

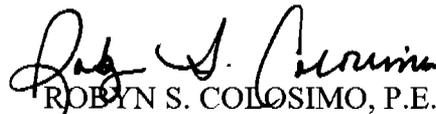
DEC 14 2005

MEMORANDUM FOR CHIEF, NAD REGIONAL INTEGRATION TEAM (ATTN: Mr. Jeff Groska)

SUBJECT: Documentation of Review Findings for Final Feasibility Report and EIS, Montauk Point, New York, October 2005.

1. Reference CENAN-PL-F Memorandum for Deputy Commander for Civil Works, U.S. Army Corps of Engineers Regional Integration Team (RIT), North Atlantic Division, Attn: CECW-PM (Groska) dated 17 October 2005, subject: Transmittal of Final Feasibility Report (FR) and Environmental Impact Statement (EIS) for Montauk Point, New York, Hurricane and Storm Damage Reduction Study, CWIS 13100 (dated October 2005).
2. Enclosed is the Documentation of Review Findings for the subject final report and EIS. All concerns from policy compliance review of the AFB materials, the draft report and DEIS, and the final report and EIS have been resolved.
3. Any questions can be directed to Lee Ware at 202-761- 4694.

Encl
as



ROBYN S. COLOSIMO, P.E.
Chief, Office of Water Project Review
Planning and Policy Division
Directorate of Civil Works

**DOCUMENTATION OF REVIEW FINDINGS FOR
MONTAUK POINT, NEW YORK
FINAL FEASIBILITY REPORT AND EIS DATED OCTOBER 2005**

PART I. REVIEW OF THE FINAL REPORT AND FEIS. Review of the final report and EIS resulted in no new issues being identified and concluded that all but one of the concerns raised during policy compliance review of the draft report had been resolved. The resolution of that concern regarding real estate requirements for access during OMRR&R is discussed below in Section I.B. The concern was resolved by submission and approval of a revised real estate plan. **All concerns resulting from review of the October 2005 final report and FEIS have been resolved.**

A. BACKGROUND.

The authority for this study is provided by a 15 May 1991 resolution of the United States Senate Committee on Environment and Public Works. A second resolution from that committee of the same date authorizes the study of interim emergency protection works until a comprehensive solution can be developed. Actions related to the second resolution were incorporated into the efforts to identify long-term solutions to the problem.

The Montauk Point study area is located between the Atlantic Ocean and Block Island Sound at the easternmost end of Long Island's southern fork in Suffolk County, New York. Montauk is in the Town of East Hampton and is approximately 125 miles east of New York City.

The lighthouse at Montauk Point is listed on the National Register of Historic Places and dates back to 1796. It is the focal point of the recreational facilities in the area, which are operated as a state park by the New York State Department of Environmental Conservation, the study sponsor. The recreation facilities in the area draw fishermen, surfers, and sightseers. The lighthouse complex is owned and operated by the Montauk Historical Society, however the transfer of ownership from the U.S. Coast Guard was contingent on the Montauk Historical Society maintaining the light station in accordance with the National Historic Preservation Act of 1966, and maintaining it as a non-profit center for public benefit for the interpretation and preservation of the material culture of the U.S. Coast Guard, maritime history of Montauk, and the Native American and colonial history. The lighthouse acts as a junction marker for ships headed to New York Harbor or Long Island Sound.

The lighthouse complex sits atop a high bluff underlain with glacial till, approximately 70 feet above Mean Sea Level (MSL). Since 1946 repeated attempts were made by various entities to protect the area by terracing and planting beach grass on the bluff and constructing gabion structures and revetment. Despite these efforts, the area is still subject to erosion damage, which threatens the lighthouse and surrounding property. The lighthouse is currently within 120 feet of the bluff, and other major structures are within 50 feet, although it was over 300 feet from the

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

shoreline when constructed. The terraced bluff and property is currently protected by a stone revetment, which was built in 1992 as emergency protection by the U.S. Coast Guard following the Halloween coastal storm in 1991. Although this has successfully halted the long-term erosion since 1993, the structure lacks sufficient toe protection to prevent significant damage to the structure from events greater than about a 10-year frequency. The area of concern is a 2,300-foot section of shoreline including the bluff and beach, which is subject to erosion during coastal storm activity. The most critical area is the 900-foot long center section of the shoreline. The without-project conditions analysis assumes that future storms will result in the loss of the existing protective revetment structure causing landward erosion of the bluff and, over time, the complete loss of the lighthouse complex structures.

The study evaluated various alternatives for protection of the area including stone revetment, an offshore breakwater with beach fill, T-groins with beach fill, beach nourishment, and relocation of the lighthouse. These analyses were performed assuming a similar protection level for the alternatives. A further iteration was performed on the revetment alternative to optimize the protection by varying the revetment design and susceptibility to damage, thereby varying the resultant maintenance costs while assuming a consistent level of benefits. According to the analysis provided, the tentatively selected plan provides a 73-year level of protection and consists of an 840-foot long revetment with a crest width of 40 feet at elevation +25 feet NGVD and 1V on 2H side slopes. The 12.6-ton quarry stone armor units extend from the crest down to the embedded toe. Three layers of 4-5 ton armor units are used atop the splash zone. The bottom of the armor stone layer in the toe is at a depth of 12-feet from the existing bottom, providing the necessary toe protection against breaking waves and scour.

The first costs of the tentatively recommended plan are \$13,690,000, with total average annual benefits \$1,580,000, average annual costs of \$890,000, net benefits of \$690,000, and a benefit to cost ratio of 1.8. Cost sharing is 50%/50%. The annual revetment maintenance costs of \$50,000 would be accomplished at 100% local expense.

B. REVIEW CONCERNS. Review of the final report and EIS resulted in no new issues being identified and concluded that all but one of the concerns raised during policy compliance review of the draft report had been resolved. The resolution of that concern regarding real estate requirements for access during OMRR&R is documented below with the information repeated as part of the complete review record in comment II.D.

Real Estate. The use of a temporary work area easement for access to the revetment site is problematic for two reasons. First, it is not a good fit in terms of the rights to be provided compared to the project requirements and second because it provides no long-term access for operation and maintenance purposes. The required estate should be reconsidered; a perpetual road easement is recommended.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Action Required: Review the estate to be provided and revise the final report accordingly.

CENAN Response: NON-CONCUR. Temporary access roads are required for “initial” construction only, to facilitate the placement of revetment stones. Unlike other shoreline storm damage reduction projects, sand will not be placed and there is no requirement for periodic renourishment or routine maintenance. Post-construction access, if and as required, would be through lands currently owned in fee by the Non-Federal Sponsor. Due to environmental or similar considerations, future access may require a different right-of-way than access used for initial construction. For these reasons, a permanent easement for access is not required and a temporary access easement (or equivalent) for the duration of construction is recommended.

In addition, the Non-Federal Sponsor will be notified that, if at some time in the future it intends to sell or otherwise convey the lands upon which the existing (or planned) access roads are situated, it would have to include a “reservation” providing for such access in any deed of conveyance or similar instrument.

HQUSACE Analysis: The concern is not resolved. The proposed estate provides rights that are not suited for access purposes and its limited duration fails to provide access for the OMRR&R purposes as required by ER 405-1-12. The review team recommends that the real estate plan be revised to identify a requirement for a perpetual road easement.

Action Taken: CENAN discussed the issue further with HQ and submitted a revised Real Estate Plan on 5 December 2005 that provided for a perpetual road easement through the park to allow for future OMRR&R by the project sponsor.

HQUSACE Final Analysis: **The concern is resolved** by the revised real estate plan, which provides for access using perpetual easements to allow access for OMRR&R. HQ approved the revised REP on 7 December 2005.

PART II. RESOLUTION OF CONCERNS IDENTIFIED DURING REVIEW OF THE DRAFT REPORT AND DEIS.

The district submitted the draft report and DEIS for review on 19 August 2005. The HQ policy compliance review assessment was completed on 27 September 2005 and provided to the district as a basis for finalizing the report. **All concerns identified during review of the Draft Report and DEIS have been resolved.**

A. Study Authority. The feasibility report (pages 7 and 45) states that the U.S. Senate, Environment and Public Works Committee authorized the study. The DEIS (page *i* executive

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

summary, page 3 DEIS, and page 1 of Appendix D) states that the U.S. House of Representatives, Environment and Public Works Committee authorized the study. Given that EPW is a Senate committee, it is likely that the Senate authorized the study. Verify study authority and revise report and EIS accordingly.

Action Required: Verify the study authority information and revise the final report and EIS accordingly.

CENAN Response: Concur. The EIS has been revised (page i, page 3, page 1 of Appendix D) to reflect the correct authorization.

HQUSACE Analysis: **The concern is resolved** by the text changes noted in the response.

B. Table 3.

1. **Clean Water Act.** This table on page 10 of the DEIS, notes that Nationwide Permit 12 would be issued for the project. It is unclear why NWP 12 (Utility Lines) would be required for this revetment project, because there is no discussion of utility line issues in the report or DEIS. Should utility line relocations or installations be required for the project, this statement should be re-worded to state that the project would be in compliance with the terms and conditions of NWP 12. Normally, the Corps does not issue permits to itself for Civil Works projects.

Action Required: Review the permit requirements and revise the information as needed in Table 10 of the final EIS.

CENAN Response: Concur. The reference to NWP 12 has been removed from Table 3 of the EIS.

HQUSACE Analysis: **The concern is resolved** by the text change noted in the response.

2. **Clean Air Act.** This table does not include a reference to the Clean Air Act. A statement concerning the status of compliance with the CAA should be provided. A statement of conformity for the CAA is found in Appendix G of the DEIS.

Action Required: Provide a statement in Table 10 of the final EIS regarding conformity with the Clean Air Act.

