US Army Corps of Engineers®
New York District

# Lake Montauk Harbor, East Hampton, New York

# Navigation Improvements

## Draft Supplemental Environmental Assessment

## May 2025

## Appendix A:

## Clean Air Act

## and

## Draft Statement of Conformity

United States Army Corps of Engineers, New York District
DRAFT General Conformity Determination Notice
Lake Montauk Harbor

The Lake Montauk Harbor (LMH) Navigation Improvements Project was authorized for construction under Section 107 of the Rivers and Harbor Act of 1960 as amended (33 U.S.C. Section 577). The deepening of the channel was assessed in the October 2020 Lake Montauk Harbor Navigation Improvements Final Feasibility Report and the associated October 2020 Lake Montauk Harbor Navigation Improvements Final Environmental Assessment (Final FR/EA). A Record of Non-Applicability under General Conformity (40CFR§93.153) was prepared in March 2019 based on the attainment status of the project location at that time and on the anticipated level of emissions from the project as planned.

During the Pre-construction Engineering and Design (PED) phase of the project, the District was made aware of the presence of hard material within the channel (ranging from cobbles to boulders) that obstructed maintenance dredging and would need to be removed to reach the authorized channel depth. Additionally, due to real estate constraints and the existing narrow shoreline, the sand to be dredged from the channel will be placed between upland areas and nearshore along the western shoreline, rather than only within upland areas. To accomplish this, the U.S. Army Corps of Engineers (Corps), New York District (District), in partnership with the New York State Department of Environmental Conservation (NYSDEC) and the Town of East Hampton, is proposing to place dredged sand in the littoral zone and remove hard material from the Lake Montauk Harbor channel. Hard material will be beneficially reused at the NYSDEC Mattituck Artificial Reef.

As a result of the foregoing additional work, and the attainment reclassification of the project area, the equipment associated with this project has been reevaluated under General Conformity. The evaluation includes direct and indirect nonroad diesel powered emission sources, such as dredging equipment and support vessels. The primary pollutant of concern with this type of equipment is $NO_x$, because VOCs, $PM_{2.5}$, $SO_2$, and CO are generated at significantly lower rates. The $NO_x$ emissions associated with the LMH project are estimated to be as much as 93 tons in a calendar year if all work takes place during one calendar year. Emission estimates are provided as Attachment A. The project exceeds the $NO_x$ trigger level of 25 tons in any calendar year and as a result, the USACE is required to fully offset the $NO_x$ emissions of this project. The project will not exceed the ozone related VOC trigger level of 25 tons in any calendar year.

The USACE is committed to fully offsetting the NOx emissions generated as a result of the work associated with this project. USACE recognizes that the feasibility and cost-effectiveness of each offset option is influenced by whether the emission reductions can be achieved without introducing delay to the construction schedule that would prevent timely completion of the project to provide the benefits for which the project is being undertaken.

USACE will demonstrate conformity with the New York and New Jersey State Implementation Plans by utilizing the emission offset options listed below. The demonstration can consist of any combination of options, and is not required to include all or any single options to meet conformity. The options for meeting general conformity requirements include the following:

a. Emission reductions from project and/or non-project related sources in an appropriately close vicinity to the project location. In assessing the potential impact of this offset option, USACE recognizes the possibility of lengthening the time period in which offsets can be generated as appropriate and allowable under the general conformity rule (40CFR§93.163 and §93.165).
b. Use of Surplus NOx Emission Offsets (SNEOs) generated under the Harbor Deepening Project (HDP) and/or subsequent projects for which SNEOs have been produced. As part of the mitigation of the HDP and later projects, USACE and the Port Authority of New York & New Jersey have developed emission reduction programs coordinated through the Regional Air Team (RAT). The RAT is comprised of the USACE, NYSDEC, New Jersey Department of Environmental Protection, United States Environmental Protection Agency (EPA) Region 2, and other stakeholders. SNEOs will be applied in concurrence with the agreed upon SNEO Protocols to ensure the offsets are real, surplus, and not double counted.
c. Development of a Marine Vessel Engine Repower Program (MVERP) which replaces older, higher emitting marine engines with cleaner engines, the delta in emissions being used to offset project emissions. The MVERP approach worked successfully for offsetting the HDP's construction emissions. The details of the MVERP, its implementation, and tracking would be coordinated with the RAT.
d. Use of Cross-State Air Pollution Rule (CSAPR) ozone season $NO_x$ Allowances with a distance ratio applied to allowances, similar to the one used by stationary sources.

