

New York-New Jersey Harbor Deepening Channel Improvements, New York and New Jersey, Navigation Feasibility Study Frequently Asked Questions

PROCESS / WHY HERE / WHY NOW

1. Why is this study being undertaken after construction of the -50-foot Harbor Deepening Project was just completed?

Answer: The completed Harbor Deepening Project's channels were designed for a vessel class with dimensions like the Regina Maersk (1,044 feet long, 140 feet wide, 46-foot static draft, and a capacity of 6,400 twenty-foot equivalent units (TEUs)). The growing size of newbuilds in the containership industry, the expansion of the Panama Canal, and continued growth in throughput cargo volume at New York and New Jersey has led to deployment of vessels with larger dimensions than those studied in the completed Harbor Deepening project. The vessels routinely calling on the harbor today are over 160 feet longer, 17 feet wider, and up to 4 feet deeper (when fully loaded) with twice as much sail area/freeboard than the completed Harbor Deepening project's design vessel. These larger vessels are depth constrained at the existing channel depth and experience maneuverability inefficiencies within the existing channel width. They also have a greater risk of grounding, collision, or marine casualty, which results in operation limitations within the harbor.

The current study accounts for the existing fleet of vessels calling the Port of New York and New Jersey as well as the likely future vessel fleet over the next several decades. Proposed channel improvements will increase the efficiency of the current and future fleet, leading to national economic development benefits.

2. Where are we in the process?

Answer: We are currently in the feasibility study phase. The study's purpose 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. At the end of this phase, we make a recommendation to Congress about federal participation in a project. We are just under the halfway point in the study. We have tentatively selected a plan for recommendation and have just released a draft integrated report to the public for review. The comment period closed January 19, 2021. Please note that though you are still able to submit comments after the comment period, those comments may just not be considered part of the public record. The report also underwent internal Corps peer review, Corps vertical team review, and review by an independent external organization. We are collecting, evaluating, and responding to these comments. In April 2021, we presented the comments and concerns to the Corps vertical team and propose a plan for addressing them. We are refining our assumptions and conducting additional refining analyses that will be presented in the final integrated report. The final integrated report is estimated to be released for State and Agency review in March 2022. The Chief's Report, which is the Chief of Engineer's recommendation to Congress, is estimated to be signed June 2022.

For the Preconstruction Engineering and Design and construction phases to be initiated, the U.S. Army Corps of Engineers must sign a Project Partnership Agreement with a non-federal sponsor to cost share Preconstruction Engineering and Design and construction. This project would require congressional authorization for Preconstruction Engineering and Design and construction. Project implementation would then occur, provided that Congress has appropriated sufficient funds for the design and construction of the project. At its earliest, construction is estimated to start in late 2024.

3. I have questions and/or comments. How long is the comment period? Can I submit comments after the comment period? Whom do I contact?

Answer: The typical public comment period for a draft integrated report and environment assessment is 30 days. In response to request to extend the comment period to 120 days, the U.S. Army Corps of Engineers extended the comment period to 45 days. This study is subject to Corps policy that requires a study be completed within three years. Understanding the public's interest in and concerns about the study, the ongoing pandemic, and the end of the comment period falling during holidays, we received approval to extend the comment period to 75 days, ending on January 19, 2021. Please note you are still able to send us your comments after the comment period closes, they may just not be considered part of the public record.

Questions regarding the Draft Integrated Feasibility Report and Environmental Assessment should be directed to HDCI_FREA_Comments@usace.army.mil or either Ms. Karen Baumert, Study Planner (Karen.L.Baumert@usace.army.mil) or Mr. Jesse Miller, Project Biologist (Jesse.L.Miller@usace.army.mil).

Comments can also be mailed to:

Karen Baumert or Jesse Miller
New York District, U.S. Army Corps of Engineers
c/o PSC Mail Center
26 Federal Plaza
New York, NY 10278-0090

4. Why are we only hearing about this study now?

Answer: This study is in the very beginning phase of development, and we are currently assessing the proposed project's feasibility. Coordination is occurring at the appropriate levels for this early phase, including The Port Authority of New York and New Jersey and resource agencies throughout the study process as well as business owners that may be impacted during the implementation of the project. Additional coordination will be occurring throughout the feasibility phase with stakeholder groups to discuss local concerns and dredged material placement options. Further coordination will occur during the Preconstruction Engineering and Design Phase when more details about the project are known. No plan has yet been recommended to Congress, and there will be additional opportunities for public engagement.

5. How does this study and proposed action fit within The Port Authority of New York and New Jersey's recently released Master Plan?

Answer: The Port Master Plan is an independent, tangential effort, that is occurring regardless of whether construction of a harbor improvements project results from this study. It is not anticipated that there will be any needed changes to The Port Master Plan as a result of this study. The expected improvements in The Port Master Plan are considered part of the future without-project condition for the study.

6. Is there any relationship between this and the recently approved New York and New Jersey Harbor Anchorages Study Report?

