U.S. Army Corps of Engineers
Baltimore District

Baltimore Metropolitan
Coastal Storm Risk Management Feasibility Study

APPENDIX G

Environmental and Cultural Resources Coordination

FINAL REPORT

April 2024

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BALTIMORE COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

DRAFT INTEGRATED FEASIBILITY REPORT & ENVIRONMENTAL ASSESSMENT

Coastal Zone Management Act Evaluation

1. Introduction

This document provides a Coastal Zone Management Act (CZMA) evaluation for the Baltimore Coastal Storm Risk Management Study in Baltimore, Maryland. The Baltimore CSRM project was initiated by the Baltimore Metropolitan Water Resources – Patapsco Urban River Restoration Initiative authority. Committee on Public Works and Transportation of the United States House of Representatives adopted a House resolution on April 30, 1992:

> *Resolved by the Committee on Public Works and Transportation of the United States House of Representatives, That the Board of Engineers for Rivers and Harbors, is requested to review the report of the Chief of Engineers on the Baltimore Metropolitan Area, Maryland, published as House Document 589, Eighty-seventh Congress, Second Session, and the reports of the Chief of Engineers on Baltimore Harbor and Channels, Maryland, and Virginia, published as House Document 181, Ninety-fourth Congress, First Session, and House Document 86, Eighty-fifth Congress, First Session, and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable at the present time, in the interest of flood control, hurricane protection, navigation, erosion, sedimentation, fish and wildlife, water quality, environmental restoration, recreation, and other related purposes.*

The Baltimore CSRM project consists of structural and non-structural components to serve as flood protection of critical infrastructure throughout select areas in Baltimore City and Baltimore County, MD. The purpose of the study is to evaluate the feasibility of Federal participation in implementing solution to problems and opportunities associated with coastal storm damage in the study area in order to reduce coastal flood risk to vulnerable populations, properties, infrastructure, and environmental and cultural resources considering future climate and sea level change scenarios. Coastal storms have produced extensive property damage and loss of life resulting from storm surge and flooding in the recent past, particularly from Hurricane Isabel in 2003 which resulted in costs of $4.8 million to the City of Baltimore, up to $252 million in total damages in Southern Baltimore County, and one fatality due to flooding.

This analysis and the corresponding Draft Integrated Feasibility Report and Environmental Assessment (IFR/EA) was submitted to the Maryland Coastal Consistency Review board for concurrence in June 2022.

1.1. Location

The study authority encompasses Baltimore City and the surrounding metropolitan areas along rivers and other waterways that are subject to flooding, storm surge, and coastal storm damages. The study area includes the Baltimore coastline from the Seagirt Marine Terminal at the Port of Baltimore, around the Inner Harbor through areas of Canton, Fells Point, and Federal Hill, as well as areas around Middle Branch and Martin State Airport in Baltimore County. The study area was defined to include a large number of assets of importance to the Maryland Department of Transportation.

2. Federal Coastal Zone Management Act, 16 U.S.C. 1451 et seq.

The Federal Coastal Zone Management Act (CZMA) of 1972, as amended in 1990, aims to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone" (CZMA 1972). To achieve this directive, CZMA requires that all federal agency activity affecting land or water use, or natural resources of the coastal zone (whether the activity is performed within or outside of the coastal zone), be carried out in a manner that is consistent with the enforceable policies of state management programs, consistent with the minimum Federal standards. To implement the CZMA and establish procedures for compliance with its federal consistency provisions, NOAA promulgated regulations in 15 CFR Part 930. As per 15 CFR 930.37, a federal agency may use its NEPA documents as a vehicle for its consistency determination.

2.1. Maryland Coastal Zone Management Program

The Maryland Coastal Zone Management Program (CZMP) was approved by NOAA in 1978, with the Maryland Department of Natural Resources (MDDNR) acting as the lead agency. The CZMP is composed of several state planning and regulatory programs that enforce policies to protect coastal resources and manage coastal uses, including the Chesapeake Bay Critical Area Protection Program (CBCA). Maryland's coastal zone follows the inland boundary of the counties and Baltimore City bordering the Atlantic Ocean, Chesapeake Bay, and the Potomac River (as far as the municipal limits of Washington, D.C), and includes all local jurisdictions within the counties and Baltimore City (NOAA 2012).

2.2. Findings of the Coastal Zone Consistency Evaluation

In accordance with the CZMA, and through email correspondence from February 2023 with Maryland Department of the Environment, it has been determined that the proposed Baltimore CSRM study with implementation of structural floodwalls and non-structural floodproofing methods would be carried out in a manner that is ***fully consistent*** with the enforceable policies of the CZMP and the CBCA. The table below includes information about project compliance with all CZMA Enforceable Policies.

Table 1: CZMA Enforceable Policies and Status of Compliance

TITLE OF ENFORCEABLE POLICY	STATUS OF COMPLIANCE
Core Policies	Fully Consistent.
The Chesapeake and Atlantic Coastal Bays Critical Area	Fully Consistent.
Tidal Wetlands	Not applicable.
Non-Tidal Wetlands	Not applicable.
Forests	Not applicable.
Historical and Archaeological Sites	Fully Consistent.
Living Aquatic Resources	Not applicable.
Mineral Extraction	Not applicable.
Electrical Generation and Transmission	Not applicable.
Tidal Shore Erosion Control	Not applicable.
Oil and Natural Gas Facilities	Not applicable.
Dredging and Disposal of Dredged Material	Not applicable.
Navigation	Not applicable.
Transportation	Fully Consistent.
Agriculture	Not applicable.
Development	Not applicable.
Sewage Treatment	Not applicable.

Coastal Zone Management Program - Core Policies Checklist

Name of Project:

Baltimore Coastal Storm Risk Management (CSRM) Feasibility Study

5.1. CORE POLICIES

5.1.1. Quality of Life

Quality of Life Policy 1- Air Quality. It is State policy to maintain that degree of purity of air resources which will protect the health, general welfare, and property of the people of the State. MDE (C9) Md. Code Ann., Envir. §§ 2-102 to -103.

Select appropriate response:

- (●) Project will be consistent with Air Quality policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Air Quality Analysis completed for the project determined when following the planned construction schedule, the project will not result in emissions exceeding the NOx emission threshold of 100 tpy.

Quality of Life Policy 2 – Noise. The environment shall be free from noise which may jeopardize health, general welfare, or property, or which degrades the quality of life. MDE (C9) COMAR 26.02.03.02.

Select appropriate response:

- (●) Project will be consistent with Noise policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Proposed excess noise during the construction of the project will be consistent with the typical noise conditions experienced through the industrialized setting. Any excess noise will be temporary and only during construction of the proposed flood proofing measures.

Quality of Life Policy 3– Protection of State Wild Lands. The unique ecological, geological, scenic, and contemplative aspects of State wild lands shall not be affected in a manner that would jeopardize the future use and enjoyment of those lands as wild. DNR (C7) Md. Code Ann., Nat. Res. §§ 5-1201, -1203.

Select appropriate response:

- ○ Project will be consistent with State Wild Lands Protection policy.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no State Wild Lands exist within the vicinity of the study.

Quality of Life Policy 4 – Protection of State Lands & Cultural Resources. The safety, order, and natural beauty of State parks and forests, State reserves, scenic preserves, parkways, historical monuments and recreational areas shall be preserved. DNR (B1) Md. Code. Ann., Nat. Res. § 5-209.

Select appropriate response:

- ◉ Project will be consistent with Protection of State Lands & Cultural Resources policy.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Under Section 106 of the National Historic Preservation Act and its implementing regulations at 36 Code of Federal Regulations Part 800, the USACE assessed potential effects historic properties that are within the proposed project's APE. Coordination with SHPO will continue through the study period

Quality of Life Policy 5 – Natural Character & Scenic Value of Rivers & Waterways. The natural character and scenic value of a river or waterway must be given full consideration before the development of any water or related land resources including construction of improvements, diversions, roadways, crossings, or channelization. MDE/DNR (C7) Md. Code Ann., Nat. Res. § 8-405; COMAR 26.17.04.11.

Select appropriate response:

- ○ Project will be consistent with policy protecting Natural Character & Scenic Value of Rivers & Waterways.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM as there are no scenic or wild rivers within the vicinity of the study.

Quality of Life Policy 6 –Natural Flow of Scenic & Wild Rivers. A dam or other structure that impedes the natural flow of a scenic or wild river may not be constructed, operated, or maintained, and channelization may not be undertaken, until the applicant considers alternatives less harmful to the scenic and wild resource. Construction of an impoundment upon a scenic or wild river is contrary to the public interest, if that project floods an area of unusual beauty, blocks the access to the public of a view previously enjoyed, or alters the stream's wild qualities. MDE/DNR (C7) Md. Code Ann., Nat. Res. § 8-406; COMAR 26.17.04.11.

Select appropriate response:

- ○ Project will be consistent with policy protecting Natural Flow of Scenic & Wild Rivers.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM will not create any dams or impoundments for this study.

Quality of Life Policy 7 – Atlantic Coast Development. Any land clearing, construction activity, or the construction or placement of permanent structures is prohibited within the Beach Erosion Control District except the construction and installation of a qualified submerged renewable energy line, if the project does not result in any significant permanent environmental damage to the Beach Erosion Control District and is not constructed or installed within the Assateague State Park, and any project or activity specifically for storm control, beach erosion and sediment control, or maintenance projects designed to benefit the Beach Erosion Control District. MDE/DNR (B1) Md. Code Ann., Nat. Res. § 8-1102.

Select appropriate response:

- ○ Project will be consistent with policy ensuring Environmentally Beneficial Atlantic Shoreline Development.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as it does not take place in a Beach Erosion Control District.

Quality of Life Policy 8 – Integrity & Natural Character of Assateague Island. Activities which will adversely affect the integrity and natural character of Assateague Island will be inconsistent with the State's Coastal Management Program, and will be prohibited. MDE/DNR (B1) Md. Code. Ann., Nat. Res. §§ 5-209, 8-1102.

Select appropriate response:

- ○ Project will be consistent with policy protecting the Integrity & Natural Character of Assateague Island.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as it does not take place on Assateague Island.

Quality of Life Policy 9 – Public Outreach. An opportunity for a public hearing shall be provided for projects in non-tidal waters that dredge, fill, bulkhead, or change the shoreline; construct or reconstruct a dam; or create a waterway, except in emergency situations. MDE (A3) COMAR 26.17.04.13A.

Select appropriate response:

- ◉ Project will be consistent with Public Outreach policy for relevant projects.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

A public meeting will be held during the public review period of the draft feasibility report and environmental assessment. However, the project will not impact non-tidal wetlands; therefore, no public outreach will be held specific for that topic.

Quality of Life Policy 10 – Erosion & Sediment Control. Soil erosion shall be prevented to preserve natural resources and wildlife; control floods; prevent impairment of dams and reservoirs; maintain the navigability of rivers and harbors; protect the tax base, the public lands, and the health, safety and general welfare of the people of the State, and to enhance their living environment. MDA (C4) Md. Code Ann., Agric. § 8-102(d).

Select appropriate response:

- ◉ Project will be consistent with Erosion & Sediment Control policy.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All erosion and sediment control measures will follow Federal, State, and local guidelines, as well as MDE-provided Best Management Practices.

Quality of Life Policy 11 – Safeguards for Outer Continental Shelf Development. Operations on the Outer Continental Shelf must be conducted in a safe manner by well-trained personnel using technology, precautions, and techniques sufficient to prevent or minimize the likelihood of blowouts, loss of well control, fires, spillages, physical obstruction to other users of the waters or subsoil and seabed, or other occurrences which may cause damage to the environment or property, or which may endanger life or health. (B2) Md. Code Ann., Envir. §§ 17-101 to -403; COMAR 26.24.01.01; COMAR 26.24.02.01, .03; COMAR 26.24.05.01.

Select appropriate response:

- ○ Project will be consistent with policy ensuring Safeguards for Outer Continental Shelf Development.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as it does not occur in the Outer Continental Shelf.

5.1.2. Waste & Debris Management

Waste & Debris Management Policy 1 – Hazardous Waste Management. Controlled hazardous substances may not be stored, treated, dumped, discharged, abandoned, or otherwise disposed anywhere other than a permitted controlled hazardous substance facility or a facility that provides an equivalent level of environmental protection. MDE (D4) Md. Code Ann., Envir. § 7-265(a).

Select appropriate response:

- (●) Project will be consistent with Hazardous Waste Management policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Hazardous Waste Management will follow the USACE Engineering Regulation and Environmental Compliance Policies.

Waste & Debris Management Policy 2 – Hazardous Waste Management in Port of Baltimore. A person may not introduce in the Port of Baltimore any hazardous materials, unless the cargo is properly classed, described, packaged, marked, labeled, placarded, and approved for highway, rail, or water transportation. MDOT (D3) COMAR 11.05.02.04A.

Select appropriate response:

- ( ) Project will be consistent with Hazardous Waste Management in Port of Baltimore policy.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no hazardous materials will be introduced at the Port of Baltimore.

5.1.3. Water Resources Protection & Management

Water Resources Protection & Management Policy 1 – Pollution Discharge Permit. No one may add, introduce, leak, spill, or emit any liquid, gaseous, solid, or other substance that will pollute any waters of the State without State authorization. MDE (A5) Md. Code Ann., Envir. §§ 4-402, 9-101, 9-322.

Select appropriate response:

- (●) Project will be consistent with water policy requiring a Pollution Discharge Permit.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will comply with the study NPDES permit and all other State regulated programs.

Water Resources Protection & Management Policy 2 – Protection of Designated Uses. All waters of the State shall be protected for water contact recreation, fish, and other aquatic life and wildlife. Shellfish harvesting and recreational trout waters and waters worthy of protection because of their unspoiled character shall receive additional protection. MDE (A1) COMAR 26.08.02.02.

Select appropriate response:

- (●) Project will be consistent with Protection of Designated Uses policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

No in-water work will take place for the Baltimore CSRM study. The study will comply with all state erosion and sediment control practices as well as all state best management practices to prevent discharge of pollutants from the construction site(s).

Water Resources Protection & Management Policy 3 – Prohibition of Harmful Toxic Impacts. The discharge of any pollutant which will accumulate to toxic amounts during the expected life of aquatic organisms or produce deleterious behavioral effects on aquatic organisms is prohibited. MDE (A4) COMAR 26.08.03.01.

Select appropriate response:

- (●) Project will be consistent with water policy Prohibiting Harmful Toxic Impacts.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

No in-water work will take place for the Baltimore CSRM study. The study will comply with all state erosion and sediment control practices as well as all state best management practices to prevent discharge of pollutants from the construction site(s).

Water Resources Protection & Management Policy 4 – Pre-Development Discharge Permit Requirement. Before constructing, installing, modifying, extending, or altering an outlet or establishment that could cause or increase the discharge of pollutants into the waters of the State, the proponent must hold a discharge permit issued by the Department of the Environment or provide an equivalent level of water quality protection. MDE (D6) Md. Code Ann., Envir. § 9-323(a).

Select appropriate response:

- (●) Project will be consistent with water policy requiring a Pre-Development Discharge Permit.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will comply with all state erosion and sediment control practices as well as all state best management practices to prevent discharge of pollutants from the construction site(s).

Water Resources Protection & Management Policy 5 – Use of Best Available Technology or Treat to Meet Standards. The use of best available technology is required for all permitted discharges into State waters, but if this is insufficient to comply with the established water quality standards, additional treatment shall be required and based on waste load allocation. MDE (D4) COMAR 26.08.03.01C.

Select appropriate response:

- (●) Project will be consistent with Use of Best Available Technology or Treat to Meet Standards water policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will comply with all state erosion and sediment control practices as well as all state best management practices to prevent discharge of pollutants from the construction site(s).

Water Resources Protection & Management Policy 6 – Control of Thermal Discharges. Thermal discharges shall be controlled so that the temperature outside the mixing zone (50 feet radially from the point of discharge) meets the applicable water quality criteria or discharges comply with the thermal mixing zone criteria. MDE (D4) COMAR 26.08.03.03C.

Select appropriate response:

- ○ Project will be consistent with Control of Thermal Discharges water policy.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no in-water work will occur.

Water Resources Protection & Management Policy 7 – Pesticide Storage. Pesticides shall be stored in an area located at least 50 feet from any water well or stored in secondary containment approved by the Department of the Environment. MDA (C4) COMAR 15.05.01.06.

