



REPLY TO  
ATTENTION OF

## DEPARTMENT OF THE ARMY

BUFFALO DISTRICT, CORPS OF ENGINEERS  
1776 NIAGARA STREET  
BUFFALO, NEW YORK 14207-3199

December 14, 2015

Environmental Analysis Section

SUBJECT: Toledo Harbor, Lucas County, Ohio - Request for Section 401 Water Quality Certification for Scheduled 2016 Maintenance Dredging Operations

Mr. Craig W. Butler  
Director  
Ohio Environmental Protection Agency  
Division of Surface Water  
P.O. Box 1049  
Columbus, Ohio 43216-1049  
ATTN: Mr. Ric Queen

Dear Mr. Nally:

Enclosed is the Public Notice and Section 401 Water Quality Certification (WQC) application for our scheduled 2016 maintenance dredging operations at Toledo Harbor, Ohio (Enclosures 1 and 2). This project entails the maintenance dredging of authorized Federal navigation channels, and placement of the associated dredged material in the Harbor's existing, authorized open-lake area in Lake Erie. The Public Notice has been prepared in conformance with USACE regulation, "Practice and Procedure: Final Rule for Operation and Maintenance of Army Corps of Engineers Civil Works Projects involving the Discharge of Dredged Materials into Waters of the United States or Ocean Waters," 33 Code of Federal Regulations (CFR) 337.1.

The USACE - Buffalo District is requesting Ohio Environmental Protection Agency (OEPA) WQC for the scheduled 2016 maintenance dredging of Toledo Harbor, with the associated discharges of dredged material, or waiver thereof, under Section 401 of the Clean Water Act.

The following items are contained within this package:

- a. Enclosure 1 is the Section 404(a) Public Notice.
- b. Enclosure 2 is our Section 401 WQC application.

Please note that all National Environmental Policy Act (NEPA) documents (i.e., Environmental Impact Statements or Environmental Assessments) and Section 404(b)(1) Evaluation(s) have been completed for this maintenance dredging project, and were previously furnished to your office.

SUBJECT: Toledo Harbor, Lucas County, Ohio - Request for Section 401 Water Quality Certification for Scheduled 2015 Maintenance Dredging Operation

An evaluation of Toledo Harbor Federal navigation channel sediments was completed and provided to OEPA in 2011. The evaluation reconfirmed that material in the lower end of the River Channel and Lake Approach Channel [River Mile 0.75 (Station 325+00, old Station 360+00) to the lakeward end of the channel] meets Federal guidelines for open-lake placement, and complies with applicable Ohio water quality standards.

Similar to last year's WQC application, Question 10 of the WQC application addresses water quality-related concerns included in a joint OEPA/Ohio Department of Natural Resources (ODNR) letter dated April 15, 2010. For example, OEPA and ODNR alleged that an excessive sediment/nutrient load (e.g., resulting from the placement of Toledo Harbor dredged material) to the Basin is likely causing negative impacts and possibly exacerbating HABs. However, this assumption is not supported by the weight of the scientific evidence. To address this concern, USACE sought an externally conducted study in 2013 to answer the question: "What is the Potential for Placement of Toledo Harbor Dredged Material in the Western Lake Erie Basin to Influence Harmful Algal Blooms?" A coordinated field sampling, laboratory testing and modeling program was initiated to monitor physical, chemical, and biological parameters before, during, and after sediment placement and assess the relative influence of sediment placement activities as an internal source of solids/nutrients. Extensive water quality monitoring conducted throughout the 2013 dredging operation indicated that the bulk of the placed sediment (and associated phosphorus content) immediately deposits on the lake bottom, with minimal interaction with the water column. Immediately after placement, only approximately 2.5 percent of the total amount of sediment placed remains in the water column as suspended solids. This small fraction of sediment and associated phosphorus that is released to the water column undergoes exponential decline within the placement area, returning to near background levels within an hour through settling and dispersion.

Assessed across the entire dredging season, open-lake placement contributions of total phosphorus and soluble reactive phosphorus represented only a fraction of one percent of the total annual phosphorus loading to western Lake Erie in 2013. These releases are insufficient to stimulate any additional significant growth of algae or significantly impact water quality in the Basin. Once deposited to the lake bottom, any phosphorus release from the placed sediment would be the same or less than the surrounding lake sediments and would not represent any additional contribution to the aquatic ecosystem. Additionally, sediment from the placement area resuspend at the same rate as other areas of similar depth in the Basin. As the deposited sediment does not erode at a high or accelerated rate, sediment has accumulated within the placement area as a mound over several years of placement activities. The size of this mound is controlled primarily by consolidation of the placed sediment and underlying lake bottom. The overall conclusion of the 2013 study is that the open-lake placement of dredged sediment from Toledo Harbor does not contribute to the development of HABs in the Basin. A copy of the final study has been previously provided to your office.

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In the April 15, 2010 letter, OEPA and ODNR were concerned that the placement of Toledo Harbor dredged material into the Basin continues despite the dedication of large-scale governmental resources to prevent soil and nutrients from entering and negatively impacting the affected waterways. In our opinion, this is an inaccurate comparison. Because soil and nutrients are external loading sources to the Basin, the relocation of Toledo Harbor dredged material as an internal loading activity does not contravene these abatement efforts. As you know, the USACE has been involved (via several forums, including the Toledo Harbor Dredging Task Force) in the examination of alternatives that productively utilize Toledo Harbor dredged material through the creation of habitat areas for the benefit of fish and wildlife. Several studies evaluating the cost and feasibility of these alternatives have been performed by USACE and members of the Task Force, including the Ohio Lake Erie Commission and the Toledo-Lucas County Port Authority. At this time, there does not appear to be a willing non-Federal partner to advance any of the identified alternatives to construction.

We propose to place Toledo Harbor dredged material in the southwest half of the existing open-lake placement area because water depths in the northeast half have become prohibitively shallow for placement. Dredged material placement was originally restricted to the northeast half due to previous local concerns that suspended solids (SS) during placement migrated toward and potentially impacted the quality of water at the city of Toledo potable water intake (PWI). We believe the potential for this to occur to be very low, apart from any spatial restrictions on placement within the two square mile open-lake area. Nevertheless, we are currently performing water quality-related modeling to verify that the placement of dredged material in the southwest half of this area does not significantly impact the quality of water at this and other nearby PWIs.

A copy of the Public Notice was sent to U.S. Fish and Wildlife Service (Ecological Services, Columbus, Ohio) and ODNR (Division of Wildlife, Ohio Biodiversity Database, Columbus, Ohio) on December 10, 2015 to coordinate comments with respect to Threatened and Endangered species, including the presence or absence of Critical Habitat. Further, we e-mailed these two entities on December 10, 2015 to request their comments in this regard with copy furnished to OEPA.

While we understand that it is OEPA and ODNR policy to eliminate the placement of Toledo Harbor dredged material in the Basin, the beneficial use of the typical volume of sediments annually dredged will require viable options that provide extraordinary capacity and require non-Federal funds for implementation. Please note that, like any other Federal navigation project, the Federal cost of dredging and dredged material placement for Toledo Harbor must be kept to the minimum of what sound science indicates is environmentally acceptable. Future funding allocated toward the USACE maintenance of Toledo, as well as other Great Lakes and coastal harbors, must first be economically justified based on economic considerations at the national level. Each harbor must then compete for funding, which presently

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is unlikely to increase given current demands on the Federal budget. To remain viable, Toledo Harbor must be cost competitive with comparable harbors, in terms of both private sector shipping costs for carriers and Federal costs for maintenance of the Federal navigation project.

That said, in 2016 approximately 60,000 cubic yards of sediment dredged from Toledo Harbor may be placed at the site of the Riverside Confined Disposal Facility (CDF) which is located on the left descending bank of the Maumee River in Toledo, Ohio, assuming funding and environmental approvals are secured by the local partner. The placement of this sediment is in support of the Toledo-Lucas County Port Authority Proposed Center of Innovation for the Beneficial Use of Dredged Sediment. The intent of this non-federal Center of Innovation is to explore options for the beneficial use of dredged sediment for agricultural purposes. The agricultural field improvement project at the Dredged Material Center of Innovation would help local leaders evaluate sediment placement, dewatering, use of interim cover crops or amendments to improve soil, and other operations and maintenance activities necessary to plan for the full-scale implementation of the beneficial use of sediments for agricultural purposes. The USACE would provide federal support to the project only through its placement of a portion of dredged sediment at the project location directly from the dredge scow. Placement of material at this site is not discussed in the attached application, as discharges associated with the placement of material from this site are the responsibility of the facility operators, and thus are not applicable to this application.

Please advise us on the completeness of the WQC application by January 6, 2016 and we ask that you schedule the Public Hearing for this application at your earliest possible convenience, and no later than February 15, 2015. It is critical that WQC is received by April 15, 2016 in order to accept contract bids on schedule.

Questions pertaining to this matter should be directed to Mr. Jay Miller at (716) 879-4394, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York, 14207-3199, or by e-mail at: James.Miller@usace.army.mil.

Sincerely,

Martin P. Wargo, PWS  
Supervisory Biologist  
Environmental Analysis Section

Enclosures

# Enclosure 1

## Section 404(a) Public Notice

USACE - BUFFALO DISTRICT

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH  
2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO



US Army Corps  
of Engineers®

# Public Notice

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Issuing Office: CELRB-PM-EA  
Notice No: TOLEDO-16

Published: 14 DEC 2015  
Expires: 15 JAN 2016

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## OPERATION AND MAINTENANCE DREDGING AND DREDGED MATERIAL PLACEMENT

### TOLEDO HARBOR

#### LUCAS COUNTY, OHIO

This Public Notice has been prepared in conformance with U.S. Army Corps of Engineers (USACE) regulation, "Practice and Procedure: Final Rule for Operation and Maintenance of Army Corps of Engineers Civil Works Projects involving the Discharge of Dredged Materials into Waters of the United States or Ocean Waters," 33 Code of Federal Regulations (CFR) 337.1. Its purpose is to specify what dredged/fill materials would be discharged into waters of the United States by implementation of the proposed action, and advise all interested parties of the proposed project and to provide an opportunity to submit comments, or request a public hearing.