Answer: They are separate studies but information between the two efforts will be coordinated to improve the efficiency of both studies. The Anchorage Feasibility study, which assumes existing channels and Port usage, concluded in April 2020 with a Chief's Report recommending the Project's construction. Whether it advances to the design phase and to construction is subject to the continued support by the non-federal sponsor, The Port Authority of New York and New Jersey, and from federal elected officials. As for the New York-New Jersey Harbor Deepening Channel Improvements Study, we are relatively early in the study with the selection of the tentative plan. The focus on this New York-New Jersey Harbor Deepening Channel Improvements study is to ensure that the federal navigation channels continue to efficiently serve the needs of the Port in an economically justified and environmentally acceptable, if not beneficial, manner.

7. Why are you doing this study?

Answer: This study is being conducted to determine if there is a technically feasible, environmentally acceptable, and economically justifiable plan for federal participation in a navigation improvement project. The need for this investigation arises from inefficiencies currently experienced by commercial vessels in the harbor where a significant share of the current fleet exceeds the capacity of the existing federal navigation channel. These inefficiencies are projected to continue in the future as vessel sizes are expected to increase. The accelerating expansion of the volume of trade and the resulting fleet transition to larger vessels that has taken place since the existing -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 a material effect on the economics and engineering design of the existing -50-foot federal navigation channels.

8. Why can't we tell shippers to use many smaller boats instead of doing this deepening?

Answer: The channel deepening recommended by this project intends to improve the efficiency of the current and future fleet of vessels expected to call the Port. The Port already receives calls from containerhips with capacity up to 15,000 TEUs, and is expected to receive calls up to 18,000 to 20,000 TEU capacity without the project. Channel improvements included in the recommended plan serve to increase the efficiency of the vessels that will call the harbor. The study does not assume the project will increase the number of large container vessels calling the Port.

Channel deepening is meant to increase the efficiency of larger containerships and may allow for fewer overall vessel calls. These larger ships are built to be more efficient, both economically and environmentally (less pollution from newer engines and fewer needed transits). The study finds that, taking all the costs and efficiencies into account, it's more efficient for the Port and the United States to deepen the channels so these newer, larger containership can efficiently transport cargo as opposed to using many more, smaller vessels.

9. Why is the pathway to Howland Hook Marine Terminal not part of the Tentatively Selected Plan? The USACE met with the operators of the major marine terminals in the Port of New York and New Jersey and the pilot associations responsible for navigating deep draft container vessel traffic into the Harbor. From these conversations, it was determined that the existing configuration of the Arthur Kill channel/pathway sufficiently accommodates Howland Hook Marine Terminal's anticipated future fleet to navigate to the terminal without channel modification. The pathway to Howland Hook Marine Terminal is not being considered for efficiency widening because a preliminary evaluation indicates low quantifiable benefits and high costs. Therefore, the pathway to Howland Hook Marine Terminal was screened from further analysis. This decision was fully coordinated with The Port Authority of New York and New Jersey. Since the release of the draft integrated report, the anticipated future conditions have changed. The study team has looked into options for reevaluating the pathway to Howland Hook Marine Terminal. Any further analysis on this pathway would be part of a new phase study, subject to appropriations, that would be fully coordinated with the Port, stakeholders, environmental resource agencies, and environmental justice communities.

DREDGED MATERIAL PLACEMENT / BENEFICIAL USE

10. What volume of material is being removed and where is it going?

Answer: It is estimated up to 33 million cubic yards of material will be dredged through implementation of the Tentatively Selected Plan. The U.S. Army Corps of Engineers is committed to beneficially using all dredged materials that may be produced as part of implementation of a navigation improvement project. For a common baseline for evaluating and comparing alternatives, the study used the least cost dredged material placement option. Potential placement options will be discussed in the final integrated report and will be coordinated and determined during the Preconstruction Engineering and Design phase.

For purposes of cost estimating for this phase of the study, the Historic Area Remediation Site – an open water dredged material placement site – is being used as a beneficial use placement site for sand. Harder material will be beneficially used by placing it on reefs. Material not suitable for the Historic Area Remediation Site will be placed upland at an approved designated facility. These assumptions do not dictate the actual final placement of these materials, but rather provide a set of common assumptions for evaluating alternatives.

Beneficial uses can include habitat creation and restoration, beach nourishment, landfill cover, and land site remediation. As part of Preconstruction Engineering and Design phase, dredged material would be tested for suitability for beneficial use and could be placed at the Historic Area

Remediation Site (HARS), at a restoration site, beach nourishment if suitable, or an appropriate permitted upland site if not suitable for the HARS. Larger rock would be taken to a reef in New York or New Jersey. During the original -50-foot Harbor Deepening Project, dredged material was also used in other ways, such as the creation and restoration of marsh islands in Jamaica Bay, and there may be similar opportunities with this project.