CENAN Response: Concur. Table 3 of the EIS has been revised to reflect the Clear Air Act Conformity Statement.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

HQUSACE Analysis: The concern is resolved by the text change noted in the response.

C. Local Cooperation. The items of local cooperation set forth in section 44, in particular items 14 and 17, should be re-evaluated in light of the nature of the proposed project.

Action Required: Review the items of local cooperation and revise as needed for the final report to reflect the nature of the project.

CENAN Response: Concur. Local Cooperation Items 14 and 17 have been removed from the final report, as they are not applicable.

HQUSACE Analysis: The concern is resolved by the text changes noted in the response.

D. Real Estate. The use of a temporary work area easement for access to the revetment site is problematic for two reasons. First, it is not a good fit in terms of the rights to be provided compared to the project requirements and second because it provides no long-term access for operation and maintenance purposes. The required estate should be reconsidered; a perpetual road easement is recommended.

Action Required: Review the estate to be provided and revise the final report accordingly.

CENAN Response: NON-CONCUR. Temporary access roads are required for “initial” construction only, to facilitate the placement of revetment stones. Unlike other shoreline storm damage reduction projects, sand will not be placed and there is no requirement for periodic renourishment or routine maintenance. Post-construction access, if and as required, would be through lands currently owned in fee by the Non-Federal Sponsor. Due to environmental or similar considerations, future access may require a different right-of-way than access used for initial construction. For these reasons, a permanent easement for access is not required and a temporary access easement (or equivalent) for the duration of construction is recommended.

In addition, the Non-Federal Sponsor will be notified that, if at some time in the future it intends to sell or otherwise convey the lands upon which the existing (or planned) access roads are situated, it would have to include a “reservation” providing for such access in any deed of conveyance or similar instrument.

HQUSACE Analysis: The concern is not resolved. The proposed estate provides rights that are not suited for access purposes and its limited duration fails to provide access for the OMRR&R purposes as required by ER 405-1-12. The review team recommends that the real estate plan be revised to identify a requirement for a perpetual road easement.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Action Taken: CENAN discussed the issue further with HQ and submitted a revised Real Estate Plan on 5 December 2005 that provided for a perpetual road easement through the park to allow for future OMRR&R by the project sponsor.

HQUSACE Final Analysis: The concern is resolved by the revised real estate plan, which provides for access using perpetual easements to allow access for OMRR&R. HQ approved the revised REP on 7 December 2005.

E. Financing Plan. The draft feasibility report discusses the sponsor's support for the project and willingness to provide the items of local cooperation. However, the report does not appear to contain information relative to the sponsor's preliminary financing plan or the district assessment of the sponsor's capability in accordance with Section D-5 of ER1105-2-100. The final report should include information on the anticipated source of state financing and the capabilities of the sponsor as evidenced by the past performance on study and project cost sharing and sponsorship.

Action Required: Revise the final report to include information on the sponsor's financing plan and capabilities.

CENAN Response: Concur. NYSDEC has successfully served as the non-Federal partner on numerous projects within the New York District. In view of their past performance as a partner, it is the assessment of the District that the NYSDEC has more than adequate financial capability to fund its obligation for project construction.

HQUSACE Analysis: The concern is resolved by the text changes noted in the response.

F. Editorial/Miscellaneous.

1. The second paragraph in Section 1.3 on page 4 of the EIS contains a sentence that starts with the phrase "The World Ware Two ear..." This typographical error should be corrected in the final report.
2. Page numbers should be included in the Table of Contents for the final report (pages 4-6)
3. The heading for Section 38 on pages 5 and 74 should read as "Policy Exemption for Private Non-Profit Landowner" since the sponsor is the State of New York.

Action Required: Revise the final report and EIS to address the above concerns.

CENAN Response: Concur. Typographical error has been corrected in the EIS. The Table of Contents of the Final Report has been revised to include page numbers. Heading of Section 38 (page 5) and also page 74 has been revised as suggested.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

HQUSACE Analysis: The concern is resolved by the text changes noted in the response.

PART III. RESOLUTION OF AFB POLICY COMPLIANCE REVIEW CONCERNS.

The AFB package submitted by CENAN in June 2003 provided a good discussion of the problems and needs, the alternative measures considered, and the issues identified during Independent Technical Review and the status of their resolution. Review of the AFB material was completed on 18 July 2003. Response to the AFB comments identified significant issues with Federal interest relative to policy on single owner beneficiaries and the proposed cost sharing. All issues were discussed further during the AFB held 2 February 2004. The AFB-PGM was issued on 15 April 2004. The items below discuss concerns, which were raised during the policy compliance review of the AFB material. For each concern information is included on the district's response, AFB discussions, the action required for resolution, the action taken, the HQUSACE analysis of the district action responses, and any further coordination required to resolve the concerns following the AFB. **All concerns identified on the AFB material have been resolved.**

A. Economic Analysis. [AFB Comment: A.]

1. Damages and Benefit Categories. [AFB Comment: A.(1)] In the discussion beginning on page 63 it is unclear from the District submittal what types of damages and benefit categories are included in the economic analysis. Is the District including the "prevented mitigation costs" that are discussed, or is it only including storm damage reduction benefits? The District needs to provide a clearer, more detailed explanation of the economic evaluation, including the methods and logic of the analysis, as per ER-1105-2-100, Section E-24 f (1)(d).

CENAN Response: The District has determined that the project's benefits stem from storm damage reduction and only storm damage reduction benefits have been claimed. One measure of the value of storm damage reduction is in terms of the avoidance of significant future maintenance costs in the with-project condition. That is the measure of storm damage reduction that has been adopted.

The District also concurs in the idea that the land damaged without project implementation is of cultural significance. This means that the cost of damage to this particular land would be greater than the cost of damage to land that was otherwise identical, but lacked the cultural significance of this particular land. Therefore, the District feels that an alternative measure of the cost avoided in the with-project condition is the value of the cultural mitigation that federal statute requires someone to perform in the event of storm damage to the land. Even though mitigation avoided is one measure of the value of the storm damage reduction, the project's benefits still derive from storm damage reduction, and storm damage reduction is the project's purpose. That

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

is why the District opted for the avoidance of significant future revetment repair and maintenance costs in the with-project condition as the measure of project benefits.

The benefits for this project stem from the avoidance of revetment repair whereby the non-Federal interests have previously expended significant sums of money to repair the revetment, i.e. over \$2 million spent over the last 10 years. The without-project condition assumes the continuation of periodic non-Federal expenditures to restore the revetment to its original design level of protection, i.e. a 15-year storm design, over the next approximate 50 years. The benefit to be obtained by the with-project condition is the avoidance of these expenditures, by upgrading the revetment's design while dramatically reducing repair costs over the 50-year project life. The fact that the bluff and the lighthouse facility have such significant cultural value only intensifies the non-Federal interest's commitment to protect the facility by repairing the revetment, as they are committed to do and have done in the past. Therefore, cultural mitigation costs, as a measure of the benefit, will be deleted from consideration and the only benefit category is storm damage reduction through the implementation of the more efficient revetment improvement. The report will be adjusted to clarify the benefit category being used.

HQUSACE Analysis: HQ concurs that the District should evaluate project alternatives based on reduced storm damages. However, it is unclear that assessing only the reduction in future maintenance costs adequately addresses the damages incurred. In several places within the report (and in the response above to this original concern), the District discusses damages to the land and bluff sloughing. These losses should be captured in the economic analysis to fully address the without project condition. Over time, with each repair, the revetment placement has retreated. It is unclear why, in the absence of a Federal project, that retreat would cease. In addition, as discussed in HQ Analysis for comment 3 – Residual damages, it is logical to assume that there would be additional damages incurred at storm frequencies greater than the design storm used for the revetment. These additional damages should be captured in the economic analysis, as per ER1105-2-100.

AFB Discussions: The AFB discussions reiterated that the purpose of the proposed project is to protect the physical structures and current (recreational/educational) uses of the Montauk Point lighthouse complex. While reduction of future local maintenance and shore protection costs has been accepted as a project benefit, it is not the sole source of damages. The report needs to describe the full extent of damages to the complex and its uses. As indicated above, it is reasonable to assume that future high intensity storms may result in loss of the protective structure as well as landward erosion and possible loss of the lighthouse complex structures. These physical damages and the lost recreation opportunities (as well as an explanation of the physical processes that cause the failures) need to be identified and properly quantified based on the timing of their most likely occurrence. The residual damages from large storms also need to be shown.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Because of the unique nature of the structures involved in this study, it was agreed it is difficult to place a value on the loss of the lighthouse structures. However, it was agreed that possible surrogate values could be developed by either estimating the cost to rebuild the structures using like construction materials or for physically moving the structure sufficiently to retain its usefulness for the life of a potential project. The District noted that in reality it may be technically infeasible to relocate the lighthouse, since it is located on the top of a rise.

Recreation use loss was also identified as an appropriate damage category. These uses would include both direct loss of the recreational/historical use of the lighthouse complex as well as the reduced value of the use of the adjacent state park. The District noted that the lighthouse is the focal point of the state park. The District has already analyzed the costs of relocating the lighthouse and the loss of recreational opportunities.

Action Required: The IRC material will include the appropriate analysis of damages due to the loss of the lighthouse complex. This will include a reassessment of the physical damages and their timing. Residual damages from major storm events will also be identified.

CENAN Action Response: The District has revised the economic analysis to reflect a revised without project future condition (see enclosed Economics Appendix). The analysis assumes that future storms will result in the loss of the existing protective revetment structure causing landward erosion and, over time, the complete loss of the lighthouse complex structures.

