New York and New Jersey Harbor Deepening Channel Improvements Draft Integrated Feasibility Report and Environmental Assessment*, hereinafter referred to as NYNJHDCI Study. The NYNJHDCI Study is being conducted by the New York District of the U.S. Army Corps of Engineers (USACE).

Project Background

The fleet of container vessels now calling on the Port of New York and New Jersey includes vessels that are depth constrained at the existing channel depth and that experience maneuverability inefficiencies within the existing channel width.

The purpose of the NYNJHDCI Study is to determine if there is a technically feasible, economically justified, and environmentally acceptable recommendation for federal participation in a navigation improvements project in the New York and New Jersey Harbor. The study examined the feasibility of deepening and widening the navigation channels of the Port of New York and New Jersey to alleviate these constraints.

The USACE Tentatively Selected Plan (TSP) consists of deepening the pathways to Elizabeth - Port Authority Marine Terminal and Port Jersey - Port Authority Marine Terminal by up to 5 feet (up to -55 feet Mean Lower Low Water [MLLW]). Channels to be deepened would be the Ambrose Channel, Anchorage Channel, the Kill Van Kull (KVK), Newark Bay Channel, South Elizabeth Channel, Elizabeth Channel, and Port Jersey Channel. This TSP includes the additional channel width required for structural stability and for the navigation of the design ship to transit between the sea and the port terminals.

Independent External Peer Review Process

Analysis Planning and Management Institute (APM-I) has conducted the IEPR of the NYNJHDCI Study. The IEPR has been conducted following the procedures described in the guidance provided by the U.S. Office of Management and Budget in OMB (2004) and USACE Engineer Circular No. 1165-2-217 in USACE (2018). The IEPR was conducted to analyze the adequacy and acceptability of methods, modeling, data, and analyses used. The IEPR focused on a technical review and did not involve policy review.

The IEPR Panel (the Panel) of subject matter experts included individuals with experience and expertise in civil works planning, economics, environmental compliance, and hydraulic/coastal and geotechnical engineering. The Panel was charged with providing a broad technical evaluation of the material contained in the selected technical documents and supporting documentation. This report provides the final comments of the IEPR Panel.

Summary of the Independent External Peer Review Results

The following paragraphs provide a summary of the Panel's comments in specific subject matter areas.

Civil Works Planner

The plan formulation was straight forward and to the point. The process followed the USACE plan formulation processes, procedures, and standards for deep draft navigation channel improvements set forth in the Principles and Guidelines (USWRC 1983). Some details were not included in the Review Documents because guidance in Planning Manual Part II: Risk-Informed Planning calls for collecting more data only if not having the data is a tolerable risk. For example,

in the *Real Estate* Appendix, information on the ownership, potential business relocation costs, schedule delays, and expected temporary easement costs associated with demolition of two chimneys were left for the Planning and Engineering phase of the study process. Apparently, these details were not included based on the assumption that the cost of acquiring the information was greater than the risk associated with not doing so. However, there is significant risk in not having this information at this point because these issues could have a substantial effect on project cost and schedule. Overall, the plan formulation effort was well documented in the Review Documents.

Economist

The economic analysis of containerized trade to evaluate the alternative plans for the proposed deep draft navigation channel improvements used the appropriate tools for economic analysis, applying risk analysis, and developing trade/fleet forecasts. However, the following areas of the Review Documents lacked technical clarity and context. Throughout the Review Documents different total costs, fiscal year price levels, and discount rates were presented with no explanation for the inconsistencies. Transportation delay costs during the 14-year construction period were not included in the benefit-cost analysis. The environmental consequences did not address expected sociological conditions under future with- and without-project conditions. In addition, the Regional Economic Development (RED) analysis did not explain the meaning or context of the identified impacts relative to expected future conditions. These issues affect the understanding and completeness of the Review Documents but are not likely to affect the selection of the TSP.

Environmental Compliance Specialist

The Main Document is National Environmental Policy Act (NEPA) compliant. The Panel agrees that an Environmental Assessment (EA) is the appropriate level of analysis required for the project since an Environmental Impact Statement (EIS) was prepared for the previous channel-deepening project that addressed many of the pertinent environmental issues in detail. The Panel identified several deficiencies in the document that should be addressed. Although these issues are unlikely to affect the choice of the Preferred Alternative under NEPA, they should be addressed by the USACE to ensure NEPA compliance and to clarify the scope and context of the TSP that is the Preferred Alternative.

The Purpose and Need section should be revised so that it is based on the proposed project and not the previous deepening study. The existing description of the Purpose and Need in the main document is for the study, not the project. The Purpose and Need section must define the project as a basis for alternatives. Logically, there are no alternatives to the study itself – it is a study. While this may appear to be only a case of semantics, the “purpose and need” must be stated accurately as a basis for analysis of alternatives under NEPA.

Also, in defining the scope of the project and the EA, the USACE should clarify for reviewers and the public the extent of activities for which the project sponsor, the Port Authority of New York and New Jersey (PANYNJ), would be responsible and for which activities USACE is responsible. The Panel assumes that indirect impacts such as growth of the port and resulting vehicle traffic, air emissions, and transportation infrastructure would be the responsibility of the PANYNJ to analyze in future documents, but this issue should be clarified in the USACE documents. Otherwise, the public and others may be looking in this document for analysis of these indirect impacts to be incurred by others.

The discussion of project need should also include discussion of why USACE feels the ship design used for the deepening design is adequate as a reflection of future needs over the 50-year planning horizon. The basis for this comment is that according to the EA, the previous 50-foot deepening effort was barely finished when the size of the ships entering the harbor “has led to

the existing project's channel's dimensions being unsuitable for the current needs of the Port". The shipping industry in its comments on the NYNJHDCI Study foresees vessels to be 18,000 to 24,000 Twenty-foot Equivalent Unit (TEU) vessels. Based on trends in shipping to date, it is unclear why the proposed channel depth will not become inadequate to keep pace with other ports should even larger ships be used in the future.

The EA adequately addresses project environmental impacts based on prior experience from the previous channel deepening project. However, the treatment of existing sediment quality focuses solely on National Priority List or hazardous sites and the fact that these sediments would not be intersected by the proposed deepening. Contaminant levels in the New York/New Jersey Harbor estuary have been well documented; this information should be provided to the public in the EA. Similarly, information is already available on prior project impacts (or lack thereof, if applicable) from noise impact, and any impacts from blasting to adjacent communities. This information should be incorporated into the EA, especially in light of public concerns over potential environmental justice (EJ) issues.

Hydraulic/Coastal Engineer

The hydrodynamic modeling conducted by Engineer Research and Development Center was impressive. The model integrated waves, tides, salinity, and sediment transport in a three-dimensional circulation model and achieved good calibration. However, the model was not used to assess the impacts of the proposed deepening. An important issue is the potential for increased storm surge along and to the west of the enlarged KVK, which was observed in the model output conducted for the previous channel deepening project from 45 to 50 feet MLLW. There is no mention of this in the documents reviewed. The potential increase in storm surge in Newark Bay and the Passaic and Hackensack River valleys could result in increased costs for mitigation.

The Maritime Institute of Technology & Graduate Studies (MITAGS) Ship Simulation Study was well done; the panel is aware of the realistic nature of the simulation. A review of the ship simulation study produced two significant issues. One is the possibility that area AN-1 may not be needed for ships to exit the Port Jersey Channel. The other issue is that the large cross-sectional area of the Ultra-Large Container Vessels (ULCVs) with respect to the channel dimensions could produce very large surge forces, even at very slow ship speeds, on docked ships and mooring structures in the Port Jersey and Elizabeth channels, which could require reconstruction and improvement of docking infrastructure to withstand the forces. This issue is not mentioned or analyzed in the documents reviewed.

The analysis does not have any discussion of sea level rise. Sea level rise is expected to be significant in the project area over the next 50 years. The sea level rise may reduce the necessity for the deepest of the current plans under consideration (e.g., -55 feet MLLW plan) since the overall net benefits of the smaller plan (e.g., -54 feet MLLW plan) are about equal to the deeper plan and the overall risk of environmental impacts is probably less.

Geotechnical Engineer

In general, the geotechnical evaluations completed for the project are based upon existing information available from the last channel deepening effort. These data are adequate for the feasibility-level designs that are presented. The summary of the available data is extensive and the engineering analysis completed utilizing the geotechnical data is appropriate. However, the analysis has a few shortcomings that could be improved upon.

The Appendix B2, *Geotechnical Analysis*, includes a number of figures that are mislabeled and others that are referenced in the text but are missing. In addition, there is limited explanation regarding the selection of geotechnical design parameters. More specifically, it is not clear how the geotechnical design parameters were developed from the available geotechnical subsurface

data. In addition, a key portion of the design basis is Standard Penetration Test (SPT) blow count information. However, it appears that the “raw” blow counts were used for all evaluations (e.g., dredgeability, slope stability) instead of corrected blow counts. The use of corrected blow counts is preferred for engineering correlations since they provide more accurate estimates of soil properties.

Summary of Final Panel Comments

Presented below is a summary of the final IEPR Panel comments. Section 5 contains the definitions of comment significance and the complete comments with explanations and recommendations.

No.	Final Panel Comment
Significance: High	
1	There is no discussion of the possibility of increased storm surge along and to the west of the Kill Van Kull (KVK) resulting from the proposed enlargement of the KVK.
Significance: Medium High	
2	Relative sea level rise (RSLR) should be considered in the final selection of the Tentatively Selected Plan (TSP) to deepen the project to -54 feet MLLW or to -55 feet MLLW.
Significance: Medium	
3	The Project Purpose and Need section requires additional information to justify why the USACE is confident that the proposed project will not be rendered obsolete by even larger ships by the time the project is completed.
4	The Project Purpose and Need is not clearly defined as a basis for analysis of alternatives.
5	The Review Documents do not adequately identify which agencies are responsible for assessing and mitigating potential indirect project impacts resulting from implementing the Preferred Alternative.
6	The Review Documents do not include a sufficient description of existing sediment quality affected by the project to allow the evaluation of environmental consequences of dredging or disturbing these sediments or of dredged material management alternatives.
7	The analysis in the Review Documents does not clearly define how Standard Penetration Test (SPT) blow counts were correlated to geotechnical design parameters, thus providing the basis for the validity of the adopted values.
8	The Review Documents do not adequately justify the need for dredging area AN-1 to be used to turn ships around.
9	The Review Documents do not analyze and discuss the possibility that the large underwater displacement of the Ultra-Large Container Vessels (ULCVs) could create surge forces that may exert significant forces on other ships moored in the same small channel that the ULCV is transiting, which could require that docking infrastructure must be improved and strengthened.
Significance: Medium Low	
10	Additional detail is warranted to clarify the need for the project and how the Preferred Alternative (Tentatively Selected Plan) will meet that need in the presence of changing economic conditions.
11	The cost to demolish the two chimney stacks on the south side of the Kill Van Kull are not included in the analysis.

No.	Final Panel Comment
12	The review document addresses project noise sources but does not address landside regional sources of noise, which would put any noise impacts in a regional context (relative to ambient conditions from other sources).
13	The treatment of Environmental Justice (EJ) issues requires further substantiation and support regarding the area evaluated and focuses almost entirely on the proportion of minority populations in the study area as opposed to potential impacts.
Significance: Low	
14	The Regional Economic Development analysis generates output, jobs, labor income and value added using the Regional Economic System (RECONS) model, but the narrative does not clearly explain the meaning or context of the impacts.
15	Costs of transportation delays during the construction period, a minimum of 14 years, are not accounted for in the project cost estimate or the benefit-cost analysis in the decision documents.
16	The discussion of Environmental Consequences states that existing and projected future condition descriptions include sociological conditions and describes these conditions for without alternative actions and with the implementation of the alternative actions. However, no information on sociological conditions without or with implementation of the alternative actions are presented.
17	Multiple Total Costs, Fiscal Year Price Levels, and Fiscal Year Discount Rates are presented throughout the report for evaluating and selecting the Tentatively Selected Plan, but no explanation is provided for the differences.
18	There are places and locations mentioned in the Review Documents that are not shown on maps in the report, making it hard for a reader not intimately familiar with the study area to follow and understand the discussion.
19	The geotechnical analysis is missing some key figures referenced in the text and other figures are mislabeled.

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Table of Contents

1 Introduction ... 1
1.1 Introduction and Report Overview ... 1
1.2 Independent External Peer Review Overview ... 1
1.3 Project Description ... 2
1.4 Independent External Peer Review Organization ... 3
2 Independent External Peer Review Process ... 5
2.1 Managing the Project ... 5
2.2 Selecting the Panel ... 5
2.3 Preparing and Charging the Panel ... 6
2.4 Performing the Independent External Peer Review ... 6
2.5 Finalizing the Panel Comments ... 7
2.6 USACE Responses to Panel Comments ... 7
2.7 Panel BackCheck Responses ... 8
3 Panel Organization ... 9
3.1 Independent External Peer Review Organization ... 9
3.2 Independent External Peer Review Panel Members ... 9
3.3 Independent External Peer Review Process Management Team ... 11
4 Independent External Peer Review Comments ... 13
4.1 Summary of Independent External Peer Review Comments ... 13
4.2 Independent External Peer Review Panel Comments ... 15
4.2.1 Significance: High ... 16
4.2.2 Significance: Medium High ... 17
4.2.3 Significance: Medium ... 18
4.2.4 Significance: Medium Low ... 23
4.2.5 Significance: Low ... 25
Appendix A - IEPR Panel Member Qualifications ... 30
A.1 Panel Member Technical Requirements ... 30
A.2 Panel Member Qualifications and Experience ... 30
A.2.1 Prof. Donald Ator, Civil Works Planner ... 30
A.2.2 Prof. Donald Ator, Economist ... 32
A.2.3 Mr. Paul Bovitz, Environmental Compliance Specialist ... 34
A.2.4 Dr. Harley Winer, Hydraulic/Coastal Engineer ... 35
A.2.5 Dr. Chris Brown, Geotechnical Engineer ... 36
Appendix B – IEPR Charge to Reviewers ... 38
Acronyms ... 40
References ... 43

List of Figures

Figure 1 – Navigation Channels Considered in the NYNJHDCI Study.....2
Figure 2 - Organization for IEPRs 5
Figure 3 - Organization for this IEPR.....9

List of Tables

Table 1: IEPR Documentation.....6
Table 2: Summary of Panel Member Qualifications by Discipline for this IEPR 30

1 Introduction

1.1 Introduction and Report Overview

This Independent External Peer Review (IEPR) Final Report provides the results of an IEPR of the documents associated with the *New York and New Jersey Harbor Deepening Channel Improvements Draft Integrated Feasibility Report and Environmental Assessment*, hereinafter referred to as NYNJHDCI Study. The NYNJHDCI Study is being conducted by the New York District of the U.S. Army Corps of Engineers (USACE).