DEEPEN PATHWAYS TO ELIZABETH-PORT AUTHORITY MARINE TERMINAL AND PORT JERSEY-PORT AUTHORITY MARINE TERMINAL BY 5 FEET TO -55 FEET MLLW	
Historic Area Remediation Site (HARS) suitable sand (HARS placement)	12,840,000 cy
Non-HARS suitable sand/ sediment (upland placement)	8,326,000 cy
Moderately Hard Rock/Till ¹ (HARS placement)	8,330,000 cy
“Harder” Rock ² (reef or HARS placement)	830,000 cy
“Hardest” Rock ³ (reef placement)	2,910,000 cy
Total Quantity to be Dredged	33,238,000 cubic yards
<small>Values may appear off due to rounding. ¹ Pleistocene silt, clay, sand, and gravel, ² Schist, serpentinite, ³ Diabase, sandstone, and other rock</small>	

11. Is there enough room at the Historic Area Remediation Site (HARS)?

Answer: The Historic Area Remediation Site (HARS) capacity is going to be evaluated during the upcoming Preconstruction Engineering and Design phase. While several priority areas of the HARS have reached the minimum desired cap thickness, there are some areas that have not. Additionally, since that is the minimum, additional specified remediation material may be requested in certain areas of the HARS. For purposes of cost estimating for this phase of the study, the HARS is being used as a beneficial use placement site for sand. Harder material will be beneficially used by placing it on reefs. Material not suitable for the HARS will be placed upland at an approved designated facility. Please remember that the study assumed the HARS being used a placement site for analysis purposes, but that sediment can be placed in other locations and used for coastal storm risk management, habitat creation, and other purposes, all of which will be explored in greater detail during the Preconstruction Engineering and Design phase.

12. Will dredged material be contaminated? When will you test for contaminants in dredged materials?

Answer: USACE did not encounter hazardous material during the previous harbor deepening projects and while it is not anticipated to be encountered during the work proposed under the New York-New Jersey Harbor Deepening Channel Improvements Study, it is always a possibility in any project. Prior to construction, sediment sampling will be conducted and results will be compared to the ocean placement sampling standards to ensure proper classification and placement of dredged material. The ocean placement standards are among the most stringent criteria for determining

classification of sediments and appropriate material placement. During the recent harbor deepening projects, sampling confirmed acceptable results for dredged material generated from the same navigation channels to be either placed at the ocean placement site or be beneficially reused for grading/closure materials, marsh restorations, and artificial reef development. While the proposed work is located in a highly urban and historically industrialized area, several recent studies and data sources have demonstrated that the overall harbor has been trending cleaner in the past few decades and is expected to continue trending cleaner relating to, for example, natural attenuation recovery processes, historical and recent deepening and maintenance navigational dredging actions, and a CERCLA remedial action planned to occur in the Lower Passaic River. Also note, there are areas within Newark Bay that are undergoing (or planned to undergo) CERCLA cleanup actions; however, the work proposed under the New York-New Jersey Harbor Deepening Channel Improvements Study is not anticipated to occur in these footprints or disturb these areas.

13. Who do I contact at The U.S. Army Corps of Engineers to request partnering to receive material for beneficial reuse?

Answer: The project manager, Mark Lulka, will receive requests for material and forward to the proper internal U.S. Army Corps of Engineers channels for inclusion in contracts, and to insure permitting and real estate requirements are satisfied.

IMPLEMENTATION

14. How many construction contracts will there be?

Answer: Like the -50-foot Harbor Deepening Project, multiple contracts may be utilized for various beneficial project purposes. The exact number will be determined during the Preconstruction Engineering and Design phase.

15. When will construction take place / how long?

Answer: For purposes of the cost estimation, construction is estimated to begin late in 2025 and is scheduled for a 14-year duration. Both depend on funding and appropriations. Right now, the team is looking to see if there is a feasible solution to this navigation problem. If we find this tentatively selected plan is economically feasible and environmentally acceptable, based on information and comments that we have, then we will only be recommending this plan to Congress. If we make a recommendation to Congress, we will then need authorization and appropriations to sign a Design Agreement with the non-federal sponsor to enter the Preconstruction Engineering and Design phase. After that, we would need to get appropriations to enter a Project Partnership Agreement from both Congress and the non-federal sponsor.

16. How much does this project cost? Who is paying for it?

Answer: At current price levels (Fiscal Year 2021 price level and 2.5% discount rate), deepening from sea to Elizabeth – Port Authority Marine Terminal and Port Jersey – Port Authority Marine Terminal by 5 feet (to a maintained depth of -55 feet MLLW) has an estimated project first cost of

\$4.05 billion. The project would be cost shared between the non-federal sponsor and the federal government. The associated costs below indicate costs that are to be borne by the non-federal sponsor; these include the cost to deepen the berthing areas needed to realize benefits.

	FEDERAL COST	NON-FEDERAL COST	TOTAL
DEEPEN PATHWAYS BY 5 FEET TO MAINTAINED DEPTH OF -55 FEET MLLW			
Total Project First Costs	\$1,861.8 million	\$2,190.5 million	\$4,052.3 million
Project Cost Plus Associated Cost	\$1,861.8 million	\$2,374.5 million	\$4,236.3 million

Fiscal Year 2021 Price Level and discount rate of 2.5%

17. How often will dredging occur for operation and maintenance?

Answer: Consistent with current New York District practice, the Port Jersey channel is anticipated to be maintained by dredging every 10 years, the Anchorage channel reaches to be maintained every seven years, and all other channels are assumed to be maintained together in a single contract every three years.