Select appropriate response:

- ○ Project will be consistent with Pesticides Storage water policy.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as the study will not require the use of pesticides.

Water Resources Protection & Management Policy 8 – Stormwater Management. Any development or redevelopment of land for residential, commercial, industrial, or institutional purposes shall use small-scale non-structural stormwater management practices and site planning that mimics natural hydrologic conditions, to the maximum extent practicable. Development or redevelopment will be consistent with this policy when channel stability and 100 percent of the average annual predevelopment groundwater recharge are maintained, nonpoint source pollution is minimized, and structural stormwater management practices are used only if determined to be absolutely necessary. MDE (C9) Md. Code Ann., Envir. § 4-203; COMAR 26.17.02.01, .06.

Select appropriate response:

- (●) Project will be consistent with Stormwater Management policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will comply with all applicable City, County, and State Stormwater Management practices.

Water Resources Protection & Management Policy 9 – Unpermitted Dumping of Used Oil. Unless otherwise permitted, used oil may not be dumped into sewers, drainage systems, or any waters of the State or onto any public or private land. MDE (D4) Md. Code Ann., Envir. § 5-1001(f).

Select appropriate response:

- (●) Project will be consistent with Unpermitted Dumping of Used Oil water policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

A spill plan will be provided before construction begins.

Water Resources Protection & Management Policy 10 – Toxicity Monitoring. If material being dumped into Maryland waters or waters off Maryland's coastline has demonstrated actual toxicity or potential for being toxic, the discharger must perform biological or chemical monitoring to test for toxicity in the water. MDE (A5) COMAR 26.08.03.07(D); COMAR 26.08.04.01.

Select appropriate response:

- (●) Project will be consistent with Toxicity Monitoring water policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not result in material being dumped in Maryland waters or coastlines.

Water Resources Protection & Management Policy 11 – Public Outreach. Public meetings and citizen education shall be encouraged as a necessary function of water quality regulation. MDE (A2) COMAR 26.08.01.02E(3).

Select appropriate response:

- (●) Project will be consistent with Public Outreach water policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

A public meeting was held August 1, 2022 at the Enoch Pratt Free Library, Southeast Anchor Branch in Baltimore, MD. A virtual public meeting was held on August 2, 2022 via WebEx.

Water Resources Protection & Management Policy 12 - No Adverse Impact from Water Appropriation. Any water appropriation must be reasonable in relation to the anticipated level of use and may not have an unreasonable adverse impact on water resources or other users of the waters of the State. MDE (C9) COMAR 26.17.06.02.

Select appropriate response:

- ( ) Project will be consistent with policy ensuring No Adverse Impact from Water Appropriations.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

A water appropriations permit is not required for the Baltimore CSRM study. According to COMAR 26.17.06.02, the state's water supply resources include watercourses, lakes, aquifers, tidal areas, and other bodies of water in the State. The Baltimore CSRM study will not impact any of the above mentioned water supply sources.

5.1.4. Flood Hazards & Community Resilience

Flood Hazards & Community Resilience Policy 1 – No Adverse Impact. Projects in coastal tidal and non-tidal flood plains which would create additional flooding upstream or downstream, or which would have an adverse impact upon water quality or other environmental factors, are contrary to State policy. MDE (C2) Md. Code Ann., Envir. § 5-803; COMAR 26.17.05.04A.

Select appropriate response:

- (●) Project will be consistent with No Adverse Impact flood hazard policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM Study will not create flooding or impact flood risks in a negative way. The purpose of this study is coastal storm risk management and aligns with the intent of this policy. Additionally, an interior drainage analysis is expected to occur after the Agency Decision Milestone (ADM) which is currently scheduled for October 20, 2022.

Flood Hazards & Community Resilience Policy 2 – Non-Tidal Waters and Non-Tidal Floodplains. The following policies apply to projects in non-tidal waters and non-tidal floodplains, but not non-tidal wetlands. MDE (C2) COMAR 26.17.04.01, .07,.11.

Flood Hazards & Community Resilience Policy 2a – 1-Foot Freeboard Above 100-year Flood. Proposed floodplain encroachments, except for roadways, culverts, and bridges, shall be designed to provide a minimum of 1 foot of freeboard above the elevation of the 100-year frequency flood event. In addition, the elevation of the lowest floor of all new or substantially improved residential, commercial, or industrial structures shall also be at least 1 foot above the elevation of the 100-year frequency flood event.

Select appropriate response:

- ( ) Project will be consistent with policy requiring a 1-Foot Freeboard Above 100-Year Flood for Construction in flood hazard areas.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study design will incorporate policy requiring 1-foot freeboard above 100-year floodplain for construction in flood hazard areas.

Flood Hazards & Community Resilience Policy 2b – Stability of Unlined Earth Channels. Proposed unlined earth channels may not change the tractive force associated with the 2-year and the 10-year frequency flood events, by more than 10 percent, throughout their length unless it can be demonstrated that the stream channel will remain stable.

Select appropriate response:

- ○ Project will be consistent with policy ensuring Stability of Unlined Earth Channels.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not create flooding or impact flood risks. Unlined earth channels or channelization are not proposed for this study.

Flood Hazards & Community Resilience Policy 2c – Stability of Lined Channels. Proposed lined channels may not change the tractive force associated with the 2-year and the 10-year frequency flood events, by more than 10 percent, at their downstream terminus unless it can be demonstrated that the stream channel will remain stable.

Select appropriate response:

- ○ Project will be consistent with policy ensuring Stability of Line Channels.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not create flooding or impact flood risks. Unlined earth channels or channelization are not proposed for this study.

Flood Hazards & Community Resilience Policy 2d – Prohibition of Dam Construction in High Risk Areas. Category II, III, or IV dams may not be built or allowed to impound water in any location where a failure is likely to result in the loss of human life or severe damage to streets, major roads, public utilities, or other high value property.

Select appropriate response:

- ○ Project will be consistent with policy Prohibiting Dam Construction in High Risk Areas.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no dam construction is proposed.

Flood Hazards & Community Resilience Policy 2e – Prohibition of Projects That Increase Risk Unless Mitigation Requirements Are Met. Projects that increase the risk of flooding to other property owners are generally prohibited, unless the area subject to additional risk of flooding is purchased, placed in designated flood easement, or protected by other means acceptable to the Maryland Department of the Environment.

Select appropriate response:

- (●) Project will be consistent with policy Prohibiting Projects That Increase Flood Risk Unless Mitigation Requirements Are Met.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not create flooding or impact flood risks in a negative way. The purpose of this study is coastal storm risk management and aligns with the intent of this policy.

Flood Hazards & Community Resilience Policy 2f – Prohibition of Construction or Substantial Improvements in 100-Year Floodplain. The construction or substantial improvement of any residential, commercial, or industrial structures in the 100-year frequency floodplain and below the water surface elevation of the 100-year frequency flood may not be permitted. Minor maintenance and repair may be permitted. The modifications of existing structures for flood-proofing purposes may be permitted. Flood-proofing modifications shall be designed and constructed in accordance with specifications approved by the Maryland Department of the Environment.

Select appropriate response:

- (●) Project will be consistent with policy Prohibiting Construction or Substantial Improvements in 100-Year Floodplain.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study is consistent with FEMA floodplain management regulations outlined in 44CFR Section 60.3(c) Floodplain Management Criteria for Flood-Prone Areas.

Flood Hazards & Community Resilience Policy 2g – Channelization Is Discouraged. Channelization shall be the least favored flood control technique.

Select appropriate response:

- ○ Project will be consistent with policy Discouraging Channelization.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Unlined earth channels or channelization are not proposed for this study.

Flood Hazards & Community Resilience Policy 2h – Preference of Multi-Purpose Use Projects, Project Accountability, & 50% Reduction in Damages. Multiple purpose use shall be preferred over single purpose use, the proposed project shall achieve the purposes intended, and, at a minimum, project shall provide for a 50 percent reduction of the average annual flood damages.

Select appropriate response:

- ◉ Project will be consistent with policy that ensures a Preference to Multi-Purpose Use Projects, Project Accountability & 50% Reduction in Damages.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study is proposing a combination of structural and nonstructural measures throughout the project area.

Flood Hazards & Community Resilience Policy 3 – Development-Related Runoff Restrictions for the Gwynne Falls and Jones Falls Watersheds. Development may not increase the downstream peak discharge for the 100-year frequency storm event in the following watersheds and all their tributaries: Gwynns Falls in Baltimore City and Baltimore County; and Jones Falls in Baltimore City and Baltimore County. MDE (C2) COMAR 26.17.02.07.

Select appropriate response:

- ◉ Project will be consistent with policy that Restricts Development-Related Runoff in the Gwynne Falls & Jones Falls Watersheds.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study is not expected to increase urbanization; therefore, no changes in flow are expected.

Coastal Zone Management Program - Critical Area Policies Checklist

Name of Project:

Baltimore Coastal Storm Risk Management (CSRM) Feasibility Study

5.2 COASTAL RESOURCES

5.2.1 The Chesapeake and Atlantic Coastal Bays Critical Area

In addition to the policies in this section, the laws approved by NOAA implementing the Chesapeake and Atlantic Coastal Bays Critical Area Protection Program are enforceable policies.

Critical Area Policy 1 – Scope of the Buffer. In the Critical Area, a minimum 100-foot vegetated buffer shall be maintained landward from the mean high water line of tidal waters, the edge of each bank of tributary streams, and the landward edge of tidal wetlands. The buffer shall be expanded in sensitive areas in accordance with standards adopted by the Critical Area Commission. The buffer is not required for agricultural drainage ditches if the adjacent agricultural land has in place best management practices that protect water quality. Mitigation or other measures for achieving water quality and habitat protection objectives may be necessary in buffer areas for which the Critical Area Commission has modified the minimum applicable requirements due to the existing pattern of development. CAC C9 COMAR 27.01.09.01, .01-6, .01-8.

Select appropriate response:

- (●) Project will be consistent with Scope of Buffer policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will complete a Buffer Management Protection Plan and/or Landscape Plan in compliance with the Baltimore City Critical Area Management Program (2011 edition) during the Preconstruction, Engineering and Design (PED) phase.

Critical Area Policy 2 – Buffer Disturbance. Disturbance to a buffer in the Critical Area is only authorized for a shore erosion control measure or for new development or redevelopment that is water-dependent; meets a recognized private right or public need; minimizes the adverse effects on water quality and fish, plant, and wildlife habitat; and, insofar as possible, locates nonwater-dependent structures or operations associated with water-dependent projects or activities outside the buffer. Disturbance to a buffer may only be authorized in conjunction with mitigation performed in accordance with an approved buffer management plan. CAC (C9) COMAR 27.01.03.03; COMAR 27.01.09.01, .01-2, .01-3.

- (●) Project will be consistent with Buffer Disturbance policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will complete a Buffer Management Protection Plan and/or Landscape Plan in compliance with the Baltimore City Critical Area Management Program (2011 edition) during the Preconstruction, Engineering and Design (PED) phase.

Critical Area Policy 3 - Protection of Bird Nesting Areas. Colonial water bird nesting sites in the Critical Area may not be disturbed during breeding season. CAC (C9) COMAR 27.01.09.04.

Select appropriate response:

- (●) Project will be consistent with policy Protecting Bird Nesting Areas.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will occur on open-urban land and is not anticipated to impact colonial water bird nesting sites. No in-water work will take place for this study.

Critical Area Policy 4 - Protection of Waterfowl. New facilities in the Critical Area shall not interfere with historic waterfowl concentration and staging areas. CAC (C9) COMAR 27.01.09.04.

Select appropriate response:

- (●) Project will be consistent with the Protection of Waterfowl policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study does not include new facilities in the Critical Area.

Critical Area Policy 5 -Restrictions on Stream Alterations. Physical alterations to streams in the Critical Area shall not affect the movement of fish. CAC (C9) COMAR 27.01.09.05.

Select appropriate response:

- (●) Project will be consistent with the Restrictions on Stream Alterations policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not cause physical alterations to streams in the Critical Area; therefore, the movement of fish will not be affected.

Critical Area Policy 6 - Prohibition of Riprap and Artificial Surfaces. The installation or introduction of concrete riprap or other artificial surfaces onto the bottom of natural streams in the Critical Area is prohibited unless water quality and fisheries habitat will be improved. CAC (C9) COMAR 27.01.09.05.

Select appropriate response:

- (●) Project will be consistent with the Prohibition of Riprap and Artificial Surfaces policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study is not proposing the installation of concrete riprap or other artificial surfaces onto the bottom of natural streams in the Critical Area.

Critical Area Policy 7 - Prohibition of Dams and Structures. The construction or placement of dams or other structures in the Critical Area that would interfere with or prevent the movement of spawning fish or larval forms in streams is prohibited. CAC (C9) COMAR 27.01.09.05.

Select appropriate response:

- (●) Project will be consistent with the Prohibition of Dams and Structures policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study is not proposing placement of dams or other structures within the Critical Area that would interfere with or prevent the movement of spawning fish or larval forms in streams.

Critical Area Policy 8 - Restrictions on Stream Crossings and Impacts. Development may not cross or affect a stream in the Critical Area, unless there is no feasible alternative and the design and construction of the development prevents increases in flood frequency and severity that are attributable to development; retains tree canopy and maintains stream water temperature within normal variation; provides a natural substrate for affected streambeds; and minimizes adverse water quality and quantity impacts of stormwater. CAC (C9) COMAR 27.01.02.04.

Select appropriate response:

- (●) Project will be consistent with the Restrictions on Stream Crossings and Impacts policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study is not proposing to impact streams within the Critical Area.

Critical Area Policy 9 - Time of Year Restrictions for Construction in Streams. The construction, repair, or maintenance activities associated with bridges or other stream crossings or with utilities and roads, which involve disturbance within the buffer or which occur in stream are prohibited between March 1 and May 15. CAC (C9) COMAR 27.01.09.05.

Select appropriate response:

- (●) Project will be consistent with the Stream Construction Time-of-Year Restrictions policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM Study is not proposing any construction within stream channels; therefore, time of year restrictions will not apply.

Critical Area Policy 10 - Avoid & Minimize Construction Impacts in Habitat Areas. Roads, bridges, or utilities may not be constructed in any areas designated to protect habitat, including buffers, in the Critical Area, unless there is no feasible alternative and the road, bridge, or utility is located, designed, constructed, and maintained in a manner that maximizes erosion protection; minimizes negative impacts to wildlife, aquatic life, and their habitats; and maintains hydrologic processes and water quality. CAC (C9) COMAR 27.01.02.03C, .04C, .05C.

Select appropriate response:

- (●) Project will be consistent with the Avoid or Minimize Habitat Area Impacts policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study and Tentatively Selected Plan are located within the Intensely Developed Areas (IDA) of the Critical Area and are not expected to impact habitat areas. New construction will not include roads, bridges or utilities.

Critical Area Policy 11 – Intensely Developed Areas. The following policies apply in those areas of the Critical Area that are determined to be areas of intense development.

- To the extent possible, fish, wildlife, and plant habitats should be conserved.
- Development and redevelopment shall improve the quality of runoff from developed areas that enters the Chesapeake or Atlantic Coastal Bays or their tributary streams.
- At the time of development or redevelopment, appropriate actions must be taken to reduce stormwater pollution by 10%. Retrofitting measures are encouraged to address existing water quality and water quantity problems from stormwater.
- Development activities may cross or affect a stream only if there is no feasible alternative, and those activities must be constructed to prevent increases in flood frequency and severity attributable to development, retain tree canopy, maintain stream water temperatures within normal variation, and provide a natural substrate for affected streambeds.
- Areas of public access to the shoreline, such as foot paths, scenic drives, and other public recreational facilities, shall be maintained and, if possible, are encouraged to be established.
- Ports and industries which use water for transportation and derive economic benefits from shore access, shall be located near existing port facilities or in areas identified by local jurisdictions for planned future port facility development and use if this use will provide significant economic benefit to the State or local jurisdiction.
- Development shall be clustered to reduce lot coverage and maximize areas of natural vegetation.
- Development shall minimize the destruction of forest and woodland vegetation.

CAC (C9) COMAR 27.01.02.03.

Select appropriate response:

- (●) Project will be consistent with the Intensely Developed Areas policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will complete a Buffer Management Protection Plan and/or Landscape Plan in compliance with the Baltimore City Critical Area Management Program (2011 edition) during the Preconstruction, Engineering and Design (PED) phase. The Buffer Management Protection Plan and/or Landscape Plan will be consistent with improving water quality runoff after new development which is in-line with IDA regulations within the Critical Area Law.