The proxy used to place an economic value on the historic Montauk Point Lighthouse complex is based on the calculations for the costs of cultural mitigation. Moving the Montauk Point Lighthouse complex, a National Register listed property, will potentially preserve the existing structures, but allow for the eventual destruction of the bluff point and buried cultural resources. These archaeological materials, which are associated with the historic and prehistoric use of the bluff, must be documented and recovered. Prior to moving the structures, each structure would need to be documented on engineering drawings and in photographs so that they can be rebuilt properly on the new site. Subsurface archeological excavations would be performed to recover artifacts both at the present lighthouse site and at the new site. It must be noted that the mere fact of moving the Montauk Point Lighthouse complex from its original site will inherently diminish and alter the historical significance of the existing property. Additionally, recreational benefits will be lost if the Montauk Point Lighthouse complex is lost. Paragraphs 9 through 16 of the revised Economics Appendix describe the without-project analysis for the replacement value of the Montauk Point Lighthouse complex, the land loss, and loss of recreation value.

Residual damages are detailed in the revised Economics Appendix.

HQUSACE Analysis: This issue is not resolved. The district has expanded its analysis of the relevant damage categories, as discussed. However, the method for calculating land losses that

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

was used is inappropriate. The district, paragraph 13 on page 9 states that they used a prorated proportion of the \$12 million assessed value to capture the loss of 3 feet of land per year. This calculation captures more than the economic loss of the land being sloughed, thus overstating the magnitude of the loss. A more appropriate measure for this loss would be the cost the locals would pay to replace the actual lost material (cost per cubic yard of material multiplied by the number of cubic yards needed to replace the land). This would then be a better proxy for the local cost foregone caused by the construction of a long-term fix.

IRC Discussion: CENAN noted that ER 1105-2-100, page E-138, paragraph E-24.f.(2)(f) states the following, "...Anticipated damages from land loss due to erosion are computed as the market value of the average annual area expected to be lost. Nearshore land values are used to estimate the value of land lost." Therefore, CENAN believes approach used is correct. Replacement of lost material is not possible in a bluff situation. Appropriate measure to avoid this loss is the use of a revetment.

HQUSACE noted that the current policy for capturing land loss benefits for hurricane and storm damage projects is to use the replacement cost of fill as a proxy for the land lost. Using a prorated estimate of the land value captures economic values in excess of the economic cost of replacing the lost land. However, in this case, due to the vertical bluff nature of the lost land, the District's sound analysis of the volumes lost and land value, and the complexity of actually replacing the bluff's surface, it appears that using a pro-rated amount of the assessed value of the lost land is a reasonable proxy. This issue is not fully resolved, however the response appears adequate to resolve the concern and should be documented in the draft report.

Remaining Action Required: The Draft Report will include the appropriate analysis of damages due to the loss of the lighthouse complex as presented in the revised economic analysis. The use of the pro-rated land value is acceptable in this situation. The analysis will include a reassessment of the physical damages and their timing. Residual damages from major storm events will also be identified.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and Economics Appendix.

HQUSACE Assessment: The concern is not fully resolved. During coordination with ASA(CW) on other matters concern was expressed over the benefits characterized as land loss. For the final report the discussions of land loss benefits (page 67 of the main report and Appendix B) should be characterized as local costs foregone based on evaluation of land loss as a proxy.

Action Required: Revise the final report to characterize the land loss benefits as local costs foregone based on evaluation of land loss as a proxy.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

CENAN Response: Concur. The District has incorporated the following paragraph into the Main Report and Economics Appendix to describe land loss benefits as local costs foregone.

“The lighthouse complex is situated on 3 acres of land, specifically a bluff that has an appraised value of \$12 million. It is estimated that the top of the bluff will erode at a rate of 3 feet per year when the revetment fails. Because of the complexity of actually replacing the bluff surface, a prorated amount of the appraised value of land lost was used as a proxy for the local costs forgone for this loss in the without-project condition.”

HQUSACE Analysis: The concern is resolved by the text change noted in the response.

B. Verification of Damages. [AFB Comment: A.(2)] The economic analysis shows that there is \$700,500 in damages for the two-year event, however, the report states that the current level of protection is between a 10 and 15-year event. The report also states on page 9 (and again on page 65 of the Economic Analysis) that the last time there were damages was in 1991. The District needs to verify and document the level of damages for more frequent events that are claimed in the report.

CENAN Response: The physical model used to determine the failure mechanism and damages sustained by the existing revetment, under various coastal conditions, was erected to replicate the existing (2001) condition of the stone revetment in terms of its stone size and degree of interlocking. Based on field inspection of the revetment, the model incorporated similar small displacements (loss of interlocking) between some of the revetment stones and some of the displaced, but intact stones, at some sections in the upper part of the revetment, as it exists. These displacements are typical for a stone revetment structure in the mature years of its project life, i.e. the structure is approximately 10 years old and has a 15-year design life. Typically during the early years of a stone structure’s design life, stone displacement is small and individual stone units remain well interlocked, rebounding well from wave impact. However, during the mid- to late-years of the stone structure’s design life, stone displacement becomes more pronounced (as is the case with the Montauk revetment) due to the progressive separation of adjacent stones under repeated longer-term wave impact.

Based on many years of stone structure model testing and prototype experience, structure damage occurs over time mainly from the progressive movement of interlocked stone. Even though, visibly, the structure looks intact, the stone structure is sustaining damage since stone separation is occurring and setting the stage for loss of stone contact and eventual failure. This damage condition is the precursor for catastrophic stone failure when a storm event produces

enough wave impact to totally dislodge isolated stone units. In other words, stone structures fail suddenly where significant sections of stone are totally dislodged and thrust down the structure slope to its toe, leaving the bluff area under the dislodged (failed) revetment section vulnerable to collapse; structure damage precedes this failure by way of stone movement and isolation. In addition, based on extensive model testing and prototype experience, the damage sustained by the stone structure, i.e., the square footage of disturbed or displaced stone is directly proportional to the magnitude of wave impact, i.e., wave height. In other words, the greater the magnitude of wave impact (measured in terms of percentage of waves exceeding the wave height causing damage, which in the case of the Montauk revetment are waves that extend above the berm elevation of +18 ft. NGVD) the greater the footprint of disturbed stone surface.

Figure A displays the results of the physical model for the Montauk Point revetment. When the wave spectrum and surge condition for less than a 2-year storm event was applied to the revetment, 5% of damaging waves overtopped the revetment berm (elevation +18 ft. NGVD) with no movement or damage to the armor stone. The revetment berm is the critical threshold, below which wave impact has little effect, and above which wave impact has increasing damaging effects with increasing wave heights. From the physical model from a 2 or 3-year storm (synonymous, since they both have similar coastal parameters, i.e., wave heights, wave periods, and storm surge) about 36% of the waves traveling on top of the storm surge exceeded the berm height of elevation +18 ft. NGVD; for the 15-year storm, 44% of the waves traveling on the storm surge exceeded the berm height of elevation +18 ft. NGVD; for the 73-year storm, 91% of the waves traveling on the storm surge exceeded the berm height of elevation +18 ft. NGVD. These results are shown in Figure A. In addition, from the physical model for the 15-year storm, approximately 25% of the total revetment footprint located at the upper portion of the revetment sustained displacement failure damage that left the impacted underlying bluff area totally exposed.

The failure of the lighthouse complex occurs in two phases. The first phase involves the failure of the upper revetment, exposing an area of the lower bluff, critical to the stability of the upper bluff. At the end of the first phase, this critical area of the bluff, both vertically and horizontally (the closest point from the top of the bluff to the lighthouse complex) is left totally exposed to storm wave erosive impacts. The beginning of the second phase involves the eroding of the specific exposed bluff area that is subject to the greatest wave forces from the south, southeast (SSE) direction. These wave forces will cause the exposed bluff area to erode more significantly because of its direct exposure to the direction of greatest wave forces within the entire wave spectrum. Within approximately 9 years after revetment failure, based on pertinent historical erosion rates, or sooner, if above average storm activity occurs, the upper bluff would be anticipated to fail, initiating the foundation failure of the lighthouse complex.

From the Shore Protection Manual (1984), Chapter 7, based on extensive physical modeling tests pertaining to damages to stone revetments resulting from coastal processes, it was determined

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

that there is a relative constant rate of change relationship between percentage of wave exceedence over a zero damage wave condition and the stone revetment footprint that is displaced or damaged, i.e., the more the wave exceedence over the zero damage wave condition at the berm, the more the damage to the wave impacted revetment footprint in a fairly linear progression, see Table A, line (3). Using these principles, and as reflected in Table A, the variation of stone damage using the 25% footprint damage with a correlating 44% magnitude of wave exceedence over the berm, for the 15-year storm (the only storm where damage was measured because it was the initial failure event), was used as a calibration point to determine the damage footprint for various storm frequencies. Because of the relative constant rate of change between wave exceedence and damage percentage incurred, the damage footprint is offset by an approximate constant 19% (i.e., 44% to 25% for the 15-year event) from the associated storm wave exceedence, and applied to all storm frequencies.

Therefore, from Table A, the cost to repair the revetment at each storm intensity is the sum of the mobilization and demobilization, the prorated damage percentage, (as this relationship was tested satisfactorily with visual approximation of damaging stages described above by damaged footprint percentage) applied to the known cost of \$2,200,000 (2003 price level) to repair the entire revetment after the 1993 storm, the contingencies, and the E&D and construction management.