18. What is the project life of the recommended plan? Will the U.S. Army Corps of Engineers be back in 5 years saying that you need to go to -60 feet?

Answer: Generally, U.S. Army Corps of Engineers projects are designed with a 50-year project life. Should the need arise in the future for additional depth, the U.S. Army Corps of Engineers will evaluate given the authority to do so.

19. Will the dredging /widening operations be able to be undertaken without closing sections of the channels?

Answer: As with earlier projects, dredging will likely require some temporary channel closings. Some of this may be mitigated with scheduling of dredging work in coordination with ship arrivals. This will be further coordinated and determined during Preconstruction Engineering and Design.

ENVIRONMENTAL IMPACTS / JUSTICE

20. What is the impact of dredging to the environment / what resources are impacted and how much / what mitigation?

Answer: The U.S. Army Corps of Engineers has gained experience and perspective from the original -50-foot deepening of the Harbor that, in combination with new comments, will continue to inform the decisions made for this study. There are several temporary construction impacts that are described in the Draft Environmental Assessment that was integrated into the Draft Feasibility Report (e.g., disturbing the benthic environment). The U.S. Army Corps of Engineers has done benthic recovery studies both during and after the -50-foot Harbor Deepening Project construction showing that the benthic organisms present are impacted, but that the larger community typically recovers to pre-dredging conditions through ecological succession, recolonizing from nearby/adjacent communities within 1 to 5 years.

There are also permanent impacts that the U.S. Army Corps of Engineers will mitigate for, like the impacted acreage of shallow water habitat (1.92 acres) that is projected to be impacted by widening and deepening project features. The U.S. Army Corps of Engineers will work with our partner agencies to identify the type and location for habitat mitigation. We will aim for in kind/in place first and then expand beyond that as needed.

Another impact that the U.S. Army Corps of Engineers will mitigate for is related to the Clean Air Act. The dredges and related equipment for the project will trigger General Conformity under the Clean Air Act by emitting more than the current threshold of 50 tons per calendar year in our New York-Northern New Jersey-Connecticut-Long Island (NYNJCTLI) non-attainment area. Therefore, we plan to mitigate this impact through a program called a Marine Vessel Engine Replacement Program (MVERP). The U.S. Army Corps of Engineers will be replacing older engines with cleaner burning engines on vessels that operate in our non-attainment area. As these cleaner burning engines operate in our area, they will be generating “offsets” that will offset or mitigate the emissions from dredge equipment. There will be no significant impacts to air quality because of this mitigation.

21. How will the U.S. Army Corps of Engineers mitigate for shallow water / littoral impacts if in kind / in place opportunities don't exist?

Answer: If in-kind/in-place opportunities do not exist, we will look at out-of-kind and/or out-of-place opportunities, as coordinated with the New Jersey Department of Environmental Protection. The habitat assessment model, currently in evaluation, can translate quality of habitat lost or gained between different habitat types.

22. What is the impact to air quality?

Answer: The project is expected to generate more than the current threshold of 50 tons of NOx per calendar year to trigger general conformity in our NYNJCTLI area of non-attainment, however, there will be no significant impacts to air quality due to mitigation. The U.S. Army Corps of Engineers plans to replace older engines with cleaner burning engines on vessels that operate in our non-attainment area of as part of the Marine Vessel Engine Replacement Program (MVERP) mitigation. As these cleaner burning engines operate in our area, they will be generating “offsets” that will offset or mitigate the emissions from dredge equipment.

23. What are the impacts to water quality (hydrodynamics, dissolved oxygen, salinity/salt wedge, resuspension/turbidity)?

Answer: A detailed analysis of the impacts of this project on these physical properties and processes will be conducted during the PED phase, in addition to monitoring both during and post-construction. For this initial feasibility phase, it is assumed that the impacts of the project will be analogous to the impacts of the prior -50-foot Harbor Deepening Project. Prior to construction of the -50-foot Harbor Deepening Project, MIKE3, a modeling system for simulating unsteady, three-dimensional flows in rivers, estuaries and coastal seas was used to evaluate the impact of channel deepening on water surface elevation, salinity, water temperature and dissolved oxygen. Hydrodynamic and Sedimentation modeling was also conducted by the Engineering Research and

Development Center using AdH, Sedlib and STWAVE and validated against pre-, during, and post-construction observations.

A summary of the modeling results for three of four of these parameters is provided below along with a summary of -50-foot Harbor Deepening Project post construction Water Quality/Total Suspended Sediment monitoring. Generally speaking, monitoring, both during and after construction of the -50-foot Harbor Deepening Project, confirmed the projected limited impact on each of these parameters.