Critical Area Policy 12 – Limited Development Areas & Resource Conservation Areas. The following policies apply in those portions of the Critical Area that are not areas of intense development.

- Development shall maintain, and if possible, improve the quality of runoff and ground water entering the Chesapeake and Coastal Bays.
- To the extent practicable, development shall maintain existing levels of natural habitat.
- All development sites shall incorporate a wildlife corridor system that connects undeveloped vegetated tracts onsite with undeveloped vegetated tracts offsite.
- All forests and developed woodlands that are cleared or developed shall be replaced on not less than an equal area basis.
- If there are no forests on a proposed development site, the site shall be planted to provide a forest or developed woodland cover of at least 15 percent.
- Development on slopes equal to or greater than 15 percent, as measured before development, shall be prohibited unless the project is the only effective way to maintain the slope and is consistent with other policies.
- To the extent practicable, development shall be clustered to reduce lot coverage and maximize areas of natural vegetation.
- Lot coverage is limited to 15 percent of the site.

CAC (C9) COMAR 27.01.02.04.

Select appropriate response:

- (●) Project will be consistent with policy regarding Limited Development Areas and Resource Conservation Areas.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will complete a Buffer Management Protection Plan and/or Landscape Plan in compliance with the Baltimore City Critical Area Management Program (2011 edition) and complete the appropriate Baltimore City pollutant removal (10% Rule) worksheets during the Preconstruction, Engineering and Design (PED) phase. The 10% rule worksheets will determine how much stormwater runoff would need to be treated after the proposed floodwalls are constructed. The Buffer Manangement Protection and/or Landscape Plan will incorporate the new percentages into how new stormwater will be mitigated for.

Critical Area Policy 13 - Public Facilities Allowed With Restrictions in Buffer. Public beaches or other public water-oriented recreation or education areas including, but not limited to, publicly owned boat launching and docking facilities and fishing piers may be permitted in the buffer in portions of the Critical Area not designated as intensely developed areas only if adequate sanitary facilities exist; service facilities are, to the extent possible, located outside the Buffer; permeable surfaces are used to the extent practicable, if no degradation of ground water would result; and disturbance to natural vegetation is minimized. CAC (C9) COMAR 27.01.03.08.

Select appropriate response:

- (●) Project will be consistent with policy allowing Public Facilities within Buffer with Restrictions.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not impact public facilities under this policy.

Critical Area Policy 14 - Water-Dependent Research Facilities. Water-dependent research facilities or activities may be permitted in the buffer, if nonwater-dependent structures or facilities associated with these projects are, to the extent possible, located outside the buffer. CAC (C9) COMAR 27.01.03.09.

Select appropriate response:

- ( ) Project will be consistent with the Water-Dependent Research Facilities policy.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no water-dependent research facilities are proposed.

Critical Area Policy 15 – Siting Industrial & Port-Related Facilities. Water-dependent industrial and port-related facilities may only be located in the portions of areas of intense development designated as modified buffer areas. CAC (C9) COMAR 27.01.03.05.

Select appropriate response:

- ( ) Project will be consistent with policy regarding Siting Industrial and Port-Related Facilities.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no new industrial or port-related facilities are proposed.

Critical Area Policy 16 -Restrictions on Waste Facilities. Solid or hazardous waste collection or disposal facilities and sanitary landfills are not permitted in the Critical Area unless no environmentally acceptable alternative exists outside the Critical Area, and these facilities are needed in order to correct an existing water quality or wastewater management problem. CAC (C9) COMAR 27.01.02.02.

Select appropriate response:

- ○ Project will be consistent with policy Restricting Waste Facilities.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM project as no waste facilities are being proposed for this study.

Critical Area Policy 17 – Buffer Management Plan. If a development or redevelopment activity occurs on a lot or parcel that includes a buffer or if issuance of a permit, variance, or approval would disturb the buffer, the proponents of that activity must develop a buffer management plan that clearly indicates that all applicable planting standards developed by the Critical Area Commission will be met and that appropriate measures are in place for the protection and maintenance of the buffer. CAC C9 COMAR 27.01.09.01-1, .01-3.

Select appropriate response:

- ◉ Project will be consistent with the Buffer Management Plan policy.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will complete a Buffer Management Protection Plan and/or Landscape Plan in compliance with the Baltimore City Critical Area Management Program (2011 edition) and complete the appropriate Baltimore City pollutant removal worksheets.

Critical Area Policy 18 – Protection of Critical Area from Surface Mining Pollution. All available measures must be taken to protect the Critical Area from all sources of pollution from surface mining operations, including but not limited to sedimentation and siltation, chemical and petrochemical use and spillage, and storage or disposal of wastes, dusts, and spoils. CAC (D5) COMAR 27.01.07.02A.

Select appropriate response:

- ○ Project will be consistent with policy Protecting Critical Area from Surface Mining Pollution.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no surface mining operations are proposed.

Critical Area Policy 19 – Reclamation Requirements for Mining. In the Critical Area, mining must be conducted in a way that allows the reclamation of the site as soon as possible and to the extent possible. CAC (D5) COMAR 27.01.07.02B.

Select appropriate response:

- ○ Project will be consistent with policy that requires Reclamation for Mining.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no mining operations are proposed.

Critical Area Policy 20 – Restrictions on Sand & Gravel Operations. Sand and gravel operations shall not occur within 100 feet of the mean high water line of tidal waters or the edge of streams or in areas with scientific value, important natural resources such as threatened and endangered species, rare assemblages of species, or highly erodible soils. Sand and gravel operations also may not occur where the use of renewable resource lands would result in the substantial loss of forest and agricultural productivity for 25 years or more or would result in a degrading of water quality or a loss of vital habitat. CAC (D5) COMAR 27.01.07.03D.

Select appropriate response:

- ○ Project will be consistent with policy regarding Restrictions on Sand & Gravel Operations
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no sand and gravel operations are proposed.

Critical Area Policy 21 - Prohibition of Wash Plants in Buffer. Wash plants including ponds, spoil piles, and equipment may not be located in the 100-foot buffer. CAC D5) COMAR 27.01.07.03E.

Select appropriate response:

- ○ Project will be consistent with policy Prohibiting Wash Plants in Buffer.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no wash plants are proposed.

Critical Area Policy 22 – Requirements for Agriculture in the Buffer. Agricultural activities are permitted in the buffer, if, as a minimum best management practice, a 25-foot vegetated filter strip measured landward from the mean high water line of tidal waters or tributary streams (excluding drainage ditches), or from the edge of tidal wetlands, whichever is further inland, is established in trees with a dense ground cover or a thick sod of grass. CAC C4 COMAR 27.01.09.01-6.

Select appropriate response:

- ○ Project will be consistent with policy regarding Requirements for Agriculture in the Buffer.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no agricultural activities are proposed.

Critical Area Policy 23 – Geographical Limits for Feeding or Watering Livestock. The feeding or watering of livestock is not permitted within 50 feet of the mean high water line of tidal waters and tributaries. CAC (C4) COMAR 27.01.09.01-6.

Select appropriate response:

- ○ Project will be consistent with policy regarding Geographical Limits for Feeding or Watering Livestock.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no feeding or watering of livestock are proposed.

Critical Area Policy 24 – Creating New Agricultural Lands. In the Critical Area, the creation of new agricultural lands shall not be accomplished by diking, draining, or filling of non-tidal wetlands, without appropriate mitigation; by clearing of forests or woodland on soils with a slope greater than 15 percent or on soils with a "K" value greater than 0.35 and slope greater than 5 percent; by clearing that will adversely affect water quality or will destroy plant and wildlife habitat; or by clearing existing natural vegetation within the 100-foot buffer. CAC (C4) COMAR 27.01.06.02C.

Select appropriate response:

- ○ Project will be consistent with policy regarding Creating New Agricultural Lands.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no new agricultural lands are proposed.

Critical Area Policy 25 - Best Management Practices for Agriculture. Agricultural activity permitted within the Critical Area shall use best management practices in accordance with a soil conservation and water quality plan approved or reviewed by the local soil conservation district. CAC (C4) COMAR 27.01.06.02G.

Select appropriate response:

- ○ Project will be consistent with policy requiring Best Management Practices for Agriculture.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no new agricultural lands are proposed.

Critical Area Policy 26 - Cutting or Clearing Trees in the Buffer. Cutting or clearing of trees within the buffer is prohibited except that commercial harvesting of trees by selection or by the clearcutting of loblolly pine and tulip poplar may be permitted to within 50 feet of the landward edge of the mean high water line of tidal waters and perennial tributary streams, or the edge of tidal wetlands if the buffer is not subject to additional habitat protection. Commercial harvests must be in compliance with a buffer management plan that is prepared by a registered professional forester and is approved by the Department of Natural Resources. CAC (C5) Md. Code Ann., Nat. Res. § 8-1808.7; COMAR 27.01.09.01-7

Select appropriate response:

- (●) Project will be consistent with policy regarding Restrictions on Cutting or Clearing of Trees in the Buffer.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study is not proposing cutting or clearing of trees within the Critical Area Buffer as the project is taking place on open-urban land. Any clearing that may occur will happen near the Ft. McHenry West Ventilation Building and will be mitigated for through the Buffer Management Plan/Landscape Plan.

Critical Area Policy 27 - Requirements for Commercial Tree Harvesting in the Buffer. Commercial tree harvesting in the buffer may not involve the creation of logging roads and skid trails within the buffer and must avoid disturbing stream banks and shorelines as well as include replanting or allowing regeneration of the areas disturbed or cut in a manner that assures the availability of cover and breeding sites for wildlife and reestablishes the wildlife corridor function of the buffer. CAC (C5) Md. Code Ann., Nat. Res. § 8-1808.7; COMAR 27.01.09.01-7

Select appropriate response:

- ( ) Project will be consistent with policy regarding Requirements for Commercial Tree Harvesting in the Buffer.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

This policy does not apply to the Baltimore CSRM study as no commercial tree harvesting is proposed.

Critical Area Policy 28 - General Restrictions to Intense Development. Intense development should be directed outside the Critical Area. Future intense development activities, when proposed in the Critical Area, shall be directed towards the intensely developed areas. CAC D1 Md. Code Ann., Natural Res. § 8-1807(b); COMAR 27.01.02.02B.

Select appropriate response:

- (●) Project will be consistent with policy regarding General Restrictions on Intense Development.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM Study will comply with the Critical Area Law, specifically towards developing in IDA areas and implementing techniques to reduce pollutant loading associated with stormwater runoff.

Critical Area Policy 29 – Development Restrictions in Critical Area. The following development activities and facilities are not permitted in the Critical Area except in intensely developed areas and only after the activity or facility has demonstrated that there will be a net improvement in water quality to the adjacent body of water.

• Non-maritime heavy industry

• Transportation facilities and utility transmission facilities, except those necessary to serve permitted uses, or where regional or interstate facilities must cross tidal waters

• Permanent sludge handling, storage, and disposal facilities, other than those associated with wastewater treatment facilities. However, agricultural or horticultural use of sludge when applied by an approved method at approved application rates may be permitted in the Critical Area, but not in the 100-foot Buffer

CAC (C9) COMAR 27.01.02.02.

Select appropriate response:

- ( ) Project will be consistent with policy Restricting Development in Critical Area.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study is not proposing non-maritime heavy industry, transportation facilities or utility facilities, or permanent sludge handling, storage or disposal facilities.

Coastal Zone Management Program - Historical & Archaeological Policies Checklist

Name of Project:

Baltimore Coastal Storm Risk Management (CSRM) Feasibility Study

5.2 COASTAL RESOURCES

5.2.5 Historical and Archaeological Sites

Historical and Archaeological Policy 1 – Protection of Submerged Historic Resources. Unless permission is granted by the Maryland Historical Trust, activities that excavate, remove, destroy, injure, deface, or disturb submerged archaeological historic property are generally prohibited. MDP (C8) Md. Code Ann., State Fin. & Proc. §§ 5A-341, -333.

Select appropriate response:

- ○ Project will be consistent with historical & archaeological policy Protecting Submerged Historic Resources.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not involve any in-water work; and therefore, will not impact any submerged historic resources.

Historical and Archaeological Policy 2 – Protection of Caves & Archaeological Sites. Unless permission is granted by the Maryland Historical Trust, activities that excavate, remove, destroy, injure, deface, or disturb cave features or archeological sites under State control are generally prohibited. MDP (C8) Md. Code Ann., State Fin. & Proc. §§ 5A-342 to -343.

Select appropriate response:

- ○ Project will be consistent with historical & archaeological policy Protecting Caves & Archaeological Sites
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not impact caves or archaeological sites as there are no known caves or sites within the project area.

Coastal Zone Management Program - Historical & Archaeological Policies Checklist

Historical and Archaeological Policy 3 – Protection of Burial Sites & Cemeteries. Neither human remains nor funerary objects may be removed from a burial site or cemetery, unless permission is granted by the local State's Attorney. Funerary objects may not be willfully destroyed, damaged, or defaced. MDP (C8) Md. Code Ann., Crim. Law §§ 10-401 to -404.

Select appropriate response:

- ○ Project will be consistent with historical & archaeological policy Protecting Burial Sites & Cemeteries.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not impact archaeological burial sites or cemeteries.

Coastal Zone Management Program - Transportation Policies Checklist

Name of Project:

Baltimore Coastal Storm Risk Management (CSRM) Feasibility Study

5.3 COASTAL USES

5.3.7 Transportation

Transportation Policy 1 – Sustainability Analysis of Transportation Projects. The social, economic, and environmental effects of proposed transportation facilities projects must be identified and alternative courses of action must be considered. MDOT (D8) COMAR 11.01.06.02B.

Select appropriate response:

- (●) Project will be consistent with policy requiring a Sustainability Analysis of Transportation Projects.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not negatively impact transportation facilities. Coordination with the Maryland Department of Transportation - State Highway Administration, the Baltimore City Department of Public Works, and Federal Highway Administration will continue as the study progresses.

Transportation Policy 2 – Public Engagement in Transportation Project Planning. The public must be involved throughout the process of planning transportation projects. MDOT (D8) Md. Code Ann., Transp. § 7-304(a); COMAR 11.01.06.02B.

Select appropriate response:

- ( ) Project will be consistent with policy requiring Public Engagement in Transportation Project Planning.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study does not apply as a planning transportation project.

Coastal Zone Management Program - Transportation Policies Checklist

Transportation Policy 3 – Projects Must Support Multi-Modal Transportation. Transportation development and improvement projects must support the integrated nature of the transportation system, including removing impediments to the free movement of individuals from one mode of transportation to another. MDOT (D8) Md. Code Ann., Transp. § 2-602.

Select appropriate response:

- (●) Project will be consistent with policy requiring Transportation Projects to Support Multi-Modal Transportation.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will allow continued use of multi-modal transportation.

Transportation Policy 4 – An Integrated Private-Public Regional Transportation System. Private transit facilities must be operated in such a manner as to supplement facilities owned or controlled by the State to provide a unified and coordinated regional transit system without unnecessary duplication or competing service. MDOT (D8) Md. Code Ann., Transp. § 7-102.1(b).

Select appropriate response:

- (●) Project will be consistent with policy requiring that private transit facilities to Support An Integrated Private-Public Regional Transportation System.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The private-public regional transportation system will not be interrupted by the Baltimore CSRM study.

Coastal Zone Management Program - Transportation Policies Checklist

Transportation Policy 5 – Transportation Projects Must Consider the Needs of Bicyclists & Pedestrians. Access to and use of transportation facilities by pedestrians and bicycle riders must be enhanced by any transportation development or improvement project, and best engineering practices regarding the needs of bicycle riders and pedestrians shall be employed in all phases of transportation planning. MDOT (D8) Md. Code Ann., Transp. § 2-602.

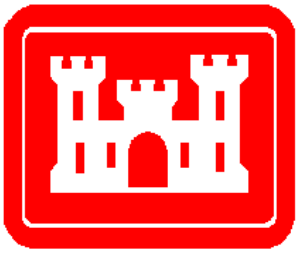
Select appropriate response:

- (●) Project will be consistent with policy requiring Transportation Projects to Consider the Needs of Bicyclists & Pedestrians.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Baltimore CSRM study will not impact areas used by bicyclists.