Due to the unpredictable nature of dredge-related construction, the project emissions will be monitored as appropriate and regularly reported to the RAT to assist the USACE in ensuring that the project is fully offset.

In summary, USACE will achieve conformity for $NO_x$ using the options outlined above, as coordinated with the NJDEP, NYSDEC, and EPA, and coordinated through the RAT.

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Date: Approved:

Alexander Young
Colonel, Corps of Engineers
District Engineer

To view the entire determination, with attachments, please see the District's website at: http://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-York/Lake-Montauk-Harbor. Comments may be submitted via regular mail to jenine.gallo@usace.army.mil at the Environmental Analysis Branch, New York District, U.S. Army Corps of Engineers, 26 Federal Plaza. New York, NY 10278-0090. By rule [40CFR§93.156(b)], comments should be submitted within 30 days from this publication.

Emissions have been estimated using project planning information developed by the New York District, consisting of anticipated dredging volumes, equipment types and estimates of the horsepower and operating hours of the diesel engines powering the equipment. In addition to this planning information, conservative factors have been used to represent the average level of engine load of operating engines (load factors) and the average emissions of typical engines used to power the equipment (emission factors). The basic emission estimating equation is the following:

$$\mathbf{E = hrs \times LF \times EF}$$

Where:

**E** = Emissions per period of time such as a year or the entire project.
**hrs** = Number of operating hours in the period of time (e.g., hours per year, hours per project).
**LF** = Load factor, an estimate of the average percentage of full load an engine is run at in its usual operating mode.
**EF** = Emission factor, an estimate of the amount of a pollutant (such as $NO_x$) that an engine emits while performing a defined amount of work.

In these estimates, the emission factors are in units of grams of pollutant per horsepower hour (g/hphr). For each piece of equipment, the number of horsepower hours (hphr) is calculated by multiplying the engine's horsepower by the load factor assigned to the type of equipment and the number of hours that piece of equipment is anticipated to work during the year or during the project. For example, a crane with a 250-horsepower engine would have a load factor of 0.43 (meaning on average the crane's engine operates at 43% of its maximum rated power output). If the crane were anticipated to operate 1,000 hours during the course of the project, the horsepower hours would be calculated by:

$$\textbf{250 horsepower} \times \textbf{0.43} \times \textbf{1,000 hours} = \textbf{107,500 hphr}$$

The emissions from diesel engines vary with the age of an engine and, most importantly, with when it was built. Newer engines of a given size and function typically emit lower levels of most pollutants than older engines. The emission factors used in these calculations assume that the equipment pre-dates most emission control requirements (known as Tier 0 engines in most cases), to provide a reasonable "upper bound" to the emission estimates. If newer engines are actually used in the work, then emissions will be lower than estimated for the same amount of work. In the example of the crane engine, a $NO_x$ emission factor of 9.5 g/hphr would be used to estimate emissions from this crane on the project by the following equation:

$$\frac{\textbf{107,500 hphr} \times \textbf{9.5 g } NO_x\textbf{/hphr}}{\textbf{453.59 g/lb} \times \textbf{2,000 lbs/ton}} = \textbf{1.1 tons of } NO_x$$

As noted above, information on the equipment types, horsepower, and hours of operation associated with the project have been obtained from the project's plans and represent current best estimates of the equipment and work that will be required. Load factors have been obtained from various sources depending on the type of equipment. Land-side nonroad equipment load factors are from the documentation for EPA's NONROAD emission estimating model, "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling, EPA420-P-04-005, April 2004."