Hydrodynamics – The MIKE3 study concluded that the -50-foot Harbor Deepening Project “would not result in any measurable changes in hydraulic conditions throughout the harbor.” Similarly, the U.S. Army Engineer Research and Development Center (ERDC) study concludes that there was “negligible impact observed in the flowrates at any particular time due to the channel deepening.” The ERDC study also looked at wave heights and concludes that “the effect of the channel deepening on the mean significant wave height is marginal, with differences on the order of 10 cm or less.”

Dissolved Oxygen (DO) - The MIKE3 study concluded that the -50-foot Harbor Deepening Project will have small to negligible impacts on DO throughout the Harbor. The largest differences were in Arthur Kill, Kill Van Kull and Newark Bay, where reductions in DO of up to 0.03 parts per million (ppm) were projected. Changes in DO in other parts of the harbor were projected to be less than 0.01 ppm

Salinity - The MIKE3 study concluded that the Passaic River and Hackensack River will experience an average increase in salinity of less than 0.1 parts per thousand (PPT) because of the -50-foot Harbor Deepening Project with smaller changes projected in other parts of the Harbor. The ERDC study projected modest increases in salinity intrusion in all of area of the harbors because of channel deepening.

Resuspension/turbidity- Dredging temporarily resuspends sediments into the water column. The U.S. Army Corps of Engineers did multiple Water Quality/Total Suspended Sediment (WQ/TSS) studies during the -50-foot Harbor Deepening Project that show this impact is very limited spatially and that resuspended sediments attributable to the dredge activity quickly dissipate to pre-construction conditions

As noted above, extensive field data collection and modeling and analysis will take place during the PED phase of this current project to better understand possible impacts prior to construction. Mitigating measures will then be introduced to minimize impacts both during and after construction.

24. What are the impacts to winter flounder and Atlantic Sturgeon?

Answer: There will be no significant impacts to winter flounder habitat due to mitigation (compensatory to -6 feet MLLW state regulated habitat, avoidance, and minimization via seasonal restrictions/conservation recommendations). There will be no significant impacts to Atlantic sturgeon due to mitigation (avoidance and minimization via seasonal restrictions and best management practices).

25. Why is an Environmental Assessment (EA) being drafted and not an Environmental Impact Statement (EIS) with this much level of public interest?

Answer: As the study was progressing and the U.S. Army Corps of Engineers had a better understanding of potential project impacts, the U.S. Army Corps of Engineers decided to prepare an EA rather than an EIS. Some of the items we considered:

- The New York and New Jersey Harbor Deepening Project -50-foot EIS, and the two subsequent EAs with Finding of No Significant Impacts, provided sufficient National Environmental Protection Act (NEPA) analyses upon which to base the supplemental NEPA analyses for the New York-New Jersey Harbor Deepening Channel Improvements Study.
- Any recommendation would be building upon the knowledge gained during the original New York and New Jersey Harbor Deepening Project's -50-foot EIS and will be proposing channel improvement measures only within locations within/adjacent to the authorized channel. After the EIS was published in 1999, the District continued to study and monitor environmental impacts of the project during the design and construction phases of work until project completion. These greater than 15 years of study produced robust data and considerable knowledge on subjects including Essential Fish Habitat, migratory finfish, wetland restoration, beneficial reuse, benthic recovery, far field total suspended sediments, noise and vibration monitoring and Clean Air Act compliance. In particular, the District worked with USACE's Engineer Research and Development Center (ERDC) to published peer reviewed literature specific to over 10 years of Winter Flounder data gathered that has also been used on a regional scale for rule making by Fishery Management Councils. Federal Agency Partners such as the National Marine Fishery Service (NMFS) and the Environmental Protection Agency (EPA), have each published articles and case studies about the successful agency coordination, the technical knowledge gained and the scientific advancement under the 50 ft Harbor Deepening Project. The District continues to rely upon and reference all of this experience and success, which will be included in the New York-New Jersey Harbor Deepening Channel Improvements Final Integrated Feasibility Report and Environmental Assessment.
- At this level of evaluation, from a physical/ecological perspective - the proposed project may only directly impact approximately 1.92 acres of littoral habitat.
- There will be continued agency and public/stakeholder outreach/communications via public meetings, email updates, etc.
- An EA can accommodate more detailed analysis of impacts of alternatives in the specific areas for which there is greater concern about the potential for significant impacts.

26. Why are cumulative or indirect impacts not assessed (anything related to CEQ regulations)?

Answer: The latest guidance from the Council on Environmental Quality (CEQ) (who oversee Federal Agency NEPA implementation) requires agencies to focus on the consideration of effects that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action.

This guidance also notes that an agency does not need to describe a detailed discussion of each alternative in an EA, nor does it need to address any of the alternatives in detail that were eliminated from study. The new guidance also highlighted that while agencies have discretion to include more information in their EAs than is required to determine whether to prepare an EIS or a FONSI, they should carefully consider their reasons and have a clear rationale for doing so. In accordance with the U.S. Army Corps of Engineers Planning Guidance Notebook (related to implementing NEPA at the U.S. Army Corps of Engineers), if the alternatives dropped are not considered reasonable alternatives (not just dropped because of cost), they would not be evaluated from a NEPA perspective.