The USACE - Buffalo District anticipates the need to dredge and discharge material excavated from the Federal navigation channels of Toledo Harbor, in order to maintain sufficient depth for deep-draft commercial vessels. The attached map (Figure 1) shows the authorized limits and depths of Toledo Harbor Federal navigation channels. Dredging in 2016 will be conducted within the lower end of the River Channel near the Maumee River mouth (between Station 325+00 [old Station 360+00] and the river mouth), and within the upper Lake Approach Channel in the Western Basin of Lake Erie (Basin) through approximately Lake Mile 7 (Station 766+00). Up to one additional foot of material may be removed to ensure authorized depths are obtained and account for inaccuracies in the dredging process.

The 2016 dredging operation at Toledo Harbor is tentatively scheduled to be performed during the period between 1 July and 15 March. A contractor of the Federal government will accomplish the project. Sediments will be removed from the channel bottom by a mechanical dredge and placed into hoppers aboard ship or scow for transport to the designated dredged material placement area. Mechanical excavation and placement methodologies will be used by the contractor performing the maintenance dredging.

The material to be dredged from Toledo Harbor consists primarily of silts and clays. In 2016, an estimated total of 1,100,000 cubic yards (CY) of material will be dredged from the Federal navigation project. The quality of the material has been evaluated using 2004, 2006 and 2010 sediment data in accordance with formal Federal guidance contained in the U.S. Environmental Protection Agency (USEPA)/USACE Great Lakes Dredged Material Testing and Evaluation Manual (1998) and Evaluation of Dredged Material for Discharge into Waters of the U.S.—Testing Manual (1998). This evaluation specifically addresses the potential contaminant-related risks to aquatic life associated with placing the dredged material in open-lake waters. Based on this evaluation, material in the lower end of the River Channel and Lake Approach Channel [River Mile 0.75 (Station

325+00) to the lakeward end of the channel] was toxicologically comparable to sediments at open-lake areas in the Western Basin of Lake Erie. Consequently, material dredged from these reaches of Toledo Harbor has been determined to meet Clean Water Act Section 404(b)(1) Guidelines for open-lake placement. This dredged material will be placed at the existing two-square mile open-lake placement area in the Basin, located three and one-half miles from the Toledo Harbor light at an azimuth of 033°00' (Figure 2). This site has been previously used by the USACE for the placement of Toledo Harbor dredged material. Because the northeast half of this area has become too shallow for dredged material placement, placement will occur within the southwest half.

Concerns that have been raised include the position that the open-lake placement of Toledo Harbor dredged material represents a net increase in sediment loading to the Basin, and results in a substantial increase in turbidity. However, material being placed in the Basin is being dredged from within the adjoining riverine and lacustrine systems. Therefore, the dredging of the River Channel and Lake Approach Channel with the associated placement of material in the existing authorized open-lake placement area constitutes an internal relocation within the aquatic system, rather than external loading. Turbidity associated with the placement of this dredged material should be viewed within the framework of the amount of sediments within the system and entering the Basin from other sources. The amount of Toledo Harbor dredged material annually relocated into the lacustrine system (for this exercise, the amount used is 1,250,000 CY or an estimated 1,450,000 metric tons [MT]) is less than one percent of the estimated annual resuspended sediment load (150,000,000 to 300,000,000 MT) in the Basin, and is less than that contributed by the Maumee River every year (an estimated 1,500,000 cubic yards). Therefore, the open-lake placement of Toledo Harbor dredged material results in short-term, temporary turbidity, and does not represent widespread or substantially increased background turbidity in the Basin.

There has been public concern that the open-lake placement of dredged sediment causes or intensifies harmful algal blooms (HABs) in Lake Erie. To address this concern, USACE sought an externally conducted study in 2013 to answer the question: "What is the Potential for Placement of Toledo Harbor Dredged Material in the Western Lake Erie Basin to Influence Harmful Algal Blooms?" A coordinated field sampling, laboratory testing and modeling program was initiated to monitor physical, chemical, and biological parameters before, during, and after sediment placement and assess the relative influence of sediment placement activities as an internal source of solids/nutrients. Extensive water quality monitoring conducted throughout the 2013 dredging operation indicated that the bulk of the placed sediment (and associated phosphorus content) immediately deposits on the lake bottom, with minimal interaction with the water column. Immediately after placement, only approximately 2.5 percent of the total amount of sediment placed remains in the water column as suspended solids. This small fraction of sediment and associated phosphorus that is released to the water column undergoes exponential decline within the placement area, returning to near background levels within an hour through settling and dispersion. Assessed across the entire dredging season, open-lake placement contributions of total phosphorus and soluble reactive phosphorus represented only a fraction of one percent of the total annual phosphorus loading to western Lake Erie in 2013. These releases are insufficient to stimulate any additional significant growth of algae or significantly impact water quality in the Basin. Once deposited to the lake bottom, phosphorus release from the placed sediment is the same or less than the surrounding lake sediments

and would not represent any additional contribution to the aquatic ecosystem. Additionally, sediment from the placement area resuspend at the same rate as other areas of similar depth in the Basin. As the deposited sediment does not erode at a high or accelerated rate, sediment has accumulated within the placement area as a mound over several years of placement activities. The size of this mound is controlled primarily by consolidation of the placed sediment and underlying lake bottom. The overall conclusion of the 2013 study is that the open-lake placement of dredged sediment from Toledo Harbor does not contribute to the development of HABs in the Basin. A copy of the study is available at: <http://www.lrb.usace.army.mil/Portals/45/docs/PublicReview/R-WLEB-Final-Report.pdf>

Factors such as the considerable annual volume that is removed from the Federal navigation channels, and lack of non-Federal sponsors to cost-share have to date precluded the implementation of any practicable beneficial use alternative for Toledo Harbor dredged material. At this time, there is currently no viable placement area outside the aquatic ecosystem available to USACE that complies with USACE requirements, is accessible, economically feasible, and can accommodate the quantity of dredged material necessary to maintain Toledo Harbor on an annual basis and at a reasonable cost to Federal and non-Federal partners.

Pursuant to Section 401 of the Clean Water Act, Water Quality Certification (WQC), or waiver of WQC, from the Ohio Environmental Protection Agency (OEPA) is required for the discharge of dredged material. Therefore, a copy of this Public Notice has been provided to OEPA requesting WQC (or waiver thereof), for the associated placement of dredged material at the existing open-lake placement area.

The environmental effects of the dredging operation are documented in the *Final Environmental Impact Statement, Operation and Maintenance (O&M), Toledo Harbor, Ohio (1976); Environmental Assessment (EA) and Section 404(b)(1) Evaluation, O&M, Toledo Harbor, Ohio (1989); and EA and Section 404(b)(1) Evaluation, O&M, Dredging and Placement of Dredged Material, Toledo Harbor, Ohio (2009)*. These documents, and supplemental documentation, have been submitted to USEPA. Copies are available for examination at the Buffalo District office.

There are no registered historic properties or properties listed as being eligible for inclusion in the National Register of Historic Places that will be affected by this project. By this notice, the National Park Service is advised that currently unknown archaeological, scientific, prehistorical or historical data may be lost or destroyed by the work to be accomplished.

This office has determined that the proposed project will have No Effect upon any species proposed or designated by the U.S. Department of the Interior as threatened or endangered, nor will the proposed work result in an Adverse Modification of designated critical habitat for any such species. Therefore, unless new information indicates otherwise, no further consultation pursuant to Section 7 of the Endangered Species Act Amendments of 1978 will be undertaken with the U.S. Fish and Wildlife Service.

This work will be undertaken in a manner consistent, to the maximum extent practicable, with

the State of Ohio Coastal Management Program. A Coastal Management Program Federal Consistency Determination has been submitted to the Ohio Department of Natural Resources (ODNR) documenting this determination.

The decision whether to perform dredging will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative factors thereof; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

This activity is being coordinated with the following agencies, as well as other appropriate Federal, State and local agencies, Indian nations and organizations:

Ohio Department of Natural Resources  
Ohio Environmental Protection Agency  
Ohio Historic Preservation Office  
U.S. Department of the Interior, Fish and Wildlife Service  
U.S. Environmental Protection Agency

Any interested parties and/or agencies desiring to express their views concerning this proposed discharge of dredged material may do so by filing their comments, in writing, no later than 30 days from the date of this notice. Any person who has an interest which may be affected by this discharge may request a public hearing. The request must be submitted in writing to the undersigned within 30 days of the date of this Public Notice. The request must clearly set forth the interest which may be affected, and the manner in which the interest may be affected, by this activity.

Interested parties are encouraged to contact the USACE - Buffalo District with their comments regarding the proposed dredging of Toledo Harbor. Please review this Public Notice and send your comments in writing within 30 days to the following e-mail address:

[ToledoDredging@usace.army.mil](mailto:ToledoDredging@usace.army.mil)

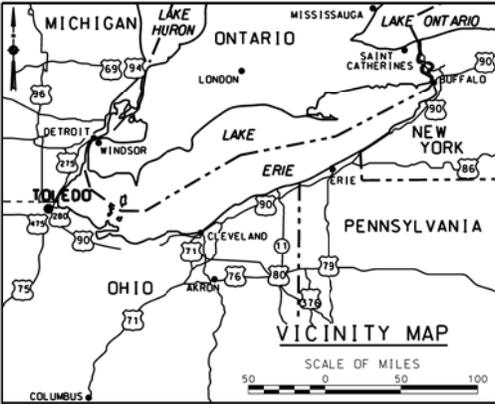
or via mail to:

U.S. Army Corps of Engineers - Buffalo District  
Environmental Analysis Team  
1776 Niagara Street  
Buffalo, NY 14207-3199

ATTN: Environmental Analysis - Toledo Dredging

This Public Notice is published in conformance with 33 CFR 337.1. All dredging and dredged material discharge will be performed in conformance with Sections 313 and 404 of the Clean Water Act (33 USC 1323 and 1344, respectively).