The \$2,200,000 cost reflects inflation applied to the 1993-1997 cost of \$2,000,000, which included \$450,000 for mobilization and demobilization, design and construction management. In 1993, following a 15-year storm, the Montauk Historical Society discovered that the entire revetment was damaged and that total replacement would be required. The reason this 15-year storm caused complete damage to the revetment is because the pre-1993 revetment was not built to Corps standards, i.e. EM-1110-2-1614. The Historical Society spent \$2,000,000 (spent from 1993-1997) to rebuild the entire revetment on top of the failed revetment stones from previously failed structures. Even so, the resulting structure, though better than its predecessor, still does not meet the standards set forth in EM-1110-2-1614. The existing structure remains susceptible to being significantly damaged by a 15-year or higher event (causing 25% revetment footprint failure and escalating damage failure from higher events). It should be noted that storm events less severe than the 15-year event will also cause damage to the revetment and such damages from these events will be cumulative in nature, if left unrepaired. This means that a series of small storm events can produce the same damages to the revetment as a 15-year event if no restorative intervention takes place after each small event.

The \$2,000,000 (spent from 1993-1997) that the Montauk Lighthouse Historical Society spent to rebuild the revetment consisted of the \$450,000 for mobilization and demobilization plus engineering design and construction management, and a direct construction cost of \$1,550,000. To get a current estimate of the repair cost following a 15-year storm event, the \$1,550,000 must be adjusted to (1) account for inflation from 1993 to 2003, (2) account for the unit price increase that is inherent to repair contracts as opposed to new construction contracts due to decreased

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

production rates. The 1993 effort was considered new construction because there was a complete replacement of the previous revetment. The method used required just as much material and labor as would have been the case had the failed stones from the predecessor structure not been present nearby.

From 1993-1997, \$1,550,000 was expended to rebuild the entire revetment footprint. By way of illustration, if a 15-year event has damaged or failed 25% of the revetment footprint, the cost to repair the revetment footprint can be reasonably estimated by the following method: (1) Calculate 25% of \$1,550,000 (the cost of entire new direct construction cost in 1993-1997 dollars) gives \$387,500, (2) Adjust this amount to account for inflation between 1993-1997 to 2003 by multiplying 1.2, gives \$465,000, (3) Adjust this calculated value to reflect the fact that unit prices are higher in repair contracts as compared to new construction contracts by multiplying by 1.182 gives \$550,000. This value is shown in Table A, line 4, for the 15-year event. The repair costs are displayed in Table B to show the equivalent annualized cost to repair the revetment from all storms, as \$1,127,160. It is noted that, from Table A, contingency increases with increasing storm intensity due to increased uncertainty in damage behavior from very significant storms. In addition, E&D and construction management percentages decrease with increasing storm intensity due to the relative similar cost for E&D and S&A for all storm intensities while the first costs vary significantly between storm intensities.

HQUSACE Analysis: As per ER 1105-2-100, Chapter 3 (b) and ER 1165-2-1 Chapter 13, Section 13-14, the benefit evaluation for Corps project is based on the adequate and complete evaluation of the damages in both the without and with project conditions. Damage calculations are based on the rational economic entity is willing to pay for the elimination or reduction of damages. Based on this fundamental assumption, the District's assessment that there will be damages every two years that can be captured in the expected annual damages of the project, but for which there is no outlay of cost by the locals to repair at the time the damages occur, is false. The damages included in the NED analysis should only be those damages that there is a proven willingness to pay for the reduction or elimination of. If the historic record of the project shows that the locals are not willing to pay for the "damages" that occur at the two-year frequency, then reducing those costs would not be a benefit of the project. If the locals historically do not intervene until higher levels of damages are accrued, that would be the appropriate measure of the local costs foregone due to the construction of the project. The District should reevaluate the economic analysis of the proposed project to eliminate the more frequent damages in the EAD model, truncating the stage damage curve at the elevation of the level of protection of the revetment (or at the point at which the locals have historically incurred costs to repair the revetment).

AFB Discussions: The discussions at the AFB centered around two key issues. The first is the Corps guidance, as stated in the HQ Analysis, which requires the district to analyze the project based on the actual, historical damages incurred and documented by the locals. The second issue

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

centered on the need for the economic analysis to develop a realistic, consistent, and clearly defined future without project condition for use throughout the report. Although the AFB material discusses the failure mechanisms for the bluff and lighthouse complex, the without-project conditions do not reflect that potential loss and show only the reconstruction of the revetment with no net loss of land or risk of losing the lighthouse.

Action Required: Prior to proceeding with the submittal of the project, the District will reanalyze the economic model truncating the damage curves at the appropriate stage-frequency to adjust for the level of damage that can actually be documented historically by the non-Federal sponsor, rather than using the current two-year theoretical damages that are not documentable. The future without project will be reassessed to assure that a single, consistent set of assumptions are used throughout the analysis, and are fully documented in the report.

CENAN Action Response: The District has revised the economic analysis to reflect a revised without project future condition (see Economics Appendix). The analysis assumes that future storms will result in the loss of the existing protective structure causing landward erosion, and over time, the complete loss of the lighthouse complex structures. Refer to CENAN Action Response to HQUSACE comment (a). Each alternative is evaluated in terms of the damages or losses that would be reduced. Residual damages with each alternative plan are displayed. The selected plan is not changed except that major rehabilitation is no longer included.

Note that the lengthy discussion in the CENAN response to HQUSACE Comment (2) Verification of Damages, which explains the existing structure failure mechanism and probability, is still considered applicable. However, since we have chosen a revised without project future condition, the discussion about the local interest's remedial actions is no longer applicable.

HQUSACE Analysis: The issue is not fully resolved, however the district has appropriately reevaluated the flood damages to the lighthouse complex using a truncated damage curve beginning at the 15-year frequency. The district's reanalysis should be documented in the draft report to resolve the concern.

Remaining Action Required: The Draft Report will reflect the reevaluated flood damages to the lighthouse complex using a truncated damage curve beginning at the 15-year frequency.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and Economics Appendix.

HQUSACE Assessment: The concern is resolved by the text changes made to the draft report.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

C. Residual Damages. [AFB Comment: A.(3)] All of the alternatives proposed for this study appear to assume that there is complete protection with no residual damages. The report states that the benefits for each alternative are the elimination of the \$1,130,000 cumulative average annual damages. The District needs to explain this assumption, as it could have a bearing on the selected plan.

CENAN Response: All of the alternatives provide the same result, i.e. the protection of the bluff and the lighthouse complex. The only difference between the alternatives is the difference in first cost vs. major rehabilitation cost for damages to the revetment incurred from design storm exceedence. For all the alternatives, design storm exceedence does not compromise the proper functioning of the revetment, i.e. the protection of the bluff and lighthouse complex. The economic optimization goal is to define the most cost effective alternative combining initial costs, normal maintenance and major rehabilitation costs (storm exceedence repairs).

Therefore, each alternative avoids \$1,130,000 of annualized damages that would have to be expended to repair the existing revetment, in the absence of the project, necessary to protect the bluff and lighthouse complex. Since the three stone revetment designs provide the same protection to the bluff and lighthouse complex (the only difference is the cost to achieve that same protection), the benefit is the same for all three stone revetment alternatives.

HQUSACE Analysis: The District response indicates that there would be no compromising of the alternative protective structures due to design storm exceedence under the with-project conditions. It is not clear why that would be the case. It is also not clear why the alternative to relocate the lighthouse complex away from the bluff would not provide a more substantial level of protection than the revetment alternatives. Further clarification is needed since it appears that there have been historic land losses associated with failure of previous protective works and it would seem reasonable to expect that bluff failure and erosion losses might occur during extreme events, which exceed the design storm for the revetment.

AFB Discussions: The discussion centered on the assumptions in the future without project condition and the discrepancies and uncertainties in the AFB materials. HQUSACE reiterated the position that all reasonable damages in both the future with and without project conditions need to be included in the analysis to assure the proper formulation of alternatives.

Action Required: Prior to proceeding with the project, the district will reanalyze the economic model to show all potential damages to the lighthouse complex and surrounding lands that might occur during events that would exceed the design level of protection. The district will determine a reasonable value and stage-damage curve for the structures in the complex, including the lighthouse, if impacted by lower frequency events. The district will also determine impacts to recreation for the project area and surrounding parkland. The IRC material will fully document and report the results of this analysis.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

CENAN Action Response: Reference the Economics Appendix for NED plan selection. It must be noted that there is no stage-damage curve, as this project does not suffer normal inundation. Wave attack is the cause for long-term erosion and eventual loss.

Like any storm damage reduction analysis, the different alternative levels of design do result in different amounts of residual damage based on the varying probability of revetment failure for the different design levels. The storm forces at work here are erosion and wave attack usually associated with an accompanying storm surge. The role of the surge is not to inundate, but to raise the waves effect or vertical climb up the revetment. This is clearly different from the typical inundation scenario when analysis can be readily likened to flood damage reduction analyses. Overtopping a levee can lead to immediate, catastrophic failure of the levee with resulting floodplain inundation. Such residual damages are usually severe even without failure of the levee itself. Waves overtopping a revetment crest such as the alternatives considered at Montauk Point do not result in such failure; but instead the overtopping begins or contributes to a process that would lead to failure if no repairs are made.

The improved stone revetment protects the upper bluff from slope failure due to storm impacts, which (the upper bluff) in turn, protects the lighthouse complex itself against storm damage foundation collapse. The lighthouse complex is therefore essentially protected by two features, i.e. (1) the stone revetment at the toe and lower bluff, and (2) the upper bluff. Even if the first feature fails (comparable to the stone revetment improvement), the second feature (comparable to the upper bluff) is still available to prevent direct damages to the protected area (comparable to the lighthouse complex, itself).

In the without project condition, some amount of damages would begin to occur from threatened loss of artifacts buried in the outer bluff once a section of the bluff face is exposed after some revetment failure, even though the lighthouse complex of buildings will not be immediately threatened. These damages culminate with the loss of the lighthouse complex. The residual damages for the with project condition begin with the failure of the improved revetment alternative, which varies with the probability of the storm event to fail the revetment's design level.