The purpose of the NYNJHDCI Study is to determine if there is a technically feasible, economically justified, and environmentally acceptable recommendation for federal participation in a navigation improvements project in the New York and New Jersey Harbor.

Section 1 of the IEPR Final Report provides a description of the objectives of this IEPR, general background information on the IEPR, and unique corporate characteristics of Analysis Planning and Management Institute (APM-I), which managed the IEPR process and supported and assisted the IEPR Panel.

Section 2 summarizes the process followed to perform the IEPR.

Section 3 describes the IEPR Panel composition and the expertise of the IEPR Panel Members.

Section 4 presents the IEPR Panel comments along with basis of comments, their significance, and recommendations.

Appendix A includes short resumes of the IEPR Panel Members.

Appendix B reproduces the Charge to Reviewers provided to the IEPR Panel to use as guidance for the IEPR.

1.2 Independent External Peer Review Overview

The USACE lifecycle review strategy for civil works projects provides for a review of project documents from initial planning through the project phases of design; construction; and operation, maintenance, repair, replacement, and rehabilitation. The strategy provides procedures for ensuring the quality and credibility of USACE decision, implementation, and operations and maintenance documents and work products.

Peer reviews, such as this IEPR, are one of the important procedures used to ensure that the quality of USACE published information meets the standards of the scientific and technical community. Peer review typically evaluates the clarity of hypotheses, validity of the research design, quality of data collection procedures, robustness of the methods employed, appropriateness of the methods for the hypotheses being tested, extent to which the conclusions follow from the analysis, and strengths and limitations of the overall product.

The objective of this IEPR was to review the NYNJHDCI Study and associated appendices. The IEPR has been conducted in accordance with the procedures described in the Department of the Army, USACE Engineer Circular (EC) No. 1165-2-217 *Review Policy for Civil Works* (USACE 2018), which incorporates the requirements in the Water Resources and Development Act of 2007 (WRDA 2007) as amended.

1.3 Project Description

The New York and New Jersey Harbor navigation channels are currently maintained at a depth of -50 feet Mean Lower Low Water (MLLW) and -53 feet MLLW in Ambrose Channel. Deepening of the channels to these depths was completed in 2016. The current navigations channels were designed for the container vessel the Regina Maersk, which is 1,044 feet long and 140 feet wide; has a static draft of 46 feet; and can carry 6,400 Twenty-foot Equivalent Units (TEUs) of containers. However, the fleet of container vessels now calling on the Port of New York and New Jersey includes vessels that are constrained at the existing channel depth and experience maneuverability inefficiencies within the existing channel width.

Because of constraints on the large vessels now calling on the Port of New York and New Jersey, the USACE New York District has analyzed the feasibility of deepening and widening the navigation channels to alleviate these constraints. Based on a forecast of the future fleet, the USACE determined that the design vessel for studying future channel dimensions is a *Suezmax* containership, the *Maersk Triple E Ultra Large Container Vessel Class.* This vessel is 1,308 feet long and 193.5 feet wide; has a static draft of 52.5 feet; and a capacity to carry 18,000 TEUs.

Using this design vessel, the USACE conducted the NYNJHDCI Study, which considered a range of nonstructural and structural measures that have the potential to improve navigation efficiencies within the New York and New Jersey Harbor. These measures included, but were not limited to, channel widening, channel deepening, bend easing, improving vessel scheduling, relocating navigation aids, and increasing tugboat assistance. The results of the analysis are presented in the NYNJHDCI Study.

The USACE Tentatively Selected Plan (TSP) consists of deepening the pathways to Elizabeth Port Authority Marine Terminal and Port Jersey – Port Authority Marine Terminal by up to 5 feet (up to -55 feet MLLW). Channels to be deepened would be the Ambrose Channel, Anchorage Channel, the Kill Van Kull (KVK), Newark Bay Channel, South Elizabeth Channel, Elizabeth Channel, and Port Jersey Channel. This TSP includes the additional channel width required for structural stability and for the navigation of the design ship to transit from sea to Elizabeth Port Authority Marine Terminal and Port Jersey – Port Authority Marine Terminal. The TSP reflects the least cost dredged material placement plan, which includes beneficially using dredged material by placing it either upland, at the Historic Area Restoration Site (HARS), or on a reef. The channels involved in the TSP are shown in Figure 1.

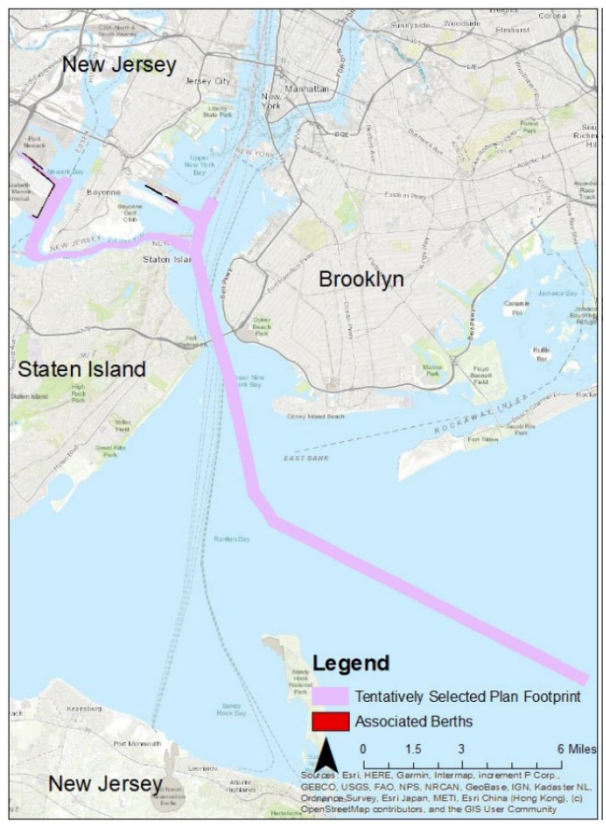

Figure 1 – Navigation Channels Considered in the NYNJHDCI Study

1.4 Independent External Peer Review Organization

This IEPR was conducted by a panel of independent experts under the auspices of APM-I. APM-I is a not-for-profit science and technology company that provides impartial independent assistance, free of conflict of Interest (COI) for federal government organizations. APM-I meets the requirements for an Outside Eligible Organization for conducting an IEPR called for in EC 1165-2-217. APM-I has not performed or advocated for nor against any federal water resources projects and has no real or perceived COI for conducting IEPRs. APM-I and the Panel Members have not been involved in any capacity with the efforts documented in the NYNJHDCI Study.

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2 Independent External Peer Review Process

This section summarizes the process for conducting this IEPR. APM-I performed the IEPR in accordance with its Work Plan (APM-I 2020), which addresses the USACE requirements and procedures (USACE 2018).

2.1 Managing the Project

The organizational structure for managing the IEPR is shown in Figure 2. The purpose of this organizational structure was to assure the independence of the review. As shown, APM-I mediated any interactions between the Panel and USACE. There was no direct interaction of Panel Members with USACE except for the meetings mediated by APM-I.

Figure 2 - Organization for IEPRs

2.2 Selecting the Panel

APM-I identified experts who met and exceeded the technical expertise and requirements of this IEPR. We identified any potential conflict of interest (COI) issues that candidate Panel Members could have using policies on committee composition standards set forth by both the National Academy of Sciences (NAS 2003) and the U.S. Office of Management and Budget (OMB 2004). The following criteria were considered in the screening of the candidates:

Expertise: Ensuring the selected reviewer has the knowledge, experience, and skills necessary to perform the review.

Independence: The reviewer was not involved with projects for the NYNJHDCI Study or in producing the documents to be reviewed.

Conflict of interest: Identifying any financial or other interest that conflicts with the service of an individual on the Panel because it could impair the individual's objectivity or could create an unfair competitive advantage for a person or organization.

Availability: Assessing the candidate's availability to meet the project schedule.

APM-I conducted an initial screening of candidates to exclude those with inadequate expertise or potential COI issues. The list was subsequently narrowed down to identify the most qualified candidates who would be available to serve on the IEPR Panel while ensuring a balanced panel representing perspectives from academia, industry, and government to the extent possible. Subsequently, APM-I conducted an in-depth screening and evaluation to ensure the candidates met or exceeded the requirements of this task. APM-I provided the list of selected panelists along with their summary qualifications relevant to this IEPR and detailed résumés to the USACE. The USACE used this information to determine if any proposed Panel Member had a potential COI based on USACE's general knowledge of the candidates' past employment or current involvement with the project. USACE acknowledged the relevancy of Panel Members' experience relative to the requirements of the IEPR and that there were no real or perceived COI issues. The Panel Members' qualification summaries are in Appendix A.

2.3 Preparing and Charging the Panel

The USACE provided to APM-I the documents to be reviewed by the IEPR Panel. Table 1 lists the documents used in this review. We provided these documents to the Panel Members along with the final Charge to Reviewers. These charge questions established the general boundaries for the IEPR. The charge questions are in Appendix B.

Table 1: IEPR Documentation

Documents for Review
Draft Integrated Feasibility Report and Environmental Assessment
Appendix A1 - Endangered Species Act
Appendix A2 - Clean Water Act
Appendix A3 - Coastal Zone Management
Appendix A4 - Essential Fish Habitat
Appendix A5 - Clean Air Act
Appendix A6 - Hazardous, Toxic, and Radioactive Wastes
Appendix A7 - Fish and Wildlife Coordination Act
Appendix A8 - Environmental Coordination/Correspondence
Appendix 9 - Cultural Resources
Appendix 10 - FONSI
Appendix 11 -- Draft Compensatory Mitigation, Monitoring and Adaptive Management Plan
Appendix 12 - Distribution List
Appendix B1 - Channel Design
Appendix B1A - Channel Design Attachments
Appendix B2 - Geotechnical
Appendix B3 - Structural
Appendix B4 - Cost Engineering
Appendix C - Economics
Appendix D - Real Estate
Public Comments on NYNHDCI Study

The Panel was provided templates and instructions for preparing their comments to ensure proper coverage of important issues and consistency in preparing the IEPR comments. The Panel was instructed that APM-I would be the conduit for information exchange between the Panel and USACE throughout the project to ensure a truly independent review.

2.4 Performing the Independent External Peer Review

This review involved conducting an independent technical peer review of the NYNJHDCI Study to analyze the adequacy and acceptability of methods, models, data, and analyses presented in the documents. The review focused on conducting a technical review and did not involve policy issues. The Panel used the charge questions as guidance for identifying relevant information and developing their comments and recommendations.

A kickoff meeting was held at the start of the IEPR with the Panel, USACE, and APM-I. At this meeting, introductions were made among the Panel members, USACE, and APM-I. The main purpose of this meeting was for the USACE to present an overview briefing of the USACE project

that was the subject of this IEPR. The Panel asked questions of the USACE and discussed any initial issues of interest.

A teleconference was held with the Panel, USACE, and APM-I at the approximate midpoint of the IEPR, but before the Panel Members had finalized their comments. The purpose of the meeting was for the Panel to ask the USACE questions about the project and the documents under review, discuss project technical issues, and identify any additional USACE documentation and information that could help the Panel in its review. The Panel used the information from the meeting to help prepare and finalize its comments submitted in the Panel Final Report.

Throughout the review process, APM-I communicated to the Panel all relevant project information, instructions, and required actions and deadlines. We acted as the conduit for information exchange between the Panel and USACE throughout the project in order to maintain the integrity and independence of the IEPR process.

2.5 Finalizing the Panel Comments

After completing the review, Panel Members submitted a draft of their comments to APM-I. We collated the Panel comments and ensured they were complete and responsive to the charge. We identified overall themes that were presented by multiple peer reviewers or repeated by one reviewer, comments that indicated conflicting peer review opinions, and other noteworthy comments. We ensured that the Panel comments focused on performing a technical review of the documents and did not comment on policy-related issues.

APM-I coordinated with the Panel to reach consensus on the comments, identify any overlapping comments, and resolve any contradictions. Further refinement and consolidation of the comments occurred via email exchange and telephone discussions.

Each IEPR Final Panel Comment (FPC) consisted of four parts:

Comment: A clear statement of the concern.

Basis for Comment: An explanation of the basis for the concern.

Significance: A significance rating of the concern (within the study documentation or the ability to implement the recommended plan) as well as a statement supporting this significance rating. Comments are rated as High, Medium High, Medium, Medium Low, or Low to indicate the general significance of the comment to project (see Section 4).

Recommendation[s] for Resolution: Recommended actions necessary to resolve the concern, including a description of any additional research that would appreciably influence the conclusions.

2.6 USACE Responses to Panel Comments

After submitting this IEPR Final Report to the USACE, APM-I entered the FPCs into the Design Review and Checking System (DrChecks) for USACE internal tracking of the FPCs and recommendations as well as the formal responses by the USACE and IEPR Panel's responses (called the BackCheck) to complete the IEPR process. DrChecks is an internet-based review and checking application that the USACE uses.

As part of IEPR process, the USACE will review and respond to the FPCs. The USACE will either "Concur" or "Non-Concur" with each Panel comment and will "Adopt" or "Not Adopt" each

recommendation provided with that comment. The USACE will prepare a draft written Evaluator Response (ER) to each comment.