Emission factors have also been sourced from a variety of documents and other sources depending on engine type and pollutant. Nonroad equipment NOx and other emission factors have been derived from EPA emission standards and documentation. As noted above, the emission factors have been chosen to be moderately conservative so as not to underestimate project emissions. Equipment turnover by the time the project is undertaken will likely result in newer equipment performing the work than assumed in this analysis, meaning the emissions presented in this analysis are likely higher than will actually occur.

The following page summarizes the estimated emissions in sum for the project including the anticipated equipment and engine information developed by the New York District, the load factors and emission factors as discussed above, and the estimated emissions for the project.

**USACE - New York District**

**NAN - Lake Montauk Harbor**

**General Conformity-Related Emission Estimates**

**DRAFT**

**5/7/2025**

**Project Emission Summary**

| Pollutant | Emissions tpy |
|---|---|
| $NO_x$ | 92.5 |
| VOC | 3.5 |
| $PM_{2.5}$ | 4.8 |
| $SO_x$ | 0.05 |
| CO | 10.3 |

**Equipment and Emission Details**

| Description, dredges and vessels | Category | Horsepower (approx.) | Load Factor | Hours | hphrs | grams per hp-hr NOx | grams per hp-hr VOC | grams per hp-hr PM2.5 | grams per hp-hr SOx | grams per hp-hr CO | tons $NO_x$ | tons VOC | tons $PM_{2.5}$ | tons $SO_x$ | tons CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cutter suction dredge main engine | CSD primary engine | 9,000 | 0.66 | 982 | 5,833,145 | 9.7 | 0.37 | 0.51 | 0.005 | 1.06 | 62.37 | 2.379 | 3.279 | 0.032 | 6.816 |
| Cutter suction dredge secondary engine | CSD secondary engine | 3,310 | 0.66 | 982 | 2,145,301 | 9.7 | 0.37 | 0.51 | 0.005 | 1.06 | 22.94 | 0.875 | 1.206 | 0.012 | 2.507 |
| Dredge auxiliry engine | CSD aux engine | 830 | 0.40 | 982 | 326,028 | 7.3 | 0.2 | 0.29 | 0.005 | 1.27 | 2.62 | 0.072 | 0.104 | 0.002 | 0.456 |
| Work tug main engine | Tug main | 250 | 0.68 | 982 | 166,942 | 9.7 | 0.37 | 0.51 | 0.005 | 1.06 | 1.79 | 0.068 | 0.094 | 0.001 | 0.195 |
| Work tug aux engine | Tug aux | 50 | 0.40 | 982 | 19,640 | 7.3 | 0.2 | 0.29 | 0.005 | 1.27 | 0.16 | 0.004 | 0.006 | 0.000 | 0.027 |
| Crew/survey boat main engine | Tug main | 100 | 0.68 | 982 | 66,777 | 9.7 | 0.37 | 0.51 | 0.005 | 1.06 | 0.71 | 0.027 | 0.038 | 0.000 | 0.078 |
| Crew/survey boat main engine | Tug aux | 40 | 0.40 | 982 | 15,712 | 7.3 | 0.2 | 0.29 | 0.005 | 1.27 | 0.13 | 0.003 | 0.005 | 0.000 | 0.022 |
| Derrick barge main | Crane | 200 | 0.43 | 982 | 84,453 | 9.5 | 0.183 | 0.16 | 0.005 | 1.21 | 0.88 | 0.017 | 0.015 | 0.000 | 0.113 |
| Derrick barge aux | Generator | 40 | 0.43 | 982 | 16,891 | 9.5 | 0.183 | 0.16 | 0.005 | 1.21 | 0.18 | 0.003 | 0.003 | 0.000 | 0.023 |
| Tug Boat, 1950 hp | Tug main | 1,950 | 0.68 | 15 | 19,890 | 9.7 | 0.37 | 0.51 | 0.005 | 1.06 | 0.21 | 0.008 | 0.011 | 0.000 | 0.023 |
| Tug auxiliary engine | Tug aux | 150 | 0.40 | 15 | 900 | 7.3 | 0.2 | 0.29 | 0.005 | 1.27 | 0.01 | 0.000 | 0.000 | 0.000 | 0.001 |
| Barge Mounted Crane, 100 ton | Crane | 200 | 0.43 | 25 | 2,150 | 9.5 | 0.183 | 0.16 | 0.005 | 1.21 | 0.02 | 0.000 | 0.000 | 0.000 | 0.003 |
| Tug Boat, 1950 hp | Tug main | 1,950 | 0.68 | 25 | 33,150 | 9.7 | 0.37 | 0.51 | 0.005 | 1.06 | 0.35 | 0.014 | 0.019 | 0.000 | 0.039 |
| Tug auxiliary engine | Tug aux | 150 | 0.40 | 25 | 1,500 | 7.3 | 0.2 | 0.29 | 0.005 | 1.27 | 0.01 | 0.000 | 0.000 | 0.000 | 0.002 |
| Barge Mounted Crane, 100 ton | Crane | 200 | 0.43 | 3 | 258 | 9.5 | 0.183 | 0.16 | 0.005 | 1.21 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 |
| Tug Boat, 1950 hp | Tug main | 1,950 | 0.68 | 3 | 3,978 | 9.7 | 0.37 | 0.51 | 0.005 | 1.06 | 0.04 | 0.002 | 0.002 | 0.000 | 0.005 |
| Tug auxiliary engine | Tug aux | 150 | 0.40 | 3 | 180 | 7.3 | 0.2 | 0.29 | 0.005 | 1.27 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 |
| Barge Mounted Crane, 100 ton | Crane | 200 | 0.43 | 5 | 430 | 9.5 | 0.183 | 0.16 | 0.005 | 1.21 | 0.00 | 0.000 | 0.000 | 0.000 | 0.001 |
| Tug Boat, 1950 hp | Tug main | 1,950 | 0.68 | 5 | 6,630 | 9.7 | 0.37 | 0.51 | 0.005 | 1.06 | 0.07 | 0.003 | 0.004 | 0.000 | 0.008 |
| Tug auxiliary engine | Tug aux | 150 | 0.4 | 5 | 300 | 7.3 | 0.2 | 0.29 | 0.005 | 1.27 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Totals** | | | | | | | | | | | **92.5** | **3.5** | **4.8** | **0.05** | **10.3** |