It should be noted that the estimated benefits of the selected project are based on significantly delaying the actual loss of the lighthouse complex after erosion and failure of the supporting bluff. As previously stated, the proxy used to place an economic replacement value of the lighthouse complex is based on the calculations for the cost of cultural mitigation. Additional discussion of bluff failure is discussed in responses to previous HQUSACE comments (see comment 2).

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

HQUSACE Analysis: This issue is not fully resolved, however the additional analysis provided by the district appears adequate to resolve the concern and should be documented in the draft report.

Remaining Action Required: The Draft Report will reflect the additional analysis conducted by the District with regard to identification of all potential damages to the lighthouse complex and surrounding lands that might occur during events that would exceed the design level of protection. The Draft Report will also document impacts to recreation for the project area and surrounding parkland.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and Economics Appendix.

HQUSACE Assessment: The concern is resolved by the text changes made in the draft report.

D. Interest During Construction. [AFB Comment: A..(4)] There is no mention made of interest during construction in the analysis of annual project costs and benefits in Table 14. Annual costs should reflect annualized project investment costs including interest during construction, rather than initial construction costs.

CENAN Response: Interest during construction is shown on Table 12 (in the AFB package) where all the first and annual costs are displayed. The purpose of Table 14 (in the AFB package) is to establish the net excess benefits and BCR using total annual cost and total annual benefits. Therefore, it is felt that interest during construction is more appropriately shown in Table 12 and not necessary in Table 14.

HQUSACE Analysis: Interest during construction is an NED cost, which must be considered in the determination of net project benefits and the BCR, and should therefore be included in Table 14. See ER 1105-2-100, paragraphs 2-4.k and D-3.e.(10), which discuss interest during construction as a direct project cost, which along with implementation costs and associated costs comprise the NED costs.

AFB Discussions: It was noted during the AFB that the interest during construction is included in the BCR calculation presented in Table 14, but is not broken out as a separate line item. A footnote should be added to the table to indicate that IDC is included in the BCR computation.

Action Required: Interest during construction will be addressed appropriately as discussed in the previous paragraphs.

CENAN Action Response: The District has documented the estimate of interest during construction in the draft feasibility report and economics appendix.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

HQUSACE Analysis: This issue is not fully resolved, however the information in *Table 31 – Cost Summary* addresses the HQ concern and should be included in the draft report.

Remaining Action Required: The Draft Report will appropriately reflect and explicitly identify interest during construction as a component of the NED analyses.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and Appendices.

HQUSACE Assessment: The concern is resolved by the text changes included (Table 14 and Appendix B) in the draft report.

E. Level of Protection. [AFB Comment: B.] The discussions and presentations of both the existing and with-project alternatives level of protection throughout the report are confusing. On page 10, the level of protection provided by the existing revetment is “between a 10-year and 15-year frequency storm.” The cumulative average annual damages for this level of protection are \$1,130,493 (page 66). Alternative 2C is designed to provide 15-year level of protection and has total benefits of \$1,130,493, the same benefits as both the 73-year level of protection and the 150-year level of protection alternatives. This does not appear to be logical that three different levels of protection provide the same benefit. The text on page 68 indicates that no residual damages are expected to occur unless there is a 73-year or greater storm event. Presumably, residual damages should vary according to the level of protection noted in Figure 29. The District needs to better explain what is meant by level of protection and describe and quantify residual risks and damages.

CENAN Response: As previously discussed, all of the alternatives provide the same result, i.e. the protection of the bluff and the lighthouse complex. The only difference between the alternatives is the difference in first cost and associated major rehabilitation cost for damages to the revetment incurred from design storm exceedence for the different revetment dimensions and stone sizes (level of protection).

There is a trade-off at work in the design of the revetment to protect the bluff and lighthouse complex. The lower the nominal level of protection in the revetment design, the lower will be the first cost of construction, but the higher will be the frequency and cost of major rehabilitations required to restore the revetment and protect the bluff and lighthouse complex from storms more intense than the design storm. Likewise, the higher the nominal level of protection in the revetment design, the higher will be the first cost of construction, but the lower will be the frequency and cost of major rehabilitations required to restore the revetment. Damages to the bluff and lighthouse complex are completely avoided, because damage to the constructed revetment will be repaired by local interests.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Since the structure requiring protection is the bluff and lighthouse complex, and their condition remains the same no matter which alternative is selected, all alternatives provide the same benefit even though the revetment alternatives are sized differently. The economic optimization goal is to define the most cost effective alternative combining initial costs, normal maintenance and storm exceedence repairs.

Level of protection of the revetment refers to the design storm conditions, i.e. waves, storm surge and overtopping that can be absorbed by the structure with an acceptable level of risk, e.g. a minimum of over 75% probability of performance success with only relatively minor damage (0 to 5% damage levels) from the higher range of wave, surge and overtopping parameters for a given design storm event. Design exceedence refers to distinctively higher storm wave, surge and overtopping values than the design storm. A recommendable design allows for design exceedence without structure failure based on life cycle cost effectiveness vs. lower levels of design with failure from storm exceedence over the given project life. As stated above, the benefit claimed for each of the revetment design alternatives is the same because each of the revetments will protect the same land and improvements appurtenant to the land to the same degree, and each avoids the same average annual without-project costs. The revetment design alternative that was chosen is the one that minimizes the present value of the sum of first cost of revetment construction and anticipated future major rehabilitation costs.

HQUSACE Analysis: As previously discussed in the HQ Analyses of comments 2 and 3, the level of protection as described in the report is not what is intended in the Corps policy addressing the economic evaluation of a proposed project. The District should reevaluate their economic analysis to address residual damages and to remove the very frequent damages from the analysis since there is no historic basis for them. Once the analysis is adjusted to reflect these changes, the actual level of protection being provided in both the with- and without-project conditions can be more easily assessed.

AFB Discussions: As with the discussion of comments 2 and 3 (Verification of Damages and Residual Damages), HQUSACE reiterated the need for the district to reevaluate the economic models used to determine the appropriate future with- and without-project damages and levels of protection, in accordance with Corps guidance. The without-project scenario should reflect the land owner doing what they can afford to in order to minimize erosion damages, but sustaining some losses from major events that could result in land loss, losses in recreational opportunities, and some risk to the lighthouse complex.

Action Required: Prior to proceeding with the project submittal, the district will reevaluate the economic models, using the appropriate assumptions and guidance, as per the HQ Analysis and AFB discussion above, to determine the correct level of protection provided by the existing structure and the proposed plan.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

CENAN Action Response: Reference the revised Economics Appendix. The District recalculated the damages and benefits associated with a revised without project condition assumption regarding a direct threat to and eventual loss of the lighthouse complex. The alternatives have been reevaluated in terms of damages delayed with each plan design level. Major rehabilitation was removed as a plan element and the resulting residual damages are displayed.

HQUSACE Analysis: The issue is not fully resolved, but the additional information and reanalysis provided by the district appears adequate to resolve the concern.

Remaining Action Required: The Draft Report will include the damages, benefits, and level of protection afforded by project alternatives as presented in the revised economic analyses.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and Economics Appendix.

HQUSACE Assessment: The concern is resolved. (see comment III.A. regarding land loss)

F. Cost Sharing. [AFB Comment: C.] There are concerns over the cost sharing cited for initial construction and major rehabilitation.

1. Initial Construction. [AFB Comment: C.(1)] Page 74 – The District proposes that the cost sharing for this project be 65% Federal and 35% Non-Federal. This does not appear to be correct. In accordance with ER 1165-2-1 Section 14-1 C.2 (c): “Non-Federal Shores: Publicly Owned and Used. Costs assigned to non-Federal public lands and shores used for parks and recreation purposes are 50 percent non-Federal.” The District will need to reanalyze the project using the correct cost-sharing formula and coordinate with the Non-Federal Sponsor to be sure that they fully understand their responsibilities.

CENAN Response: At present, the land that will be protected by implementation of the recommended project is deeded to the Montauk Point Historical Society. The Montauk Point Historical Society is a private, not for profit association that is not part of any state or local government. The land is held open by the Montauk Point Historical Society for use by all on equal terms, regardless of origin or home area. In light of these facts, the cost sharing of this project should be governed by EP 1165-2-1, para. 14-1c(2)(b), i.e. 65% Federal and 35% Non-Federal.

HQUSACE Analysis: The District’s response raises concern as to whether there is a Federal interest in protection of the area; since it indicates that the land to be protected appears to be

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

owned by a single, private non-profit association and no governmental body. Both ER 1165-2-130 and ER 1165-2-123 indicate that there is no Federal interest in protection of property owned by a single private non-profit entity. This would seem to be consistent with the cost sharing and Federal interest if the property had remained or might revert back to U.S. Coast Guard ownership, whereby the other Federal agency owning the property would be responsible for 100% of any project costs. Public ownership at a single property, however, would allow for Federal participation in protection with 50%/50% cost sharing as noted in the initial review comment. Given that the land use appears to be state park and recreation related, the ownership must be clearly defined since that is what controls the determination of Federal interest rather than usage of the lands. There also appears to be no authority whereby the Corps could undertake HSDR protection measures at this location based on the cultural value of the resources to be protected, as exists under the Section 14 authority. Therefore, the District should provide real estate information, which shows the location and ownership of parcels at Montauk Point and provides clarification on the deed and any reversion stipulations it may contain, as a basis for resolving the concern on cost sharing and Federal interest.