27. What cultural resources are in the area? Are there shipwrecks and/or anomalies?

Answer: Based on a review of existing data and reports, including the surveys carried out by the Corps for the -50-foot Harbor Deepening Project, there are no known historic properties within the construction limits for this project. We have, however, identified several vessels and onshore historic properties that may be vulnerable to adverse effects from vibrations. The New York and New Jersey Harbor has a rich past and has been utilized by people for thousands of years extending back to the last ice age. Therefore, we anticipate that there may be additional cultural resources within the portions of the project area that have not yet been subject to remote sensing surveys. During the last -50-foot Harbor Deepening Project the District carried out extensive remote sensing and geomorphological investigations to identify cultural resources such as shipwrecks that might exist within the project area as well as to identify areas within the harbor that could be archaeologically sensitive for Native American sites. The District plans on carrying out similar investigations during the design phase of this project. To guide that future work, we have developed a draft Programmatic Agreement between the District and the New York and New Jersey Historic Preservation Offices which is being coordinated with Native American Tribes and other interested parties.

28. Will blasting impact fish/marine mammals/other wildlife?

Answer: The U.S. Army Corps of Engineers conducted a study on the impacts of blasting on fish during the -50-foot Harbor Deepening Project. Predictions based on the data collected from this study indicated that impacts on the aquatic community may be reduced using arrays configured with maximum charge weights located in the middle of lesser charge weights. The data also implied that the confined charges used in the Kill Van Kull Blasting Program (as part of original Harbor Deepening Project construction) appeared to have less of an impact on aquatic biota than would equivalent open water charges. Specifically, concerns were related to the swim bladders of fish being impacted by the pressure of blasting. Based on observation, there are impacts to individual fish in the vicinity of the blast, which are brought up to the surface/stunned and often eaten by opportunistic birds overhead. Impacts are not significant to the larger fish community, however, and instead they are temporary, spatially limited/focused on the individuals in the vicinity of the blast at the time it occurs.

29. Will the blasting damage private property/house foundations in neighboring communities and what will the U.S. Army Corps of Engineers do about it?

Answer: As with past navigation construction work that involved drilling and blasting, extensive monitoring and protection measures will be required from the dredging companies contracted to do this work. Drilling and blasting of bedrock is generally only performed when no other means are possible to dredge the bedrock, of which there are several different types in this harbor. Lessons learned from the previous harbor deepening and best management practices will be incorporated and implemented during construction of this project. The team will work with the community to develop an agreed-upon plan to either stabilize the structures or develop relocation agreements to relocate the properties affected during the blasting process. These measures may include providing extensive notices, and conducting public meetings, inspections, and monitoring activities, both by the Corps and our contractors, prior to the drilling and blasting activities planned in any of the Corps navigation channel construction contracts. The Corps will require and independently monitor the construction contractor to meet all applicable vibration and noise standards to ensure no work exceeds allowable thresholds, which the applicable state and/or local governments have established, to ensure that no damage is done. Vibrations will be monitored, and blast patterns will be adjusted as necessary to maintain lower vibrations whenever critical thresholds are approached. The study team will work with neighboring communities to ensure that structures do not suffer any negative consequences due to blasting, and if they do, they would be remediated.

30. Would the U.S. Army Corps of Engineers provide us with information on how far inland the blasting will be felt not just from human detection but blasting that as is able to affect structures and move furniture?

Answer: The U.S. Army Corps of Engineers typically develops a vibration contour map that is overlaid on a city street-map grid to make it easier to interpret. These maps should be available in the next phase, Preconstruction Engineering and Design. All vibrations will be kept within regulations and will be monitored both by the government and the contractor.

31. Will the noise from blasting be loud enough to disturb residents in the vicinity of the channels? What mitigation efforts are being taken to reduce the noise burden?

Answer: The noise will be noticeable, and we will do everything we reasonably can to reduce it. Blasting will occur only during daylight to minimize disruption. We have found by positioning the dredge, the scow, and the barge carefully, we can block some of the noise to reduce impacts to the community.

32. The residents of the entire north shore of Staten Island are being affected yet again. Are residents elsewhere being negatively affected by noise, vibration, etc.

Answer: Unfortunately, the Kill Van Kull has a rock bottom, and to reach a safe and efficient depth it must be deepened through blasting. Bayonne, NJ also will likely be affected by the noise and vibration, as it is as close to the proposed construction as the north shore of Staten Island. Lessons learned from the previous harbor deepening and best management practices will be incorporated

and implemented during construction of this project. We plan to work with the communities to prevent structures from suffering any negative consequences due to blasting. In addition, we will work with the community to develop an agreed upon plan for the process.

33. Have you coordinated with the U.S. Environmental Protection Agency (USEPA) and will this project impact any local superfund projects?

Answer: Yes, coordination is ongoing with USEPA and will continue to work cooperatively with any ongoing investigation and remediation efforts.

A portion of the Diamond Alkali Superfund Site (Operable Unit 3 - NEWARK BAY) is co-located within the project boundary. However, due to continued coordination with the USEPA and the New Jersey Department of Environmental Protection, impacts to the ongoing investigation and remediation efforts are not anticipated.