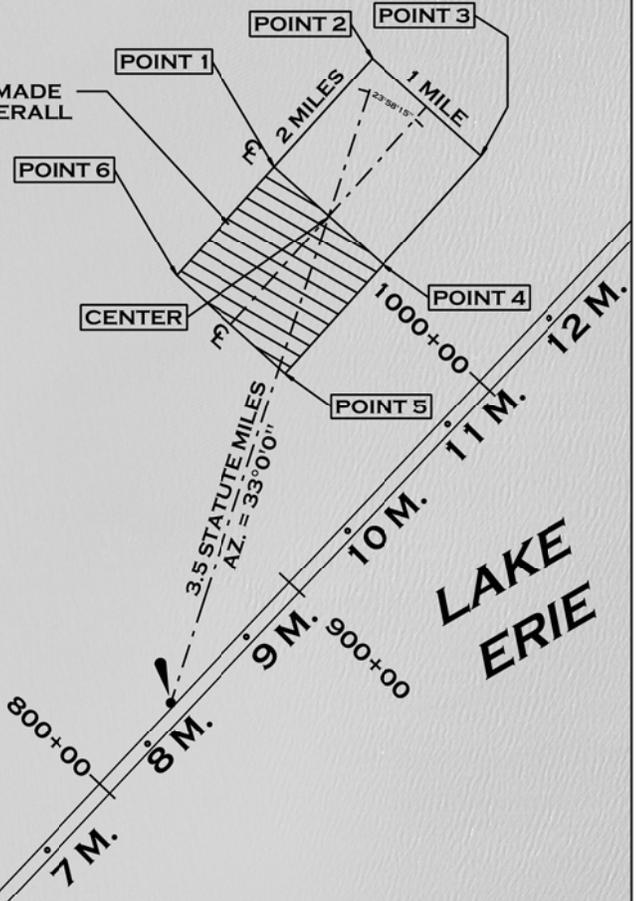


PLACEMENT TO BE MADE IN THIS HALF OF OVERALL PLACEMENT AREA

**OPEN LAKE PLACEMENT COORDINATES NAD83 (DD.DDDDDDDDD)**

**LOCATION IN LAT/LON DD.DDDDDDDDD**

POINT	LATITUDE	LONGITUDE
CENTER	41.804641704	83.292647022
POINT 1	41.810680019	83.297998811
POINT 2	41.818686680	83.281856483
POINT 3	41.806609437	83.271156573
POINT 4	41.798604219	83.287297227
POINT 5	41.790596741	83.303433884
POINT 6	41.802671070	83.314137141



**LOCATION OF THE PLACEMENT AREA SITE WAS CALCULATED AS FOLLOWS:**

1. THE LOCATION OF THE TOLEDO HARBOR LIGHT WAS TAKEN FROM THE U.S.C.G. LIGHT, WHICH MATCHED VERY CLOSELY WITH THE LOCATION OF THE LIGHT FOUND IN THE NOAA'S RASTER CHART FOR TOLEDO.
2. THE AZIMUTH AND DISTANCE WAS RECEIVED FROM THE ENVIRONMENTAL ANALYSIS SECTION AND PLOTTED IN THE CAD FILE.
3. SINCE THE SITE IS NOT ORIENTATED EXACTLY DUE NORTH, THE AZIMUTH OF THE SOUTH SIDE (ROUGHLY PARALLEL TO THE FEDERAL CHANNEL) OF THE PLACEMENT SITE FROM THE SAME RASTER CHART WAS USED TO ESTABLISH THE CORNERS.
4. THE COORDINATES WERE CONVERTED TO LAT/LON FOR INCLUSION INTO THIS MAP.

**TOLEDO HARBOR  
OPEN LAKE PLACEMENT SITE**

SCALE OF MILES



U.S. ARMY ENGINEER DISTRICT BUFFALO  
OCTOBER 2013

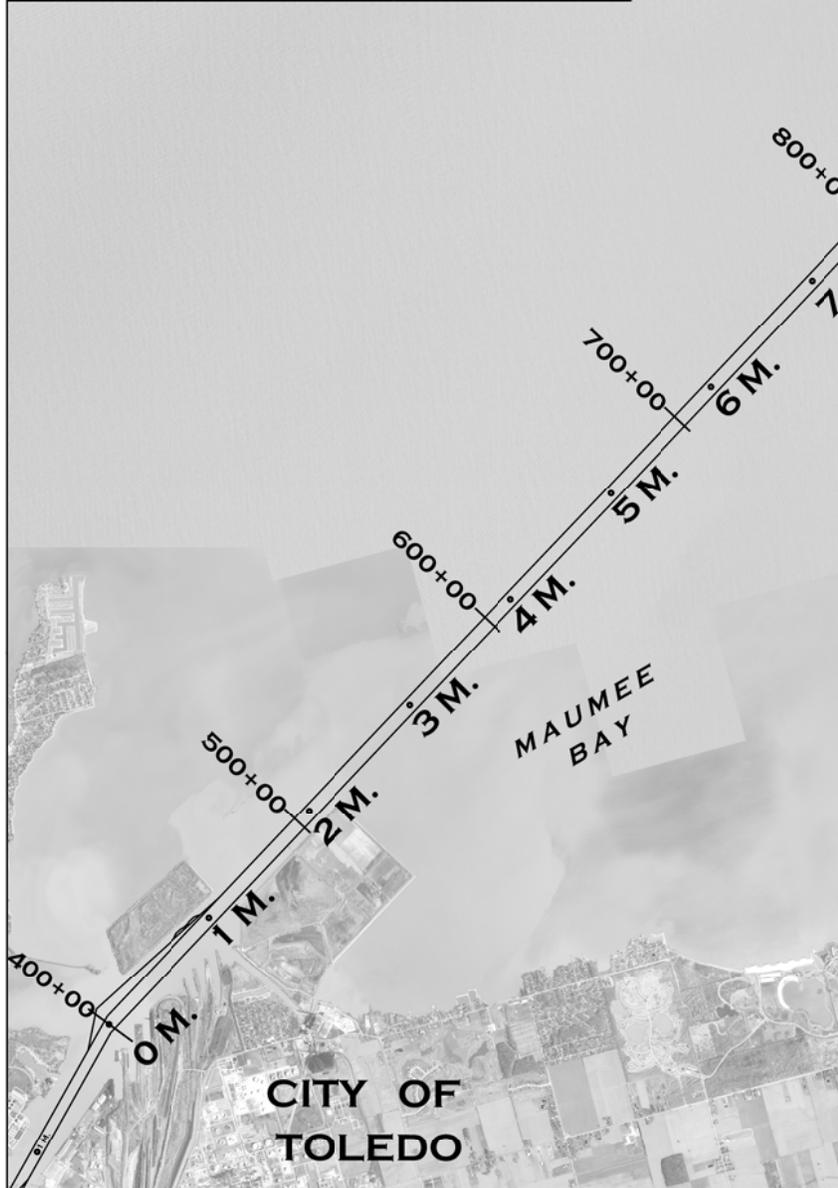


Figure 2 - Toledo Harbor Open Lake Placement Site

## Enclosure 2

### Application for Section 401 Water Quality Certification

USACE - BUFFALO DISTRICT

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH  
2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO

Item 1:

Application Form for Section 401 Water Quality  
Certification

USACE - BUFFALO DISTRICT

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH  
2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO



# Application for Section 401 Water Quality Certification

Division of Surface Water 401 Water Quality Certification and Isolated Wetland Permitting Unit

Section 1: Applicant and Agent Information		
	Applicant:	Agent:
Company/ Agency Name:	U.S. Army Corps of Engineers (USACE) - Buffalo District	U.S. Army Corps of Engineers (USACE) - Buffalo District
Name of Contact:	Martin P. Wargo	Jay M. Miller
Title:	Supervisory Biologist	Biologist
Technical Point of Contact:	<a href="#">Click here to enter text.</a>	<a href="#">Click here to enter text.</a>
Address:	1776 Niagara Street	1776 Niagara Street
City, State, Zip:	Buffalo, New York, 14207	Buffalo, New York, 14207
Phone Number(s):	716-879-4116	716-879-4394
Email Address:	Martin.P.Wargo@usace.army.mil	James.Miller@usace.army.mil

Section 2: Project Information		
<b>A. Project Name:</b> Operation and Maintenance Dredging and Dredged Material Placement, Toledo Harbor, Lucas County, Ohio		
<b>B Has Pre-App. Coordination occurred?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <b>Indicate the 401 reviewer:</b> <a href="#">Choose an item.</a> <b>DATE:</b> <a href="#">Click here to enter a date.</a>		
<b>C. Brief Project Description/Purpose:</b> The USACE anticipates the need to dredge and place material excavated from the Federal navigation channels of Toledo Harbor in order to maintain sufficient depth for deep-draft commercial vessels.		
<b>D. Construction Timeframe (Provide ~start and end dates):</b> July 2016 March 2017		
<b>E. Is any portion of the activity complete now?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <b>Is this an "After-The-Fact" permit application?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <b>If YES to either, describe the extent of completed portion of the activity below and the unauthorized impacts on waters of the state:</b> <a href="#">Click here to enter text.</a>		
<b>F. Coordinates (degree, minutes, seconds):</b> 41°41' 34" N - 83° 28' 05" W		
<b>G. Project Address:</b> Street: NA		<b>City or Town:</b> Toledo
Zip Code: 43611		Township: NA County: Lucas
<b>H. 12 Digit HUC No.:</b> 041000090904	<b>I. Watershed Name:</b> Maumee River Watershed	<b>J. Corps District:</b> Buffalo
<b>K. Proposed impacts to "waters of the state":</b>		<b>L. Other water related permits issued or required include:</b>
<input type="checkbox"/> Beach Nourish <input type="checkbox"/> Levees/Berms <input type="checkbox"/> Blasting <input type="checkbox"/> Mine Through <input type="checkbox"/> Breakwater <input type="checkbox"/> Revetment <input type="checkbox"/> Bulkhead <input type="checkbox"/> Bank Stabilization <input type="checkbox"/> Bridge/Culvert <input type="checkbox"/> Stream Channeliz. <input type="checkbox"/> Dam <input type="checkbox"/> Stream Relocation <input type="checkbox"/> Dredge <input type="checkbox"/> Water Body Cross <input checked="" type="checkbox"/> Fill <input type="checkbox"/> Weirs <input type="checkbox"/> Groin/Jetty <input type="checkbox"/> Other		<input checked="" type="checkbox"/> <b>Individual 404 Permit</b> – Public Notice # Toledo-15 <input type="checkbox"/> <b>Nationwide Permit #</b> <a href="#">Choose an item.</a> <a href="#">Choose an item.</a> <a href="#">Click here to enter a date.</a> <input type="checkbox"/> <b>Section 10 Permit</b> - <a href="#">Choose an item.</a> <a href="#">Click here to enter a date.</a> <input type="checkbox"/> <b>Section 9 Permit</b> - <a href="#">Click here to enter text.</a> <input type="checkbox"/> <b>Iso. Wetland Permit</b> <a href="#">Choose an item.</a> <a href="#">Click here to enter a date.</a> <a href="#">Choose an item.</a> <input type="checkbox"/> <b>NPDES Permit</b> – <a href="#">Choose an item.</a> <a href="#">Choose an item.</a> <a href="#">Click here to enter a date.</a> <input type="checkbox"/> <b>Permit to Install</b> – <a href="#">Choose an item.</a> : <a href="#">Click here to enter a date.</a> <input type="checkbox"/> <b>ODNR</b> <a href="#">Choose an item.</a> <b>Permit</b> - <a href="#">Choose an item.</a> <a href="#">Click here to enter a date.</a> <input type="checkbox"/> <b>ODNR Coastal Permit</b> - <a href="#">Choose an item.</a> <a href="#">Click here to enter a date.</a> <input type="checkbox"/> <b>Regional Permit</b> - <a href="#">Choose an item.</a> <a href="#">Click here to enter a date.</a>