The IEPR Panel will then review the USACE draft ERs. APM-I will hold a meeting with the Panel Members and the USACE evaluators so that the Panel and USACE can discuss the draft ERs and ensure there is a clear understanding of the intent of FPCs. After this meeting, the USACE will finalize their ERs and enter them into DrChecks. The USACE's responses usually indicate whether documentation will or will not be expanded, revised, or changed in response to the FPCs.

2.7 Panel BackCheck Responses

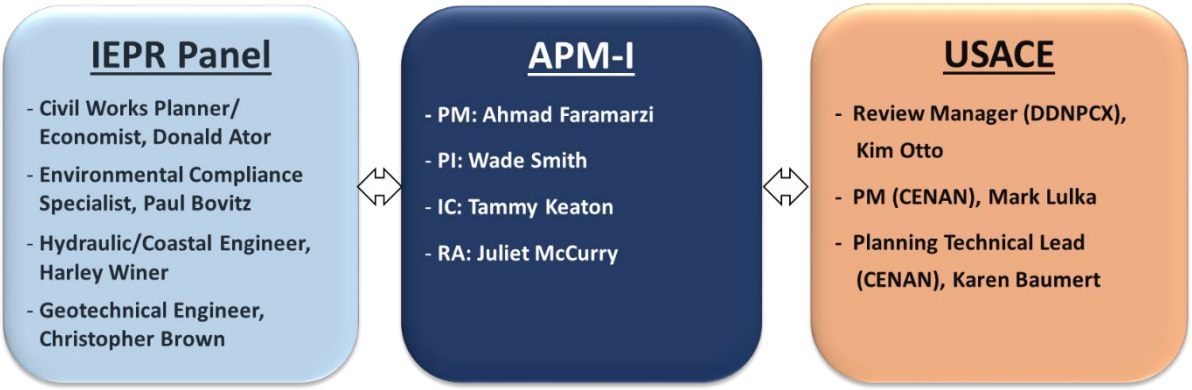
After the USACE final ERs are submitted and entered in DrChecks, APM-I will meet with the Panel, as needed, to discuss the responses and the approach for preparing the Panel's BackCheck. As part of the BackCheck process, the Panel will select either "Concur" or "Non-Concur" with each USACE final ER and provide comments (as needed) to indicate whether each response adequately addresses the Panel Member's identified concerns. APM-I will enter the Panel's BackCheck responses to each USACE ER into DrChecks.

3 Panel Organization

APM-I assembled a panel of experts that met and exceeded the qualifications set forth by the USACE in the Performance Work Statement (PWS) for the task. We supported and assisted the Panel in carrying out its review and served as the intermediary for communications between the Panel and USACE during the IEPR process.

3.1 Independent External Peer Review Organization

Figure 3 shows the organization of this IEPR. The purpose of this organization is to ensure the independence of the review.



(Note: For the acronyms see the List of Acronyms at the end of the report)

Figure 3 - Organization for this IEPR

3.2 Independent External Peer Review Panel Members

The IEPR Panel Members satisfied the qualifications for subject matter experts called for in the USACE performance work statement that defined the IEPR activities. The following are summaries of the qualifications of the IEPR Panel Members. More information about the Panel Members is located in Appendix A.

Prof. Donald Ator, Civil Works Planner

Prof. Ator is a Civil Works Planner with 43 years of specialized experience working for 32 of the U.S. Army Corps of Engineers (USACE) 38 Districts. He holds an MS in Economics and Agriculture Economics and an MBA with concentrations in Accounting and Finance from Louisiana State University. This experience has made him uniquely familiar with the USACE six step planning process (ER 1105-2-100 Planning Guidance Notebook) and the Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) planning process (Planning Manual Part II: Risk-Informed Planning), particularly as they direct the plan formulation, procedures, and standards for deep draft navigation channel improvement projects and dredged material management. This unique experience has resulted in Prof. Ator conducting independent technical reviews of the civil works planning of dozens of deep draft navigation improvement projects, including Internal Technical Reviews (ITRs), Agency Technical Reviews (ATRs), and Independent External Peer Reviews (IEPRs). Prof. Ator has participated in a number IEPRs as the Civil Works Planner for the USACE, including the following deep draft navigation improvement

projects: Mobile Harbor, AL, Draft Integrated General Reevaluation Report and Supplemental Environmental Impact Statement (EIS), USACE Mobile District; Section 216 Matagorda Ship Channel, TX, Draft Integrated Feasibility Report and EIS, USACE Galveston District; and Grays Harbor, WA, Deep Draft Navigation Improvement Project, General Investigation Feasibility Study, Limited Reevaluation Report, USACE Seattle District.

Prof. Donald Ator, Economist

Prof. Ator has 43 years of specialized experience working for 32 of the U.S. Army Corps of Engineers (USACE) 38 Districts as an Economist. He holds an MS in Economics and Agriculture Economics and an MBA with concentrations in Accounting and Finance from Louisiana State University. This experience has enabled Prof. Ator to become uniquely familiar with the economic assessment of containerized trade to evaluate alternative plans for proposed channel improvements using the correct tools for economic analysis, applying risk analysis, and developing trade/fleet forecasts for deep draft navigation channel improvement projects, as directed in the Principles and Guidelines. Because of this demonstrated experience, he has served as the independent technical reviewer for economics on dozens of deep draft navigation improvement projects including Internal Technical Reviews (ITRs), Agency Technical Reviews (ATRs), and Independent External Peer Reviews (IEPRs). Prof. Ator has participated in a number of IEPRs as the Economist for the USACE including the following deep draft navigation improvement projects: Mobile Harbor, AL, Draft Integrated General Reevaluation Report and Supplemental EIS, USACE Mobile District; Grays Harbor, WA, Deep Draft Navigation Improvement Project, General Investigation Feasibility Study (FS), Limited Reevaluation Report, USACE Seattle District; and Section 216 Matagorda Ship Channel, TX, Draft Integrated Feasibility Report and EIS, USACE Galveston District.

Mr. Paul Bovitz, Environmental Compliance Specialist

Mr. Bovitz is an ecologist with a BS in Wildlife Biology from Colorado State University and an MS in Ecology and MBA from Rutgers University. He has over 35 years of experience in the environmental field in academia, as a federal contractor to the U.S. Environmental Protection Agency (USEPA), and as a consultant for a variety of clients, including the Port Authority of New York and New Jersey, City of New York, U.S. Department of Defense, and several industrial clients. Although Mr. Bovitz has worked nationwide and internationally on a variety of projects, most of his experience is within the New York/New Jersey Harbor area where he has directed a wide variety of environmental investigations, including environmental impacts analysis. Much of his experience has involved assessment of ecological risks associated with contaminated sediments, preparation and review of EAs and EISs under National Environmental Policy Act (NEPA), and wetlands mitigation and restoration projects. Mr. Bovitz has worked on Dredged Material Management Plans under NEPA for the San Francisco and Baltimore Districts of the USACE and has been a third-party peer reviewer for channel deepening and dredged material management projects for the Philadelphia and Mobile Districts. He is certified as a Senior Wetlands Professional by the Society of Wetland Scientists, is a Licensed Site Remediation Professional in New Jersey, and is certified as a LEED AP. He is a member of the New Jersey Governor's Science Advisory Board Ecological Services Committee.

Dr. Harley Winer, Hydraulic/Coastal Engineer

Dr. Winer has a BS and an MS in Civil Engineering from the University of Delaware and a PhD in the field of engineering mechanics with emphasis on coastal engineering from the University of Florida. He has been a registered Professional Engineer in Florida, Alabama, Mississippi, Louisiana, and Texas. He has over 25 years of experience as a coastal hydraulic engineer in government service and the private sector. He has worked on projects in coastal, estuarine, and riverine environments. He has extensive knowledge and experience with numerical models. His

doctoral dissertation included the construction of a wave current interaction circulation numerical model. In his career at the USACE New Orleans District, he used all the Hydrologic Engineering Center (HEC) models for many projects. He was the technical point of contact on a contract with the developers of the ADvanced CIRCulation model (ADCIRC) model, for additional development of the model, and applying it to the design of hurricane levees in Louisiana. As Chief of the Coastal Engineering Section at the USACE New Orleans District, he was involved in many projects for the beneficial use of dredged material from the main channel of the Mississippi River, using both fine and non-cohesive sediments. He has a Diplomate in both Port and Navigation Engineering and serves on the American Society of Civil Engineers (ASCE) Navigation sub-committee of the Waterways Committee.

Dr. Christopher Brown, Geotechnical Engineer

Dr. Brown is a Professor of civil engineering at the University of North Florida in Jacksonville. Dr. Brown is a registered PE in the states of Florida and Pennsylvania. He obtained his MA in civil engineering (geo-environmental focus) from Villanova University in 1997 and his PhD. in civil engineering (hydrology focus) from the University of Florida in 2005. He has about 30 years of experience in the private sector, public sector, and in academia. He has worked on large navigation projects throughout his career including almost 16 years with the U.S. Army Corps of Engineers (USACE) Philadelphia and Jacksonville Districts. While working with the USACE, Dr. Brown worked on the geotechnical design of the Delaware River Main Channel Deepening and the proposed modification of the Chesapeake & Delaware Canal in Maryland and Delaware. He completed modeling and slope stability evaluations for these projects and helped with blasting evaluations of bedrock in the Marcus Hook, PA anchorage. He worked on several key navigation improvement projects in Florida including Jacksonville Harbor, Tampa Harbor, and Canaveral Harbor. He is well versed on dredging assessments and the beneficial reuse of dredged material and with USACE construction practices in navigation throughout the United States. He has participated in other important USACE Independent External Peer Review projects such as Olmsted Lock & Dam and the Snake River Navigation system.

3.3 Independent External Peer Review Process Management Team

The APM-I IEPR process management team consisted of the following members.

Mr. Ahmad Faramarzi, PE, PMP, Project Manager

Mr. Faramarzi is a registered professional engineer (PE) and a project management professional (PMP) with over 35 years of experience providing managerial and technical expertise to government clients, including the Office of the Secretary of Defense, the U.S. Army, the U.S. Air Force, Institute for Defense Analysis, USACE, and the Defense Nuclear Facility Safety Board. He has organized and managed several important and highly visible standing expert Panels in response to recommendations by the National Academy of Sciences (NAS), has been an expert on several Panels developing recommendations to cabinet level positions and Congress, and has managed over dozens of IEPRs of USACE water resources projects. He has also conducted EAs and is familiar with National Environmental Policy Act (NEPA 1969) process for the U.S. Army. He has conducted over two dozen IEPRs of water resources projects under the jurisdiction of USACE. Mr. Faramarzi has an applied scientist/engineer degree from George Washington University in Fluid Mechanics, an MS in Mechanical Engineering, and a BS in Nuclear Engineering. He is on the Board of Directors of the Washington, DC Section of the American Society for Mechanical Engineers and a member of ASCE.

Ms. Tammy Keaton, IEPR Coordinator

Ms. Keaton will be responsible for supporting the PM and PI in the execution of the requirements of all IEPRs, including coordinating and organizing of key meetings, supporting the PM, and assisting in the development of intermediate and final work products and deliverables. Ms. Keaton has over 20 years of experience leading and supporting programs and projects for federal government (e.g., DOJ, DOE, DOI) and commercial clients where she was responsible for achieving quality, schedule and budget requirements. She managed technology requirements and coordinating resources towards accomplishing multiple, simultaneous projects and task orders. She utilized insights from her membership at the Project Management Institute to support federal agencies.

Dr. Wade Smith, Task Leader

As an APM-I Sr. Principal Staff, Dr. Smith leads APM-I's IEPRs or provides support to other task leads. He has led several independent peer reviews, including IEPRs. As an IEPR Task Leader, he has been responsible for the overall task objectives and performance by maintaining regular contact with the Panel Members and coordinating activities with the PCX and Districts for several IEPRs. Dr. Smith is an ecologist and environmental scientist who received his PhD in environmental engineering sciences from the University of Florida. He has over 30 years of experience with environmental regulations, including the NEPA process, and with analyzing the environmental impacts of a wide variety of types of federal projects. Examples include dredging and dredged material disposal, offshore oil and gas exploration and production, domestic and industrial wastewater disposal, operation of electric power generating stations, construction and operation of coastal recreational developments, pipeline construction and operation, realignment and re-stationing of military forces, closing of military installations, operation of chemical munitions destruction facilities, and dismantling of chemical warfare agent production facilities. Dr. Smith is experienced in working on scientific and engineering issues involving complex and controversial projects. He has participated in all aspects of the NEPA process. He has prepared programmatic and site-specific EISs, EAs, and subject-specific environmental analyses. Dr. Smith has been responsible for all elements of analysis of the physical, biological, and socioeconomic environments. He has participated in all NEPA phases–scoping, draft EIS, public hearings, response to public comments, final EIS, and record of decisions. Dr. Smith has also prepared NEPA and environmental analysis guidance documents to be used by federal environmental managers and planners.

Mx. Juliet McCurry, Research Assistant

Mx. McCurry will be responsible for supporting the PM, PI, and IEPR Coordinator in the execution of the requirements of this IEPR, including conducting research, coordinating and organizing meetings, and assisting in the development of intermediate and final work products and deliverables. Mx. McCurry has 11 years of experience supporting various projects for professional organizations and holds a Bachelor of Fine Arts in Entertainment Arts from the College for Creative Studies in Michigan.

4 Independent External Peer Review Comments

The IEPR Panel has completed a detailed independent technical review of the NYNJHDCI Study prepared by the USACE New York District. As called for in the performance work statement, the review included review of environmental, engineering, and economic issues, models, assumptions, and calculations.

Section 4.1 provides a summary of the IEPR Panel comments. Section 4.2 presents the complete set of IEPR Panel comments.

4.1 Summary of Independent External Peer Review Comments

There were 19 Panel comments[1]. The following is a summary of issues identified by the Panel.