34. What consideration has been given to Environmental Justice communities?

Answer: For this project, a GIS analysis was done using US Census data to determine the demographics within one mile of project area. This analysis showed that there are environmental justice communities near the project area. However, Environmental Justice communities did not make up the majority of census block groups near the project area (see Figure 17 in the Draft Integrated Feasibility Report and Environmental Assessment). We extended our public comment period, first from 30 days to 45 days, and then to 75 days, in order to permit greater public participation. Some concerns that the affected communities may have are related to blasting impacts in areas next to channels with rock bottoms and ensuring that larger vessels do not contribute to accelerated shoreline erosion. Tribal representation has also been encouraged, both through the programmatic agreement for cultural resources, as well as at interagency meetings. Coordination will continue during the Feasibility Study process.

35. The study should investigate techniques for bathymetric contouring to add spatial complexity (for example, ridges and furrows) to the side slopes and channel bottoms -- to improve subtidal habitat complexity and quality. An investigation is needed to study whether a more complex channel bottom and sides provides higher quality subtidal habitat after dredging.

Answer: While this is a good idea, it is not practical to add "spatial complexity" along channel side slopes or channel bottoms. The machines that dredge the channels do not have this level of precision. Instead, we would implement mitigation at appropriate nearby sites.

36. What about impacts to the North Shore of Staten Island's Environmental Justice Communities?

Answer: The goal of any feasibility study is to prevent significant impacts, and to minimize to the greatest extent possible any impacts that are unavoidable. Beyond this, any remaining impacts would be mitigated, regardless of location. Based on our prior experience we are aware of blasting impacts to individuals and structures within the environmental justice communities on the North Shore of Staten Island. As the District experienced and learned during initial construction of the

Harbor Deepening Project, we will include best management practices here during construction with regards to any blasting that will occur adjacent to these neighborhoods.

37. What is the potential impact on avian and aquatic species (beyond acres of shallow water habitat impacted)?

Answer: For avian species, compared to current operations, operation of vessels and dredging equipment could temporarily flush additional wildlife out of the area. The increased Total Suspended Solids and turbidity from construction may also temporarily disrupt foraging abilities for some wildlife. However, we do not expect substantial permanent effects any greater than what we currently see in the port. With regards to aquatic species, Chapter 6 of the main report discusses this issue, but there may be temporary impacts to fish due to suspended sediments during construction. The Corps has done several studies on water quality and total suspended solids, and these studies have indicated that wildlife populations typically quickly return to pre-construction levels. There is also the possibility of uptake of fish and other aquatic organisms by the suction field of certain types of dredges, but we use time of year restrictions and other best management practices to avoid impacts to fish.

38. Does the cost benefit analysis take into account the value of ecosystems services and whether that may be reduced or eliminated by the project? if it does not should it be described as something other than a 'cost-benefit analysis'?

Answer: Our National Economic Development plan calculation (how we come up with our benefit-to-cost ratio) primarily focuses on transportation cost savings benefits. Our research center has done investigations into how to fit ecosystems services into our current process, and it is under evaluation at the Headquarters level of our agency. However, until the conceptual model is approved for use in our agency, we will consider the services that are provided by the ecosystem (and could be impacted) in a qualitative manner.

39. What mitigation projects were implemented for the -50-foot Harbor Deepening Project and what have we learned from them?

Answer: Mitigation actions were related to two resources: Air quality and Aquatic Habitat. The -50-foot Harbor Deepening Project mitigated for NOx emissions per General Conformity under the Clean Air Act. The project built a Marine Vessel Engine Replacement Program (MVERP) to generate offsets from newer engines burning in the non-attainment area. The program was a success and repowered the Staten Island Ferry, tugboats and many other vessels to offset the total NOx generated each calendar year of construction. The -50-foot Harbor Deepening Project also mitigated impacts to shallow water habitat. Some work was done "in-kind," creating shallow water habitat in Port Jersey. Because of limited "in-kind" opportunities, additional work was done out of kind through successfully creating wetland habitat at the Brooklyn Union Gas (BUG), Medwick and Woodbridge restoration sites, and at the Elders Point East Marsh Island in Jamaica Bay.

40. Our Staten Island North Shore shoreline is already eroded. What mitigations are going to be taken to address this?

Answer: We do not anticipate further shoreline erosion to be caused by additional deepening. This issue will be discussed in the final integrated report and further evaluated during the Preconstruction Engineering and Design phase. The authority under which the U.S. Army Corps of Engineers is conducting this navigation study cannot be used to formulate alternatives to manage existing shoreline erosion. The U.S. Army Corps of Engineers may be able to investigate shoreline erosion on the North Shore of Staten Island under a separate authority at the request of a local representative or potential non-federal study sponsor.

41. What mitigation efforts are being taken to reduce NOx pollutant emissions. Is it possible to utilize renewable energy to substitute fossil fuels?