**Section 3: Fees**

Are you exempt from fees?  YES  NO (If YES, leave fee section blank)

**Application Fee =** \$ 200.00

**Review Fee**

Wetland	Acres Impacted	x \$500 =	\$ 0.00
Ephemeral Stream	Linear Feet Impacted	x \$5.00 =	\$ 0.00 (\$200.00 minimum)
Intermittent Stream	Linear Feet Impacted	x \$10.00 =	\$ 0.00 (\$200.00 minimum)
Perennial Stream	Linear Feet Impacted	x \$15.00 =	\$ 0.00 (\$200.00 minimum)
Lake	Cubic Yards	x \$3.00 =	\$ 0.00

**Total Review Fees = \$ 0.00**

**Total Fees (\$200 Application Fee + Total Review Fees) = \$ 200.00**

Standard Applicant - Is the fee cap (\$25,000) exceeded?  YES  NO

If YES, \$12,500 (\$12,700) is due with application and \$12,500 (\$12,300) is due at time of 401 WQC issuance

County, Township or Municipal Corp. – Is the fee cap (\$5,000) exceeded?  YES  NO

If YES, \$2,500 (\$2,700) is due with application and \$2,500 (\$2,300) is due at time of 401 WQC issuance

If fee cap is not exceeded:

DUE AT TIME OF 401 WQC APP. SUBMITTAL – APPLICATION FEE AND ½ OF REVIEW FEE = \$ 200.00

DUE AT TIME OF 401 WQC ISSUANCE – ½ OF REVIEW FEE (Invoice will be sent) = \$ 0.00

**PLEASE MAKE FEE CHECK PAYABLE TO: "TREASURER, STATE OF OHIO"**

**Section 4: Submitted Documentation**

Check all documents/items that have been submitted:

<input checked="" type="checkbox"/> U.S. ACOE JD letter	<input checked="" type="checkbox"/> A specific & detailed mitigation plan	<input checked="" type="checkbox"/> US FWS & ODNR T&E Coordination
<input checked="" type="checkbox"/> 10 page ORAM forms - impacted wetlands	<input checked="" type="checkbox"/> Applicable fees	<input checked="" type="checkbox"/> Investigation report of "waters of the US"
<input checked="" type="checkbox"/> A DoEU for each undesignated stream *	<input checked="" type="checkbox"/> Site photographs	<input checked="" type="checkbox"/> US ACOE 404 Permit Public Notice

Descriptions, schematics & appropriate economic information for all three alternatives (Preferred, Minimal Degradation and Non Degradation)

\*DoEU – Determination of Existing Use (See pages 6 and 11 in the Instructions)

**Section 5: Applicant and Agent Signature**

*I hereby designate and authorize the agent/consultant identified in Section 1 to act on my behalf in the processing of this permit application, and to furnish, upon request, supplemental information in support of the application:*

<b>Applicant Name</b>	Martin P. Wargo	<b>Applicant Signature</b>	
<i>Application is hereby made for a Section 401 Water Quality Certification. I certify that the information provided on this form and all attachments related to this project are true and accurate to the best of my knowledge:</i>			
<b>Applicant Name</b>	Martin P. Wargo	<b>Applicant Signature</b>	
<b>Agent Name</b>	Jay M. Miller	<b>Agent Signature</b>	

For Internal Ohio EPA Use

Reviewer:

<b>Project ID #</b>	
<b>Date Received:</b>	
<b>CR Due:</b>	

Item 2:

## Lake Impact Table

USACE - BUFFALO DISTRICT

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH  
2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO



# Application for Section 401 Water Quality Certification — Proposed Lake Impacts

Division of Surface Water 401 Water Quality Certification and Isolated Wetland Permitting Unit

Other Water Body ID	Coastal Erosion Area?	Impact Type	Preferred Alternative			Minimal Deg. Alternative			Placement of Dredged Material into a:
			Cubic Yards of Fill/Dredged Material	Lakeward Extent (linear ft.)	Shoreline Impacted (linear ft.)	Cubic Yards of Fill/Dredged Material	Lakeward Extent (linear ft.)	Shoreline Impacted (linear ft.)	
Lake Erie	NO	Fill	1500000.00			1100000.00			Open Lake Disposal Area
Click here to enter text.	Choose an item.	Choose an item.							Choose an item.
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		<b>TOTALS</b>	1500000.00	0.00	0.00	1000000.00	0.00	0.00	

Item 3:

## Waters Delineation Report

USACE - BUFFALO DISTRICT

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH  
2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO

Application for Ohio Environmental Protection Agency (OEPA) Section 401 State Water Quality  
Certification

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH 2016 MAINTENANCE DREDGING OF  
TOLEDO HARBOR, OHIO

Item 3 - Waters Delineation Report

As the proposed discharge of dredged material is to Lake Erie, a Waters Delineation Report and ORAM would not be applicable to the proposed project.

Item 4:

## Correspondence

USACE - BUFFALO DISTRICT  
TOLEDO HARBOR  
2016 MAINTENANCE DREDGING PROJECT

Application for Ohio Environmental Protection Agency (OEPA) Section 401 State Water Quality  
Certification

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH 2016 MAINTENANCE DREDGING OF  
TOLEDO HARBOR, OHIO

Item 4a - U.S. Army Corps of Engineers Jurisdictional Determination

As the proposed discharge of dredged material is to open-water in Lake Erie, a USACE Jurisdictional Determination would not be applicable to the proposed project.

Application for Ohio Environmental Protection Agency (OEPA) Section 401 State Water Quality Certification

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH 2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO

Item 4b - U.S. Army Corps of Engineers Public Notice

The Section 404(a) Public Notice for the proposed discharges of dredged material associated with the scheduled 2016 maintenance dredging project at Toledo Harbor, Ohio is attached to this application as Enclosure 1.

Application for Ohio Environmental Protection Agency (OEPA) Section 401 State Water Quality  
Certification

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH 2016 MAINTENANCE DREDGING OF  
TOLEDO HARBOR, OHIO

Item 4c - Ohio Department of Natural Resources - Natural Heritage Database request

The 404(a) Public Notice prepared for this project has been forwarded to the Ohio Department of Natural Resources attached to a request for comments regarding threatened and endangered species, including the presence or absence of critical habitat (attached).

## Miller, James M LRB

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**From:** Miller, James M LRB  
**Sent:** Thursday, December 10, 2015 3:15 PM  
**To:** 'jeromy\_applegate@fws.gov'; Kessler, John; 'greg.schneider@dnr.state.oh.us'; 'angela\_boyer@fws.gov'  
**Subject:** USACE Toledo Harbor Public Notice for Review  
**Attachments:** Toledo Harbor FY16 Public Notice.pdf

All,

Attached for your review and comment is the Section 404(a) Public Notice for our scheduled 2016 maintenance dredging project at Toledo Harbor, Ohio. This notice is being sent in order to comply with ORC 6111.30(A)(7), which requires the USACE to provide adequate documentation confirming that the applicant has requested comments regarding threatened and endangered species, including the presence or absence of critical habitat from both the U.S. Fish and Wildlife Service and Ohio Department of Natural Resources. This project entails the maintenance dredging of authorized Federal navigation channels, and placement of the associated dredged material in the Harbor's existing open-lake placement area.

The Public Notice has been prepared in conformance with U.S. Army Corps of Engineers (USACE) regulation, "Practice and Procedure: Final Rule for Operation and Maintenance of Army Corps of Engineers Civil Works Projects involving the Discharge of Dredged Materials into Waters of the United States or Ocean Waters," 33 Code of Federal Regulations (CFR) 337.1. The USACE - Buffalo District has requested State Water Quality Certification for the subject project from the Ohio Environmental Protection Agency (OEPA), or waiver thereof, under Section 401 of the Clean Water Act.

Please provide any comments you may have regarding this project within 30 days to the undersigned.

Jay Miller  
Buffalo District, Corps of Engineers  
Biologist, Environmental Analysis Team  
1776 Niagara Street  
Buffalo, New York 14207-3199  
James.Miller@usace.army.mil  
O: 716-879-4394  
C: 716-346-7573

Application for Ohio Environmental Protection Agency (OEPA) Section 401 State Water Quality  
Certification

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH 2016 MAINTENANCE DREDGING OF  
TOLEDO HARBOR, OHIO

Item 4d - U.S. Fish and Wildlife Service - Threatened and Endangered Species Coordination

The 404(a) Public Notice prepared for this project has been forwarded to the U.S. Fish and Wildlife Service attached to a request for comments regarding threatened and endangered species, including the presence or absence of critical habitat (attached).