Civil Works Planner

The plan formulation was straight forward and to the point. The process followed the USACE plan formulation processes, procedures, and standards for deep draft navigation channel improvements set forth in the Principles and Guidelines (USWRC 1983). Some details were not included in the Review Documents because guidance in Planning Manual Part II: Risk-Informed Planning calls for collecting more data only if not having the data is a tolerable risk. For example, in the *Real Estate* Appendix, information on the ownership, potential business relocation costs, schedule delays, and expected temporary easement costs associated with demolition of two chimneys were left for the Planning and Engineering phase of the study process. Apparently, these details were not included based on the assumption that the cost of acquiring the information was greater than the risk associated with not doing so. However, there is significant risk in not having this information at this point because these issues could have a substantial effect on project cost and schedule. Overall, the plan formulation effort was well documented in the Review Documents.

Economist

The economic analysis of containerized trade to evaluate the alternative plans for the proposed deep draft navigation channel improvements used the appropriate tools for economic analysis, applying risk analysis, and developing trade/fleet forecasts. However, the following areas of the Review Documents lacked technical clarity and context. Throughout the Review Documents different total costs, fiscal year price levels, and discount rates were presented with no explanation for the inconsistencies. Transportation delay costs during the 14-year construction period were not included in the benefit-cost analysis. The environmental consequences did not address expected sociological conditions under future with- and without-project conditions. In addition, the Regional Economic Development (RED) analysis did not explain the meaning or context of the identified impacts relative to expected future conditions. These issues affect the understanding and completeness of the Review Documents but are not likely to affect the selection of the TSP.

Environmental Compliance Specialist

The Main Document is National Environmental Policy Act (NEPA) compliant. The Panel agrees that an Environmental Assessment (EA) is the appropriate level of analysis required for the project since an Environmental Impact Statement (EIS) was prepared for the previous channel-

[1] Panel comments consisted of 1 High significance, 1 Medium High significance, 7 Medium significance, 4 Medium Low significance, and 6 Low significance.

deepening project that addressed many of the pertinent environmental issues in detail. The Panel identified several deficiencies in the document that should be addressed. Although these issues are unlikely to affect the choice of the Preferred Alternative under NEPA, they should be addressed by the USACE to ensure NEPA compliance and to clarify the scope and context of the TSP that is the Preferred Alternative.

The Purpose and Need section should be revised so that it is based on the proposed project and not the previous deepening study. The existing description of the Purpose and Need in the main document is for the study, not the project. The Purpose and Need section must define the project as a basis for alternatives. Logically, there are no alternatives to the study itself – it is a study. While this may appear to be only a case of semantics, the "purpose and need" must be stated accurately as a basis for analysis of alternatives under NEPA.

Also, in defining the scope of the project and the EA, the USACE should clarify for reviewers and the public the extent of activities for which the project sponsor, the Port Authority of New York and New Jersey (PANYNJ), would be responsible and for which activities USACE is responsible. The Panel assumes that indirect impacts such as growth of the port and resulting vehicle traffic, air emissions, and transportation infrastructure would be the responsibility of the PANYNJ to analyze in future documents, but this issue should be clarified in the USACE documents. Otherwise, the public and others may be looking in this document for analysis of these indirect impacts to be incurred by others.

The discussion of project need should also include discussion of why USACE feels the ship design used for the deepening design is adequate as a reflection of future needs over the 50-year planning horizon. The basis for this comment is that according to the EA, the previous 50-foot deepening effort was barely finished when the size of the ships entering the harbor "has led to the existing project's channel's dimensions being unsuitable for the current needs of the Port". The shipping industry in its comments on the NYNJHDCI Study foresees vessels to be 18,000 to 24,000 Twenty-foot Equivalent Unit (TEU) vessels. Based on trends in shipping to date, it is unclear why the proposed channel depth will not become inadequate to keep pace with other ports should even larger ships be used in the future.

The EA adequately addresses project environmental impacts based on prior experience from the previous channel deepening project. However, the treatment of existing sediment quality focuses solely on National Priority List or hazardous sites and the fact that these sediments would not be intersected by the proposed deepening. Contaminant levels in the New York/New Jersey Harbor estuary have been well documented; this information should be provided to the public in the EA. Similarly, information is already available on prior project impacts (or lack thereof, if applicable) from noise impact, and any impacts from blasting to adjacent communities. This information should be incorporated into the EA, especially in light of public concerns over potential environmental justice (EJ) issues.

Hydraulic/Coastal Engineer

The hydrodynamic modeling conducted by Engineer Research and Development Center was impressive. The model integrated waves, tides, salinity, and sediment transport in a three-dimensional circulation model and achieved good calibration. However, the model was not used to assess the impacts of the proposed deepening. An important issue is the potential for increased storm surge along and to the west of the enlarged KVK, which was observed in the model output conducted for the previous channel deepening project from 45 to 50 feet MLLW. There is no mention of this in the documents reviewed. The potential increase in storm surge in Newark Bay and the Passaic and Hackensack River valleys could result in increased costs for mitigation.

The Maritime Institute of Technology & Graduate Studies (MITAGS) Ship Simulation Study was well done; the panel is aware of the realistic nature of the simulation. A review of the ship simulation study produced two significant issues. One is the possibility that area AN-1 may not be needed for ships to exit the Port Jersey Channel. The other issue is that the large cross-sectional area of the Ultra-Large Container Vessels (ULCVs) with respect to the channel dimensions could produce very large surge forces, even at very slow ship speeds, on docked ships and mooring structures in the Port Jersey and Elizabeth channels, which could require reconstruction and improvement of docking infrastructure to withstand the forces. This issue is not mentioned or analyzed in the documents reviewed.

The analysis does not have any discussion of sea level rise. Sea level rise is expected to be significant in the project area over the next 50 years. The sea level rise may reduce the necessity for the deepest of the current plans under consideration (e.g., -55 feet MLLW plan) since the overall net benefits of the smaller plan (e.g., -54 feet MLLW plan) are about equal to the deeper plan and the overall risk of environmental impacts is probably less.

Geotechnical Engineer

In general, the geotechnical evaluations completed for the project are based upon existing information available from the last channel deepening effort. These data are adequate for the feasibility-level designs that are presented. The summary of the available data is extensive and the engineering analysis completed utilizing the geotechnical data is appropriate. However, the analysis has a few shortcomings that could be improved upon.

The Appendix B2, *Geotechnical Analysis*, includes a number of figures that are mislabeled and others that are referenced in the text but are missing. In addition, there is limited explanation regarding the selection of geotechnical design parameters. More specifically, it is not clear how the geotechnical design parameters were developed from the available geotechnical subsurface data. In addition, a key portion of the design basis is Standard Penetration Test (SPT) blow count information. However, it appears that the “raw” blow counts were used for all evaluations (e.g., dredgeability, slope stability) instead of corrected blow counts. The use of corrected blow counts is preferred for engineering correlations since they provide more accurate estimates of soil properties.

4.2 Independent External Peer Review Panel Comments

This section contains the complete set of comments of the IEPR Panel. Each comment consists of four parts:

Comment
Basis for comment
Significance of the concern
Recommendation for resolution of the comment.

Comments have a rating to indicate the general significance that the comment has to the project implementability. The definitions of the significance ratings are as follows:

- **High** – A fundamental issue within study documents or data that will influence the technical or scientific basis for selection, justification, or successful implementation of the recommended plan.
- **Medium High** – A fundamental issue within study documents or data that has a strong probability of influencing the technical or scientific basis for selection of, justification of, or ability to implement the recommended plan.

- **Medium** – A fundamental issue within study documents or data that has the potential of influencing the technical or scientific basis for selection of, justification of, or ability to implement the recommended plan.
- **Medium Low** – Due to missing, incomplete or inconsistent technical or scientific information that affects clarity, understanding, or completeness of study documents, the Panel is uncertain whether the missing information may affect selection of, justification of, or ability to implement the recommended plan.
- **Low** – Issue pertains to minor technical or scientific discrepancy or inconsistency in study documents or data that does not influence the selection of, justification of, or ability to implement the recommended plan.

4.2.1 Significance: High

COMMENT 1
There is no discussion of the possibility of increased storm surge along and to the west of the Kill Van Kull (KVK) resulting from the proposed enlargement of the KVK.
Basis for Comment
The conveyance of the KVK will be increased by the enlargement of the channel, which could increase the effect of storm surge in the channel along Staten Island and to the west in the Newark Bay complex. The channel hydraulic conveyance was increased by about 15% as part of the project to deepen the KVK to -50 feet MLLW. If the proposed -55 feet MLLW project is selected, the total increase in conveyance from the original -45 feet MLLW plan would be about 30% or possibly more pending resolution of slope mitigation in portions of the KVK (e.g., unstable 1V:3H slopes at boring ANC98-31). This is a significant change. The estimate of increased conveyance is a rough estimate developed by the Panel using a simple Manning's Equation approach. The actual increase in storm surge that results from the channel modification is unknown at this time and would need to be evaluated. Previously performed sediment transport modeling simulations of the -50 feet MLLW project noted an increase in sediment conveyance capacity through the channel of about 36% as compared to the base case original project at -45 feet MLLW. Even more water will flow through the newly deepened channel when the water surface elevation at the east end of KVK is raised due to a storm event if the project is completed. There needs to be discussion and determination of how water levels (storm surge) will be increased in the areas along Staten Island and to the west of the KVK in the Newark Bay area. Some insight can be obtained by comparing the surge levels along Staten Island and in the area west of the KVK resulting from simulated Hurricanes Sandy and Irene at the original -45 feet MLLW channel and the previously completed -50 feet MLLW channel. This should be available in the output of the current model. Although this approach would not directly simulate changes that might occur for the proposed -54 or -55 feet MLLW projects, it would provide an estimate of potential impacts now rather than waiting to evaluate this further during Preconstruction, Engineering and Design. It is possible that flood mitigation measures might be required along Staten Island and in the area west of KVK in Newark Bay. If mitigation is required, the total project cost could be increased substantially.

Significance: High
The level of storm surge resulting from different enlargements of the KVK could greatly influence the cost benefit analysis of the alternatives if large mitigation measures were to be required.
Recommendation for Resolution
Recommendation #1: Discuss in the documentation the potential to increase storm surge water levels resulting from the enlargement of the KVK and how significant this issue could be. Determine if an estimate based on previous modeling is adequate to support decisions at this stage of the project or if the proposed new channel configuration needs to be run in the numerical model with Hurricane Sandy and Irene with an appropriately modified model grid to determine this impact with sufficient assurance to make decisions concerning the TSP.

4.2.2 Significance: Medium High

COMMENT 2
Relative sea level rise (RSLR) should be considered in the final selection of the Tentatively Selected Plan (TSP) to deepen the project to -54 feet MLLW or to -55 feet MLLW.
Basis for Comment
The USACE is considering two navigation improvement alternatives: the plan to deepen the navigation system channels to -54 feet MLLW and the plan to deepen the same to -55 feet MLLW. Each of these plans has a positive benefit to cost ratio and considerable positive net average annual benefits. However, the net average annual benefits for each plan are about the same at roughly $160,000,000. The -55 feet plan requires an additional total economic cost of more than $250,000,000 and may also have larger environmental impacts due to additional rock blasting, dredged material disposal, changes in water salinity, and possible increases in storm surge flooding. At this time, many of these impacts are not entirely known due to the nature of the USACE “Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) Planning” paradigm and because not all engineering modeling and environmental analysis have been completed at a high level-of-detail. More studies will be required during the project engineering design phase to better estimate the level of environmental impacts. Projected RSLR at the Battery, New York tidal gauge is estimated to be at least 0.56 feet relative to the mean tidal level by 2087 using the “Low RSLR” planning curve from the USACE Sea Level Rise Calculator (See Table 15 of Appendix B1). The low RSLR value at the year 2137 is estimated to be at least 1.02 feet. The Intermediate RSLR planning curve results in estimates of 1.37 feet for 2087 and 2.89 feet for 2137. Many USACE districts have been using the Intermediate curve for project planning and future projections (e.g., see Coastal Texas project in Galveston District and Collier County Coastal Storm Risk Management project in Jacksonville District). Therefore, it is likely that changes in sea level would be between 0.56 to 1.37 feet within 50 years following project construction. When comparing the two best alternatives for navigation improvements, the overall effect of RSLR would seem to point to a “free” benefit with no costs if one were to look at the -54 feet alternative. Theoretically, the -54 feet plan considering RSLR could provide the same benefits as the -55 feet plan after 50 years with none of the additional impacts or economic costs. In addition, in risk-based decision-making, if the lesser project can provide similar benefits with less uncertainty and risk, it could be a superior alternative.

Significance: Medium High
The issue raised is a fundamental issue within study documents that has a strong probability of influencing the technical or scientific basis for selection of the TSP.
Recommendation for Resolution
Recommendation #1: Include the likely rise in relative sea level over the life of the project when calculating the potential benefits, costs, and uncertainty of each of the two best alternatives. Use this information when selecting the final TSP. **Recommendation #2:** Include a calculation of potential "free" benefits that RSLR might provide to the project navigation improvements.

4.2.3 Significance: Medium

COMMENT 3
The Project Purpose and Need section requires additional information to justify why the USACE is confident that the proposed project will not be rendered obsolete by even larger ships by the time the project is completed.
Basis for Comment
The draft report (bottom page 2) states: "The Initial Appraisal Report states that the accelerating expansion of the volume of trade and the resulting fleet transition to larger vessels that has taken place since the 50-foot federal navigation project was authorized has led to the existing project's channel's dimensions being unsuitable for the current needs of the Port of New York and New Jersey. This has occurred sooner than was anticipated by the 1999 Study". Further, for the current project that is the subject of the EA/FS, the construction implementation date for the Tentatively Selected Plan is given as October 2024, and the project completion date is given as 14 years later. Given that the increase in ship size accommodating larger Twenty-foot Equivalent Units (TEUs) for the sake of efficiencies has increased more rapidly than expected in the past, justification is warranted in the text as to why the USACE is confident that this would not occur again. In short, the viability of the project potentially depends on the ship design chosen as the basis for the analysis.
Significance: Medium
This is an important issue to address in the text as it deals with justification for the Tentatively Selected Plan.
Recommendation for Resolution
Recommendation #1: Discuss the USACE confidence level that the design ship used in the analysis is appropriate to select the TSP. **Recommendation #2:** Identify "error bars" or a sensitivity analysis around the issue of how differences in the size of the design ship could affect the viability of the proposed project.