AIR CONFORMITY ASSESSMENT
BALTIMORE
COASTAL STORM RISK MANAGEMENT STUDY



Prepared by

U.S. Army Corps of Engineers
Baltimore District
2 Hopkins Plaza
Baltimore, Maryland 21201

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LIST OF ABBREVIATIONS & ACRONYMS

kW	kilowatts
hr	hour
g/kWh	grams per kilowatt-hour
CAA	Clean Air Act
CO	Carbon Monoxide
CSRM	Coastal Storm Risk Management Study
MOVES3	Motor Vehicle Emissions Simulator (version 3)
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_2	Nitrogen Dioxide
O^3	Ozone
OTR	Ozone Transport Region
PM_{10}	Particulate Matter – 10 microns
$PM_{2.5}$	Particulate Matter – 2.5 microns
Pb	Lead
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
USEPA	US Environmental Protection Agency
VOC	Volatile Organic Compounds
WPCP	Water Pollution Control Plant

1 INTRODUCTION

This conformity analysis is submitted in support of the National Environmental Policy Act (NEPA) assessment for the Baltimore Coastal Storm Risk Management Study (CSRM). The Baltimore CSRM currently consists of four alternatives: Alternative 4, Alternative 5, Alternative 6, and Alternative 7.

1.1 Alternative 4

Alternative 4 includes the following planning units located in Baltimore City: Locust Point (I-95 Fort McHenry Tunnel and MTA Building), Patapsco South (895 Tunnel), and Patapsco North (Vent Building). Construction activities associated with this alternative include the construction of floodwalls at each planning unit. Work is anticipated to be conducted 8 hours per day assuming no time-of-day restrictions. It is anticipated that the construction duration of this project will take 1 year and 1 month (1 October 2026 – 27 October 2027). Planning unit construction phases are as follows:

- Locust Point (I-95 Fort McHenry Tunnel and MTA Building): 1 October 2026 – 27 October 2027
- Patapsco South (895 Tunnel): 1 October 2026 – 1 September 2027
- Patapsco North (Vent Building): 1 October 2026 – 23 December 2026

1.2 Alternative 5

Alternative 5 consists of the same planning units as Alternative 4. Construction activities associated with this alternative include the construction of floodwalls at each planning unit. Work is anticipated to be conducted 8 hours per day assuming no time-of-day restrictions. It is anticipated that the construction duration of this project will take 1 year and 1 month with the same schedule as Alternative 4 (1 October 2026 – 27 October 2027).

1.3 Alternative 6

Alternative 6 consists of the same planning units as Alternative 4 in addition to Patapsco North (Seagirt Port) located in Baltimore City. Construction activities associated with this alternative include the construction of floodwalls at each planning unit. Work is anticipated to be conducted 8 hours per day assuming no time-of-day restrictions. It is anticipated that the construction duration of this project will take 1 year and 10 months (1 October 2026 – 3 August 2028). Planning unit construction phases are as follows:

- Locust Point (I-95 Fort McHenry Tunnel and MTA Building): 1 October 2026 – 27 October 2027
- Patapsco South (895 Tunnel): 1 October 2026 – 1 September 2027

- Patapsco North (Vent Building): 1 October 2026 – 23 December 2026
- Patapsco North (Seagirt Port): 1 October 2026 – 3 August 2028

1.4 Alternative 7

Alternative 7 consists of the same planning units as Alternative 6 in addition to Locust Point (North), Locust Point (West), Locust Point (Fort McHenry), and Inner Harbor (includes four Modeled Areas) in Baltimore City, and Middle Branch (Incinerator) and Martin State Airport (includes two Modeled Areas) in Baltimore County. Work is anticipated to be conducted 8 hours per day assuming no time-of-day restrictions except for the Inner Harbor and Martin State Airport planning units where time-of-day restrictions may be initiated for work around the airport and residential areas. It is anticipated that the construction duration of this project will take 4 years and 7 months (1 October 2026 – 7 May 2031). Planning unit construction phases are as follows:

- Locust Point (North): 1 October 2026 – 17 March 2027
- Locust Point (West): 18 March 2027 – 16 February 2028
- Locust Point (I-95 Fort McHenry Tunnel and MTA Building): 17 February 2028 – 15 March 2029
- Locust Point (Fort McHenry): 15 March 2029 – 30 August 2029
- Patapsco South (895 Tunnel): 1 October 2026 – 1 September 2027
- Patapsco North (Vent Building): 1 October 2026 – 23 December 2026
- Patapsco North (Seagirt Port): 1 October 2026 – 3 August 2028
- Inner Harbor (Modeled Area 10): 1 October 2026 – 2 August 2028
- Inner Harbor (Modeled Area 11): 3 August 2028 – 6 June 2030
- Inner Harbor (Modeled Area 12): 6 June 2030 – 12 February 2031
- Inner Harbor (Modeled Area 13): 13 February 2031 – 7 May 2031
- Middle Branch (Incinerator): 1 October 2026 – 17 March 2027
- Martin State Airport (Modeled Area 2): 1 October 2026 – 1 September 2027
- Martin State Airport (Modeled Area 3): 1 October 2026 – 23 December 2026

2 BACKGROUND

2.1 General Conformity Regulations

General Conformity is the process required by Section 176(c) of the *Clean Air Act (CAA)*, which establishes the framework for improving air quality to protect public health and the environment. The goal of general conformity is to ensure that actions conducted or sponsored by federal agencies are consistent with State air quality goals. These air quality goals are tied to states meeting the National Ambient Air Quality Standards (NAAQS), requirements that are established by the U.S. Environmental Protection Agency (USEPA) and are designed to protect human health and the environment. Each state develops a State Implementation Plan (SIP), which includes the state's

strategy for attaining or maintaining the NAAQS, the modeling that demonstrates attainment or maintenance, and the various rules, regulations, and programs that provide the necessary air pollutant emissions reductions.

General Conformity rules of the *CAA* apply to all non-transportation related projects, excluding exempt actions which would cause only de minimis levels, are presumed to conform, or are specifically identified in the regulations as exempt. The General Conformity program is an emissions-based system which requires federal agencies taking or sponsoring an action in certain areas to ensure that increased air pollution emissions from that action conform with the current, approved SIP. This includes estimating both direct and indirection emissions that are likely to occur.

Six criteria pollutants that can injure health, harm the environment, and cause property damage are evaluated by the USEPA to determine air quality in an area. NAAQS for each of the criteria pollutants set permissible levels for these criteria pollutants in outdoor air. If the air quality in a geographic area meets or does better than the national standard, it is called an attainment area. The General Conformity regulations only apply in nonattainment and maintenance areas. A nonattainment area is an area designated by the USEPA as not meeting a NAAQS. A maintenance area is an area that was once designated as nonattainment but is currently meeting and maintaining the standard. The USEPA promulgated de minimis emissions levels for each of the NAAQS pollutants. If the total direct and indirect emissions from an action are less than the de minimis levels, the action is exempt from General Conformity rules. The de minimis levels are based on an area's designation and classification and are outlined in **Table 2-1**. Emissions from the total action are used to determine if they exceed the de minimis levels.

2.2 Attainment Status

The USEPA designates Baltimore, Maryland, including both Baltimore City and Baltimore County, as a marginal nonattainment area for ozone (O^3) under the 8-hour standard. Baltimore, Maryland is designated in attainment of the NAAQS for all other criteria pollutants.

Table 2-1 De Minimis Emission Levels

Pollutant	Precursor	Designation	Classification/Location	De Minimis Level (tons/year)
O_3	VOC or NO_x	Nonattainment	Serious	50
			Severe	25
			Extreme	10
			Other, outside an OTR	100
	VOC		Other, inside an OTR	50
	NO_x		Other, inside an OTR	100
CO	-		All NAAs	100
SO_2	-		All NAAs	100
NO_2			All NAAs	100
PM_{10}	-		Moderate	100
			Serious	70
$PM_{2.5}$	Direct Emissions		All NAAs	100
	SO_2			100
	NO_x[a]			100
	VOC or NH_3[b]			100
Pb	-		All NAAs	25
O_3	VOC or NO_x	Maintenance	All Maintenance Areas	100
	VOC		Outside OTR	100
	VOC		Inside OTR	50
CO, SO_2, NO_2, PM_{10}	-		All Maintenance Areas	100
$PM_{2.5}$	Direct Emissions		All Maintenance Areas	100
	SO_2			100
	NO_x			100
	VOC			100
Pb	-		All Maintenance Areas	25

Notes:
[a] Unless determined not to be a significant precursor
[b] If determined to be a significant precursor

O_3	Ozone
CO	Carbon Monoxide
SO_2	Sulfur Dioxide
NO_2	Nitrogen Dioxide
PM_{10}	Particulate Matter – 10 microns
$PM_{2.5}$	Particulate Matter – 2.5 microns
VOC	Volatile Organic Compounds
NO_x	Nitrogen Oxides
NH_3	Ammonia
NAA	Nonattainment Areas
OTR	Ozone Transport Region

3 PURPOSE AND OBJECTIVES

The purpose of this conformity analysis is to ensure that the alternative actions conducted as part of the Baltimore CSRM are consistent with State air quality goals for the attainment and maintenance of the NAAQS in accordance with Section 176(c) of the *CAA*. The objective is to evaluate emission rates for the project alternatives to determine whether de minimis thresholds of the General Conformity Rule will be met and detail the results of the evaluation.

4 ASSESSMENT OF STUDY EMISSION RATES

Direct and indirect pollutant emissions were estimated from earthwork and construction equipment anticipated for use during the implementation of the Baltimore CSRM alternatives. The equipment, total operational hours, and phase in which the equipment would be used was provided by the study team. Equipment operational hours were distributed per year based on the planning unit construction phase (as described in **Section 1**), and percentage of phase occurring in the elected years. The equipment and operational hours per year used in this analysis are included in **Table 4-1**. Pollutant emissions were estimated based on the operational hours per equipment for each planning unit and the alternatives were individually aggregated per year for comparison to de minimis thresholds. The alternatives build off one another, in other words, parts of Alternative 4 make up Alternative 6 as described in **Section 1**; therefore, to aggregate pollutant emissions from all alternatives for comparison to de minimis thresholds would be repetitious.

4.1 Motor Vehicle Emissions Simulator

The USEPA Motor Vehicle Emissions Simulator, version three (MOVES3) was used to estimate emission factors through a range of user-defined parameters based on the study location and provided construction information. Separate MOVES3 runs were completed based on the alternative locations in Baltimore City and Baltimore County, Maryland.

The study alternatives are scheduled to begin construction on 1 October 2026. Therefore, emission factors were modeled for a 12-month period in 2026 and applied to all succeeding years. Post processing scripts were run on the MOVES3 output databases to model emission factors in grams per hour for each equipment type. To remain conservative, the highest emission factor in the 12-month model period was used to calculate pollutant emissions for each alternative equipment.

Operational hours per year (**Table 4-1**) were multiplied by the highest emission factor in the 12-month period to determine pollutant emissions for each equipment type. Pollutant emission totals per year are included in **Table 4-2**. Emission totals for the aggregated study years are included in **Table 4-3**.

4.2 Greenhouse Gas Emissions

In addition to criteria pollutants, emissions were also estimated for the greenhouse gas (GHG) - carbon dioxide (CO_2). The same processes detailed in **Sections 4** and **4.1** for calculating criteria pollutant emissions were followed to for the GHG emission estimate. The total calculated CO_2 emissions are included in the yearly summary table, **Table 4-4**.

Table 4-1 Operational Equipment

Equipment per Planning Unit	Annual Operation (hours/year)					
	2026	2027	2028	2029	2030	2031
Alternative 4						
Flatbed truck (alternating with materials)	323	477	-	-	-	-
Excavator	2,102	5,258	-	-	-	-
Dumpster Trucks (Haul & Trash)	2,222	4,658	-	-	-	-
Concrete Trucks	1,531	2,629	-	-	-	-
Pump Truck	461	899	-	-	-	-
Small Bulldozer	781	899	-	-	-	-
Front End Loader	781	899	-	-	-	-
Skid Steer	1,562	1,798	-	-	-	-
Pick-up Trucks (Testing & Moving Contractor)	6,464	13,376	-	-	-	-
Road Roller Machine	140	180	-	-	-	-
Walk behind rollers or tampers	279	361	-	-	-	-
Landscaping trucks, seeding and grading	235	245	-	-	-	-
Asphalt Trucks	160	0	-	-	-	-
Chainsaw for vegetation removal	40	0	-	-	-	-
Alternative 5						
Flatbed truck (alternating with materials)	323	477	-	-	-	-
Excavator	2,102	5,258	-	-	-	-
Dumpster Trucks (Haul & Trash)	2,222	4,658	-	-	-	-
Concrete Trucks	1,531	2,629	-	-	-	-
Pump Truck	461	899	-	-	-	-
Small Bulldozer	781	899	-	-	-	-
Front End Loader	781	899	-	-	-	-
Skid Steer	1,562	1,798	-	-	-	-
Pick-up Trucks (Testing & Moving Contractor)	6,464	13,376	-	-	-	-
Road Roller Machine	140	180	-	-	-	-
Walk behind rollers or tampers	279	361	-	-	-	-
Landscaping trucks, seeding and grading	235	245	-	-	-	-
Asphalt Trucks	160	0	-	-	-	-
Chainsaw for vegetation removal	40	0	-	-	-	-
Alternative 6						
Flatbed truck (alternating with materials)	411	824	205	-	-	-
Excavator	2,540	6,996	1,024	-	-	-
Dumpster Trucks (Haul & Trash)	2,747	6,744	1,229	-	-	-
Concrete Trucks	1,969	4,367	1,024	-	-	-
Pump Truck	593	1,420	307	-	-	-
Small Bulldozer	913	1,420	307	-	-	-
Front End Loader	913	1,420	307	-	-	-
Skid Steer	1,825	2,840	614	-	-	-

Equipment per Planning Unit	Annual Operation (hours/year)					
	2026	2027	2028	2029	2030	2031
Pick-up Trucks (Testing & Moving Contractor)	8,742	22,414	5,324	-	-	-
Road Roller Machine	162	267	51	-	-	-
Walk behind rollers or tampers	323	535	102	-	-	-
Landscaping trucks, seeding and grading	279	361	0	-	-	-
Asphalt Trucks	204	174	102	-	-	-
Chainsaw for vegetation removal	40	0	0	-	-	-
Alternative 7						
Flatbed truck (alternating with materials)	1,466	2,507	1,472	568	414	214
Excavator (2 Large & 2 Small sizes)	6,751	16,494	9,400	3,416	2,338	641
Dumpster Trucks (Haul & Trash)	8,922	17,824	10,133	3,915	2,086	881
Concrete Trucks	6,342	12,243	7,618	2,898	1,539	801
Pump Truck	3,129	5,962	3,631	896	422	200
Small Bulldozer	6,400	6,611	3,631	1,296	821	600
Front End Loader	9,538	10,673	3,631	1,296	821	600
Skid Steer	6,891	7,948	4,805	2,593	1,643	1,201
Pick-up Trucks (Testing & Moving Contractor)	17,608	44,135	28,654	14,999	9,173	2,991
Road Roller Machine	1,009	1,039	638	197	104	93
Walk behind rollers or tampers	1,203	1,383	866	394	207	187
Landscaping trucks, seeding and grading	896	304	260	380	0	0
Asphalt Trucks	859	869	584	174	207	187
Chainsaw for vegetation removal	377	47	0	0	0	0
Asphalt Milling Machine	62	58	0	0	0	0
Asphalt Paver Machine	62	58	0	0	0	0
Total Operating Hours per Year	**127,339**	**241,294**	**85,919**	**33,021**	**19,774**	**8,596**

Table 4-2 Emission Totals per Year from Study Equipment

2027	**CO**	1.16	1.16	1.84	3.07	7.23
	NOx	10.62	10.62	17.66	31.06	69.96
	SO2	0.01	0.01	0.02	0.03	0.08
	VOC	0.29	0.29	0.48	0.83	1.89
	PM2.5	0.18	0.18	0.30	0.51	1.17
	PM10	0.19	0.19	0.30	0.53	1.21
		-	-			
		-	-			
		-	-			
		-	-			
		-	-			
		-	-			
2029	**CO**	-	-	-	1.35	1.35
	NOx	-	-	-	11.82	11.82
	SO2	-	-	-	0.01	0.01
	VOC	-	-	-	0.33	0.33
	PM2.5	-	-	-	0.20	0.20
	PM10	-	-	-	0.21	0.21
		-	-	-		
		-	-	-		
		-	-	-		
		-	-	-		
		-	-	-		
		-	-	-		
2031	**CO**	-	-	-	0.27	0.27
	NOx	-	-	-	2.50	2.50
	SO2	-	-	-	0.00	0.00
	VOC	-	-	-	0.08	0.08
	PM2.5	-	-	-	0.05	0.05
	PM10	-	-	-	0.05	0.05

Table 4-3 Emission Study Totals

Pollutant	Alternative 4 Total Emissions (tons)	Alternative 5 Total Emissions (tons)	Alternative 6 Total Emissions (tons)	Alternative 7 Total Emissions (tons)	De Minimis Threshold[1] (tons)
CO	2.00	2.00	3.22	9.03	100
NOx	15.88	15.88	28.84	84.45	100
SO2	0.02	0.02	0.03	0.09	100
VOC	0.46	0.46	0.79	2.30	100
PM2.5	0.28	0.28	0.49	1.42	100
PM10	0.29	0.29	0.50	1.47	100

Note: [1] De minimis threshold values for maintenance areas

Table 4-4 Carbon Dioxide Emission Totals

Year	CO2 Emissions (tons)				Total Emissions (tons)
	Alternative 4	Alternative 5	Alternative 6	Alternative 7	
2026	2,134	2,134	2,836	5,446	12,549
2027	4,319	4,319	7,104	12,465	28,207
2028	-		1,640	7,337	8,977
2029	-	-	-	4,720	4,720
2030	-	-	-	2,895	2,895
2031	-	-	-	1,010	1,010
Total	**6,453**	**6,453**	**11,580**	**33,873**	**58,359**

5 CONCLUSIONS

Ozone precursors, volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) are below the USEPA threshold of 100 tons per year for all maintenance areas. All other annual emission totals and aggregated study emission totals for criteria pollutants are not anticipated to exceed all other USEPA de minimis thresholds; therefore, no mitigation measures are required.