## Miller, James M LRB

---

**From:** Miller, James M LRB  
**Sent:** Thursday, December 10, 2015 3:15 PM  
**To:** 'jeromy\_applegate@fws.gov'; Kessler, John; 'greg.schneider@dnr.state.oh.us'; 'angela\_boyer@fws.gov'  
**Subject:** USACE Toledo Harbor Public Notice for Review  
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All,

Attached for your review and comment is the Section 404(a) Public Notice for our scheduled 2016 maintenance dredging project at Toledo Harbor, Ohio. This notice is being sent in order to comply with ORC 6111.30(A)(7), which requires the USACE to provide adequate documentation confirming that the applicant has requested comments regarding threatened and endangered species, including the presence or absence of critical habitat from both the U.S. Fish and Wildlife Service and Ohio Department of Natural Resources. This project entails the maintenance dredging of authorized Federal navigation channels, and placement of the associated dredged material in the Harbor's existing open-lake placement area.

The Public Notice has been prepared in conformance with U.S. Army Corps of Engineers (USACE) regulation, "Practice and Procedure: Final Rule for Operation and Maintenance of Army Corps of Engineers Civil Works Projects involving the Discharge of Dredged Materials into Waters of the United States or Ocean Waters," 33 Code of Federal Regulations (CFR) 337.1. The USACE - Buffalo District has requested State Water Quality Certification for the subject project from the Ohio Environmental Protection Agency (OEPA), or waiver thereof, under Section 401 of the Clean Water Act.

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Item 5:

## Proposed Project Antidegradation Analysis

USACE - BUFFALO DISTRICT

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH  
2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO

Application for Ohio Environmental Protection Agency (OEPA) Section 401 State Water Quality Certification

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH 2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO

Item 5 - Proposed Project Antidegradation Analysis

**Section 1: Antidegradation Analysis**

1.1 Project Description

The project will entail the maintenance dredging of sediments from the authorized Federal navigation channels of Toledo Harbor, Lucas County, Ohio. The channels will be dredged to the authorized depth (Figure 1 in Item 6). Up to one additional foot of material may be removed to ensure authorized depths are obtained and account for inaccuracies in the dredging process. Approximately 1,100,000 cubic yards of sediments will be dredged from the harbor in 2015 (minimum degradation alternative). Dredged material placement will occur in the existing two-square mile open-lake placement area in the Basin, located three and one-half miles from the Toledo Harbor light at an azimuth of 033°00' (Figure 2 in Item 6). The dredging is scheduled to occur between 1 July 2016 and 15 March 2017. The project will be accomplished by a contractor of the Federal government.

The purpose of the project is to maintain sufficient water depths for commercial navigation in Toledo Harbor. This project was congressionally authorized by the 1875, 1886, 1888, 1896, 1899, 1902, 1907, 1910, 1916, 1917, 1935, 1937, 1945, 1958, 1960 and 1962 River and Harbor Acts, 1976 and 1986 Water Resources Development Acts, 1985 Supplemental Appropriations Act and 1988 Energy and Water Appropriations Act. If the Federal navigation channels are not dredged to authorized depth, commercial navigation will eventually be adversely affected.

The environmental effects of the dredging operation are documented in the ***Final Environmental Impact Statement, Operation and Maintenance (O&M), Toledo Harbor, Ohio (1976); Environmental Assessment (EA) and Section 404(b)(1) Evaluation, O&M, Toledo Harbor, Ohio (1989); and EA and Section 404(b)(1) Evaluation, O&M, Dredging and Placement of Dredged Material, Toledo Harbor, Ohio (2009)***. These documents, and supplemental documentation, have been submitted to USEPA. Copies are available for examination at the Buffalo District office.

The material to be dredged from Toledo Harbor consists primarily of silts and clays. In 2016, an estimated total of 1,100,000 cubic yards (CY) of material will be dredged from the Federal navigation project. The quality of the material has been evaluated using 2004, 2006 and 2010 sediment data in accordance with the protocols and guidelines contained in the U.S. Environmental Protection Agency (USEPA)/USACE 1998 Great Lakes Dredged Material Testing

and Evaluation Manual. This evaluation specifically addresses the potential contaminant-related risks to aquatic life associated with placing the dredged material in open-lake waters. Based on this evaluation, material in the lower end of the River Channel and Lake Approach Channel [River Mile 0.75 (Station 325+00, old Station 360+00) to the lakeward end of the channel] was toxicologically comparable to sediments at open-lake areas in the Western Basin of Lake Erie. Therefore, it has been determined that the dredged material meets Federal “contaminant determination” guidelines (40 CFR 210.11[d]) for open-lake placement. This dredged material will be placed at the existing two-square mile open-lake placement area in the Basin. Because the northeast half of this area has become too shallow for dredged material placement, placement will occur within the southwest half.

#### 1.1.1 Preferred Design Alternative (Figure 3)

This alternative would entail the dredging of an estimated 1,500,000 cubic yards of material in 2016, with the placement of the dredged material at the existing authorized open-lake placement area in Lake Erie. A contractor of the Federal government would accomplish the project. Mechanical equipment (e.g., clamshell bucket dredges with scow) would be used to complete the maintenance dredging operation. The project would take about 180 to 220 days to complete.

#### 1.1.2 Minimum Degradation Alternative (Figure 4)

This alternative would entail the dredging of an estimated 1,100,000 cubic yards of dredged material from the Federal navigation channels in 2016, with the placement of the dredged material at the existing authorized open-lake placement area in Lake Erie. This is the minimum amount of dredging required in order to maintain a passable channel for deep draft commercial shipping. A contractor of the Federal government would accomplish the project. Mechanical equipment (e.g., clamshell bucket dredges with scow) would be used to complete the maintenance dredging operation. This project would take about 130 to 170 days to complete.

Note that the Minimum Degradation Alternative estimates dredging 400,000 cubic yards less than the Preferred Design Alternative. It is estimated that dredging activities specified in the Minimum Degradation Alternative will impact an estimated 172 acres less of channel bottom/habitat than what would be impacted under the Preferred Design Alternative. The estimated length of stream to be dredged under the Preferred Design and Minimum Degradation Alternatives are 59,000 and 44,000 linear feet, respectively. Note that the actual shoal thickness cannot be determined until just before the dredging begins. In addition, shoal thickness will vary throughout the harbor and greatly depend on weather conditions. Therefore, the above quantities are merely estimates regarding the acreage of Federal navigation channel to be dredged/impacted under either alternative.

## 1.2 Avoidance

The “No Action” alternative was considered but dismissed since it would not address the navigation needs of the harbor and substantial effects on commercial navigation and associated industries would occur as a result of this alternative. The overall value of the harbor as a water resource to commercial navigation would progressively deteriorate to a point at which deep-draft commercial vessels would no longer be able to navigate the harbor due to inadequate depths. The large industrial base that depends on the harbor to transport commodities would no longer be able to do so cost-effectively. The harbor would no longer be a viable alternative for the transportation of goods. This would negatively impact Toledo Harbor. The harbor is the 51<sup>st</sup> leading port in the United States and is ranked 7<sup>th</sup> among Great Lakes Ports with a five year average (2006-2010) of over 11 million tons of material shipped or received. The harbor generates \$381M annually in direct revenue while supporting 6,971 jobs that generate over \$558M per year in personal income. The loss of between two and three feet of channel depth would result in increased transportation costs of between \$964,000 and \$2,585,000 annually. If the harbor was closed to commercial traffic, commodities would have to be transported by rail and truck. This is predicted to increase annual emission rates by over 69,568 tons of harmful particulate matter and increase costs by \$4,775,000 due to increased railroad related accidents, and \$971,000 due to increased trucking related accidents.

Several beneficial use of dredged material studies have been evaluated and are in various phases of study through the USACE Regional Sediment Management (RSM) Program. However, at this time none of these studies have progressed to the point that they are ready for implementation. There is currently no placement area outside the aquatic ecosystem available to the USACE that is accessible, economically feasible, and can accommodate the quantity of dredged material necessary to maintain the federal navigation channels at Toledo Harbor on an annual basis and at a reasonable federal cost.

For any USACE civil works O&M dredging project, federal regulations require USACE to select the least cost, environmentally acceptable dredged material management alternative that is engineeringly feasible. This is commonly referred to as the “Federal Standard.” “Environmentally acceptable” within this definition means compliance with NEPA and Clean Water Act Section 404(b)(1) Guidelines (if there is a discharge of dredged material into a water of the United States). One objective of the Federal Standard is to ensure that federal dredging funds across states are spent in an equitable manner and in a way that does not favor any particular state policy relating to dredged material management. The USACE is responsible for determining compliance with the Clean Water Act Section 404(b)(1) Guidelines and for complying with NEPA. While beneficial use of the dredged material is often the preferred and most popular option, the actual implementation of such alternatives usually requires non-federal sponsorship and significant non-federal cost-sharing. Typically, when the discharge of dredged material is determined to meet Clean Water Act Section 404(b)(1) Guidelines, which includes compliance with applicable state water quality standards (WQs), open-lake placement is often the least costly alternative which meets the Federal Standard as is the CDF placement of dredged material that has not been determined to be suitable for open-lake

placement. State requirements beyond compliance with Clean Water Act Section 404(b)(1) Guidelines exceed the Federal Standard and, if costly, require non-federal sponsorship and cost-sharing for implementation.

### 1.3 Minimization

The Minimum Degradation Alternative estimates dredging 400,000 cubic yards less than the Preferred Design Alternative. It is estimated that dredging activities specified in the Minimum Degradation Alternative will impact an estimated 172 acres less of channel bottom/habitat than what would be impacted under the Preferred Design Alternative. The estimated length of stream to be dredged under the Preferred Design and Minimum Degradation Alternatives are 59,000 and 44,000 linear feet, respectively. Note that the actual shoal thickness cannot be determined until just before the dredging begins. In addition, shoal thickness will vary throughout the harbor and greatly depend on weather conditions. Therefore, the above quantities are merely estimates regarding the acreage of Federal navigation channel to be dredged/impacted under either alternative.