COMMENT 4
The Project Purpose and Need is not clearly defined as a basis for analysis of alternatives.
Basis for Comment
The discussion on p. iii and pg. 1 Section 1.2 defines the study purpose, not the project purpose. Since this is an integrated FS and EA, to be National Environmental Policy Act (NEPA)

compliant the project purpose should be defined as a basis for alternatives selection. The stated objective "This NYNJHDCI study will determine whether there is a technically feasible, economically justifiable, and environmentally acceptable recommendation for federal participation in a navigation improvement project in the New York and New Jersey Harbor" does not in itself provide the basis for analysis of alternatives. Because it does not, the scope of the EA and alternatives is not clearly defined.

In Section 1.1 and elsewhere in the document, there is extensive discussion of the need for additional navigational efficiency associated with accommodating industry trends toward larger ships. On page 2 of the Main Report USACE appears to limit the scope a priori without explaining why: "The USACE determined that the current study will focus its analysis on the existing federal -50- foot MLLW navigation channels in the New York and New Jersey Harbor and immediately adjacent areas". This statement does not make it clear whether harbor improvements or impacts need to be considered and may be confusing to the public and others reviewing the project as to what the stated objectives, alternatives, and consequences may be.

Significance: Medium

The need for the project, preferred alternative, and alternatives analysis all depend on an accurate Project Purpose and Need statement that defines the proposed project itself in compliance with NEPA.

Recommendation for Resolution

Recommendation #1: Clearly define the Project Purpose and Need in terms of the project purpose instead of the study purpose. Use active terms with stated objectives. For example: "To meet the need for increased navigational efficiency associated with trends toward larger TEU vessels serving the Port of New York and New Jersey by channel deepening and other navigational improvements."

COMMENT 5

The Review Documents do not adequately identify which agencies are responsible for assessing and mitigating potential indirect project impacts resulting from implementing the Preferred Alternative.

Basis for Comment

The documentation should identify the channel improvements as the primary impacts for which the USACE is responsible to analyze at this point in the project and that the USACE will analyze and evaluate indirect project impacts later in the planning process. The proposed channel improvements will improve navigational efficiency and should also improve throughput and assist with the growth of container volume handled at the Port over time. This in turn would allow continued revenue growth and help maintain the Port's competitive position with other East Coast ports in the U.S. and Canada. However, increases in efficiency may translate into landside issues that require environmental assessment, analysis, and possible mitigation. An example is potential air quality impacts from increased truck and rail traffic and road congestion. It is possible that such impacts do not occur at all, but the point is that the document does not identify them or the organization that has the responsibility to address them.

In the view of the Panel, the Port Authority of New York and New Jersey; as the Project Sponsor and principal bi-state agency responsible for leasing terminal space and for maintaining roads, bridges, and other infrastructure handling freight transported by vessels at the Port; may be responsible for assessing those impacts as part of any future improvements as well as part of their overall Master Plan.

Significance: Medium
It is important to clarify the scope of the documentation for which USACE is responsible.
Recommendation for Resolution
Recommendation #1: The documentation should describe more about the relationship between the USACE and PANYNJ in terms of roles and responsibilities as they affect the scope of this document. Insert text under the Purpose and Need section of the document regarding the scope and extent of environmental impacts discussed in the documentation and any impacts that would be identified in the future by others as indirect impacts.

COMMENT 6
The Review Documents do not include a sufficient description of existing sediment quality affected by the project to allow the evaluation of environmental consequences of dredging or disturbing these sediments or of dredged material management alternatives.
Basis for Comment
An EA/FS for a project of this scale involving dredging and management of millions of cubic yards of sediment should include a detailed description of sediment characteristics (grain size, total organic content) and summary analytical data on contaminants that would allow the public to ascertain potential environmental impacts of dredging or disturbing these sediments. While Section 2.3 of the main report describes the stratigraphic profile of many of the areas to be dredged, such information should be combined with existing analytical data to provide the reader with a summary of expected contamination issues. Sediment contamination may affect impacts to aquatic life when disturbed by dredging and may also affect dredging and disposal alternatives. Analytical data are available from recent testing performed by the cooperating parties group of the Passaic River National Priorities List site and others already cited in the report. The sediment quality summary in Section 2.4.2 of the main report is not sufficiently detailed to allow evaluation of potential impacts to water quality or biota. The approach taken toward evaluation of water quality in the report is to state that the project is outside their remediation area and hence there would be no Hazardous, Toxic, and Radioactive Waste impacts. This ignores regional sediment quality in the areas proposed for deepening that are well outside of existing sites proposed for remediation. In addition, while only “clean” material may be taken to the Historic Area Restoration Site (HARS) there is little discussion in the document of 1) alternative modes of dredging (e.g., demonstrating that the proposed plan will minimize impacts) and 2) dredged material disposal alternatives for any material that cannot go to the HARS.
Significance: Medium
Sediment quality is a major item of concern on any dredging project and belongs in the EA/FS; this is a significant omission from the environmental impacts section of the report, which could influence the selection and implementation of parts of alternatives.
Recommendation for Resolution
Recommendation #1: If information is available from the 1999 Dredged Material Management Plan EIS (USACE 2000) on sediment quality and physicochemical characteristics on each reach proposed for dredging, that material should be brought forth with a detailed estimate of the amount of cubic yards to be removed of silt versus clean sand or bedrock that is blasted. Impact areas where fine sediments could be suspended in the water column should be spatially identified on figures showing the extent within each reach proposed for channel deepening.

Recommendation #2: The stratigraphic summaries provided should be integrated and augmented with a summary table indicating the range of contamination detected for major contaminants in the areas to be dredged to include not just 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin (TCDD) proposed for remediation by the Diamond Alkali site but also metals, pesticides, and other contaminants present in Harbor sediments that will be dredged.

Reference: USACE 2000, *Dredged Material Management Plan for the Port of New York and New Jersey, Final Revision to the 1999 Programmatic Environmental Impact Statement,* USACE, New York District.

COMMENT 7

The analysis in the Review Documents does not clearly define how Standard Penetration Test (SPT) blow counts were correlated to geotechnical design parameters, thus providing the basis for the validity of the adopted values.

Basis for Comment

A clear understanding of the basis for adopting key geotechnical design parameters (e.g., friction angle, cohesion, unit weight, etc.) is a fundamental component of a complete geotechnical design. The Appendix B2, *Geotechnical Analysis*, currently does not contain the required explanations. For each area of proposed dredging, a table is provided that does give a "representative N-value or Rock Quality Designation." However, the document does not show how these values were determined.

In addition, using SPT N-values for this effort is acceptable but it appears that none of the "raw" N values were adjusted for overburden stress, hammer energy, or drill rig type. For slope stability and dredgeability assessments, it is important to use adjusted N-values to ensure that correct correlations are made to the appropriate design parameters.

Significance: Medium

This is a fundamental technical issue related to the overall channel dimensions and stability of each proposed navigation reach.

Recommendation for Resolution

Recommendation #1: Provide additional narrative explanation regarding how each representative N value was obtained for each navigation reach.

Recommendation #2: Correct all "raw" N-values to account for overburden stress, hammer energy, etc., and use the adjusted N-values for design purposes.

Recommendation #3: Revise slope stability evaluations as necessary based upon the revised representative N-values.

Recommendation #4: Revise proposed channel dimensions and slopes as required.

COMMENT 8

The Review Documents do not adequately justify the need for dredging area AN-1 to be used to turn ships around.

Basis for Comment

Figure 14 in Appendix B1, *Channel Design*, shows a ship backing into the area AN-1 in order to turn around and then proceed south to exit the port. However, Figure 39 and Figure 40 from

the Maritime Institute of Technology & Graduate Studies (MITAGS) Ship Simulation Study show that the Triple E backing out of Port Jersey Channel does not need to enter the AN-1 area to turn around. With the proper tug assist, the Triple E can be turned around by pivoting about a point very near its stern. The explanation provided in the *Channel Design* Appendix of the Review Documents does not adequately explain why the area AN-1 needs to be dredged. The area may not be needed for ships to back into in order to turn around. If the area is needed for other reasons, they are not discussed in the report.
Significance: Medium
This a fundamental issue that will influence the elements included in the TSP.
Recommendation for Resolution
Recommendation #1: Justify the need for dredging area AN-1. The justification should include consideration of the MITAGS Ship Simulation Study. Delete area AN-1 from consideration if there is no justification for it.

COMMENT 9
The Review Documents do not analyze and discuss the possibility that the large underwater displacement of the Ultra-Large Container Vessels (ULCVs) could create surge forces that may exert significant forces on other ships moored in the same small channel that the ULCV is transiting, which could require that docking infrastructure must be improved and strengthened.
Basis for Comment
The MITAGS Ship Simulation Study states the following in the concluding section: “The large underwater volume of the ULCVs relative to the channel volume could create significant surge forces on moored vessels in confined waters. Keeping the speed off these vessels will be critical to managing the surge forces. However, even at very slow speeds, surge may still be a significant factor in areas such as Global Marine Terminal, and/ or Port Elizabeth Channel Reach where the water flow is restricted by the berths and other vessels. Suggest further study of the water flows created by a ULCV entering and departing these areas, to determine maximum safe speed of approach. These studies may indicate a need for changes in the mooring line configurations and stronger bollard and tendering arrangements.” Constructing new bollards and upgrading other berthing infrastructure could add significant cost to the project. Constructing stronger bollards could also require greater foundation support, which could be a significant cost. However, the issues raised in the MITAGS study are not considered, analyzed, or discussed in the NYNJHDCI study.
Significance : Medium
This is an issue that has not been addressed in the report and has the potential to alter the cost benefit ratio influencing the basis for the selection of the TSP.
Recommendation for Resolution
Recommendation #1: Analyze and evaluate the surge forces exerted on other moored ships to determine if bollard and other berthing infrastructure improvements are likely to be needed. Estimate the costs of the improvements to determine the effect on the project benefit cost ratio.

4.2.4 Significance: Medium Low

COMMENT 10
Additional detail is warranted to clarify the need for the project and how the Preferred Alternative (Tentatively Selected Plan) will meet that need in the presence of changing economic conditions.
Basis for Comment
Figures 6-8 on pgs. 41-45 summarize the discussion of growth in TEUs, container tonnage, and size of ships, in part to demonstrate the need for the proposed project. However, because these growth trends are based on assumptions, clarification is required as to whether the project need will remain the same under changing conditions in the future. For example, currently a major amount of import and export volume at the Port is associated with China followed by India. The document does not discuss how those trends may change given recent Federal focus on redirecting manufacturing to the U.S. and correcting the trade imbalance with China. As another example, it is not stated if the economic projections take into account the change in manufacturing that the COVID-19 pandemic has had on U.S. industry or if this change is temporary or permanent.
Significance: Medium Low
It is unlikely that the need for the project would be diminished, but a more detailed explanation is needed so that it is clear that these factors have been considered.
Recommendation for Resolution
Recommendation #1: Address the issue of reduced trade volume with China as potentially being replaced by other entities as has been seen in the last two years. **Recommendation #2:** Discuss how the COVID-19 pandemic and similar scale economic disruptions would affect the 50-year forecast used to justify the project.

COMMENT 11
The cost to demolish the two chimney stacks on the south side of the Kill Van Kull are not included in the analysis.
Basis for Comment
There are two chimney stacks that are proposed for demolition that are located on industrial properties along the south side of the Kill Van Kull on Staten Island. These structures have been identified as being at risk from vibratory impacts from the dredging involved in the Tentatively Selected Plan (*Real Estate* Appendix, Section 3.2.2, *Required Lands, Easements, and Rights-of Way* (*LER*), page 3; and Section 12. Public Law 91-646, Uniform Relocation Assistance page 11). However, the owners of the chimney stacks have not been identified and no details or cost estimates are provided for the demolition, temporary work easements, temporary road easements, or potential business relocation costs. The *Real Estate* Appendix states that before the final Real Estate Plan is prepared, adequate outreach will be made to the landowner/businesses on these two properties to ascertain the effects of the proposed demolitions on the businesses and an assessment and determination will be made regarding possible business relocation costs. However, some preliminary estimates are needed at this point in the analysis to determine the significance of the potential costs and schedule delays.

Significance: Medium Low
Due to these unknown costs and potentially substantial schedule delays depending on the nature and size of the affected businesses, the Panel is uncertain whether the missing information may affect implementation of the Tentatively Selected Plan.
Recommendation for Resolution
Recommendation #1: Identify and contact the affected businesses and estimate the potential impacts to project costs and schedule to demolish the chimney stacks.

COMMENT 12
The review document addresses project noise sources but does not address landside regional sources of noise, which would put any noise impacts in a regional context (relative to ambient conditions from other sources).
Basis for Comment
Section 6.16.1 *No Action/Future Without-Project Alternative*: The referenced section appears to focus solely on noise-related impacts associated with existing navigational traffic on the water. Of primary concern to the impacts analysis are regional populations including Environmental Justice (EJ) populations and the potential to experience noise impacts from blasting. The ability of humans to perceive noise from a project is greatly influenced by regional noise; noise impacts are not usually additive. Therefore, some detailed discussion of existing noise levels is warranted.
Significance: Medium Low
This issue is an important environmental issue to the public that warrants more detailed treatment.
Recommendation for Resolution
Recommendation #1: Table 36 provides an appropriate context for characterizing potential noise impact. However, the port data provided are from Alaska. The USACE should measure existing noise quality in Elizabeth, NJ, on Staten Island, Bayonne, and other adjacent communities as a baseline indicative of regional noise quality. This would greatly improve the analysis. **Recommendation #2:** There are several regional noise sources affecting the referenced communities that need to be mentioned in this section. These include Newark Airport and incoming air traffic, the NJ Turnpike, RT 1, and several bridges (Goethals, Bayonne) with traffic affecting background noise. In addition, there are existing refineries, factories, and other industrial sources in close proximity to the waterways and communities within the study area. These should be mentioned. **Recommendation #3:** Noise impacts from blasting should be directly addressed. Data should be available from the original channel deepening project for use in this EA/FS.