AFB Discussions: Prior to the AFB, the District provided additional information on the ownership of the affected properties and the details of the Montauk Point Historical Society's deed restrictions. These were discussed in detail at the meeting. The current guidance on this situation is clear; a single owner situation by a private not-for-profit organization does not qualify for Federal participation. This is a 100% non-Federal responsibility. This is the case even though the lighthouse complex is run as an educational facility open to all on an equal basis. The fact that the currently proposed protection design wraps around onto the state park land does not automatically make this a multiple user situation. The extent of damages occurring to the state park must be analyzed to determine if they are experiencing a significant impact. The loss of state land in itself is not a significant impact. There must be evidence of significant structural loss or reduction in user days or a diminishing of the recreation experience from the loss of the state park land. The District may be able to show a nexus to the loss of the lighthouse complex and its effect on the recreational experience at the state park.

If a second user can be identified, the District needs to recognize that cost sharing for the project would be based on the use of the affected properties, in this case; recreational facilities. As such, the best cost sharing that is available to the non-Federal sponsor would be 50/50.

Action Required: To continue this study and recommend any Federal participation, the District must provide additional information on the possibility of an eligible second user that is impacted by the project. If successful, cost sharing analyses should be based on the recreational use and presented as 50% Federal and 50% non-Federal.

CENAN Action Response: Montauk Historical Society is the owner of most of the land that would be directly protected from storm damage by implementation of the proposed project. The

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Historical Society possesses none of the characteristics of a private owner that are relevant to application of the single owner policy. It does, however, possess many of the characteristics of a public entity and produces services that are in the nature of a state function. Consequently, it is the view of the District that, for purposes of the single owner policy, this landowner should be treated as if it were a public entity. Fuller elaboration of the District's view will require an examination of the economic purpose the single owner policy is intended to serve.

Corps of Engineers Civil Works Projects are intended to provide public goods. A public good is marked by two characteristics: non-rival consumption (*i.e.*, if one person consumes public goods, the amount available for everyone else remains the same) and non-excludability (*i.e.*, once public goods have been created, it is impossible or extremely costly to prevent a non-payer from gaining access to the good). The classic example of a public good (cited by Adam Smith) is a lighthouse. A clearer example is the protection provided by police, fire departments, and the military. The economic purpose of the single owner policy is to ensure that the Corps does not cost share projects in which there is no public goods element. It does this by providing that a single owner situation:

exists when restrictive conditions of any sort afford a single property owner the exclusive present and future enjoyment of the project benefits. A principal example of opportunity for such exclusive enjoyment of benefits would be where one owner controls all the land giving access to the improvement; single land ownership creates the possibility of the owner so structuring and constraining uses thereof that all net benefits of related improvements can be caused to devolve upon and be reserved to the owner.

Note the emphasis on excludability. In terms of excludability, the single private owner situation prevents the Corps' project from being a public good. Note also that the single owner policy does not apply where the project would serve only property owned publicly by a single state (including the District of Columbia and territories and possessions of the United States), county, municipality, or other duly appointed public entity. The reason for this exception is that public entities typically practice non-excludability and are open to all. This fact would allow the Corps' project to be a public good in the single public owner situation.

Montauk Historical Society is much more akin to a public entity than a private entity. It may not alter or even maintain its property and buildings at Montauk Point without the approval of the State Historic Preservation Office. It is not organized pursuant to that state's Business Corporation Law. It is chartered by the Board of Regents, State of New York, to pursue an educational mission. Pursuant to that charter, the Historical Society has adopted bylaws that provide that anyone may become a member of the society upon payment of \$5.00 dues. There are no other qualifications and there are discounts for students and family memberships.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Therefore, as a practical matter, no person is excluded from the economic activities conducted on the land that is to be protected by the proposed project. In addition to actual membership, use of the property is openly accessible to all visitors regardless of location, affiliation, etc, at a nominal cost.

Moreover, the committees that the by-laws establish (museum, library, publications, historic sites, program, membership, and nominating) are all indicative of the organization's education mission. There is no compensation committee or personnel committee, which is indicative of the fact that no significant sums are changing hands as a result of these activities. Accordingly, Montauk Historical Society qualifies for treatment as a non-profit educational institution pursuant to §501(c)(3) of the Internal Revenue Code. Use of the museum, library, historic site, etc. by one person does not diminish the amount of those goods available for other persons to use.

Therefore, the use of the land to be protected by the proposed project by the Montauk Historic Society meets both parts of the definition of a public good. Uses of land by state or local government entities are excluded from treatment as single owners on the ground that they are providing public goods. Because the Montauk Historic Society is also providing a public good, it is the view of the district that it ought to get the same treatment as a state or local government for purposes of the single owner policy. In light of these considerations, it is clear, in the view of the District, that Montauk Historical Society should not be considered a single owner for purposes of ER 1165-2-123 (or as amplified in EP 1165-2-1, para. 12-6) because it does not and will not present the economic problem that the single owner policy is designed to avoid.

The protective project for Montauk Point would also provide protection to the State Park property because the revetment to protect the lighthouse complex anchors the surrounding park lands, which otherwise would erode at a greater rate and in a different pattern if the fronting bluff at the tip of the Point were allowed to erode as in the without project conditions. The non-Federal sponsor did not request any specific protection for park lands, but it is a byproduct of the selected revetment plan. This protection to the park is in addition to the incidental protection to the parklands at the tie back ends of the revetment.

The use of the Montauk Point State Park is closely linked to the presence of the lighthouse complex. There is only one parking lot for the general public. The park is enjoyed by all visitors and some specifically visit to tour the lighthouse complex and pay the additional admission fee. Most of the visitors to the park come to enjoy the experience of the aesthetics or view of the park in the presence of the lighthouse. Visitors who might have recently toured the lighthouse complex, don't have to actually go back in to enjoy it. For example, many people bring cameras to the park as there is much natural beauty to capture along with memories of family and/or friends who might accompany them. Most certainly one of the most favored backgrounds would include the lighthouse. Fisherman and surfers clearly have another focus, but for many of them

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

the lighthouse enhances their particular recreational experience. If the lighthouse did not exist, there would be a reduction to the overall aesthetics and recreation value of the State Park. The Economics Appendix of the feasibility report documents an estimate of the loss of the value of the recreational park use apart from the loss to those visits that actually include the lighthouse complex.

Clearly the value of the publicly owned park property is directly affected by the presence of the privately owned developed lighthouse complex property both physically and from a use perspective, and, therefore, the single property owner situation should not be applied. Further, as mentioned above, since the developed private shore is not limited to private interests the Corps should participate in this storm damage reduction project. In accordance with cost-sharing guidance for storm damage reduction projects, the cost should be shared as 65% Federal and 35% non-Federal, as the property is developed with a fully functioning lighthouse.

The single owner policy is not new, as the original Federal ownership issue (Coast Guard) was recognized prior to initiation of the feasibility study. The non-Federal sponsor (NYSDEC) and the Montauk Point Historical Society still believe that the ownership transfer to the Montauk Point Historical Society (in accordance with HR 3675, Department of Transportation and Related Agencies Appropriations Act, 1997, Sec. 341, Conveyance of Light Station, Montauk, New York) was carried out with the original intent of potential project implementation, not just execution of a feasibility study cost-sharing agreement.

HQUSACE Analysis: The concern is not resolved. The district provides several cogent arguments in support of its position, however there are still concerns over the project cost sharing and single owner policy.

The district's response reiterates that the lighthouse complex, although located on a private shore owned by a non-profit entity, is integral to and a focal point of the state park facilities. As such, it affords educational and recreational use that provides a public good, similar to a public entity. The benefits of the complex are shown to include the recreational experience of visitors paying admission to the lighthouse as well as visitors to the surrounding state park lands and facilities.

The district proposes that the Historical Society be treated as a public entity under the single owner policy, since it functions similar to a public owner by providing benefits to the general public. This argument seems to have some merit, given the integral connection of the protected property to the surrounding parklands. However, paragraph 5.a of ER 1165-2-123 indicates that similar rationale on direct and indirect benefits was used prior to 1988 and was replaced due to its shortcomings, when ownership became the basis for making single entity determinations. Paragraph 5.b. further clarifies the public entities for which benefits shall not be treated as single owner or entity. Appendix A of ER 1165-2-130 defines "publicly owned" as ownership by a state, municipality, or other political subdivision; the Montauk Historical Society does not meet

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

that definition. Table 1 of the ER clearly indicates that there is no Federal interest for a single private non-profit property owner. If benefits are being claimed for protection provided to a State-owned facility, then by law such benefits shall not be treated as benefits to be provided to a single owner. See 33 U.S.C. § 2322. However, based on the District's responses, it is not clear whether that is the case here, though some mention is made of incidental protection that will be provided to a State park. Therefore, characterization of this private non-profit entity as a public entity for interpretation of the single owner policy would require a policy exception. HQ concurs that the Montauk Historical Society provides for the preservation and maintenance of a valuable national historic resource that serves the public good.

Should an exception be sought and granted by ASA (CW) to allow characterization of the Montauk Historical Society as a public entity, the appropriate project cost sharing should be recommended consistent with that characterization, rather than 65%/35% as proposed by the district. The benefits presented by the district for this project consist of damage prevention to the lighthouse complex, land loss, and recreation. Paragraph 6.g.(4) of ER1165-2-130 indicates that lands dedicated to non-Federal park and conservation areas (including historic parks and landmarks) will normally be valued on the basis of loss of recreation outputs, with cost sharing of 50/50.

IRC Discussion: CENAN provided several cogent arguments in support of the Montauk Historical Society being treated as a public entity, as it functions as a public owner by providing benefits to the general public. However, existing single owner policy will not allow the Corps to participate in project construction. HQUSACE will forward a request for a waiver (exception) to this policy from the Office of the Assistant Secretary of the Army for Civil Works (ASA(CW)) in order to allow characterization of the Montauk Historical Society as a public entity. An unfavorable response by the ASA(CW) would require the Feasibility Report to show the construction of this project to be a full non-Federal expense. HQUSACE agreed that CENAN should continue the finalization of the Draft Report and EIS, with the final recommendation to be determined upon a decision from ASA regarding the single owner issue.