Greenhouse gas (GHG) emissions have been estimated using project planning information developed by the New York District, consisting of anticipated equipment types and estimates of the horsepower and operating hours of the diesel engines powering the equipment. In addition to this planning information, conservative factors have been used to represent the average level of engine load of operating engines (load factors) and the average emissions of typical engines used to power the equipment (emission factors). The basic emission estimating equation is the following:

$$\mathbf{E = hrs \times LF \times EF}$$

Where:

**E** = Emissions per period of time such as a year or the entire project.
**hrs** = Number of operating hours in the period of time (e.g., hours per year, hours per project).
**LF** = Load factor, an estimate of the average percentage of full load an engine is run at in its usual operating mode.
**EF** = Emission factor, an estimate of the amount of a pollutant (such as $NO_x$) that an engine emits while performing a defined amount of work.

In these estimates, the emission factors are in units of grams of pollutant per horsepower hour (g/hphr). For each piece of equipment, the number of horsepower hours (hphr) is calculated by multiplying the engine's horsepower by the load factor assigned to the type of equipment and the number of hours that piece of equipment is anticipated to work during the year or during the project. For example, a crane with a 250-horsepower engine would have a load factor of 0.43 (meaning on average the crane's engine operates at 43% of its maximum rated power output). If the crane were anticipated to operate 1,000 hours during the course of the project, the horsepower hours would be calculated by:

$$\textbf{250 horsepower} \times \textbf{0.43} \times \textbf{1,000 hours} = \textbf{107,500 hphr}$$