COMMENT 13
The treatment of Environmental Justice (EJ) issues requires further substantiation and support regarding the area evaluated and focuses almost entirely on the proportion of minority populations in the study area as opposed to potential impacts.

Basis for Comment
The language from the Executive Order cited in the main report "*Executive Order 12898 directs Federal agencies to identify and address disproportionately high* ***and*** *adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.*" [emphasis added] According to the EA/FS (Section 6.2.1, p. 91) in order to identify landside areas that may experience secondary direct project impacts, such as odor or noise, a one mile "buffer area" was delineated around all deepening and/or widening areas with the use of Geographic Information System (GIS) software. However, no justification is provided for the one-mile buffer, and as presented it sounds arbitrary. The buffer zone evaluated should be determined on the basis of projected project impacts. This should be well known based on the prior channel deepening project. For example, if noise impacts from blasting are limited to a one-mile buffer zone from the channel area, then a one-mile-wide buffer would likely be sufficient. But should noise impacts extend farther, then the buffer zone evaluated would need to extend farther accordingly. The conclusion presented by USACE on p. 93 states "*Based on this analysis, there exist several concentrations of minority and/or low-income populations within the buffer area. However, these concentrations do not comprise a significant portion of the overall population within the buffer area, and therefore, minority populations are not disproportionately represented in the area of potential impact.*" This may be true, but even if EJ groups are not disproportionally present within the study area that does not preclude the possibility that the **impacts** are disproportional. Some discussion should be made in the text to indicate why USACE believes this is not the case. The presence of the "and" in the quote from ES 12898 implies that it is not sufficient to focus on EJ issues only if there is a disproportionately high proportion of these communities in the area.
Significance: Medium Low
It is an important issue to address in the main report and subsequent documents.
Recommendation for Resolution
Recommendation #1: Provide the basis for selecting a one-mile buffer area width and modify based on potential impacts, if necessary. **Recommendation #2:** State in the report that the project sponsor (Port Authority of New York and New Jersey) would be required to plan for and manage any local impacts on air quality, truck traffic, and noise generated resulting from construction/dredging and any long-term increase in vessel traffic/volume and resultant environmental effects on local communities such as Elizabeth, New Jersey.

4.2.5 Significance: Low

COMMENT 14
The Regional Economic Development analysis generates output, jobs, labor income and value added using the Regional Economic System (RECONS) model, but the narrative does not clearly explain the meaning or context of the impacts.
Basis for Comment
Section 8.2, *Regional Economic Development Analysis,* Table 61: *Overall Summary of Regional Economic Development Benefits*, pages 71 – 72, presents local capture total impact

and direct impact of $3,049,770; $3,184,384; and $3,927,733 for the local, state, and U.S., respectively. However, it does not indicate how double counting is avoided or if the impacts are cumulative. It is not clear why "local capture total impact" for local, state, and U.S. are the same as the direct impacts or whether the U.S. "local capture total impact" includes the state and local "local capture total impact". It is also unclear whether the 18,270 local jobs total impact are included in the 22,325 state jobs total impact and the 39,368 U.S. jobs total impact or why the output and jobs total impact for the U.S. are more than double the direct impact for the U.S., but local and state output and jobs impacts are only 52 percent and 65 percent more than the direct impacts, respectively. The context of the impacts should be explained. For example, estimated employment in the Metropolitan Statistical Area (MSA) in 2019 totaled 15,584,000, which makes the RECONS estimated impact on local and state jobs an almost imperceptible 0.11 percent and 0.14 percent, respectively. The impacts are also likely imperceptible for labor income and value added relative to existing labor income and value added for the MSA.
Significance: Low
This issue is a matter of lack of technical clarity and context that affects understanding and completeness of the decision documents, but does not influence the selection of, justification of, or the ability to implement the recommended plan.
Recommendation for Resolution
Recommendation #1: Provide a clear explanation in the decision documents of the following: the meanings of "local capture total impact" and how it is different for local, state, and U.S.; how the RECONS model avoids double counting impacts; and why output and jobs total impacts for the U.S. are over 225 percent larger than the direct impact and only 52 percent and 65 percent larger than the direct impacts for the local and state areas, respectively. **Recommendation #2:** Include a description of the context of the impacts to the local, state, and U.S. areas relative to without project conditions.

COMMENT 15
Costs of transportation delays during the construction period, a minimum of 14 years, are not accounted for in the project cost estimate or the benefit-cost analysis in the decision documents.
Basis for Comment
Transportation delay costs are real economic costs that should be included with the costs associated with the excavation and removal of 34 million cubic yards of material to deepen, widen, and straighten the shipping channels. The construction activities not only involve dredging, hauling, and placement of the material, but are expected to include pretreatment before excavation accomplished with the assistance of drilling and blasting. These types of construction activities will cause significant transportation delays during construction of the Tentatively Selected Plan.
Significance: Low
Exclusion of the transportation delay costs in the project construction costs in the decision documents has the potential for influencing the technical basis for selection and justification of the Tentatively Selected Plan.
Recommendation for Resolution
Recommendation #1: Include a transportation delay costs estimate in the decision documents in addition to the project construction costs estimate and the benefit-cost analysis. The estimate

should be based on the drilling and blasting schedule estimates that were developed from the offshore crewing, material, production, and equipment assumptions consistent with the practices of the dredging industry, including the local restrictions on night-time and Sunday blasting.

COMMENT 16
The discussion of Environmental Consequences states that existing and projected future condition descriptions include sociological conditions and describes these conditions for without alternative actions and with the implementation of the alternative actions. However, no information on sociological conditions without or with implementation of the alternative actions are presented.
Basis for Comment
Page 90 in Section 6, *Environmental Consequences*, provides descriptions of existing and projected future conditions without and with implementation of the alternative actions for 21 resources, but sociological conditions are not included.
Significance: Low
This issue is a matter of lack of technical clarity and context that affects understanding and completeness of the decision documents, but does not influence the selection of, justification of, or the ability to implement the recommended plan.
Recommendation for Resolution
Recommendation #1: Include information from Section 8, *Socioeconomic and Regional Analysis, Economic Appendix, in Section 6, Environmental Consequences* in order to describe existing and projected future sociological conditions without implementation and with implementation of the alternative actions The descriptive sociological information should include existing and projected future conditions for population data, private sector employment, wage earnings, race, age, poverty levels, and environmental justice.

COMMENT 17
Multiple Total Costs, Fiscal Year Price Levels, and Fiscal Year Discount Rates are presented throughout the report for evaluating and selecting the Tentatively Selected Plan, but no explanation is provided for the differences.
Basis for Comment
Selected examples of the different costs, price levels, and discount rates found in the report are the following: 1. In the Integrated Feasibility Report and Environmental Assessment Table 43, page 131, total costs are $3.81 billion using Fiscal Year 2021 Price Level and discount rate of 2.5%. 2. In the *Cost Engineering* Appendix, Table 1 Cost Estimate Summary First Cost, page 5, is $3.81 billion (October 2020 Price Level), with no discount rate indicated. 3. In the *Economics* Appendix: a) Section 1, Study Purpose and Scope, page 1 has the following footnote: Initial alternatives analysis (Section 5.4. uses Fiscal Year 2020 Federal Discount Rate and October 2019 price level. The recommended plan is updated to the Fiscal Year 2021 discount rate and October 2020 price level, with no reference to Fiscal Year discount rate used;

b) Section 5.4. Alternatives Benefit-Cost Analysis, Table 47, Alternatives Costs, page 63, uses October 2019 Price Level, 2.75% Discount Rate has the cost as $4.8 billion;

c) Section 8.2, Regional Economic Development Analysis, page 71, total navigation construction expenditures are reported as $4.15 billion, but no price level year or Fiscal Year discount rate indicated.

Significance: Low

This issue pertains to technical inconsistencies in the decision documents and does not influence the selection of, justification of, or the ability to implement the recommended plan.

Recommendation for Resolution

Recommendation #1: Provide a clear explanation of the reasons for different Total Costs, Fiscal Year Price Levels, and Fiscal Year Discount Rates for each instance they appear throughout the decision documents.

COMMENT 18

There are places and locations mentioned in the Review Documents that are not shown on maps in the report, making it hard for a reader not intimately familiar with the study area to follow and understand the discussion.

Basis for Comment

Not all readers of the report are intimately familiar with the numerous locations that are discussed or mentioned in the report. This makes it difficult for such a reader to get geographically oriented so as to follow the narrative.

Significance: Low

This issue does not have any impact on the section of the preferred alternative or its viability. It is merely a matter of making the report more readable for the layperson.

Recommendation for Resolution

Recommendation #1: Include a map or maps at the beginning for the main report that shows all of the locations mentioned in the report. For example, there could be one map showing all of the channels, reaches, facilities, and locations. Another way could be a map showing channels, another map showing all the facilities, and additional maps showing the reaches for the various channels.

COMMENT 19

The geotechnical analysis is missing some key figures referenced in the text and other figures are mislabeled.

Basis for Comment

A clear understanding of the geology and soil conditions in the study area for the proposed navigation improvements is critical to understanding the overall geotechnical assessment. There are a number of figures in Appendix B2, *Geotechnical Analysis*, that are mislabeled or missing. These figures are important for a complete understanding of the geotechnical challenges the proposed project faces. Two of the most important topics are bedrock that would need to be blasted and excavated for each of the proposed final alternatives under

consideration and the quantity of contaminated sediment that must be dredged from each reach. The appendix text mentions 15 different figures while only 12 figures are included in the document. Figures 2 through 12 are all mislabeled. Currently there are no figures 13 to 15 even though these are mentioned in the narrative. Missing figures referenced in the text include Top of Rock/thickness of Rock (rock Isopach map), Distribution of sand and gravel deposits, and an Isopach map of contaminated sediments.
Significance: Low
The issue raised relates to minor technical or scientific inconsistencies in study documents or data that does not influence the selection or implementation of the TSP.
Recommendation for Resolution
Recommendation #1: Revise the narrative text and mislabeled figure numbers in Appendix B2. **Recommendation #2:** Include a base map “beneath” the top of Pleistocene contours shown on Figure 2 but referenced as Figure 3 in the narrative. The contours by themselves do not provide adequate information regarding materials to be dredged at key channel reaches. **Recommendation #3:** Include a figure in Appendix B2 showing the estimated thickness of bedrock to be excavated for the proposed -54 and -55 feet MLLW alternatives under consideration. Ensure that the figure includes a base map beneath the depicted contours, otherwise it is difficult to interpret the figure. **Recommendation #4:** Include a figure in Appendix B2 showing the distribution of sand and gravel deposits. **Recommendation #5:** Include a figure in Appendix B2 showing the estimated thickness and extent of contaminated sediments to be excavated for the proposed -54 and -55 feet MLLW alternatives under consideration. Ensure that the figure includes a base map beneath the depicted contours, otherwise it is difficult to interpret the figure.

Appendix A - IEPR Panel Member Qualifications

The qualifications or the IEPR Panel Members are provided in this appendix. Appendix A.1 shows how the IEPR Panel Members meet the qualifications for this task. Appendix A.2 provides the overall qualifications and experience of each IEPR Panel Member.

A.1 Panel Member Technical Requirements

Table 2 shows how the IEPR Panel Members meet the qualifications for the IEPR as specified in the USACE Performance Work Statement.

Table 2: Summary of Panel Member Qualifications by Discipline for this IEPR

Panel Member	Area(s) of Expertise	Education	Experience (years and industry)
Prof. Donald Ator	Civil Works Planner, Economist	• BS in Agribusiness • MS in Economics and Agriculture Economic • MBA in Finance and Accounting	43 years in academia (current), government, and private sector
Mr. Paul Bovitz	Environmental Compliance Specialist, NEPA compliance	• BS in Wildlife Biology • MS in Ecology • MBA in Finance	35 years of experience in the environmental field in the private sector
Dr. Harley Winer	Hydraulic/Coastal Engineer	• BA in Philosophy, • BS in Civil Engineering, • MS in Civil Engineering, • PhD in Engineering Mechanics (coastal engineering.)	30 years of experience in the private sector (current) and government with 25 years of direct experience in coastal engineering
Dr. Chris Brown	Geotechnical Engineer	• PhD in Civil Engineering • MS in Civil Engineering	30 years in academia (current), government, and private sector

A.2 Panel Member Qualifications and Experience

The qualifications of the IEPR Panel Members (in alphabetical order) are provided below in summary form to show their expertise for this project.

A.2.1 Prof. Donald Ator, Civil Works Planner

Prof. Ator has 43 years of specialized experience supporting 32 of the U.S. Army Corps of Engineers (USACE) Districts in the United States as a Civil Works Plan Formulator providing independent consulting on Civil Works Plan Formulation, Economic Analysis, and Agricultural Economics issues. He is an Instructor, Undergraduate Advisor, and Research Associate in the Department of Agriculture Economics and Agribusiness at Louisiana State University teaching courses on agriculture economics, agricultural commodity marketing, risk management, and farm

and rural land appraisal. Research includes financial resiliency analysis and planning for local governments in LA, TX, AL, MS, FL, GA, KY, and NE.

Prof. Ator holds a Bachelor of Science (Agribusiness, Tarleton State University, Stephenville, TX); a Master of Science (Economics and Agriculture Economics, Louisiana State University, Baton Rouge, LA); and a Master of Business Administration (Concentrations in Accounting and Finance, Louisiana State University, Baton Rouge, LA). He also holds certificates in Operations Security Awareness for Military Members, DOD Employees and Contractors (Center for Development of Security Excellence); NEPA and the Transportation Decision Making Process (Federal Highway Administration, National Highway Institute Course No. 142005); Project Management (University of California, Los Angeles, Advanced Cooperative Arctic Data and Information Service Institute of Learning); Planner Orientation (Department of the Army); and USACE Forecasting Techniques (U.S. Army Corps of Engineers).

Prof. Ator is intimately familiar with the USACE six-step planning process (ER 1105-2-100 Planning Guidance Notebook) and the SMART planning process (Planning Manual Part II: Risk-Informed Planning). This experience required following all USACE plan formulation processes, procedures, and standards for deep draft navigation channel improvement projects and dredged material management evaluations and recommendations (beneficial use, upland placement, ocean placement).