As previously indicated, the benefits presented by the district for this project consist of damage prevention to the lighthouse complex, land loss, and recreation. Paragraph 6.g.(4) of ER1165-2-130 indicates that lands dedicated to non-Federal park and conservation areas (including historic parks and landmarks) will normally be valued on the basis of loss of recreation outputs, with cost sharing of 50/50. The CENAN believes the project's cost sharing should be 65% Federal and 35% non-Federal. It was agreed that project cost sharing determination would be postponed until a policy exception determination was made by the ASA(CW).

Remaining Action Required: CENAN will draft a request for waiver (exception) to this single owner policy, and provide to HQUSACE with copy to CENAD. CEMP-NAD will finalize and coordinate the request with ASA(CW). CENAN will concurrently continue completion of the

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Draft Feasibility Report, which will be finalized based on the policy decision by ASA(CW) and a subsequent IRC to finalize the cost sharing issue.

CENAN Response (Draft Report): By Memorandum dated 29 June 2005 (Subject: Montauk Point, New York, Storm Damage Reduction Feasibility Study – Policy Exemption for Private Non-Profit Non-Federal Sponsor) the Office of the Assistant Secretary for Civil Works approved a request (CEMP-NAD memorandum dated 7 June 2005) for an exception to the existing policy which prohibits the Army Corps of Engineers from cost-sharing water resource projects involving a single private owner.

The Assistant Secretary's memorandum does not address the cost-sharing issue for the project. The District has agreed to prepare and submit the Draft Report to HQUSACE and CENAD with a conclusion that project cost-sharing will be set at 50% Federal and 50% Non-Federal.

HQUSACE Assessment: The concern is resolved. ASA(CW) has concurred that the appropriate cost sharing for the project in accordance with the policy exception should be 50%/50% as shown in the draft report.

G. Major Rehabilitation. [AFB Comment: C.(2)] The cost apportionment shown on page 74 shows that major rehabilitation costs are costs shared similarly to the initial project construction, 65% Federal / 35% non-Federal. For coastal structures the local sponsor is responsible for OMRR&R, in accordance with ER 1165-2-130. The Federal government only participates in periodic nourishment since the nourishment is considered continuing construction. The cost sharing should be revised to reflect the sponsor's requirement to provide OMRR&R as part of the local cooperation requirements.

CENAN Response: Based on ER 1165-2-130, dated 15 June 1989, Paragraph 9(f), Page 22 of the ER, titled "Emergency Authorities," cost sharing applies to measures taken following a storm which exceeded previously built project design storm conditions, but does not necessitate action under P.L. 84-99. Major rehabilitation, as opposed to maintenance and operation costs; apply to the design exceedence of the project. Therefore, cost sharing at the initial project cost rate is applicable to major rehabilitation costs. OMRR&R costs are indicated as a separate cost, i.e. "Annual Revetment Maintenance" which is shown as 100% non Federal on Page 74 (in the AFB).

HQUSACE Analysis: The reference cited in the District response was written with regard to rehabilitation at beachfill projects and does not apply to hardened structures. Policy Guidance Letter # 27, paragraph 4.b addresses the definition of OMRR&R requirements relative to PL 84-99 emergency authority and states that the "definitions do not deal with hardened structures (groins bulkheads, sea walls, and revetments) which may be features of shore protection projects. Under current policy, for projects constructed since the passage of WRDA 86, the non-Federal

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

sponsor is responsible for all activities related to the OMRR&R of hardened structures. This includes the OMRR&R of hardened features such as terminal groins that may be included in beach fill projects. There is no Federal continuing construction responsibility associated with hardened structures.” Accordingly, the costs shown for major rehabilitation would be 100% locally funded as part of the OMRR&R responsibilities.

AFB Discussions: There is no Federal role in OMRR&R for hardened structures following construction. All OMRR&R costs would be 100% locally funded.

Action Required: Project alternatives will be designed and cost to reflect a complete project and a consistent period of analysis. Any major rehabilitation that is included will be a 100% non-Federal cost.

CENAN Action Response: Major rehabilitation is not included in the revised analysis.

HQUSACE Analysis: The concern is resolved by the district’s response.

H. Schedule. [AFB Comment: D.] Page 91. The District needs to reconsider the implementation schedule that is included in the AFB package, as it was already obsolete by the date of submittal.

CENAN Response: Concur. The schedule will be revised in the Draft Report as follows:

Completion of Feasibility Report – 6 months

August 2005	Draft Report & Draft EIS – public & agency review
September 2005	Final Report & Final EIS
October 2005	Report Approval and Authorization to Proceed PED
January 2006	Execution of Design Agreement with Sponsor

Planning, Engineering & Design Phase – 20 months

February 2006	Value Engineering Study
	Design Documentation Report (Engineering)
	Plans & Specs Initiation - Design & Review
	Coordination – Environmental, Permits, Real Estate
	Execute Project Cooperation Agreement with Sponsor
	Completion of Final P&S
	Real Estate Acquisition
September 2007	BCO Certification

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Construction Contracting Phase – 3 months

October 2007	Construction Contracting - Advertise for Bids
January 2008	Award Contract

Project Construction – 2 years

January 2008	Notice to Proceed – Initiation of Construction
January 2010	Project Completion

HQUSACE Analysis: The District response is adequate to address the concern.

AFB Discussions: This issue was not discussed further at the AFB.

Action Required: The District should include in the draft report the most up-to-date version of the project schedule.

CENAN Action Response: The District will include an updated schedule, as revised above, in the draft report.

HQUSACE Analysis: The concern is not yet resolved, however the action proposed in the response appears appropriate to resolve the concern. The schedule should include a footnote that it assumes that funding is provided by Congress, as has been done in the past.

Remaining Action Required: The draft report will include the most up-to-date version of the project schedule. The schedule will include a footnote that it assumes that funding is provided by Congress, as has been done in the past.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report.

HQUSACE Assessment: **The concern is resolved** by the text change made on page 88 in the draft report.

I. Environmental. [AFB Comment: E.]

1. Corps Responsibilities - Section 106. [AFB Comment: E.(1)] The Tulsa District example of actions that the Corps has undertaken to protect historic resources on Corps-owned properties (pages 63-64) is not relevant to this project. The Montauk Point Historical Society and/or Coast Guard have the responsibility to maintain the Montauk Lighthouse property. The Corps is under no legal obligation to maintain this site and has undertaken no action that would impact the resource. Since the Tulsa example could mislead readers to assume that the Corps has such responsibility, it is recommended that this example be deleted from the report.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

CENAN Response: Concur. This example will be deleted from the Report and Draft EIS.

HQUSACE Analysis: Deletion of the text as noted in the response will adequately address the concern.

AFB Discussions: This issue was not discussed further at the AFB.

Action Required: The Tulsa District example should not be included in the Draft report discussions.

CENAN Action Response: The draft report will not discuss the Tulsa District example as it is not applicable. The reference has been removed.

HQUSACE Analysis: The concern is not yet resolved, however the action proposed in the response appears appropriate to resolve the concern.

Remaining Action Required: As discussed, the Draft Report will not include the Tulsa District example.

CENAN Response (Draft Report): Concur. All references have been removed from the Draft Report and EIS.

HQUSACE Assessment: The concern is resolved by the text changes made in the draft report.

J. Endangered Species Act. [AFB Comment: E.(2)] The status of the endangered species consultation with the National Marine Fisheries Service should be clarified. Page 77 of the report states that the proposed alternative would have “no impact” to seals or seal haul-out areas; however, NMFS recommended that an incidental take permit be obtained for the project. An incidental take permit is only required if a proposed project has a chance (even a very small chance) of taking a listed species or its critical habitat. Under section 7 of the Endangered Species Act, a “no effect” determination by the lead agency (i.e., the Corps), with concurrence from the NMFS would mean that ESA compliance is complete. The document should explain why an incidental take permit is needed or recommended for the project given the “no impact” determination for seals.

CENAN Response: The Corps has recommended that the project be given a “no impact” determination based on the coordination letter with NMFS. The Fish and Wildlife Service, in the final FWCAR, concurs with NMFS that there are no seal haul-out areas within the project footprint. Therefore, there is no need to obtain the incidental take permit. The Corps will

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

reassess seal usage in the area prior to the initiation of construction. The Corps would apply for an incidental take permit, if appropriate at that time.

HQUSACE Analysis: The District should be aware that “applying for an incidental take permit” involves re-opening consultation under the ESA, and that this process could be time-consuming if seals should be found in the project area. Discussion of this issue in the report would more accurately be described as “the Corps would re-open ESA consultation with NOAA Fisheries in the event that seals are found in the project area.”

AFB Discussions: This issue was not discussed further at the AFB.

Action Required: The District should continue their coordination with the resources agencies and present the results in the report as discussed in the preceding discussions.

CENAN Action Response: The District has continued to coordinate with the resource agencies regarding the project. The draft report will be revised to state that the Corps would re-open ESA consultation with NOAA Fisheries in the event that seals are found in the project area, which is highly unlikely, as noted by NMFS.

HQ Analysis: The concern is not yet resolved, however the action proposed in the response appears appropriate to resolve the concern.

Remaining Action Required: The Draft Report will include the revised discussion as discussed.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and EIS.

HQUSACE Assessment: **The concern is resolved** by the text change in the draft report and DEIS.

K. Agency Coordination. [AFB Comment: E.(3)] The Fish and Wildlife Coordination Act of 1958 requires that the action agency coordinate with the appropriate Federal and State wildlife agencies. Have the views of the state conservation agency been solicited for this project? The document discusses only coordination with the USFWS and NMFS.