Answer: We have investigated the possibility of using renewable energy on our dredges. Unfortunately the technology has not been developed to a sufficient level for deployment. Biofuels are available, however, though they may decrease some NOx emissions, they may increase other regulated emissions. The best way to mitigate for the NOx emissions is to reduce the emissions down to zero, which is what our plan does. For more information on this, please see Appendix A5 (Clean Air Act).

OTHER IMPACTS

42. How does this study account for sea level rise and climate change? Why do we need a deeper channel when the sea level is rising? (Questions about sea level rise/climate change)

Answer: The vessel fleet is increasing in size faster than sea levels are rising. The existing fleet that calls at the port is operating inefficiently because of the existing depth and width constraints. These inefficiencies are anticipated to continue to increase as time goes on. This study considered three different rates of sea level rise and found no relevant sea level change thresholds identified for the New York-New Jersey Harbor Deepening Channel Improvements Study. Regardless of the sea level change scenario, the Port of New York and New Jersey has plans to implement resilience measures to remain operable in the future. This is consistent with The Port Authority of New York and New Jersey's Port Master Plan and Wharf Replacement plan. Sea level rise is anticipated to result in savings in operation and maintenance costs in the future.

43. Will this project increase flooding, coastal storm surge, or erosion? How will removal of additional sand affect shorelines?

Answer: Previous deepening studies were not found to increase the risk of storm surge. Additional analyses will be conducted during Preconstruction Engineering and Design to ensure proper mitigation measures, if any, are properly implemented as a project cost.

44. What impact will bigger ships have in the harbor? How big will they be? Will there be increased vessel traffic?

Answer: The number of vessel calls at the Port of New York and New Jersey is primarily the result of (1) demand for marine cargo within the Port's hinterland and (2) international demand for products from the Port's hinterland. Container lines deploy vessels based on this demand. Additionally, total vessel calls at the Port of New York and New Jersey are likely to increase regardless of channel deepening based on long-term growth in world trade (this is further detailed in Section 3 of the Feasibility Report). The project is not expected to impact this demand (i.e., the project does not change the volume of cargo imported and exported from the Port of New York and New Jersey). The analysis assumes that the proposed improvements has no impact on the number of ultra large containerships calling the Port of New York and New Jersey. Vessel orderbooks and current vessel deployment to the Port of New York and New Jersey indicate carriers will use ultra large container vessels on services calling Port of New York and New Jersey regardless of the project. Instead, the purpose of channel improvements is to increase the efficiency of the vessels that already call and that are expected to call the Port.

If the Tentatively Selected Plan were to be implemented, the current and future fleet of container vessels would be able to draft deeper and load more cargo on each trip. Otherwise, these vessels will light-load, and require more vessel trips to transport the same amount of cargo. The Tentatively Selected Plan is designed for the class of vessels with dimensions similar to the *Maersk Triple E* Ultra Large Container Vessel Class (1,308 feet long (over 4 football fields long), 193.5 wide, has a static draft of 52.5 feet, and a capacity to carry 18,000 TEUs). With larger vessels able to load more fully/deeper, it is possible you will see a decrease in the number of total vessel calls as the fleet will be able to operate more efficiently. Overall, channel deepening allows (1) fewer vessels to transport the same cargo volume, (2) reduces tidal constraints and in-port transit restrictions, and (3) reduces overall port congestion.

Studies show that erosion is primarily caused by the wake of a vessel and not the size of the vessel. Larger ships tend to move slower and create less wake than smaller, faster moving vessels. Ultra large container vessels have restrictions on speed to limit the wake they produce. Additionally, a deeper channel is likely to result in a decrease in the number of vessels calling at the port as compared to the future without-project condition. Additional analyses will be conducted during Preconstruction Engineering and Design to ensure proper mitigation measures, if any, are properly implemented as a project cost.

Tables 35 and 36 of the Economic Appendix to the Main Report provide additional detail and estimate the reduction in total vessel calls associated with channel deepening. The analysis indicates channel deepening to -55 feet MLLW could reduce total number of vessel calls to all terminals by as much as 300 calls per year by 2040. Additionally, channel deepening may reduce congestion in the Port.

45. Will there be more trucks in my neighborhood if more cargo can arrive on bigger ships?

Answer: Truck volume is driven by regional demand for goods that are shipped in containers – i.e., the volume of consumers served by the Port and the amount of goods that people buy and consume. So, whether those containers arrive or depart the Port of New York and New Jersey on fewer, bigger ships; or more, smaller ships; or are trucked in from a different port altogether, the

demand remains independent of the vessel size. Deepening the channels enables fewer, larger ships to carry the same number of containers, potentially reducing environmental impacts from those vessel operations. Additionally, truck traffic is the responsibility of Terminal Operators and is outside the scope of this effort.

46. How would this project affect other vessel traffic operating within the project area?

Answer: It is anticipated there will be minor impacts to other traffic within the harbor. The construction contracts will be sequenced in a way to minimize impacts. Additional coordination and decisions on this matter will occur during Preconstruction Engineering and Design. Ultimately, the project will benefit all vessels in the harbor.