The $CO_2$ emission factors used in these calculations are based on locally-specific emissions data related to off-road and on-road diesel engines.[1] In the example of the crane engine, a $CO_2$ emission factor of 571 g/hphr would be used to estimate emissions from this crane on the project by the following equation:

$$\frac{\textbf{107,500 hphr} \times \textbf{571 g } \mathbf{CO_2}\textbf{/hphr}}{\textbf{1,000,000 g/metric ton}} = \textbf{61.4 metric tons (tonnes) of } \mathbf{NO_x}$$

As noted above, information on the equipment types, horsepower, and hours of operation associated with the project have been obtained from the project's plans and represent current best estimates of the equipment and work that will be required. Load factors have

[1] https://www.panynj.gov/content/dam/port/our-port/air-emissions-inventory-reports/PANYNJ-2023-Multi-Facility-EI-Report.pdf

been obtained from various sources depending on the type of equipment. Land-side nonroad equipment load factors are from the documentation for EPA's NONROAD emission estimating model, "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling, EPA420-P-04-005, April 2004."

The following pages summarize the estimated emissions of $CO_2$ in sum for the project including the anticipated equipment and engine information developed by the New York District, the load factors and emission factors as discussed above, and the estimated emissions from the project.

**USACE - New York District**
**NAN - Lake Montauk Harbor**
**Greenhouse Gas Emission Estimates**
**DRAFT**
**5/7/2025**

**Total GHG emissions:** **11,420** metric tons

**Equipment and Emission Details**

| Description, dredges and vessels | Category | Horsepower (approx.) | Factor | Hours | hphrs | $CO_2$ g/hphr | $CO_2$ metric tons |
|---|---|---|---|---|---|---|---|
| Cutter suction dredge main engine | CSD primary engine | 9,000 | 0.66 | 982 | 5,833,145 | 571 | 3,331 |
| Cutter suction dredge secondary engine | CSD secondary engine | 3,310 | 0.66 | 982 | 2,145,301 | 571 | 1,225 |
| Dredge auxiliry engine | CSD aux engine | 830 | 0.40 | 982 | 326,028 | 571 | 186 |
| Work tug main engine | Tug main | 250 | 0.68 | 982 | 166,942 | 571 | 95 |
| Work tug aux engine | Tug aux | 50 | 0.40 | 982 | 19,640 | 571 | 11 |
| Crew/survey boat main engine | Tug main | 100 | 0.68 | 982 | 66,777 | 571 | 38 |
| Crew/survey boat main engine | Tug aux | 40 | 0.40 | 982 | 15,712 | 571 | 9 |
| Derrick barge main | Crane | 200 | 0.43 | 982 | 84,453 | 571 | 48 |
| Derrick barge aux | Generator | 40 | 0.43 | 982 | 16,891 | 571 | 10 |
| Tug Boat, 1950 hp | Tug main | 1,950 | 0.68 | 15 | 19,890 | 571 | 11 |
| Tug auxiliary engine | Tug aux | 150 | 0.40 | 15 | 900 | 571 | 1 |
| Barge Mounted Crane, 100 ton | Crane | 200 | 0.43 | 25 | 2,150 | 571 | 1 |
| Tug Boat, 1950 hp | Tug main | 1,950 | 0.68 | 25 | 33,150 | 571 | 19 |
| Tug auxiliary engine | Tug aux | 150 | 0.40 | 25 | 1,500 | 571 | 1 |
| Barge Mounted Crane, 100 ton | Crane | 200 | 0.43 | 3 | 258 | 571 | 0 |
| Tug Boat, 1950 hp | Tug main | 1,950 | 0.68 | 3 | 3,978 | 571 | 2 |
| Tug auxiliary engine | Tug aux | 150 | 0.40 | 3 | 180 | 571 | 0 |
| Barge Mounted Crane, 100 ton | Crane | 200 | 0.43 | 5 | 430 | 571 | 0 |
| Tug Boat, 1950 hp | Tug main | 1,950 | 0.68 | 5 | 6,630 | 571 | 4 |
| Tug auxiliary engine | Tug aux | 150 | 0.4 | 5 | 300 | 571 | 0 |
| **Totals** | | | | | | | **11,420** |