CENAN Response: In addition to frequent contacts with the non-Federal Sponsor, the New York State Department of Environmental Conservation (NYSDEC), during the study, NYDEC also read and concurred with the findings of the USFWS. The New York State Office of Parks, Recreation and Historic Preservation (NYS SHPO) has also reviewed all Cultural Resource

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Reports and has concurred with the findings and recommendations. The main concern from NYS SHPO representatives was what the overall construction project impact would be to the area. Discussions were held with regard to access roads, staging areas, trucking, start time of the construction project, access to the area during construction, how alternatives were conceived and dismissed and the results of the environmental and cultural analysis' that are in the DEIS. Trucking is the most economical and environmentally safe mode of transportation for the stones required to rebuild the revetment wall. The Corps has agreed to work with NYS Parks to insure that the majority of trucking is done in "off peak" hours (i.e. early in the morning) and during "off season" months (limiting trucking during May through early October). Access roads would be returned to the condition they were in prior to the start of the project. Start time of the project would be slightly altered to allow for continued access to one side of the current revetment during the peak fishing season of October-November. However, once construction begins, the revetment wall and staging areas directly adjacent to each end of the revetment wall would be off limits to the public. As stated in the FWCAR, the Corps will produce a list of endangered flora in the project area. According to the FWCAR and with the NMFS coordination no long-term impact will occur to any bird, animal or fish species. The Corps reported the results of various Cultural Resource studies that have occurred. They also reported that the NY State Historic Preservation Office, through NYS Parks, has signed off on Section 106 coordination with the recommendation that the Corps conduct a limited monitoring during the initial removal phase of the current wall. The Corps concurs with this recommendation. SHPO's final recommendation, which the Corps also concurs with, is that the Montauk Historical Society (MHS) should apply to the National Register of Historic Places to change the current National Register listing of just the Lighthouse to include the entire Lighthouse Complex as an Historic District. The MHS agrees with the recommendation by both the State and the Corps and will begin that process. If the new designation is awarded, it will have no effect on the Project.

HQUSACE Analysis: The District's discussion satisfies the concern regarding coordination with the state conservation agency and other non-Federal entities.

AFB Discussions: This issue was not discussed further at the AFB.

Action Required: The draft report should fully document the full range of coordination conducted by the District in preparation of the report and NEPA documentation.

CENAN Action Response: The District has continued to coordinate with the resource agencies regarding the project, and will be fully documented in the report and NEPA documentation.

HQ Analysis: The concern is not yet resolved, however the action proposed in the response appears appropriate to resolve the concern.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Remaining Action Required: The Draft Report will include the fully document the full range of coordination conducted by the District in preparation of the report and NEPA documentation.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and EIS.

HQUSACE Assessment: The concern is resolved by the text changes included in the draft report.

L. Real Estate. [AFB Comment: F.]

1. Real Estate Plan. [AFB Comment: F.(1)] The REP appears to be in the early stages of development. Prior to release for public review, the decision document will need to include an REP that satisfies the requirements of ER 405-1-12.

CENAN Response: Concur. A Real Estate Plan was completed with the AFB package, but was not included, as it was only summarized for AFB purposes. The entire RE plan can be provided for review.

HQUSACE Analysis: Additional information on the land ownership and deed information was provided by the District to facilitate discussions of the land ownership in the project area and resolution of other policy concerns regarding Federal interest and project cost sharing.

AFB Discussions: The Real Estate Plan was not discussed during the AFB.

Action Required: The District should include the completed Real Estate Plan with the submission of the draft report.

CENAN Action Response: The Real Estate Plan will be included in the draft feasibility report.

HQ Analysis: The concern is not yet resolved, however the action proposed in the response appears appropriate to resolve the concern.

Remaining Action Required: The Draft Report will include the completed Real Estate Plan with the submission of the draft report.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and RE Appendix.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

HQUSACE Assessment: The concern is resolved by the text changes included in the draft report.

M. Incidental Costs. [AFB Comment: F.(2)] The Cost Apportionment chart on page 74 of the AFB package indicates that the costs for real estate lands and damages is \$0 for the Federal share and \$0 for the non-Federal share. HQ is concerned that current cost estimates may not include administrative and incidental costs associated with providing the LER. Also, while the value of the lands, easements and rights-of-way may be zero dollars due to offsetting benefits (AFB package, P. 88), the non-Federal sponsor would still be eligible to receive LERRD credits for the incidental costs associated with providing the Lands, Easements, Rights-of-way and Dredged material disposal areas, and all necessary Relocations (LERRD) required for the project in accordance with the Project Cooperation Agreement.

CENAN Response: Concur. Administrative and incidental costs associated with providing the LER will be incorporated into the Draft Report.

HQUSACE Analysis: Inclusion of the requested information in the draft report will resolve this concern.

AFB Discussions: Issue not discussed further at AFB.

Action Required: The District should include appropriate information on administrative and incidental costs in the draft report.

CENAN Action Response: Information on administrative and incidental costs will be included in the draft feasibility report.

HQ Analysis: The concern is not yet resolved, however the action proposed in the response appears appropriate to resolve the concern.

Remaining Action Required: The Draft Report will include appropriate information on administrative and incidental costs in the draft report.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and RE Appendix.

HQUSACE Assessment: The concern is resolved by the text changes included in the draft report.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

PART IV. RESOLUTION OF CONCERNS ON THE REVISED ECONOMICS APPENDIX

A. HQUSACE Comment: Vehicle Operating Costs. Paragraph 15 in the Economic Appendix states that a value of \$0.375 (the government rate for FY2004) was used in calculating the operating costs of cars in the analysis of recreation losses. This value is most probably not appropriate for use in this application. A more appropriate value may be available from US DOT publications for variable costs of operations. The appropriateness of value selected for use in the benefits computations should be verified. The value selected should be justified in the economic appendix of the draft report. The operating costs used in the transportation benefit analysis should be only variable costs such as gasoline and oil, maintenance, tires, and depreciation related to use. The fixed costs that are incurred regardless of use should be excluded. This is supported in ER 1105-2-100, Appendix E, paragraph 50.j.(b)(1), as well as Principles and Guidelines, Appendix 1 to Section VII, and the National Economic Development Procedures Manual- Urban Flood Damage, IWR Report 88-R-2, page VII-7.

IRC Discussion: CENAN presented the following information: The most recent U.S. Department of Transportation data is based on information gathered by the American Automobile Association (AAA). The table below shows the variable costs for operating an average 2004 automobile. The AAA rate is 37.8 cents per mile, which is greater than the government rate of 37.5 cents per mile used in the economics appendix.

Driving Costs for 2004	
<u>Categories</u>	<u>per mile</u>
gas and oil	\$ 0.065
Maintenance	\$ 0.054
<u>Tires</u>	\$ 0.007
Subtotal cost per mile	\$ 0.126
	<u>per year</u>
Depreciation (15,000 miles annually)	\$ 3,782.00
	<u>per mile</u>
depreciation	\$ 0.252
Total variable costs per mile	\$ 0.378

HQUSACE Analysis: The concern is not yet resolved, however the information presented in the response appears adequate to resolve the concern.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Action Required: The table and rationale to support the variable cost per mile used in the analysis should be included in the Economic Appendix of the draft report.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and Economics Appendix.

HQUSACE Assessment: The concern is resolved by the text changes included in the draft report.

B. HQUSACE Comment: OMRR&R Costs. The cost summary in Table 31 shows the OMRR&R costs as \$88,900 for the 15-year level of design, \$48,000 for the 73-year level of design, and \$56,100 for the 150-year level design. Given the increased integrity of the structure to resist damage by storm waves it is not clear why the 150-year design would have greater OMRR&R costs than a 73-year design level. It would be expected that as the design level increases the OMRR&R costs for the structure would decrease. This should be reviewed to assure that the values of OMRR&R are correct in accordance with 2-4.k.(2) of ER 1105-2-100. A footnote should be added to the table to explain the trend if the cost values are correct.

IRC Discussion: CENAN presented the following information: It is generally correct that as engineered alternatives become more robust (i.e. level of protection increases) OMRR&R costs decrease. However, rubble mound structures differ from other types of structures in that each individual armor unit can be shifted by wave and current forces and can become a weak point, requiring repositioning or replacement. Maintenance costs for rubble mound structures are therefore related to the total amount of stone used, with somewhat greater maintenance needs being incurred as structure size increases, in order to provide the full nominal level of protection. In the case of the Montauk Point revetment, the 73-yr and 150-yr level of protection alternatives differ in the total quantity of stone used, and also in the size of armor units. The 16-ton stone used in the 150-yr alternative is less likely to be displaced by storm waves as compared to the 12-ton stone used in the 73-year alternative. However, once the stones are displaced, repair of the 16-ton stone requires larger equipment and will have a slower production rate for stone placement. The 15-year level of protection alternative has the largest OMRR&R annual cost due to its greater vulnerability to storm waves and the need for construction of temporary access ways in order to perform repairs. Temporary access ways are not required for the 73-yr and 150-yr alternatives because the width of the crest (40 ft in both cases) allows for equipment positioning on the revetment itself for repairs to the side slopes and structure toe. The 15-year alternative crest width (3-ft) precludes such an approach. A footnote will be added to the Draft Report and Appendices in order to clarify and explain this trend.

HQUSACE Analysis: The concern is not yet resolved, however the action proposed in the response appears adequate to resolve the concern.

Documentation of Review Findings for Montauk Point, New York, Final Feasibility Report and EIS dated October 2005.

Action Required: The draft report and appendices will include a footnote to clarify and explain the trend in OMRR&R costs between the alternatives presented.

CENAN Response (Draft Report): Concur. All information is included in the Draft Report and Engineering Appendices.

HQUSACE Assessment: The concern is resolved by the text changes included in the draft report.

/s/
C. Lee Ware, P.E.
Review Manager