6 REFERENCES

US Environmental Protection Agency (USEPA). 2020. *Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions.* September.

USEPA. 2020. *MOVES3 Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity.* November.

USEPA. 2021. *General Conformity.* Retrieved from https://www.epa.gov/general-conformity.

BALTIMORE CSRM HTRW INVESTIGATION BALTIMORE, MD

Prepared by:

US Army Corps of Engineers

Environmental and Munitions Design Center

2 Hopkins Plaza

Baltimore, MD

March 2022

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LIST OF ACRONYMS AND ABBREVIATIONS

AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
AUL	Activity and Use Limitation
BHAC	Baltimore Harbor Anchorages and Channels
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System
CORRACTS	RCRA Corrective Action
DMMP	Dredged Material Management Plan
DoD	Department of Defense
EDR®	Environmental Data Resources, Inc.
EMDC	Environmental and Munitions Design Center
EP	Environmental Professional
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FOIA	Freedom of Information Act
HTRW	Hazardous, Toxic and Radioactive Waste
IC/EC	Institutional Control/Engineering Control
LUST	Leaking Underground Storage Tank
MDOT	Maryland Department of Transportation
MEC	Munitions and Explosives of Concern
MPA	Maryland Port Administration
MEC	Munitions and Explosives of Concern
NAB	United States Army Corps of Engineers, Baltimore District
NRCS	Natural Resources Conservation Service
NFRAP	No Further Remedial Action Planned
NPL	National Priority List
PEL	Probable Effects Level
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
SCRD	State Coalition for Remediation of Dry Cleaners
SWHS	State Hazardous Waste Sites
TSD	Treatment, Storage and Disposal
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
UST	Underground Storage Tank
UXO	Unexploded Ordnance

EXECUTIVE SUMMARY

A study was performed to evaluate the possible presence of hazardous, toxic, and radioactive waste (HTRW) in the study area, which is the Baltimore Metro Area, Baltimore, Maryland (MD). The area includes the entirety of Downtown Baltimore and Inner Harbor, Port Facilities and other infrastructure, Middle Branch Patapsco and the Fells Point Historic District. The overall study is being conducted to develop solutions that: Reduce life safety risk to vulnerable populations, reduce economic damages from coastal flooding to residences and businesses, reduce coastal flooding impacts that disrupt critical infrastructure assets, services, and independent systems in the study area, and reduce coastal flooding impacts that disrupt or damage transportation infrastructure and assets in the study area. This study is being conducted by the U.S. Army Corps of Engineers (USACE) Baltimore District (NAB). The Maryland Department of Natural Resources is participating as the sponsor for the City of Baltimore Flood Risk Management Feasibility Study. The non-federal sponsor for the study is the Maryland Department of Transportation (MDOT).

1.0 INTRODUCTION

1.1 Purpose

This report is a summary of an investigation of the properties that may impact the Downtown Baltimore and Inner Harbor, Port Facilities and other infrastructure, Middle Branch Patapsco and the Fells Point Historic District, Baltimore, Maryland (MD), and was conducted as an environmental site assessment (ESA). The purpose of the ESA is to evaluate whether or not hazardous substances or petroleum products may be present on the property under conditions suggesting that a past release, continuing release, or material threat of a release to the property is present, and to conclude whether or not recognized environmental conditions (RECs) exist based on the results of the process. This assessment is not intended to identify *de minimis* conditions that do not present a significant risk of harm to public health or the environment, and that would generally not be subject to enforcement action if brought to the attention of appropriate governmental agencies.

1.2 Scope of Services

U.S. Army Corps of Engineers (USACE) Baltimore District (NAB) personnel performed the following work:

- Reviewed records [Federal environmental records, State and Tribal environmental records, Environmental Data Resources (EDR®) proprietary records, aerial photographs, city directory abstract and historical topographic maps]. The EDR® report includes properties within a one-quarter mile radius of the study area as required by ASTM E 1527-13.

1.3 Standards

NAB personnel followed the practice established by ASTM International (formerly the American Society for Testing and Materials) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (Designation E 1527-13). This practice defines "good commercial and customary practice in the United States for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products."

1.4 Assumptions, Limitations, Exceptions, Deviations, Terms and User Reliance

1.4.1 Significant Assumption

NAB EMDC-RID personnel completed this project with the following significant assumption in mind:

- The client (NAB-PPMD) relayed any specialized knowledge or experience material to recognized environmental conditions.

1.4.2 Exceptions and Deviations

There were no exceptions to the ASTM E 1527-13 standards or deviations from the standards during the preparation of this report.

1.4.3 Special Terms and Conditions

There are no special terms or conditions related to this ESA.

1.4.4 User Reliance

The contents of this document should not be used or relied upon by any other party without the express written consent of USACE.

1.4.5 Continuing Obligations

Since the property is not being purchased, this ASTM E 1527-13 topic is not applicable.

2.0 SITE DESCRIPTION

2.1 Location

Address: Downtown Baltimore and Inner Harbor, Port Facilities and other infrastructure, Middle Branch Patapsco and the Fells Point Historic District, Baltimore, MD 21222

Approximate coordinates: (NAD 83) 39.256622, -76.546697

The extent of the study area includes the areas outlined in **Figure 1** Downtown Baltimore and Inner Harbor, Port Facilities and other infrastructure, Middle Branch Patapsco and the Fells Point Historic District

2.2 Current Owners

The area is under the jurisdiction of the State of Maryland, City of Baltimore. Because most of the area is a large industrial area, there are many properties within EDR's one-quarter mile search radius of the project area. The EDR® report lists owners of the properties (EDR® Area/Corridor Report).

2.3 Historical and Current Use of the Property

Baltimore is one of the oldest port cities on the east coast. It has been, and continues to be, an integral part in the nation's transportation and commerce since its founding nearly 300 years ago. The city has undergone countless changes and modifications over the years to accommodate increasing population. It is a large city landscape with large industrial areas, parks, highway systems, railway systems, marine terminals, retail and residential areas.

2.4 Description of the Site Infrastructure

There are several industrial areas, both buildings and housing. Highways and railways run throughout the area. There are several rivers, streams and inlets which carry both heavy and light boat traffic.

2.5 Regional Geology and Topography

2.5.1 Regional Geology

Roughly the western half of the City of Baltimore lies in the Piedmont Plateau Province. Ranging in age from about 200 million to 1.1 billion years old, Piedmont rocks consist of granite, gneiss (pronounced "nice"), slate, marble, quartzite, and other rocks.

2.5.2 Topography

The Chesapeake Bay is located within in the Atlantic Coastal Plain physiographic province and is underlain by sequences of clay, silt and gravel. The general geologic setting of Baltimore is comprised of a series of wedge-shaped sediment layers dipping and thickening bayward. The study area is characterized by manmade, landfilled, and/or altered features. The topography of the study area is level, with an approximate topographic range of 1 to 8 feet above mean sea level.

3.0 RECORDS REVIEW

3.1 Information from Federal Environmental Records

3.1.1 Introduction

EDR® proprietary records were obtained for the properties within the search area. EDR® is recognized as an industry standard for records research. The EDR® vendor states:

> EDR® searches over 1,600 environmental databases, including hundreds of federal, state, city, and tribal sources. The "High-Risk Historical Records database" includes data about historic gas stations, dry cleaners, or manufactured gas plants for example.

3.1.2 Information from EDR® Proprietary Records

The search range is defined as any property within one-half mile of the target search area. There are several properties within the search area of the EDR® report as the proposed alternatives cover a large area of the city of Baltimore, Inner Harbor, Middle Branch Patapsco, and Fells Point Historic District (Focus Maps within EDR® report). The EDR® report identified one National Priority List (NPL) site, The Curtis Bay Coast Guard Facility. There were 3 properties listed on the Superfund Enterprise Management System (SEMS) list. Curtis Bay Coast Guard Yard, Chemical Metals Industries, Inc., and Origin Baltimore Recycling, LLC. There are fifty-five properties on the SEMS-Archive list. Fourteen properties listed in the Federal RCRA Corrective Action Report (CORRACTS) Facilities List. Eleven properties listed as Federal RCRA non-CORRACTS Treatment, Storage, and Disposal (TSD) facilities list. There are sixty-five RCRA Large Quantity Waste Generators (LQG) listed in the study area. There are 150 RCRA Small Quantity Waste Generators (SQG) listed. In addition, there are 167 RCRA Very Small Quantity Waste Generators (RCRA-VSQG) listed in the report. There are five sites listed with Engineering Controls (US ENG CONTROL). There are five sites listed with Institutional Controls (US INST CONTROL). There are 1317 records found in the Emergency Response Management System (ERNS). There are forty-nine MD State Hazardous Waste Sites (SHWS)- Notice of Potential Hazardous Waste Sites listed as well. There are ten MD Permitted Solid Waste Disposal Facilities (SWF/LF) listed. There are 840 Oil Control Program Cases (OCPCASES) listed within the study area, most of which are closed. There are fifty-three Recovery Sites (MD HIST LUST) listed, nineteen of which are closed. There are 486 Registered Underground Storage Tanks (MD UST) sites listed. There are 100 sites listed as Permitted Aboveground Storage Tanks (MD AST). There are fifty Brownfields (US BROWNFIELDS) sites listed within the EDR® search area. There are seven Formerly Used Defense Sites (FUDS) listed in the search area. There are three sites

listed as EPA Watch List (EPA WATCH LIST) sites. There are thirty -one properties listed on the Toxic Substances Control Act (TSCA) list. There are twelve properties listed in the PCB Activity Database System (PADS). There are several more categories broken down and available in the EDR report. The ones listed here are more relevant to the purposes of this study.

3.1.3 Orphan Sites

There are 3200 orphan sites listed in the EDR® report (EDR® Area/Corridor Report pgs. OR-1 - OR-71). Orphan sites are sites that are unmappable and are not considered by EDR® in their analysis.

3.2 Aerial Photographs

Aerial photos of the project location were obtained through Google Earth for 2018-2022.

The aerial photographs are in Appendix B.

4.0 EVALUATION

4.1 Data Gaps

A site visit was determined to be unfeasible as the study area covers a large area encompassing the entire city of Baltimore. It should be noted that over the life of the project, teams have visited various areas of concern for this project. There were site visits that took place over several days in November 2019 when a team visited and photographed the Harbor Tunnel Vent, the Canton Industrial Area, Fells Point and Martin State Airport. A group also made a visit to the tunnels with MDTA on December 17, 2021.

5.0 FINDINGS AND CONCLUSIONS

There are several areas around the city of Baltimore being considered for various structural and non-structural measures to protect critical facilities and infrastructure. They are identified in Alternative plans #4 through #7. Areas of the Inner Harbor, Harbor Point for example, are former hazardous waste sites. Harbor Point was a source of chromium that was discovered to be migrating into the harbor and into the groundwater below the harbor.(USEPA) There are a number of waste generators listed at Martin State Airport. They range from LQG to VSQG according to the data provided. There are also numerous USTs and ASTs listed on the grounds containing heating oil, diesel fuel, gasoline, aviation jet fuel, used oil and motor oil. There have been cases of spills resulting in contamination of the soil and groundwater. There have been ongoing actions at the airport to investigate the extent

of the presence of total petroleum hydrocarbon (TPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), inorganic compounds, and polychlorinated biphenyls (PCBs) in the groundwater and the soil. In addition, in 2000 a contractor uncovered pieces of unexploded ordnance (UXO). The Army's Explosive Ordnance Division investigated and found the items to be unfused, unarmed, and contained inert material. (MDE) Any ground disturbance that would need to be done would need to take into consideration the location of these waste generators and any possible contamination in the path of the construction. There are several marine terminals and industrial complexes surrounding the entrance points of the Baltimore Harbor Tunnel and the Fort McHenry Tunnel. Many of these are listed in one or more of the above listed categories. While there are instances of documented spills and violations attributed to entities around the areas of concern, any potential impact they would have to the project would depend on what alternative is chosen. Any alternative that requires anchoring could pose a problem depending on the placement.

6.0 REFERENCES

EDR® Area/Corridor Report-Baltimore Metro CSRM Study Prepared October 31, 2019, EDR Lightbox

EDR® Historical Topographical Map Report June 8, 2021.

Hazardous Waste Cleanup: Honeywell Baltimore Inner Harbor in Baltimore Maryland. USEPA https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-honeywell-baltimore-inner-harbor-baltimore-md#Description

Martin State Airport. Maryland Department of the Environment https://mde.maryland.gov/programs/land/marylandbrownfieldvcp/pages/martinstateairport.aspx

APPENDIX A
ALTERNATIVE PLAN FIGURES

Non-Structural Measures at Federal Facilities at Fort McHenry

Floodwall around Transportation Critical Facilities

Floodwall around Interstate 95 Highway Tunnel Entrance

Floodwall around Transportation Critical Facilities

Floodwall at Interstate 895 Highway Tunnel Entrance

Non-Structural Measures at Patapsco Wastewater Treatment Plant

MARTIN STATE AIRPORT INSET MAP

Planning Units

STRUCTURAL MEASURES

Floodwall

NON-STRUCTURAL MEASURES, BY TYPE

Floodproofing

No proposed measures

Focus Area for Non-Structural Measures

US Army Corps of Engineers
Baltimore District

Alternative Plan 4
Critical Infrastructure Plan
Baltimore, Maryland

N

Map: Critical Infrastructure Plan.mxd
Developed by: USACE Baltimore
Date: 12/14/2021

0 5,000 10,000
Feet

Focus Area for Non-Structural Measures - Inner Harbor & Canton

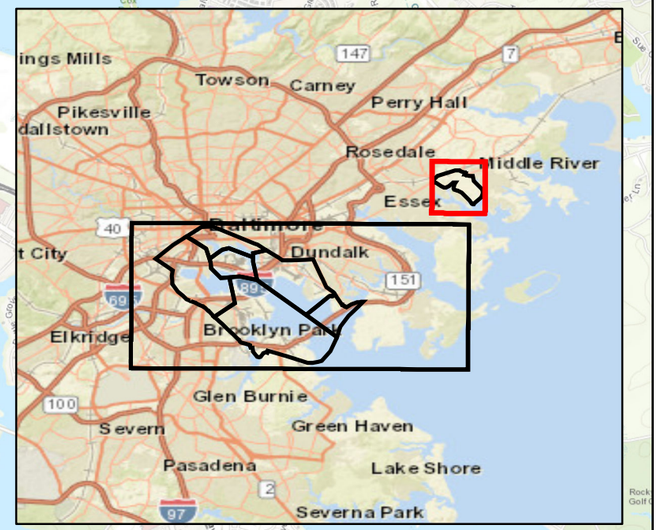
Floodwall around Transportation Critical Facilities