### 1.4 Magnitude of the Proposed Lowering of Water Quality

This alternative would result in a short-term, negligible lowering of ambient water quality, less than that which occurs during Lake Erie storm events. The main water quality impacts would be the generation of turbidity and variation of dissolved oxygen levels in the water column.

The material that would be dredged under this alternative consists of sediments that have deposited in the Federal navigation channels since the last maintenance dredging effort. These types of sediments are homogenous and residually contaminated with pollutants that are ubiquitous throughout the Great Lakes. A characterization of the Toledo Harbor material is documented in the *Evaluation of Toledo Harbor Federal Navigation Channel Sediments With Respect to their Suitability for Open-lake Placement* provided to OEPA in 2010 and 2011. This evaluation concluded that material in the lower end of the River Channel and Lake Approach Channel [River Mile 0.75 (Station 360+00) to the lakeward end of the channel] and the upper River Channel [River Mile 5 (Station 138+00) to the upstream limit of the channel (River Mile 6.75 / Station 33+36.61)] was toxicologically comparable to sediments at open-lake areas in the Western Basin of Lake Erie and therefore meet USEPA/USACE guidelines for open-lake placement, pursuant to Section 404 of the Clean Water Act. This evaluation also contains 2010 data on the ambient concentrations of contaminants, such as metals, nutrients, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and pesticides in Basin water. Standard elutriate test (SET) data on the dredged material indicate that discharge of this dredged material at the existing open-lake placement area in the Western Basin of Lake Erie complies with applicable Ohio State Water Quality Standards for the Protection of Aquatic Life. For the general effects of this alternative's lowering of water quality on aquatic life, refer to the 2009 EA/FONSI and Section 404(b)(1) Evaluation. This EA/FONSI documents that the placement of the dredged material at the authorized area in the Western Basin of Lake Erie would not culminate in significant, adverse environmental impacts.

Open-lake placement of Toledo Harbor dredged material constitutes internal loading and does not result in a net increase of sediments into the aquatic system. With respect to turbidity, the Basin is a naturally shallow and turbid aquatic ecosystem impacted by urbanization, point and non-point source pollution. Cultural eutrophication has been a chronic problem in the Basin due to nutrient loads that derive primarily from agricultural land use. These anthropogenic activities ultimately increase sediment load and turbidity in the Basin. Turbidity created by the mix of natural and anthropogenic activities within the Basin is enormous compared to that associated with the placement of Toledo Harbor dredged material. The amount of dredged material annually relocated in the lacustrine system (for this exercise, the amount used is 1,250,000 cubic yards [estimated 1,450,000 metric tons {MT}]) should be viewed within the framework of the amount of sediments within the system and entering the Basin from other sources. For example, the Maumee River at Waterville annually contributes an estimated 1,500,000 cubic yards of sediments to the lower river and Basin. When compared to a very conservative estimate of 150,000,000 MT per year (the upper estimate is 300,000,000 MT) that are normally resuspended, the placement of dredged material from the Basin is an extremely small fraction (i.e., less than 0.96 percent of the resuspended sediment load). Therefore, the open-lake placement of Toledo Harbor dredged material results in short-term turbidity, and does not induce widespread and/or substantially increased background turbidity in the Basin. With respect to long-term movement of open-lake placement area sediments, 2010 studies and modeling show that bottom sediments in the area migrate in a net northeasterly to southeasterly direction, and do not reach City of Toledo and City of Oregon potable water intakes (PWIs) situated along the south shore of Maumee Bay east of the river mouth.

Concerning short-term turbidity-related impacts, the results of a preliminary field investigation in August 2005 on turbidity plumes relating to the placement of Toledo Harbor dredged material at the existing open-lake area indicated that plume migration was in a net northeasterly direction and decayed to near background (30 mg/L total suspended solids [TSS]) at 870 feet (0.17 miles) such that the maximum plume length observed was 1,115 feet (0.21 miles). The entire footprint of the plume remained within the boundaries of the existing open-lake placement area. A subsequent modeling effort predominantly showed that only 1.5% of the sediment that is open-lake placed would remain in suspension after four hours, and less than 1% would be expected to remain in suspension after 24 hours. The TSS concentration associated with open-lake placement would be less than 12 mg/L and 1 mg/L above background after four and 24 hours, respectively. Therefore, turbidity plumes associated with the placement of dredged material at the open-lake area are small in spatial extent and magnitude. Toledo Harbor dredged material is typically released from a barge into the water column, and it therefore settles very rapidly as a mass that is similar to flocculent settling. Because it settles as a mass, very little turbidity is generated via a plume before the material reaches the lake bottom. Similarly, water quality monitoring conducted during placement events in 2013 estimated that only approximately 2.5% of the total amount of sediment placed remained suspended in the water column immediately after placement, with the bulk of the sediment immediately depositing to the lake bottom. The small fraction of sediment that is released to the water column undergoes exponential decline within the placement area,

returning to near background levels within an hour through settling and dispersion. Assessed across the entire dredging season, open-lake placement contributions of residual suspended solids to the water column were estimated to represent only 0.48% of total suspended solids loading to western Lake Erie in 2013.

Based on this and other relevant scientific information, turbidity resulting from the placement of Toledo Harbor dredged material in the Basin is short-term and spatially limited.

Toledo Harbor sediment data from 2004 and 2006 show that the total phosphorus (P) concentrations in the sediments proposed for open-lake placement range from 328 to 1,010 mg/kg, and average 630 mg/kg. These concentrations are comparable to those at the open-lake reference area (range = 457 to 585 mg/kg; average = 554 mg/kg). Sediment P is subject to resuspension in the Basin, whether it is in-place within the Channel or discharged at the open-lake placement area. Water quality monitoring of placement events in 2013 estimated that total phosphorus release to the water column from open lake placement activities across the dredging season represented only 0.22% of the total phosphorus load and 0.02% of the soluble reactive phosphorus load to Western Lake Erie in 2013. Once deposited to the lake bottom, phosphorus release from the placed sediment is the same or less than the surrounding lake sediments and would not represent any additional contribution to the aquatic ecosystem.

There has been public concern that the open-lake placement of dredged material causes or intensifies harmful algal blooms (HABs) in Lake Erie. To address this concern, USACE sought an externally conducted study in 2013 to answer the question: "What is the Potential for Placement of Toledo Harbor Dredged Material in the Western Lake Erie Basin to Influence Harmful Algal Blooms?" A coordinated field sampling, laboratory testing and modeling program was initiated to monitor physical, chemical, and biological parameters before, during, and after sediment placement and assess the relative influence of sediment placement activities as an internal source of solids/nutrients. The combined monitoring, testing and modeling efforts indicated that phosphorus releases associated with sediment placement activities are insufficient to stimulate any additional significant growth of algae or significantly impact water quality in the Basin. The overall conclusion of the 2013 study is that the open-lake placement of dredged sediment from Toledo Harbor does not contribute to the development of HABs in the Basin.

Dredging and dredged material placement activities would result in the excavation, and some smothering and mortality of benthic macroinvertebrates, and the temporary avoidance of work areas by fish and wildlife species (i.e., mostly gulls and waterfowl). However, following dredging operations, the benthic communities would recolonize the impacted areas. A 2003 benthic community investigation on the open-lake placement area concluded that the diversity and abundance of macroinvertebrates within the area were similar to other reference areas in the Western Basin of Lake Erie. This study also showed that there was no association among sampling areas in relation to their proximity to the placement area, indicating that the placement of dredged material had no measurable long-term effect on the benthic community within or outside the area.

Regarding impacts to fish, the open-lake placement area was situated to avoid fish spawning grounds. During dredged material placement operations, the modes of impact indicate that adverse impacts to fish are minor and short-term. The increase in suspended sediments and turbidity resulting from the open-lake placement of Toledo Harbor dredged material is very small in comparison to ambient conditions, and is therefore unlikely to trigger any significant adverse effects to fish. Indigenous fish are naturally exposed and have likely adapted to naturally occurring and much more extended elevated suspended sediment events (such as during storm or high runoff events) relative to episodic open-lake placement events. At the open-lake placement area, discharge activities place mud on mud-bottom habitat; therefore, there is no resulting significant change to bottom substrate. The material settles within a few hours and becomes subject to the same resuspension forces typically affecting the surrounding lake bottom. Impacts on fish over the full range of possible effects include either an avoidance or attraction to the area by fish, or no noticeable effect. Some fishes have been observed to be attracted to open-lake placement operations because they have a tendency to feed on the benthic macroinvertebrates contained and released from the dredged material. Many fishes have a wide tolerance for turbidity, and fish behavior in response to a dredged material placement event depends on the species. The placement of dredged material at the open-lake area may result in some mortality to demersal fish eggs (e.g., from broadcast spawning species) existing on the lake bottom in very close proximity to the actual placement of dredged material due to suffocation from burial or siltation, and/or oxygen deficiency at the sediment-water interface. Studies and modeling show that short- and long-term turbidity impacts associated with the open-lake placement of Toledo Harbor dredged material are negligible to minor. Therefore, it would not result in any measureable reduction of light penetration into the water column, or adversely affect phytoplankton and aquatic plant production and fish. Given the dredging period, limited spatial area of impact and natural population variations of these types of species, this type of impact would not culminate in any long-term, adverse impacts to any fish population. The open-lake placement of Toledo Harbor dredged material has a very low likelihood of causing turbidity-related adverse effects on fish, including commercially and recreationally important species such as walleye (*Sander vitreum*) and yellow perch (*Perca flavescens*). Successive 2012 and 2013 laboratory studies found that suspended sediment exposures to walleye eggs, walleye larvae and fingerlings mimicking sediment resuspension during dredging did not result in significantly reduced hatch success or fingerling survival, or evidence any sublethal effects through general gross morphological observation including an examination for gill lamellae abnormalities. The studies concluded that walleye eggs and fingerlings are relatively tolerant of suspended sediment concentrations likely to be encountered during dredging (and open-lake placement of dredged material) in the Great Lakes region.