A representative example of Prof. Ator's deep draft plan formulation experience is the Houma Navigation Canal (HNC) Deepening Project, Draft Feasibility Study, Terrebonne Parish, Louisiana, USACE New Orleans District. He completed this project while embedded as a contractor in the New Orleans District Plan Formulation Branch order to interface on a daily basis with the Project Delivery Team (PDT). This study was conducted for the New Orleans District in partnership with the Louisiana Department of Transportation and Development, Terrebonne Parish Consolidated Government, and Terrebonne Port Commission to examine the feasibility of deepening the existing Federal navigation channels along the HNC. The HNC is a 41-mile-long navigation channel that begins at the Gulf Intracoastal Waterway (GIWW) in Houma, Louisiana, and extends southward to the Gulf of Mexico. The purpose and need for deepening of the HNC was to improve commercial vessel operations along the HNC, which supports offshore oil and gas production operations in the Gulf of Mexico and the platform fabrication operations along the HNC. The study was completed the Feasibility Report on schedule and under budget. He led the development of the Plan Formulation Section of the Report and worked closely with the PDT to address the Agency Technical Review comments. The report included a description of existing and expected future conditions and the problems, needs, and opportunities of the study area. The plan formulation section of the report documented the planning constraints and the formulation, evaluation, and screening of measures to develop alternatives to address the problems and needs. Design considerations were evaluated, alternative plans were formulated and evaluated, and a TSP was identified.

Another example of Prof. Ator's plan formulation experience is the Initial Appraisal of Rock Removal at the San Francisco Bar Channel for the USACE San Francisco District, which evaluated the feasibility of deepening the Bar Channel from its existing depth to improve restrictions to inbound deep draft vessels calling at ports in the bay. The project included formulation and evaluation of alternative plans for deepening the bar channel by incremental alternative depths to 50 feet. The analysis included identifying the physical and economic constraints to the deepening and evaluating the operational, environmental, and economic impacts of each alternative to identify the TSP.

Prof. Ator applied USACE plan formulation processes, procedures, and standards in the Deep Draft Navigation Feasibility Study and Environmental Assessment, Buffalo Harbor, NY, USACE

Buffalo District. He formulated 18 alternatives and assessed the benefits and costs to identify the recommended plan for further development. The assessment of a federal interest in navigation improvements was required to support a recommendation for the necessary channel improvements to accommodate increased commercial activity on the Buffalo River in order to provide safe navigation of the larger ships operating on the Great Lakes.

Prof. Ator's conducted risk and uncertainty analysis of trade and fleet forecasts parameters for the FS for Channel Deepening Improvements to Charleston Harbor for the USACE Charleston District. This project identified and described the key methods and data sources used and provided recommendations to reduce the risk and uncertainty inherent in the study results. The focus of the analysis was evaluation of vessel operating costs to quantify the impact to National Economic Development (NED) benefits and costs resulting from revisions of Institute for Water Resources vessel costs formulas and other methods and data used in the FS.

Prof. Ator has participated in the independent technical review of many deep draft navigation channel improvement projects and dredged material management evaluations, which has included Internal Technical Reviews (ITRs), Agency Technical Reviews (ATRs), and Independent External Peer Reviews (IEPRs). He has participated in a number of Independent External Peer Reviews (IEPRs) as the Civil Works Plan Formulator for the USACE. Examples are IEPRs for: Mobile Harbor, AL, Draft Integrated General Reevaluation Report and Supplemental EIS, USACE Mobile District; Section 216 Matagorda Ship Channel, TX, Draft Integrated Feasibility Report and EIS, USACE Galveston District; and Grays Harbor, WA, Deep Draft Navigation Improvement.

Prof. Ator is an active member of the ASCE, recently serving on the Louisiana Ports and Waterways Infrastructure Review Committee. He is also a past member of the Board of Directors for the Vicksburg Post of the Society of American Military Engineers.

A.2.2 Prof. Donald Ator, Economist

Prof. Ator has 43 years of specialized experience working for 32 of the U.S. Army Corps of Engineers (USACE) 38 Districts in the United States as an Economist providing independent consulting on Civil Works Plan Formulation, Economic Analysis, and Agricultural Economics issues. He is an Instructor, Undergraduate Advisor, and Research Associate in the Department of Agriculture Economics and Agribusiness at Louisiana State University teaching courses on agriculture economics, agricultural commodity marketing, risk management, and farm and rural land appraisal. Research includes financial resiliency analysis and planning for local governments in LA, TX, AL, MS, FL, GA, KY, and NE.

Prof. Ator holds a Bachelor of Science (Agribusiness, Tarleton State University, Stephenville, TX); a Master of Science (Economics and Agriculture Economics, Louisiana State University, Baton Rouge, LA); and a Master of Business Administration (Concentrations in Accounting and Finance, Louisiana State University, Baton Rouge, LA). He also holds certificates in OPSEC Awareness for Military Members, DOD Employees and Contractors (Center for Development of Security Excellence); NEPA and the Transportation Decision Making Process (Federal Highway Administration, NHI Course No. 142005); Project Management (University of California, Los Angeles, Advanced Cooperative Arctic Data and Information Service Institute of Learning); Planner Orientation (Department of the Army); and USACE Forecasting Techniques (U.S. Army Corps of Engineers).

Prof. Ator is intimately familiar with the USACE six-step planning process (ER 1105-2-100 Planning Guidance Notebook) and the SMART planning process (Planning Manual Part II: Risk-Informed Planning). He has demonstrated experience performing economic evaluations of containerized trade moving on deep draft navigation projects and applying USACE procedures

and standards to evaluate alternative plans for channel improvement projects and using tools employed for economic analysis, applying risk analysis, and developing trade/fleet forecasts.

A representative example of Prof. Ator's deep draft navigation experience is the Savannah Harbor Expansion Project Economic Analysis, Benefits Calculation Methodology and Model, Multiport Analysis and Regional Port Analysis for the USACE Savannah District. He first developed a comprehensive technical work plan that described the components of the analysis, schedule, and cost estimates for completion. Then Prof. Ator developed the commodity and vessel fleet forecasts, multiport analysis, and the NED benefits calculations to identify the TSP.

Another example of Prof. Ator's demonstrated experience in conducting deep draft navigation economic evaluations is the Panama City Harbor Limited Reevaluation Report, Feasibility Report, *Economic* Appendix, Panama City, FL, USACE Mobile District. For this study he developed a commodity forecast that identified all goods expected to be transported through the port including specific origin and destination information. This facilitated the development of the vessel fleet forecast that identified the vessel types, dimensions, and loading characteristics of ships expected to use the port's facilities. The analysis required an assessment of current and future transportation facilities, cargo handling, and storage facilities and interconnections with rail, truck, and barge transportation. Vessel itineraries were identified as well as the amount of commerce carried per vessel and the cost per ton to transport those goods by ocean carrier under the future without- and with-project conditions to evaluate the formulated alternatives and select the TSP.

Prof. Ator conducted the study of the economic feasibility of deepening San Diego Harbor from the Navy Turning Basin to the 10th Avenue Marine Terminal from the depth of 40 feet to a depth of 45 feet. He identified the types and volumes of commodity flows that would benefit from a deeper channel based on the origins and destinations of the commodities and projected the future with- and without- project fleet composition that would serve the harbor. Based on the forecast fleet composition and vessel operating costs, commodity transportation costs for with- and without- project conditions were calculated for the various formulated alternatives. NED benefits and costs for each alternative were calculated to select the TSP.

Prof. Ator's experience includes preparing the risk and uncertainty analysis of trade and fleet forecasts parameters for the FS for Channel Deepening Improvements to Charleston Harbor for the USACE Charleston District. This project identified and described the key methods and data sources used and provided recommendations to reduce the risk and uncertainty inherent in the study results. The focus of the analysis was evaluation of vessel operating costs to quantify the impact to NED benefits and costs resulting from revisions of Institute for Water Resources vessel costs formulas and other methods and data used in the FS.

For the Port of Gulfport Expansion Project and EIS, Harrison County, MS, USACE, Mobile District, Prof. Ator developed a comparison of the RED impacts prepared by two previous contractors based on competing forecasts of container throughput at the port over the 50-year life of the project, for the EIS, Prof. Ator developed a hybrid forecast of container through put at the port and prepared the economic impact forecast of direct, indirect, and induced job creation, personal earnings, business revenues, and state and local taxes.

Due to this extensive experience with the USACE, Prof. Ator has participated in the independent technical review of many economic evaluations of containerized trade on deep draft navigation projects including Internal Technical Reviews (ITRs), Agency Technical Reviews (ATRs), and Independent External Peer Reviews (IEPRs). He has participated on a number of Independent External Peer Reviews (IEPRs) as the Economist for the USACE. Examples are IEPRs for: Mobile Harbor, AL, Draft Integrated General Reevaluation Report and Supplemental EIS, USACE Mobile District; Section 216 Matagorda Ship Channel, TX, Draft Integrated Feasibility Report and EIS, USACE Galveston District; and Grays Harbor, WA, Deep Draft

Navigation Improvement Project, General Investigation FS, Limited Reevaluation Report, USACE Seattle District.

Prof. Ator is an active member of the ASCE recently serving on the Louisiana Ports and Waterways Infrastructure Review Committee. He is also a past member of the Board of Directors for the Vicksburg Post of the Society of American Military Engineers.

A.2.3 Mr. Paul Bovitz, Environmental Compliance Specialist

Mr. Bovitz is an ecologist with a BS in Wildlife Biology from Colorado State and an MS in Ecology and MBA from Rutgers University. He has over 35 years of experience in the environmental field in academia, as a federal contractor to USEPA and as a consultant for a variety of clients, including the Port Authority of New York and New Jersey (PANYNJ), City of New York, U.S. Department of Defense, and several industrial clients. Although Mr. Bovitz has worked nationwide and internationally on a variety of projects, most of his experience is within the New York/New Jersey Harbor area where he has directed a wide variety of environmental investigations, including environmental impacts analysis.

Much of Mr. Bovitz's experience has involved assessment of ecological risks associated with contaminated sediments, preparation and review of EA and EIS under NEPA, and wetlands mitigation and restoration projects. He is certified as a Senior Wetlands Professional by the Society of Wetland Scientists and is also a Licensed Site Remediation Professional in New Jersey and is certified as a LEED AP.

Mr. Bovitz's pertinent project experience include major projects conducted for the USACE New York District, PANYNJ, City of New York, and industrial clients in the New York/New Jersey harbor area. He was project manager for the Meadowlands Mills EIS on behalf of USACE New York District Regulatory Branch, which evaluated a developer's proposal to fill over 300 acres of wetlands in the Hackensack, NJ Meadowlands. He was a major contributor to the EIS and supporting Part 360 documents for the evaluation of closure alternatives for the Fresh Kills landfill in Staten Island, NY. He has led environmental analysis projects at several PANYNJ sites such as Ports Newark and Elizabeth, Howland Hook, and former Northeast Auto Terminal. As project manager for the Remedial Investigation/FS of the former Raritan Arsenal for the USACE New York District, he managed sediment contamination issues associated with tidal tributaries and the Raritan River and was responsible for the ecological risk assessment of the 3300-acre site.

Mr. Bovitz was senior author on the USACE New Jersey Intracoastal Waterway Dredged Material Management EA/FS, which evaluated dredged material management alternatives for beneficial use of dredged material for habitat enhancement. He was the program manager for the PANYNJ account for a nationwide consulting firm, on which he managed contracts for environmental engineering, dredge material testing, and ecology. He was the project manager for seven years with a major consulting firm for the contracts for Biological Environmental and Cultural Resources with USACE New York District that included EA and evaluation of several sites in the New York/New Jersey Harbor area.

Mr. Bovitz was a contributing author on Dredged Material Management Plans under NEPA for the San Francisco and Baltimore Districts of the USACE and has been a third-party peer reviewer for channel deepening and dredged material management projects for the USACE Philadelphia and Mobile Districts. He has performed peer reviews for other USACE water resources and navigation projects including the Mobile Harbor, Supplemental EIS, which was a large-scale dredged channel extension project; and the EA/FS for Beneficial Use of Dredged Material for the Delaware River FS. These reviews included NEPA compliance, natural resources, and cultural resources issues.

He is an expert in compliance requirements of environmental laws, policies, and regulations, such as the Fish and Wildlife Coordination Act and the Endangered Species Act. He coauthored a summary of New York State environmental regulations and policies for a major public utility in New York City. He has worked to secure permits for industrial clients in New York and New Jersey that included wetlands and dredging permits, storm water pollution prevention plans, National Pollutant Discharge Elimination System permits, sediment and erosion control, and regulatory compliance issues affecting ports.

Mr. Bovitz has performed environmental analyses for several ports and waterfront projects for industrial clients in the New York City area and for the U.S. Navy in Norfolk, Virginia. He was principal author of a Green Port plan for the Port of Rizhao, China, and presented a two-day seminar to terminal operators on “Greening Seaports” in Cape Town, South Africa.

Mr. Bovitz has authored or coauthored over 100 technical documents that have involved dredging permits, ecological risk assessments, EAs, and EISs. He is currently a member of the New Jersey Governor’s Science Advisory Board Ecological Services Committee for which he has coauthored technical reviews of dredging impacts on aquatic biota and seismic impacts on marine biota. He teaches a short course annually at Rutgers University on ecological risk assessment and site remediation.

A.2.4 Dr. Harley Winer, Hydraulic/Coastal Engineer

Dr. Winer has over 30 years of experience with 25 years of direct experience in coastal engineering in government and the private sector involving navigation and channel improvement projects, coastal processes, and hydrodynamic modeling of estuarine and nearshore systems. During his career, he has been an adjunct professor at two major universities teaching classes in Port and Harbor Engineering and fundamental engineering courses of Statics, Mechanics of Materials, and Fluid Mechanics.