Floodwall at Interstate 95 Highway Tunnel Entrance

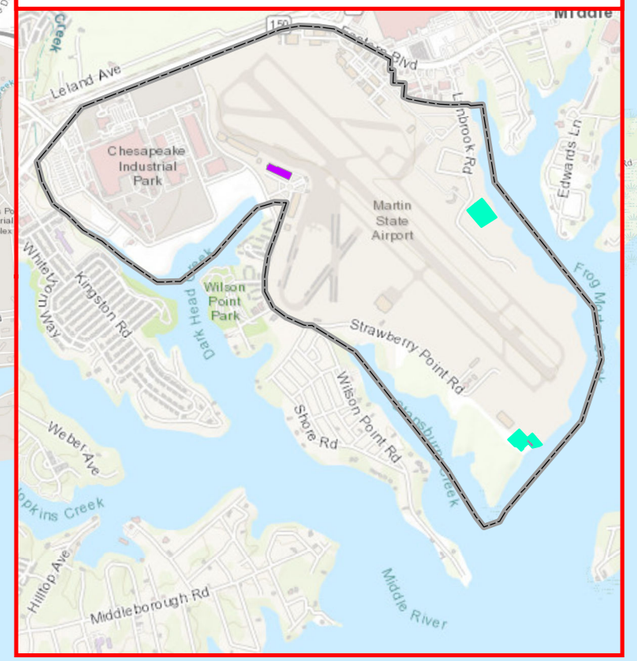
Floodwall around Transportation Critical Facilities

Floodwall at Interstate 895 Highway Tunnel Entrance

Non-Structural Measures at Patapsco Wastewater Treatment Plant



MARTIN STATE AIRPORT INSET MAP



- Planning Units

STRUCTURAL MEASURES

- Floodwall

NON-STRUCTURAL MEASURES, BY TYPE

- Floodproofing
- No proposed measures
- Focus Area for Non-Structural Measures

US Army Corps of Engineers
Baltimore District

Alternative Plan 5
Critical Infrastructure with Non-Structural Measures Plan
Baltimore & Martin State Airport, Maryland

N

Map: Critical Infrastructure + NonStructural Plan.mxd
Developed by: USACE Baltimore
Date: 12/14/2021

0 — 7,500 — 15,000
Feet

Focus Area for Non-Structural Measures - Inner Harbor & Canton

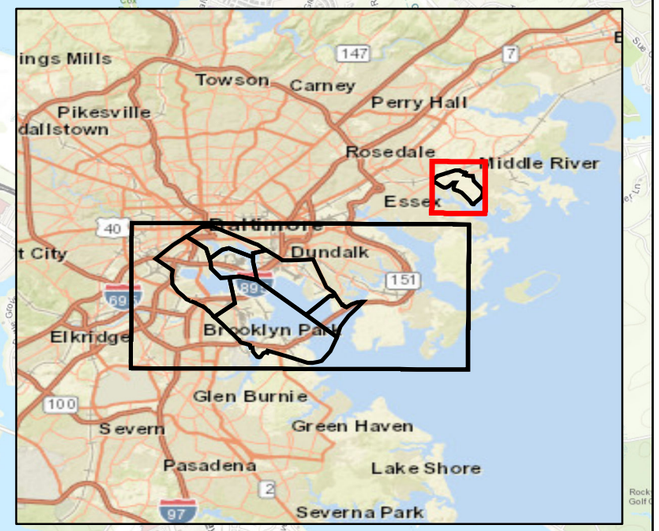
Floodwall around Transportation Critical Facilities

Floodwall at Interstate 95 Highway Tunnel Entrance

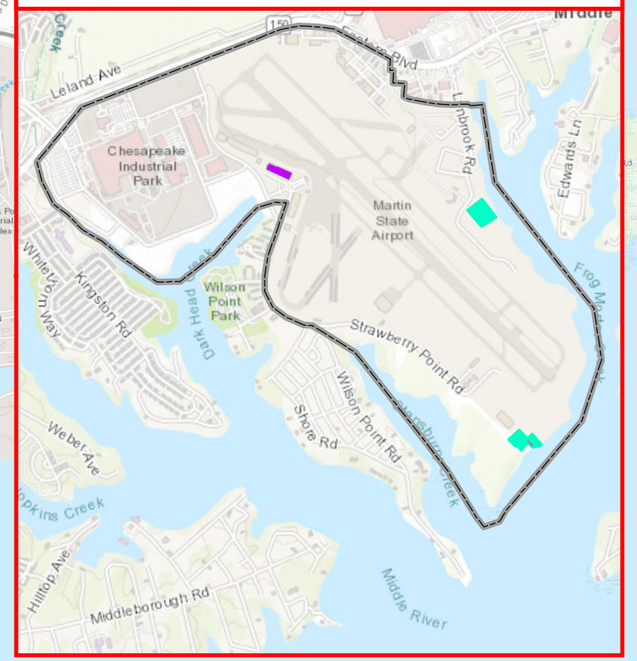
Seagirt Terminal Floodwall

Floodwall at Interstate 895 Highway Tunnel Entrance

Non-Structural Measures at Patapsco Wastewater Treatment Plant



MARTIN STATE AIRPORT INSET MAP



- Planning Units
- Focus Area for Non-Structural Measures

NON-STRUCTURAL MEASURES, BY TYPE

- Floodproofing
- No proposed measures

STRUCTURAL MEASURES

- Floodwall

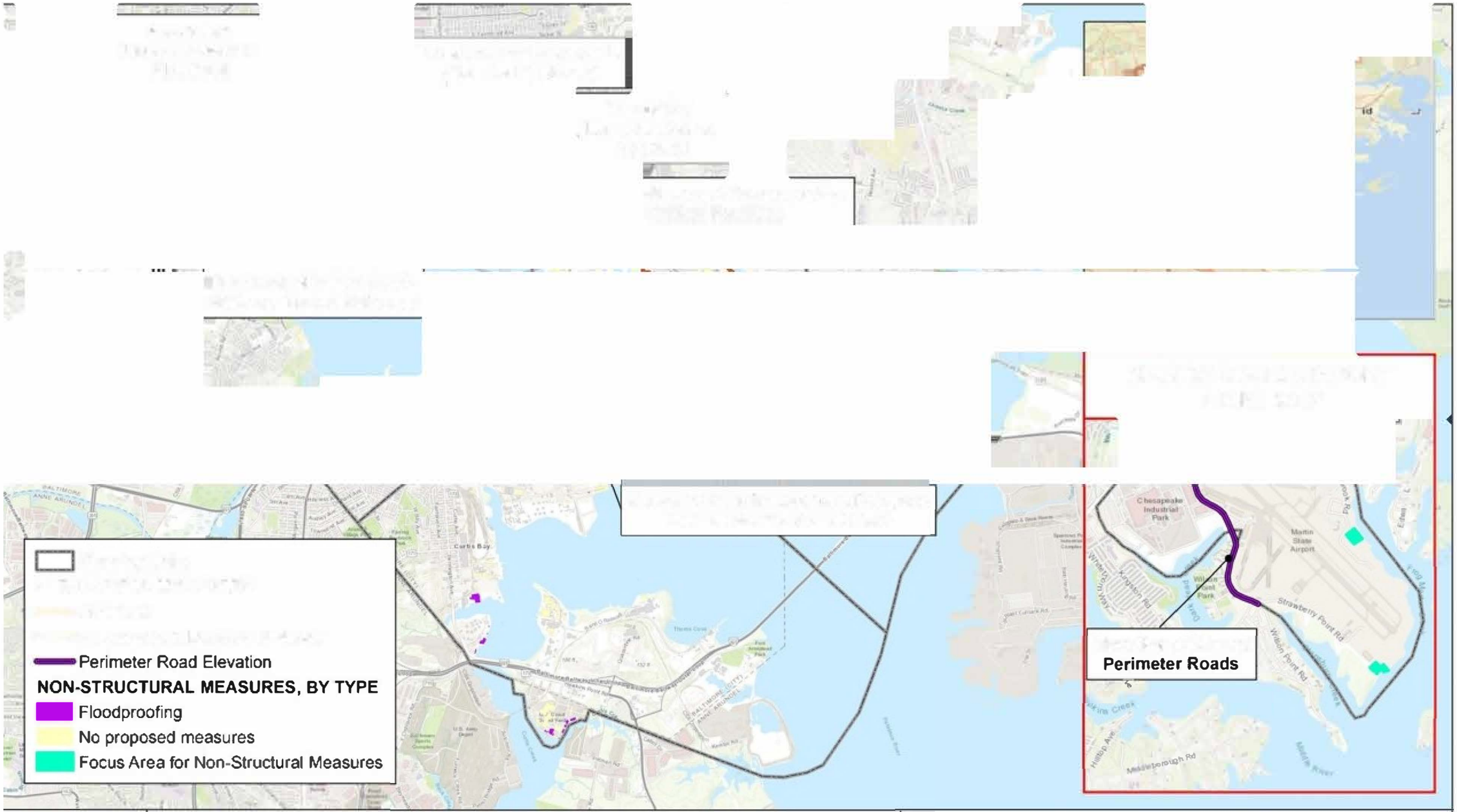
US Army Corps of Engineers
Baltimore District

Alternative Plan 6
Critical Balanced Plan - Critical Infrastructure with Non-Structural Measures Plan and Port of Baltimore Floodwalls
Baltimore & Martin State Airport, Maryland

N

Map: Critical Balanced Plan.mxd
Developed by: USACE Baltimore
Date: 12/14/2021

0 8,500 17,000
Feet



US Army Corps of Engineers
Baltimore District

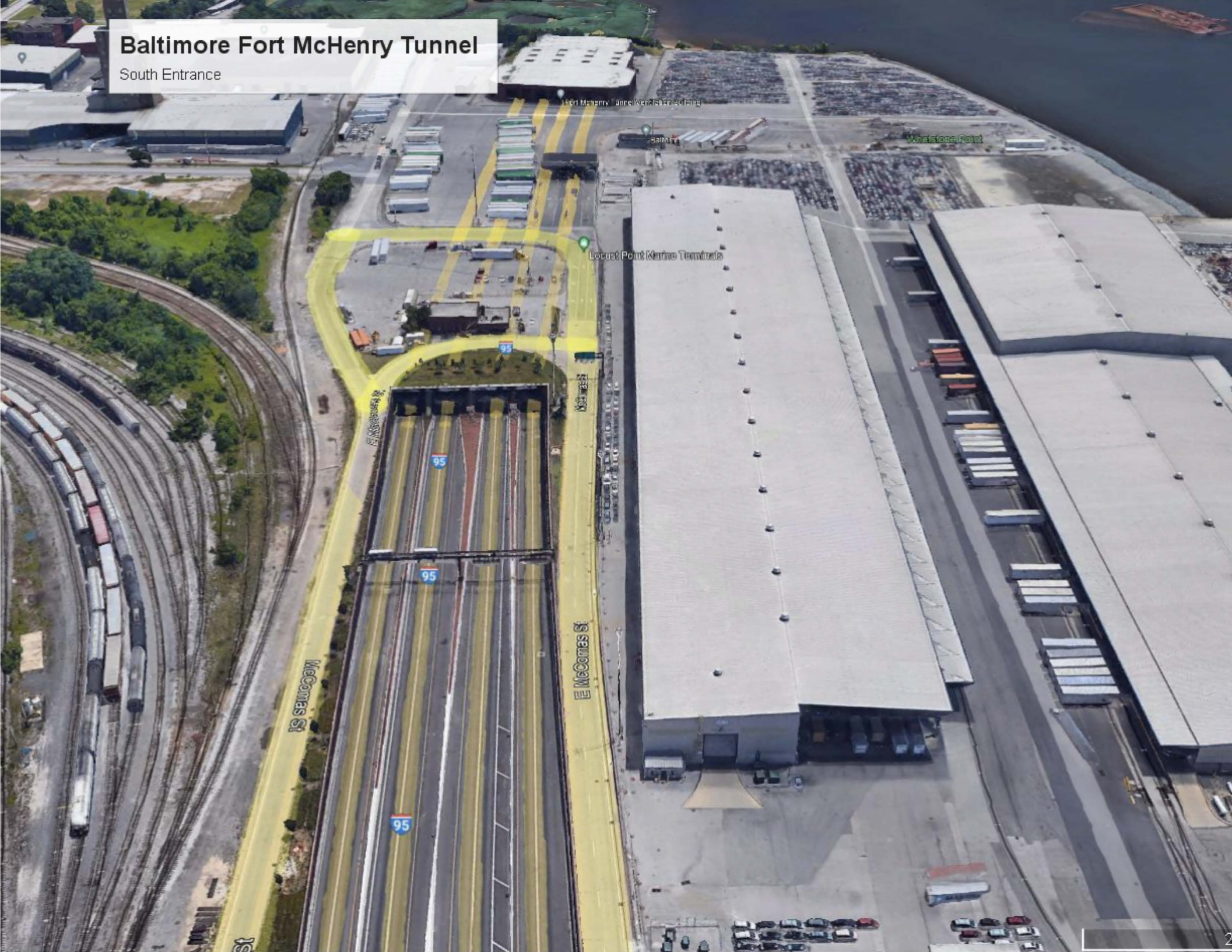
Alternative Plan 7
Mid-Tier Plan
Mid-Tier Plan with Secondary Shoreline Line of Defense
Baltimore & Martin State Airport, Maryland