Regarding impacts of open-lake placement of the dredged material on aquatic community structure and function, the aquatic ecosystem in the open-lake placement area, both before and after dredged material placement, is a profundal area within the Basin. It can be appropriately described as silt-bottom, warmwater, eutrophic habitat which supports a variety of benthic and pelagic organisms. Placement of dredged material at the open-lake area creates

a mound, which results in some local bottom surface relief. This mound is subject to settling and lake currents in the Basin, which tend to flatten the mound over time following the cessation of dredged material placement operations. Available relevant evidence indicate that the aquatic ecosystem at the open-lake placement area is resilient, and that the periodic disturbance created by open-lake placement of dredged material is absorbed or accommodated by the ecosystem because its structure and function has not fundamentally changed to a different state. Ecosystem resilience signifies ecosystem health (gauged by species diversity) and ecosystem stability (the probability that all species persist).

Unlike other discharges regulated under the Clean Water Act as external sources of pollutants (i.e., point source wastewater discharges), the origin of this dredged material is within the aquatic ecosystem and therefore the material would be an internal source both prior to dredging and after being placed in the open-lake. In other words, it is not new to the aquatic system. Under existing formal USEPA/USACE guidelines and guidance under Section 404 of the Clean Water Act, the material is thoroughly sampled and tested to demonstrate that it presents no significant increased risk to aquatic life or human health in comparison to the lake bottom sediments on which it is being placed. In a mechanical dredging operation, the material is excavated from the channel using a clamshell bucket, put into a scow and transported to the designated open-lake area where it is then discharged from a scow and released to the lake environs. The dredged material falls as a cohesive mass through the water column coming to rest on the lake bottom, typically as a mound with a mild slope. Generally, more than 95 percent of the material remains in the cohesive mass while less than 5 percent of it is suspended in the water. This suspended sediment results in short-term, localized turbidity which rapidly dissipates in the water column due to dispersion and settling. The turbidity fades to background conditions within about an hour time period. This temporary increase in turbidity is limited in spatial extent and typically remains within close vicinity of the point of discharge, well within the boundaries of the open-lake placement area. The material is thoroughly sampled and tested to ensure that contaminants are not released with the suspended sediments at concentrations that could be harmful to aquatic life and human health. After settling, the dredged material remains in-place along with the surrounding lake bottom sediments. While the newly deposited sediment is subject to lake bottom currents and waves, open-lake placement areas are selected to be relatively low-energy environments with low current velocities and low wave shear forces, offering little potential for erosion and resuspension. If the dredged material placed on the lake bottom is resuspended, it would still behave the same as the surrounding lake bottom sediments. Sediment from the placement area resuspend at the same rate as other areas of similar depth in the Basin. As the deposited sediment does not erode at a high or accelerated rate, sediment has accumulated within the placement area as a mound over several years of placement activities. The size of this mound is controlled primarily by consolidation of the placed sediment and underlying lake bottom. This qualitative description of open-lake placement, based on extensive existing information and USACE experience in dredged material handling and management, challenges the perception that open-lake placement of dredged material is a discharge that is “toxic” or results in widespread, long-term turbidity or migration of sediments.

## 1.5 Technical Feasibility and Cost Effectiveness

This alternative is technically feasible, as it involves routine maintenance dredging and dredged material placement procedures. Equipment is readily available to accomplish this type of work. The most recent benefit to cost (B/C) ratio for this alternative with respect to commercial navigation in the harbor is greater than or equal to 3.09. Costs of this project have ranged from \$4.00 to \$5.00 per cubic yard of dredged material over the past five years.

## 1.6 Economic Considerations

A large industrial base depends on the harbor to receive commercial goods and ship them off-site for a reasonable cost. As such, maintaining depth within the harbor would allow for the cost-effective transport of commodities through the local community. The harbor is the 51<sup>st</sup> leading port in the United States and is ranked 7<sup>th</sup> among Great Lakes Ports with a five year average (2006-2010) of over 11 million tons of material shipped or received. The major products shipped through Toledo Harbor include coal, iron ore, grains, petroleum, limestone, sand and gravel and iron and steel products. This commerce has a substantial positive impact on the local economy by providing jobs that support the transportation, processing and production of these commodities, as well as by maintaining competitive price levels on commercial goods. The harbor generates \$381M annually in direct revenue while supporting 6,971 jobs that generate over \$558M per year in personal income. This industrial base generates substantial tax revenues for local governments. The estimated annual rate savings provided by Toledo Harbor (savings compared to the costs of alternative modes of transportation, such as rail or truck) is \$338 million. Construction of the project itself would support about 10-20 blue-collar jobs in the dredging industry for a period of about three to five months. In addition, social and economic benefits associated with recreational navigation would accrue with harbor maintenance.

Substantial effects on commercial navigation and associated industries would occur as a result of not maintaining the harbor. The overall value of the harbor as a water resource to commercial navigation would progressively deteriorate to a point at which deep-draft commercial vessels would no longer be able to navigate the harbor due to inadequate depths. The large industrial base that depends on the harbor to transport commodities would no longer be able to do so cost-effectively. The harbor would no longer be a viable alternative for the transportation of goods. The loss of between two and three feet of channel depth would result in increased transportation costs of between \$964,000 and \$2,585,000 annually. If the harbor was closed to commercial traffic, commodities would have to be transported by rail and truck. This is predicted to increase annual emission rates by over 69,568 tons of harmful particulate matter and increase costs by \$4,775,000 due to increased railroad related accidents, and \$971,000 due to increased trucking related accidents.

## 1.7 Cumulative Impact

The overall cumulative impact of the proposed project is considered to be socially and economically beneficial. The most substantial cumulative effect resulting from this project would be to facilitate continued unrestricted navigation which would benefit the associated upland industries within Toledo Harbor. Implementation of the proposed project would work toward sustaining the integrity of Toledo Harbor from economic and social perspectives. Dredged material management through the open-lake placement would have minor, localized adverse short-term effects, most of which are related to water quality and the benthic community. The ability to properly manage dredged material through open-lake placement would enable the continued maintenance of the Federal navigation channels which would facilitate the continued use of Toledo Harbor and the associated community facilities and activities that it benefits. In this way, it would substantially benefit community and regional sustenance and growth needs. The long-term socioeconomic benefits of this dredging on the region's socio-economic condition would far outweigh the temporary, localized minor adverse effects.

With respect to open-lake placement of dredged material, this alternative would result in a short-term, minor reduction of water quality in the receiving waters. Testing and evaluation indicates that placement of the dredged material at the open-lake area would not significantly impact aquatic life. The main water quality impacts would be the generation of turbidity and variation of dissolved oxygen levels in the water column. These impacts would be short-term and spatially limited. Turbidity would not increase to an extent that it would result in any significant reduction of light penetration into the water column, or adversely affect phytoplankton and aquatic plant production, and fish.

Ecosystem modeling of the Basin based on 2013 monitoring data, indicate that the cumulative effect of a full season of sediment placement activities has virtually no impact on phytoplankton biomass at either the placement area itself or at other key locations, such as the Toledo drinking water intake. Dredging and dredged material placement activities would result in the excavation, smothering and mortality of benthic macroinvertebrates. Following dredging operations, benthic communities are expected to recolonize the impacted areas. The open-lake placement areas are located to avoid any significant fish spawning areas. The fish community is generally adapted to natural levels of turbidity in the lake and open-lake placement of the dredged material would not significantly increase ambient turbidity levels over the long-term. Fishes may avoid or be attracted to open-lake placement events, or may not show any noticeable effect, and would return following the completion of dredging operations. The aquatic ecosystems at the open-lake placement areas are resilient. The periodic disturbance created by open-lake placement of dredged material is absorbed or accommodated by the ecosystem because its structure and function would not fundamentally change to a different state. Wildlife species (i.e., mostly gulls and waterfowl) would temporarily avoid work areas and would return following the completion of dredging operations. No effects to any listed Threatened or Endangered species would occur.

## 1.8 Indirect Impacts

The potential impacts from open-lake placement of the dredged material to the quality of water at the Toledo and Oregon potable water intakes (PWIs) was investigated. Placement of the dredged material at the open-lake area would not result in a release of dissolved contaminants that would present any significant risk to human health based on National Primary Drinking Water Regulation Maximum Contaminant Levels (MCLs) and Drinking Water Standards for Ohio Public Water Systems. Additionally, predominant lake currents at the placement area direct total suspended solids (TSS) away from the PWIs during dredged material placement. Monitoring during 2013 placement activities indicated that suspended sediments from placement activities decay to background conditions prior to leaving the placement area.

## 1.9 Construction Storm Water Management Plans

N/A

## 1.10 Post-Construction Storm Water Management Plans

N/A

Item 6:

Mapping

USACE - BUFFALO DISTRICT

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH  
2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO



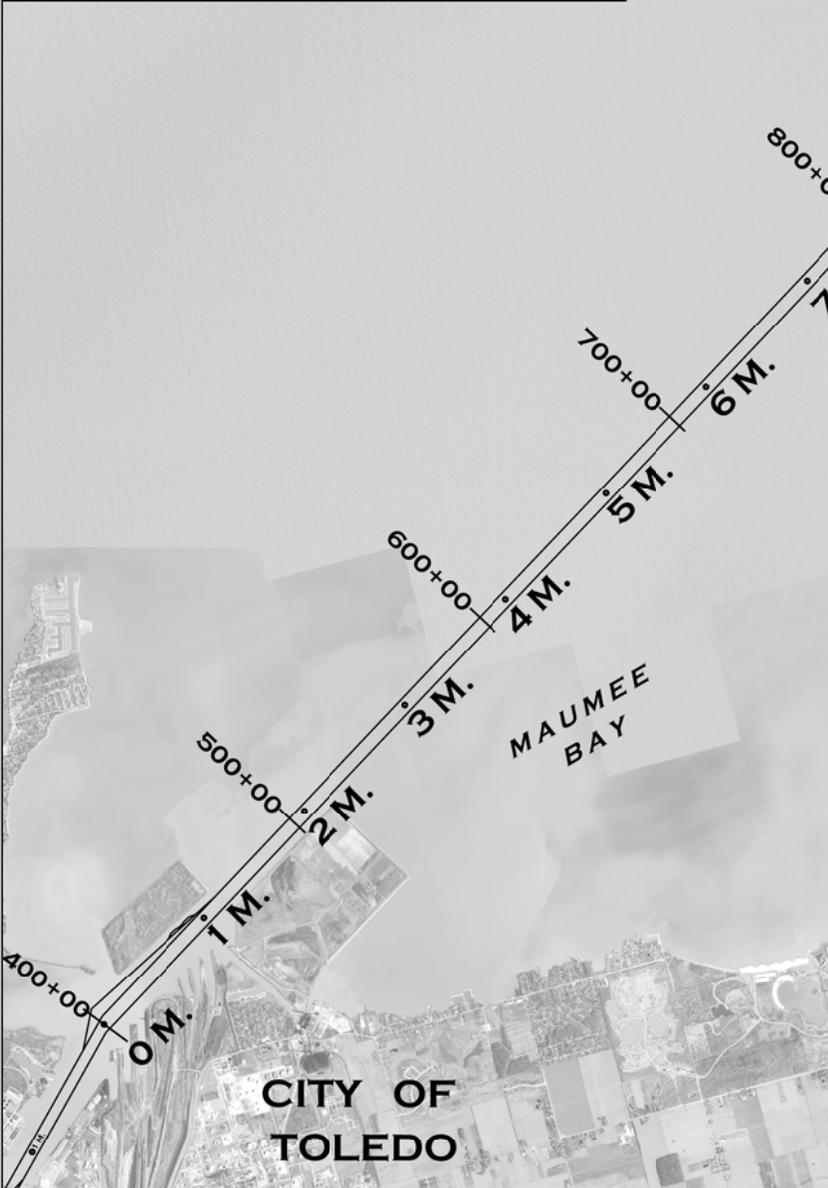
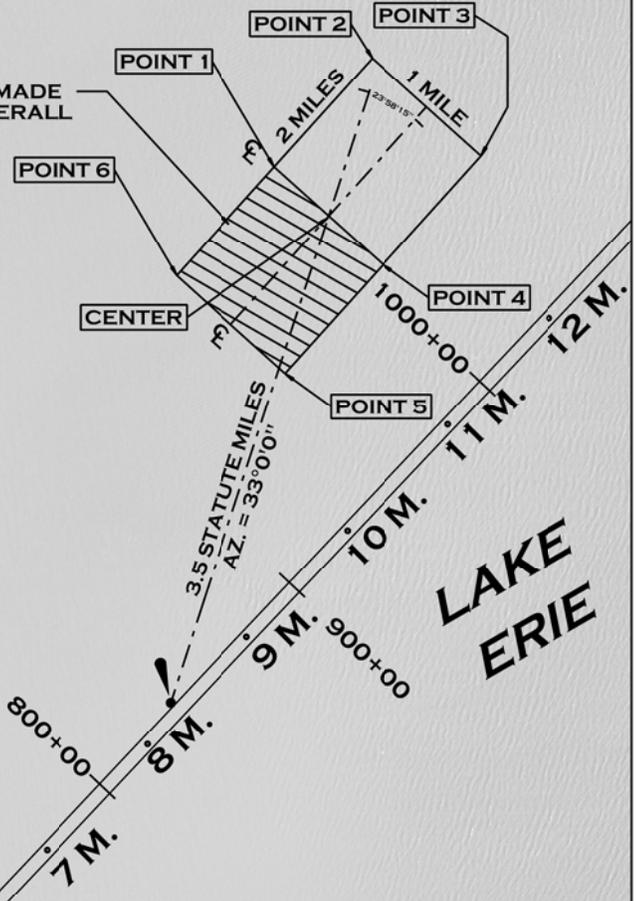


PLACEMENT TO BE MADE IN THIS HALF OF OVERALL PLACEMENT AREA

**OPEN LAKE PLACEMENT COORDINATES NAD83 (DD.DDDDDDDDD)**

**LOCATION IN LAT/LON DD.DDDDDDDDD**

POINT	LATITUDE	LONGITUDE
CENTER	41.804641704	83.292647022
POINT 1	41.810680019	83.297998811
POINT 2	41.818686680	83.281856483
POINT 3	41.806609437	83.271156573
POINT 4	41.798604219	83.287297227
POINT 5	41.790596741	83.303433884
POINT 6	41.802671070	83.314137141



**LOCATION OF THE PLACEMENT AREA SITE WAS CALCULATED AS FOLLOWS:**

1. THE LOCATION OF THE TOLEDO HARBOR LIGHT WAS TAKEN FROM THE U.S.C.G. LIGHT, WHICH MATCHED VERY CLOSELY WITH THE LOCATION OF THE LIGHT FOUND IN THE NOAA'S RASTER CHART FOR TOLEDO.
2. THE AZIMUTH AND DISTANCE WAS RECEIVED FROM THE ENVIRONMENTAL ANALYSIS SECTION AND PLOTTED IN THE CAD FILE.
3. SINCE THE SITE IS NOT ORIENTATED EXACTLY DUE NORTH, THE AZIMUTH OF THE SOUTH SIDE (ROUGHLY PARALLEL TO THE FEDERAL CHANNEL) OF THE PLACEMENT SITE FROM THE SAME RASTER CHART WAS USED TO ESTABLISH THE CORNERS.
4. THE COORDINATES WERE CONVERTED TO LAT/LON FOR INCLUSION INTO THIS MAP.

TOLEDO HARBOR  
OPEN LAKE PLACEMENT SITE

SCALE OF MILES

U.S. ARMY ENGINEER DISTRICT BUFFALO  
OCTOBER 2013

Figure 2 - Toledo Harbor Open Lake Placement Site



FIGURE 4

MINIMUM DEGRADATION ALTERNATIVE

FY16

(DREDGE 535 ACRES, 44,000 LINEAL FEET, LOCATIONS AND EXTENTS WILL BE ADJUSTED BASED ON ACTUAL SHOALING LOCATIONS AND DEPTHS)

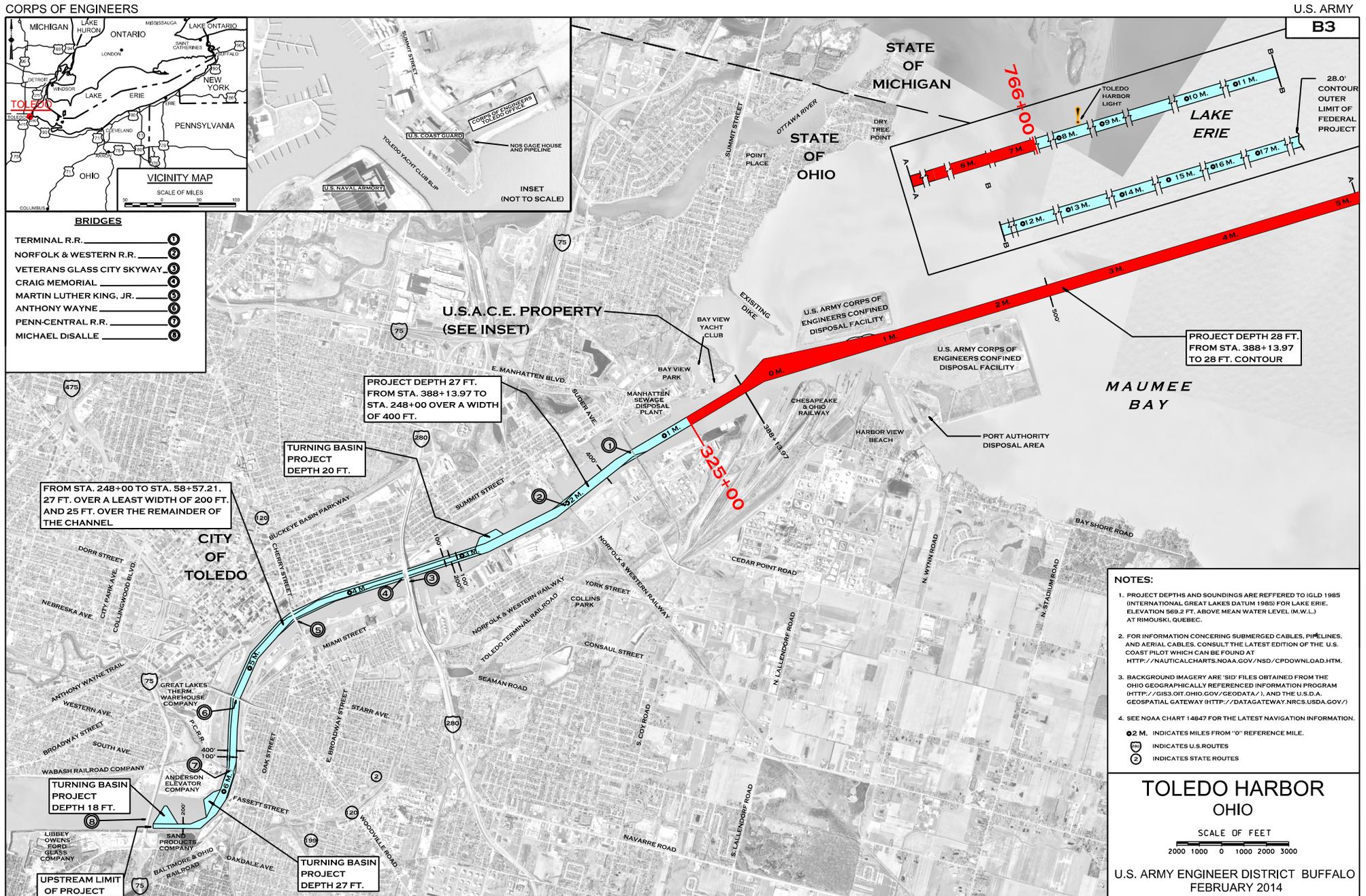


FIGURE 5



Item 7:

## Mitigation Plan

USACE - BUFFALO DISTRICT

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH  
2016 MAINTENANCE DREDGING OF TOLEDO HARBOR, OHIO

Application for Ohio Environmental Protection Agency (OEPA) Section 401 State Water Quality  
Certification

DISCHARGES OF DREDGED MATERIAL ASSOCIATED WITH 2016 MAINTENANCE DREDGING OF  
TOLEDO HARBOR, OHIO

Item 7 - Proposed Mitigation Plan

As the proposed discharge of dredged material to Lake Erie would not result in the loss of wetland area or function, a mitigation plan would not be applicable to the proposed project.