Dr. Winer has extensive experience in government service and the private sector. He had a 16-year career at the USACE New Orleans District, all of which was spent in the Hydrologic and Hydraulics Branch. The last four years with the USACE, he was chief of the Coastal Engineering Section. He was the hydraulics team member on the closure structure for the Mississippi River Gulf Outlet deep-draft navigation channel; on the Burwood Canal closure to address the threat of capture of the Mississippi River Southwest Pass channel flow; and on many dredging and beach nourishment projects and the Coastal Wetlands Planning, Protection, and Restoration Act program for beneficial use of dredge sediments. Other experience includes analysis of salinity intrusion, construction of a sill to stop the salt water wedge, and analysis of channel sedimentation related to sediment diversions. He has developed reports on coastal and estuarine related projects, such as tidal inlet studies, marina development, and watershed analysis. He was involved with evaluations and feasibility studies requiring compliance with environmental requirements.

As a USACE employee and from private sector projects, Dr. Winer has extensive experience with USACE risk and uncertainty analyses (e.g., Monte Carlo analysis, sensitivity) and coastal engineering requirements for feasibility studies. He was the hydraulics team member on numerous feasibility studies in estuarine, riverine, and coastal environments. These included sand placement for beach enhancement and confined placement of fines for marsh creation. He was one of the first engineers at the district to include relative sea level rise as a factor to be considered in analysis of future benefits of projects. Projects with relevance to navigation channels include the proposed Mid-Barataria Sediment Diversion and the Mid-Breton Sediment Diversion.

Dr. Winer has used and is familiar with standard USACE hydraulic/coastal computer models, such as the suite of HEC models and the ADvanced CIRCulation model (ADCIRC) model used to quantify risk of storm surge inundation. He has conducted numerical modeling studies, physical modeling studies, and field investigations of coastal processes and engineering structures. He was one of the principal numerical modelers at USACE New Orleans district and was the first to use the UNET model, which subsequently become part of the Hydrologic Engineering Center - River Analysis System (HEC-RAS) modeling suite. After Hurricane Georges in 1998, he initiated a program to measure hurricane waves on Lake Pontchartrain, which was crucial for designing levees for wave run-up, and successfully measured the waves of Hurricane Katrina in Lake Pontchartrain.

Dr. Winer was the Hydraulics team member for the unwatering study that addressed the hypothetical question of how would the USACE response if a major hurricane filled the ring levee surrounding the city of New Orleans with water. He was also the hydraulics team member on the Crisis Action Team, which was deployed to Vicksburg, MS prior to Hurricane Katrina and was instrumental in implementing the unwatering plan.

Dr. Winer was selected to be part of a USACE-wide team of planning and engineering experts to teach a week-long course to present hydrology and hydraulic concepts to new USACE planners. He presented several lectures on Coastal and Navigation Projects at more than a half dozen USACE districts over a period of several years.

Dr. Winer is a volunteer with Engineers Without Borders and has been to several Central American locations to do field work and analysis for proposed projects.

He is a member of ASCE and has served for several years on the Navigation Engineering sub-committee of the Waterways Committee. He has diplomates in Port Engineering and Navigation Engineering from the Academy of Coastal, Ocean, Port, and Navigation Engineering. He has an extensive list of publications both in peer reviewed journals and conference presentations.

A.2.5 Dr. Chris Brown, Geotechnical Engineer

Dr. Christopher J. Brown is a Professor of civil engineering at the University of North Florida in Jacksonville, Florida where he teaches water resources, geotechnical, and civil engineering capstone courses. He is also the Program Coordinator for the Civil Engineering Program and helps run the day-to-day activities of the program. Dr. Brown's current research agenda focuses upon water resources, waste management, and geotechnical design of dams. Dr. Brown is a registered PE in the states of Florida and Pennsylvania. He obtained his MA in civil engineering (geo-environmental focus) from Villanova University in 1997 and his PhD. in civil engineering (hydrology focus) from the University of Florida in 2005.

Dr. Brown has about 30 years of experience, which includes planning, design, construction, inspection, and teaching. He has worked with and for the USACE as a civilian geotechnical engineer (Philadelphia District, 1991-1999, and Jacksonville District, 1999-2006), as well as municipal governments and private engineering firms. Dr. Brown has worked on a wide variety of large public works projects including dams, levees, shore protection, coastal structures, navigation (e.g., dredging and lock/dam projects), and environmental restoration (e.g., Everglades restoration work).

Dr. Brown has worked extensively on deep-draft navigation, flood mitigation, inland locks/dams, and hydrologic modeling projects throughout the United States. While on the staff of the USACE Districts, he worked on the following large, deep-draft navigation projects: Delaware River Main Channel Deepening; Chesapeake & Delaware Canal Deepening Study; Canaveral Harbor entrance modifications; Tampa Bay Harbor Deepening; and Jacksonville, FL Harbor Deepening. These

projects included planning and overseeing subsurface investigations and data collection; extensive soil modeling; slope stability modeling (UTEXAS 5 and 6, University of Texas at Austin and Slope/W, GEOSLOPE International Ltd.); and channel design of anchorages, bend widenings, and harbor entrance modifications (e.g., jetties, armoring). Dr. Brown also has experience in hydrology and hydraulics modeling that provides knowledge of storm surge and flood mitigation.

As part of the Delaware River Main Channel Deepening project, Dr. Brown worked on bedrock and blasting evaluations for the Marcus Hook anchorage improvements and channel improvements. Geophysical investigations were used to determine the rock depth and hardness. Seismic study data were used to evaluate if rock could be conventionally excavated or required blasting. For the proposed Chesapeake & Delaware Deepening Study, Dr. Brown devised the complete dredged material management plan, which included groundwater modeling of a few confined disposal facilities that were a potential risk to groundwater. In addition, he was one of the first engineers in USACE Philadelphia District to use three-dimensional Computer Aided Design and Drafting design for the layout of the modified confined disposal facilities as well as for channel design. For the Tampa Bay Harbor project, Dr. Brown worked on subsurface explorations for an island confined disposal area. These included test pits, core borings, and cone penetrometer tests. These data were utilized to perform seepage modeling and slope stability evaluations. For the Jacksonville Harbor Deepening project, which is currently under construction, he developed initial plans for the dredged material disposal including construction of a few beneficial use sites and an expansion/raising of an older confined disposal facility located on an island in the river. Dr. Brown has also been a leader in risk-based design. He first used Monte-Carlo simulations for the design and modification of the Canaveral Harbor, FL South Jetty in 2003, before any USACE regulations existed on how to do such evaluations. Since that time, he has included risk-based design in all his projects using custom Visual Basic programs, @Risk, and Crystal Ball to model risk and uncertainty. He now includes the teaching of risk-based design in his senior elective courses and graduate courses.

Dr. Brown has participated in the IEPR process for more than 10 years and has provided input and review on projects across the United States. Review assignments have spanned the spectrum of USACE operations and USACE districts including flood mitigation (Los Angeles, Sacramento, Wilmington and St. Louis Districts), dam safety (Huntington and Kansas City Districts), navigation (Louisville and Walla Walla Districts), coastal protection (Galveston, Jacksonville, New Orleans and New York Districts), and environmental restoration (Omaha, Seattle and Jacksonville Districts).

Dr. Brown has published more than 50 papers in well-known journals and in peer-reviewed conference proceedings. He has notable papers published in Environmental Earth Sciences, Journal of Hydrology, Water Resources Management, and many other journals. He currently has several papers in review regarding geotechnical and water resources simulations of dam/lock spillways. He actively participates in Society of American Military Engineers, American Water Resources Association (AWRA), and ASCE-GeoCon (presented at the 2018 Annual Conference) and is a past member of ASCE and the Florida Academy of Sciences (FAS). For seven years, he was the “Geosciences” representative for the FAS.

Appendix B – IEPR Charge to Reviewers

The text below reproduces the Charge to Reviewers as prepared by the USACE. APM-I provided the charge questions to the review Panel at the beginning of the review process. The Panel Members used these charge questions to guide their review.

NEW YORK AND NEW JERSEY HARBOR DEEPENING CHANNEL IMPROVEMENTS
DRAFT INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT
NEW YORK DISTRICT
INDEPENDENT EXTERNAL PEER REVIEW
REVIEW CHARGE

The following Review Charge to Reviewers outlines the objectives of the Independent External Peer Review (IEPR) for the subject study and identifies specific items for consideration for the IEPR Review Panel.

The objective of the IEPR is to obtain an independent evaluation of whether the interpretations of analysis and conclusions based on analysis are reasonable for the subject study. The IEPR Review Panel is requested to offer a broad evaluation of the overall study decision document in addition to addressing the specific technical and scientific questions included in the Review Charge. The Review Panel has the flexibility to bring important issues to the attention of decision makers, including positive feedback or issues outside those specific areas outlined in the Review Charge. The Review Panel can use all available information to determine what scientific and technical issues related to the decision document may be important to raise to decision makers. This includes comments received from agencies and the public as part of the public review process.

The Panel review is to focus on scientific and technical matters, leaving policy determinations for U.S. Army Corps of Engineers and the Army. The Panel should not make recommendations on whether a particular alternative should be implemented or present findings that become “directives” in that they call for modifications or additional studies or suggest new conclusions and recommendations. In such circumstances, the Review Panel would have assumed the role of advisors as well as reviewers, thus introducing bias and potential conflict in their ability to provide objective review.

Panel review comments are to be structured to fully communicate the Panel’s intent by including the comment, why it is important, any potential consequences of failure to address, and suggestions on how to address the comment. The IEPR Performance Work Statement (PWS) provides additional details on how comments should be structured.

The Review Panel is asked to consider the following items as part of its review of the decision document and supporting materials.

<u>Broad Evaluation Review Charge Questions</u>

1. Is the need for and intent of the decision document clear?
2. Does the decision document adequately address the stated need and intent relative to scientific and technical issues?

Given the need for and intent of the decision document, assess the adequacy and acceptability of the following:

3. Project evaluation data used in the study analyses;
4. Economic, environmental, and engineering assumptions that underlie the study analyses;
5. Economic, environmental, and engineering methodologies, analyses, and projections;
6. Models used in the evaluation of existing and future without-project conditions and of economic or environmental impacts of alternatives;
7. Methods for integrating risk and uncertainty;
8. Formulation of alternative plans and the range of alternative plans considered;
9. Quality and quantity of the surveys, investigations, and engineering sufficient for conceptual design of alternative plans; and
10. Overall assessment of significant environmental impacts and any biological analyses.

Further,

11. Evaluate whether the interpretations of analysis and the conclusions based on analysis are reasonable;
12. Assess the considered and tentatively selected alternatives from the perspective of systems, including systemic aspects being considered from a temporal perspective, including the potential effects of climate change; and
13. Does information or do concerns provided in the public comments raise any additional discipline-specific technical concerns with regard to the overall report?

Specific Technical and Scientific Review Charge Questions

14. Do the assumptions in the analyses reasonably reflect the current and future projected operating restrictions and behavior of vessels?

Acronyms

@RISK	Program to perform risk analysis for Flood Insurance Studies
ADCIRC	ADvanced CIRCulation
ADM	Agency Decision Milestone
AL	Alabama
APM-I	Analysis Planning and Management Institute
ASCE	American Society of Civil Engineers
ATR	Agency Technical Reviews
BS	Bachelor of Science
CENAN	Corps of Engineers, North Atlantic Division, New York District
COE	Corps of Engineers
COI	Conflict of Interest
COR	Contracting Officer Representative
COVID-19	COronaVIrus Disease 2019
DC	District of Columbia
DDNPCX	Deep Draft Navigation Planning Center of Expertise
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOJ	U.S. Department of Justice
DrChecks	Design Review and Checking System
EA	Environmental Assessment
EC	Engineer Circular
e.g.	Example Given
EIS	Environmental Impact Statement
EJ	Environmental Justice
ER	Engineering Regulation
FAS	Florida Academy of Sciences
FL	Florida
FONSI	Finding of No Significant Impact
FPC	Final Panel Comment
FS	Feasibility Study
GA	Georgia
GEOSLOPE	GEOSLOPE International geotechnical modeling software
GIS	Geographic Information System
GSA	General Services Administration
HARS	Historic Area Restoration Site
HEC	Hydrologic Engineering Center
HEC-RAS	Hydrological Engineering Center – River Analysis System
HNC	Houma Navigation Canal
IC	IEPR Coordinator
IEPR	Independent External Peer Review
ITR	Internal Technical Reviews

KY	Kentucky
KVK	Kill Van Kull
LEED AP	Leadership in Energy and Environmental Design Accredited Professional
LER	Required Lands, Easements, and Rights-of Way
MBA	Master of Business Administration
MITAGS	Maritime Institute of Technology & Graduate Studies
MLLW	Mean Lower Low Water
MS	Master of Science
MS	Mississippi
MSA	Metropolitan Statistical Area
MSCE	Master of Science in Civil Engineering
NAS	National Academy of Sciences
NE	Nebraska
NED	National Economic Development
NEPA	National Environmental Policy Act
NJ	New Jersey
NYNJHDCI	New York and New Jersey Harbor Deepening Channel Improvements
OMB	Office of Management and Budget
PA	Pennsylvania
PANYNJ	Port Authority of New York and New Jersey
PCX	Planning Center of Expertise
PDT	Product Delivery Team
PE	Professional Engineer
PhD	Doctor of Philosophy
PI	Principal Investigator
PM	Project Manager
PMP	Project Management Professional
ProjNet	PROJect extraNET
PWS	Performance Work Statement
RA	Research Assistant
RECONS	Regional Economic System
RED	Regional Economic Development
RSLR	Relative Sea Level Rise
RT	Route
Slope/W	Slope Stability Windows Software
SMART	Specific, Measurable, Achievable, Relevant, and Time-bound
SPT	Standard Penetration Test
TCDD	2,3,7,8-Tetrachlorodibenzo-p-dioxin
TEU	Twenty-foot Equivalent Unit
TO	Task Order
TR	Technical Report
TSP	Tentatively Selected Plan
TX	Texas
ULCV	Ultra Large Container Vessel
UNET	One-Dimensional Unsteady Flow Through a Full Network of Open Channels

USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
WA	Washington
WRDA	Water Resources Development Act

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