NORTH

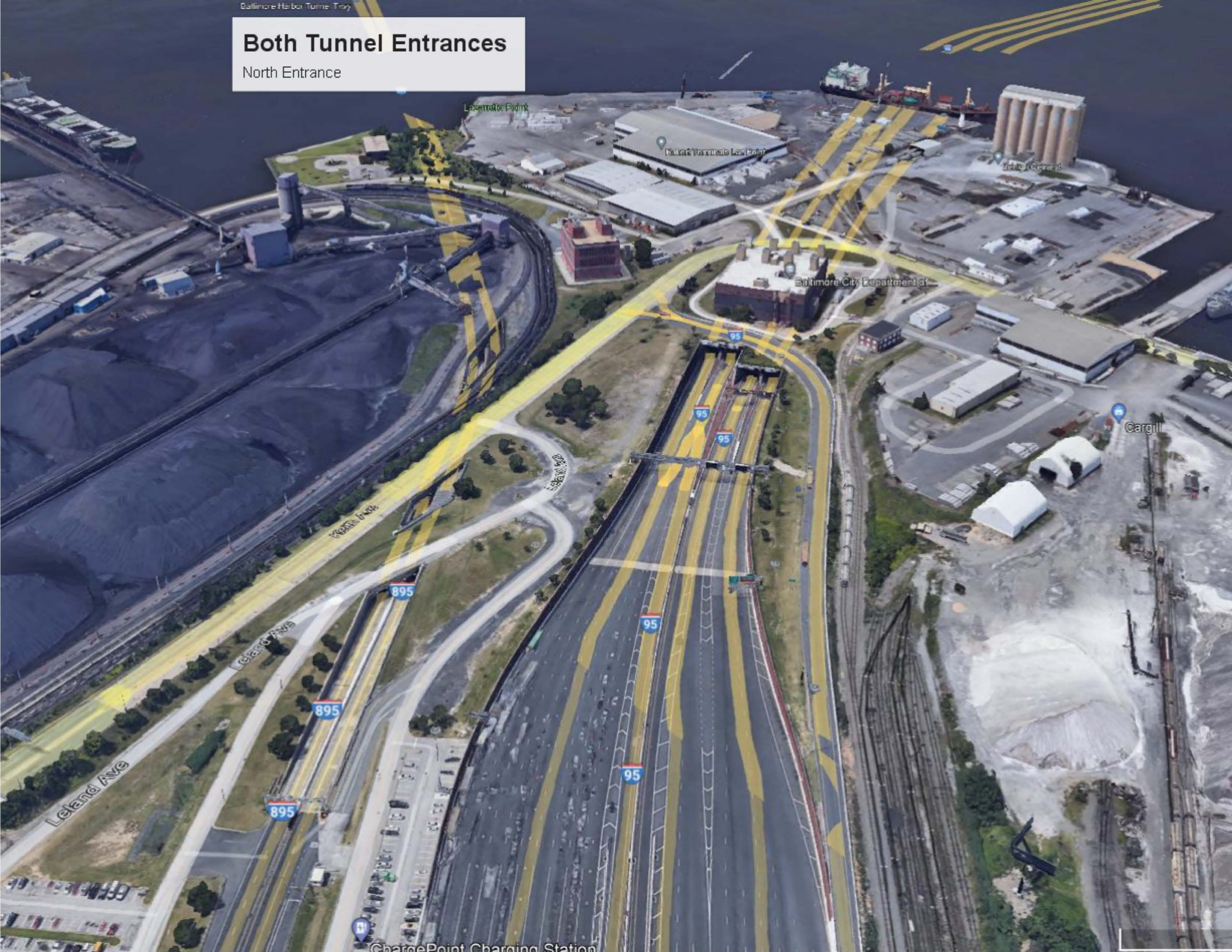
0 8,500 17,000
Feet

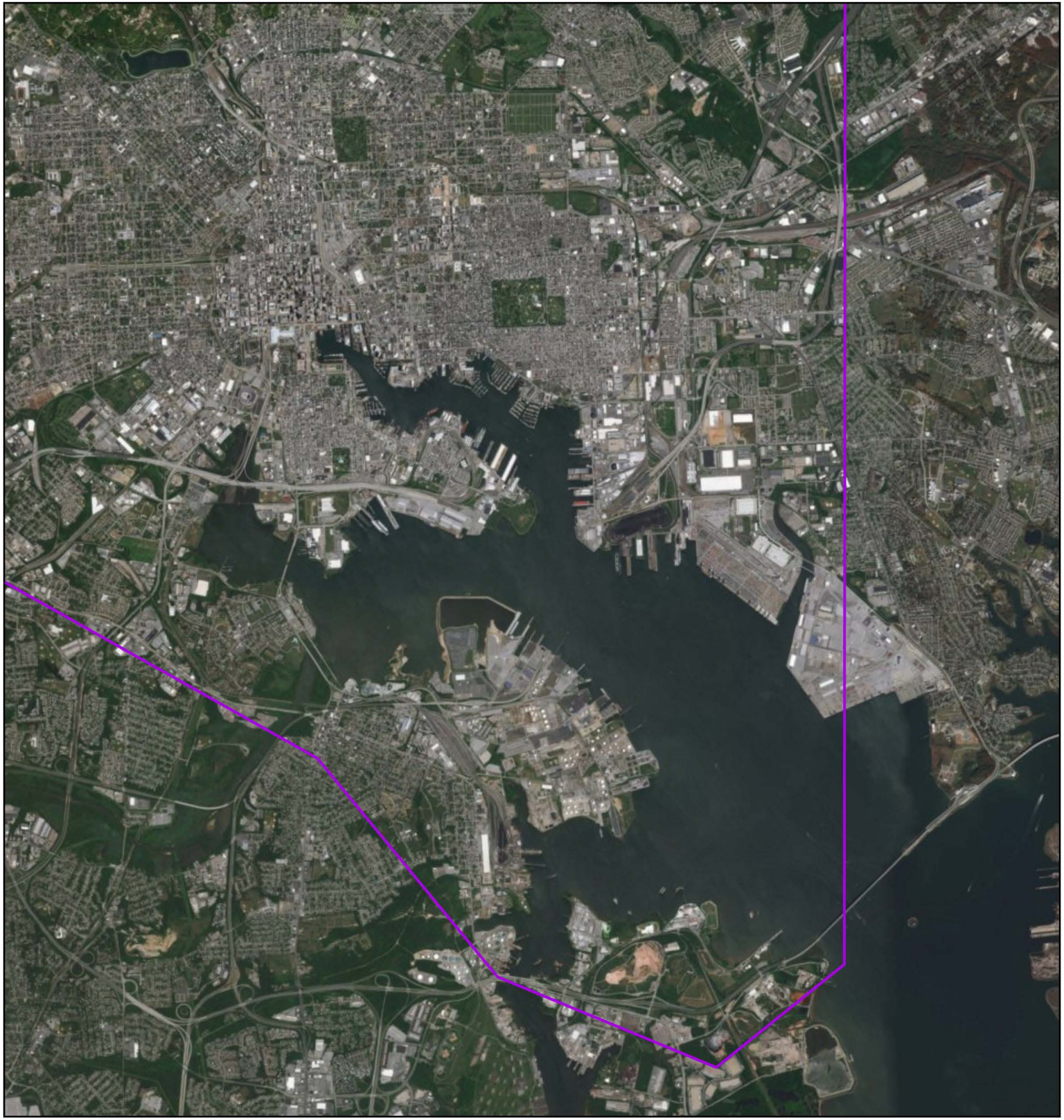
Map: Mid-Tier.mxd
Developed by: USACE Baltimore
Date: 12/14/2021

APPENDIX B
AERIAL PHOTOGRAPHS


Baltimore Fort McHenry Tunnel
South Entrance
Locust Point Marine Terminals
Whetstone Point
McComas St
E McComas St
95


Baltimore Harbor Tunnel
South Entrance


Both Tunnel Entrances
North Entrance
Baltimore Harbor Tunnel Thruway
Lazaretto Point
Baltimore City Department of...
Cargill
Leland Ave
Leland Ave
Leland Ave
ChargePoint Charging Station
95
895



Baltimore Harbor APR 2018

Baltimore CSRM

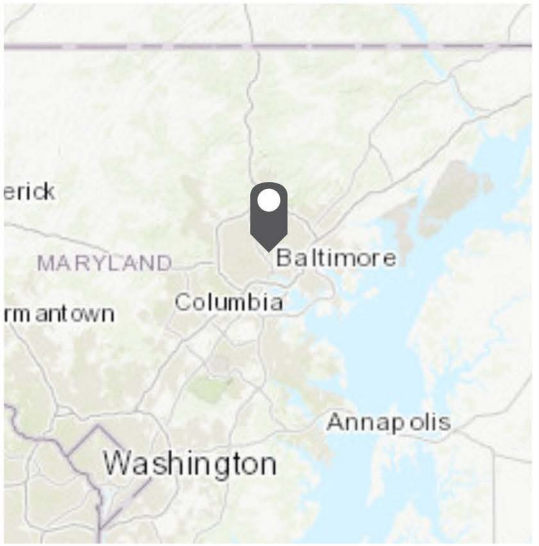
Baltimore City, MD

0 1 2 Miles

N

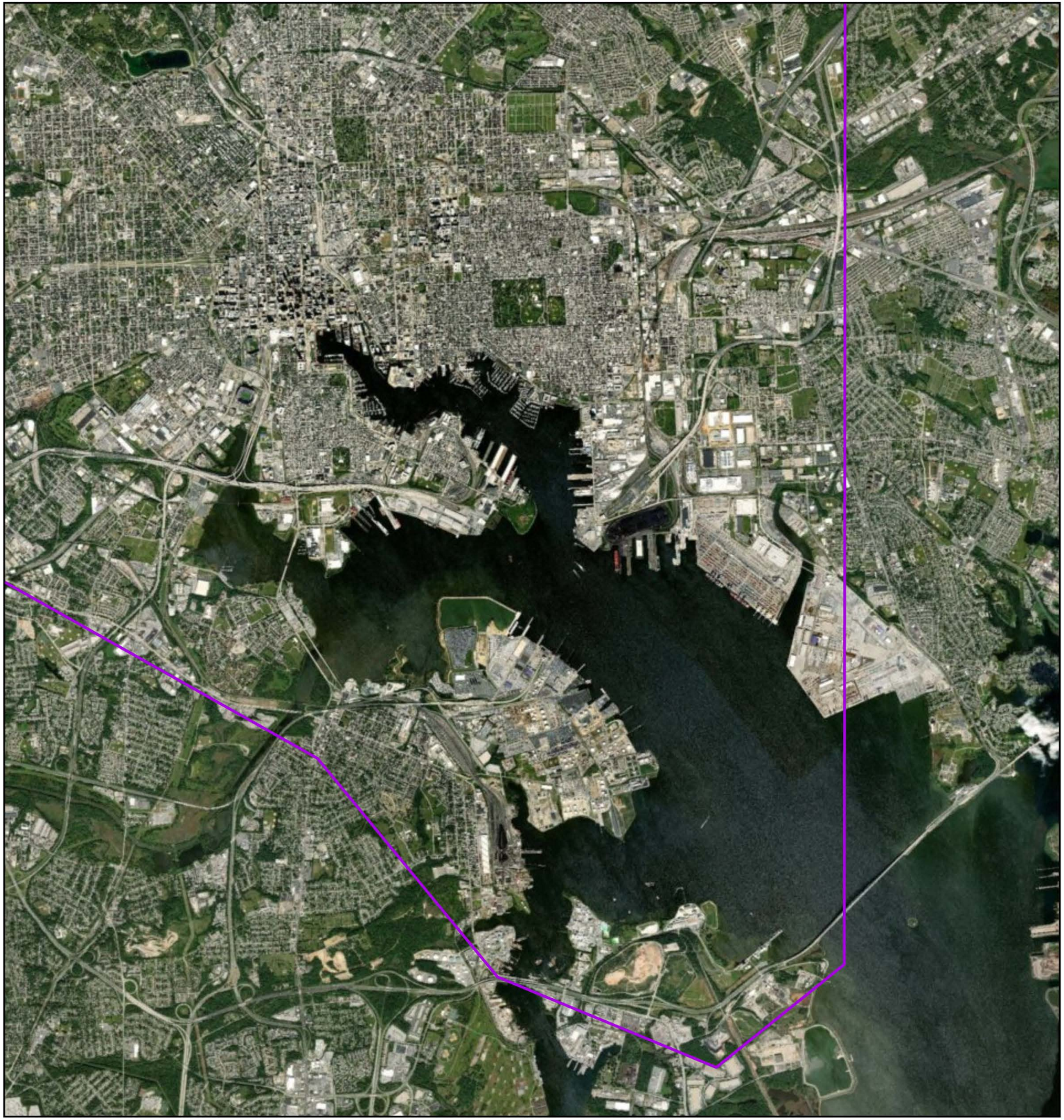
Baltimore City Boundary

Historical Imagery obtained from ArcGIS Online Wayback digital archive



Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Scale: 1:90,453
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center



Baltimore Harbor APR 2019

Baltimore CSRM

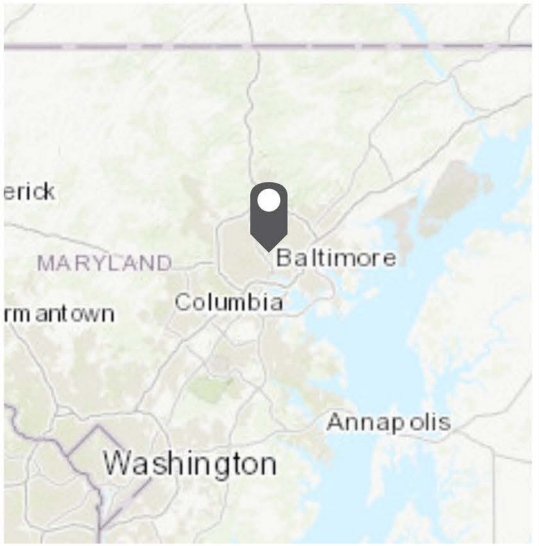
Baltimore City, MD

0 1 2 Miles

N

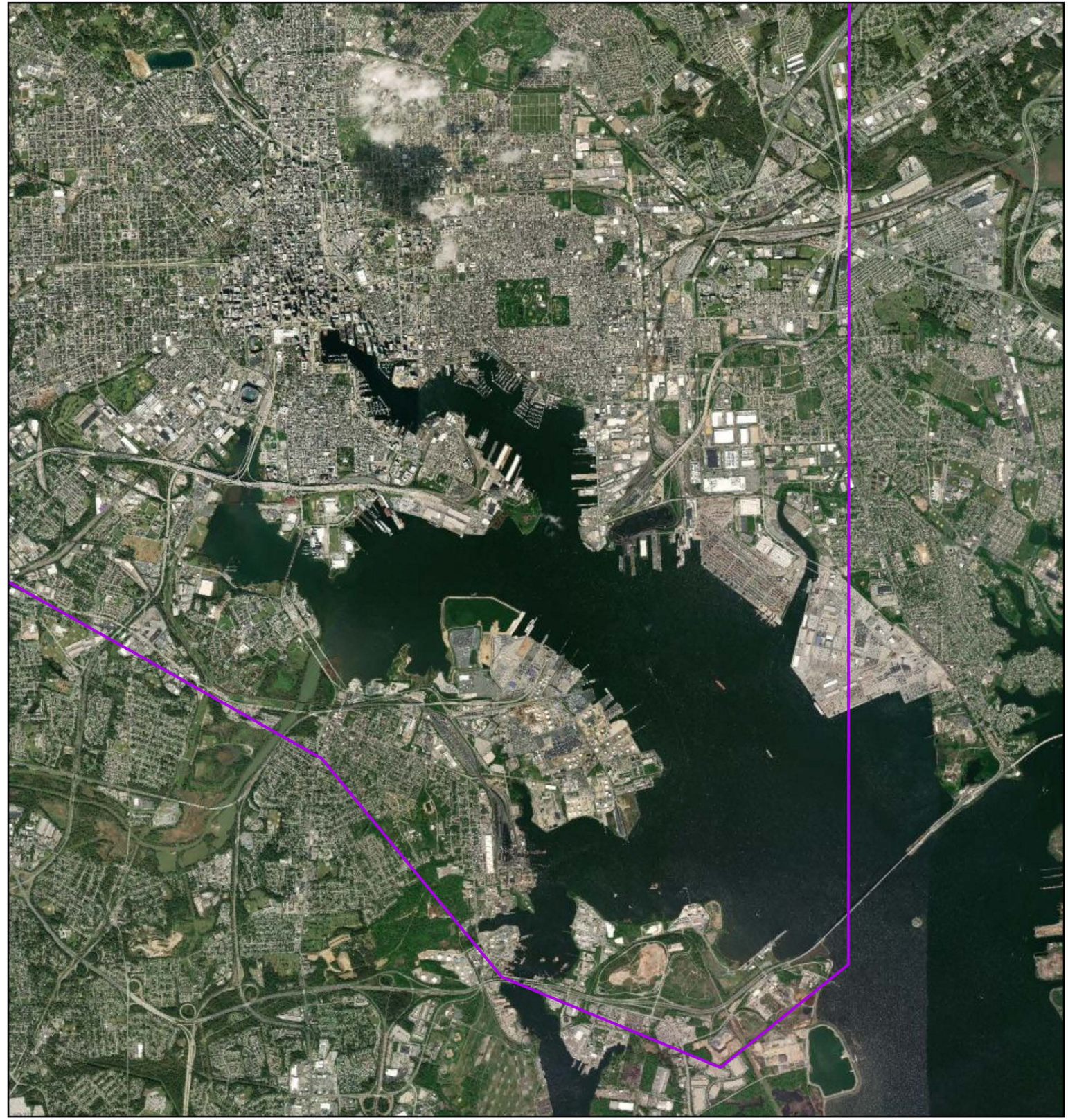
Baltimore City Boundary

Historical Imagery obtained from ArcGIS Online Wayback digital archive



Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Scale: 1:90,453
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center



Baltimore Harbor APR 2020

Baltimore CSRM

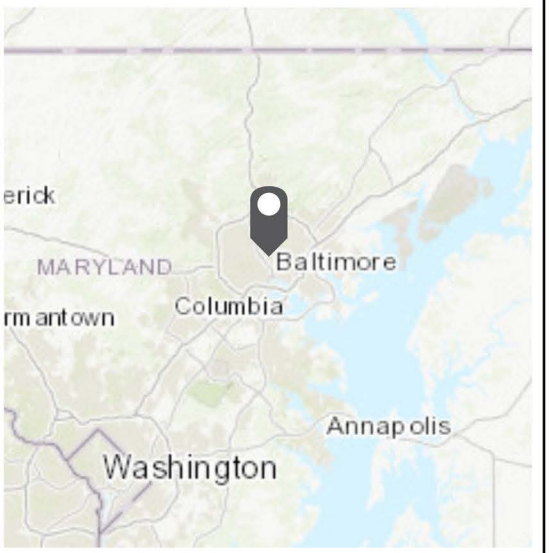
Baltimore City, MD

0 1 2 Miles

N

Baltimore City Boundary

Historical Imagery obtained from ArcGIS Online Wayback digital archive



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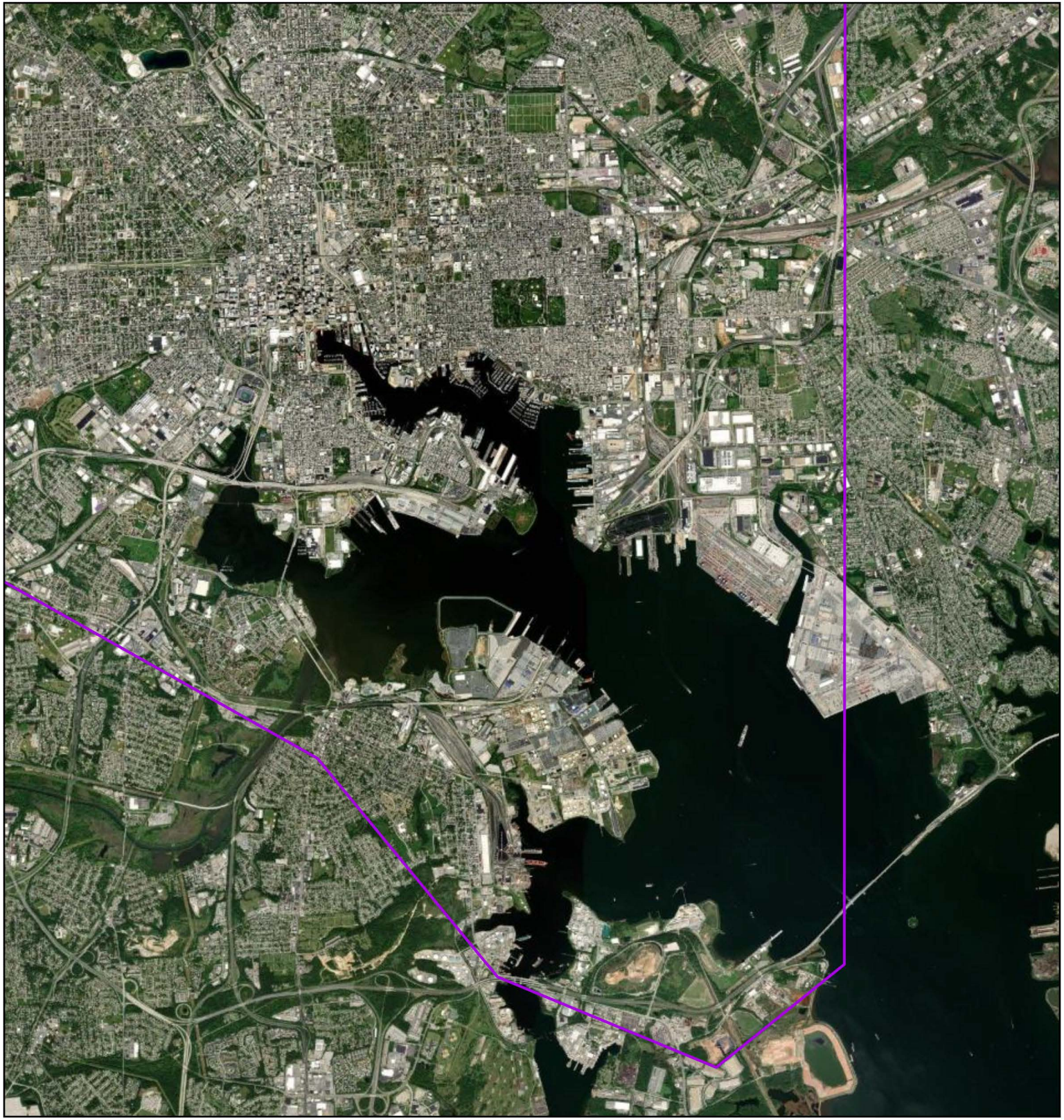
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center



Baltimore Harbor APR 2021

Baltimore CSRM

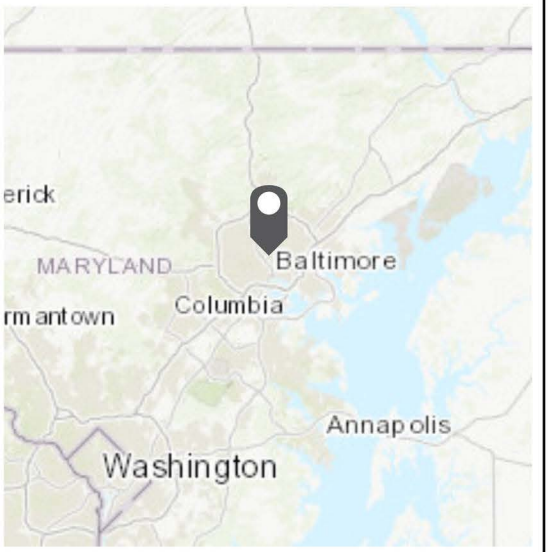
Baltimore City, MD

0 1 2 Miles

N

Baltimore City Boundary

Historical Imagery obtained from ArcGIS Online Wayback digital archive



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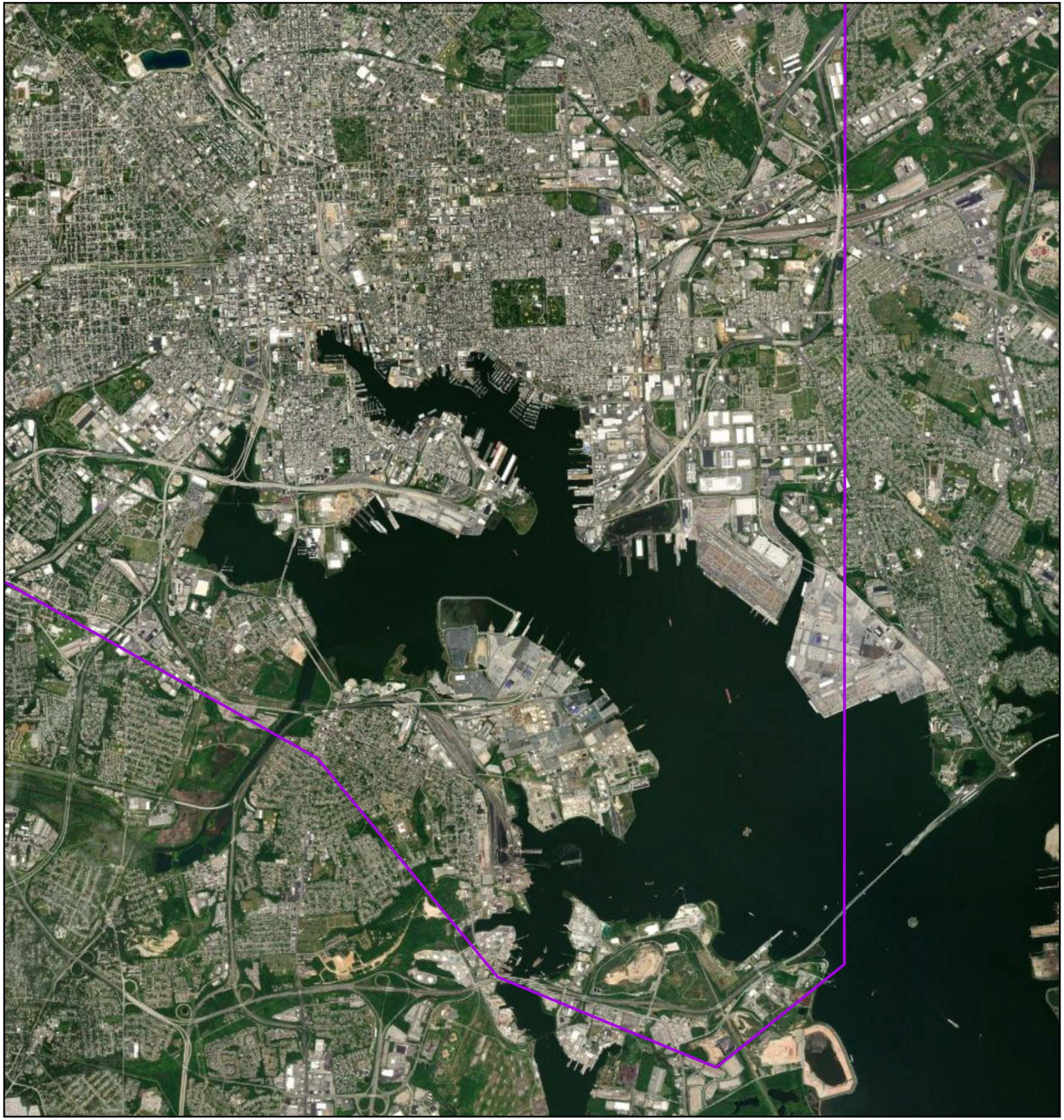
Scale: 1:90,453
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center



Baltimore Harbor APR 2022

Baltimore CSRM

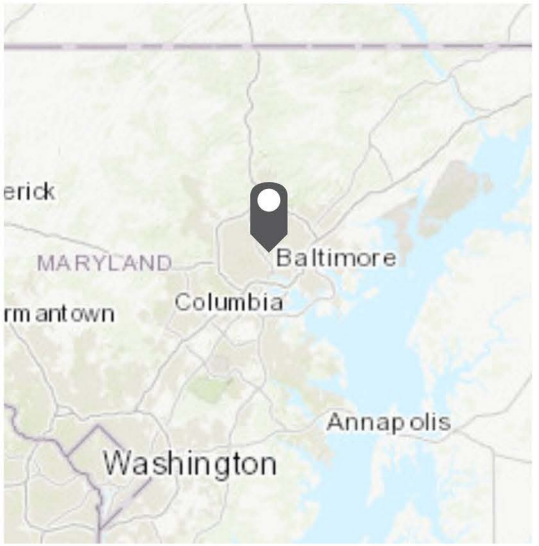
Baltimore City, MD

0 1 2 Miles

N

Baltimore City Boundary

Historical Imagery obtained from ArcGIS Online Wayback digital archive



Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Scale: 1:90,453
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center

Martin State Airport APR 2018

Baltimore CSRM

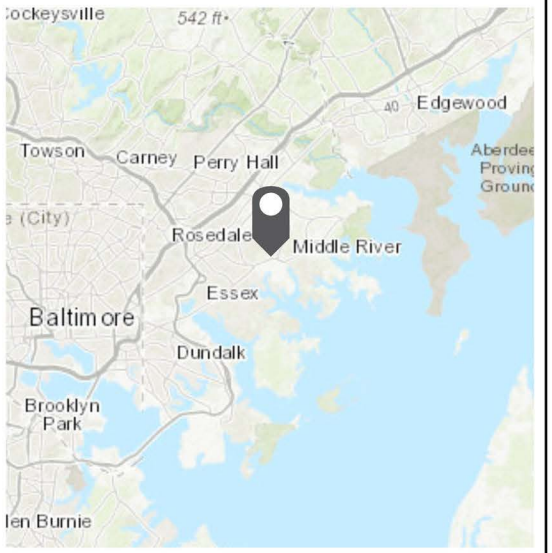
Baltimore County, MD

0 1,000 2,000 Feet

N

Martin State Airport

Historical Imagery obtained from
ArcGIS Online Wayback digital archive



Spatial Reference
Name: WGS 1984 Web Mercator
Auxiliary Sphere
Scale: 1:25,476
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center

Martin State Airport APR 2019

Baltimore CSRM

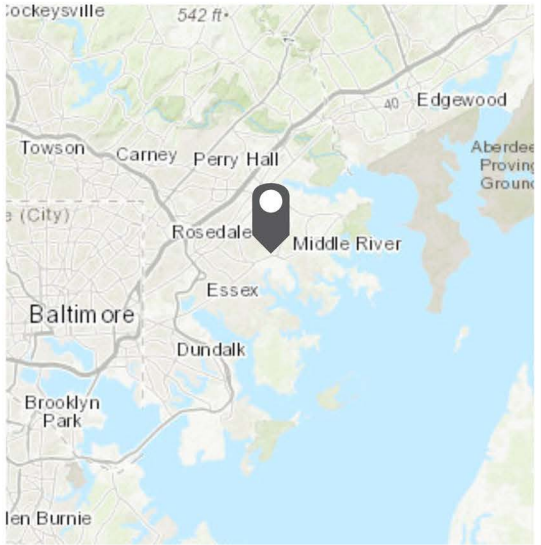
Baltimore County, MD

0 1,000 2,000 Feet

N

Martin State Airport

Historical Imagery obtained from ArcGIS Online Wayback digital archive



Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Scale: 1:25,476
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center

Martin State Airport APR 2020

Baltimore CSRM

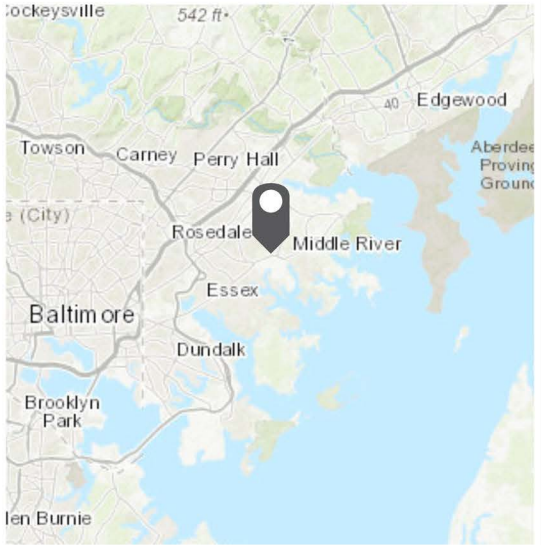
Baltimore County, MD

0 1,000 2,000 Feet

N

Martin State Airport

Historical Imagery obtained from ArcGIS Online Wayback digital archive



Spatial Reference
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Scale: 1:25,476
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center

Martin State Airport APR 2021

Baltimore CSRM

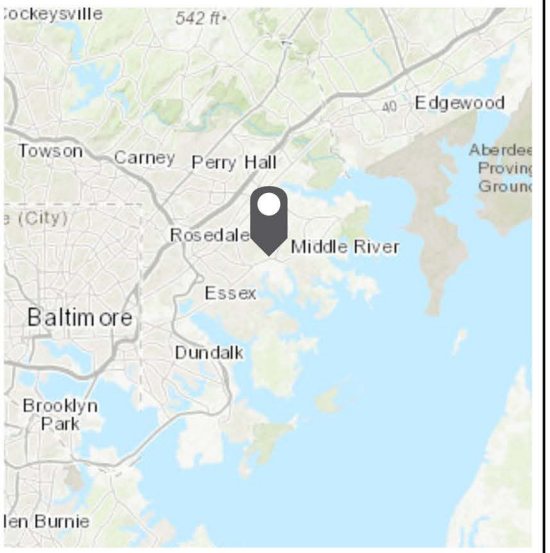
Baltimore County, MD

0 1,000 2,000 Feet

N

Martin State Airport

Historical Imagery obtained from ArcGIS Online Wayback digital archive



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Scale: 1:25,476
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center

Martin State Airport APR 2022

Baltimore CSRM

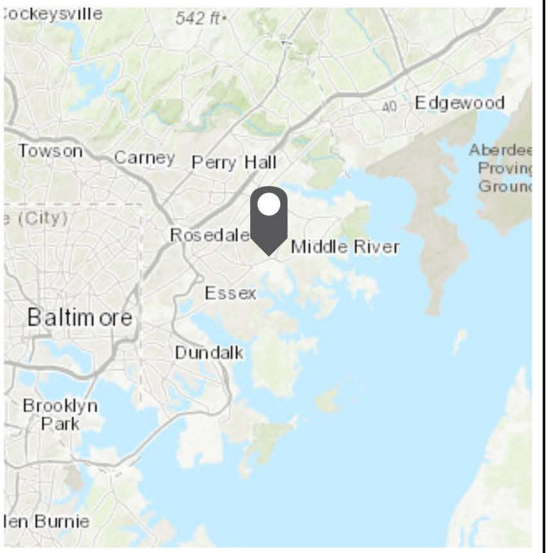
Baltimore County, MD

0 1,000 2,000 Feet

N

Martin State Airport

Historical Imagery obtained from ArcGIS Online Wayback digital archive



Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Scale: 1:25,476
GIS by: KJP, 14 APR 22

US Army Corps of Engineers
Baltimore District
Environmental & Munitions Design Center

APPENDIX C

EDR® AREA/CORRIDOR REPORT

APPENDIX D

EDR® HISTORICAL TOPOGRAPHICAL MAPS (1894-1907)

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Baltimore, 1904, 15-minute
S, Relay, 1907, 15-minute

SITE NAME: Seagirt Study
ADDRESS: Baltimore, MD
Baltimore, MD 21224
CLIENT: U.S. Army Corps of Engineers

N

This report includes information from the following map sheet(s).

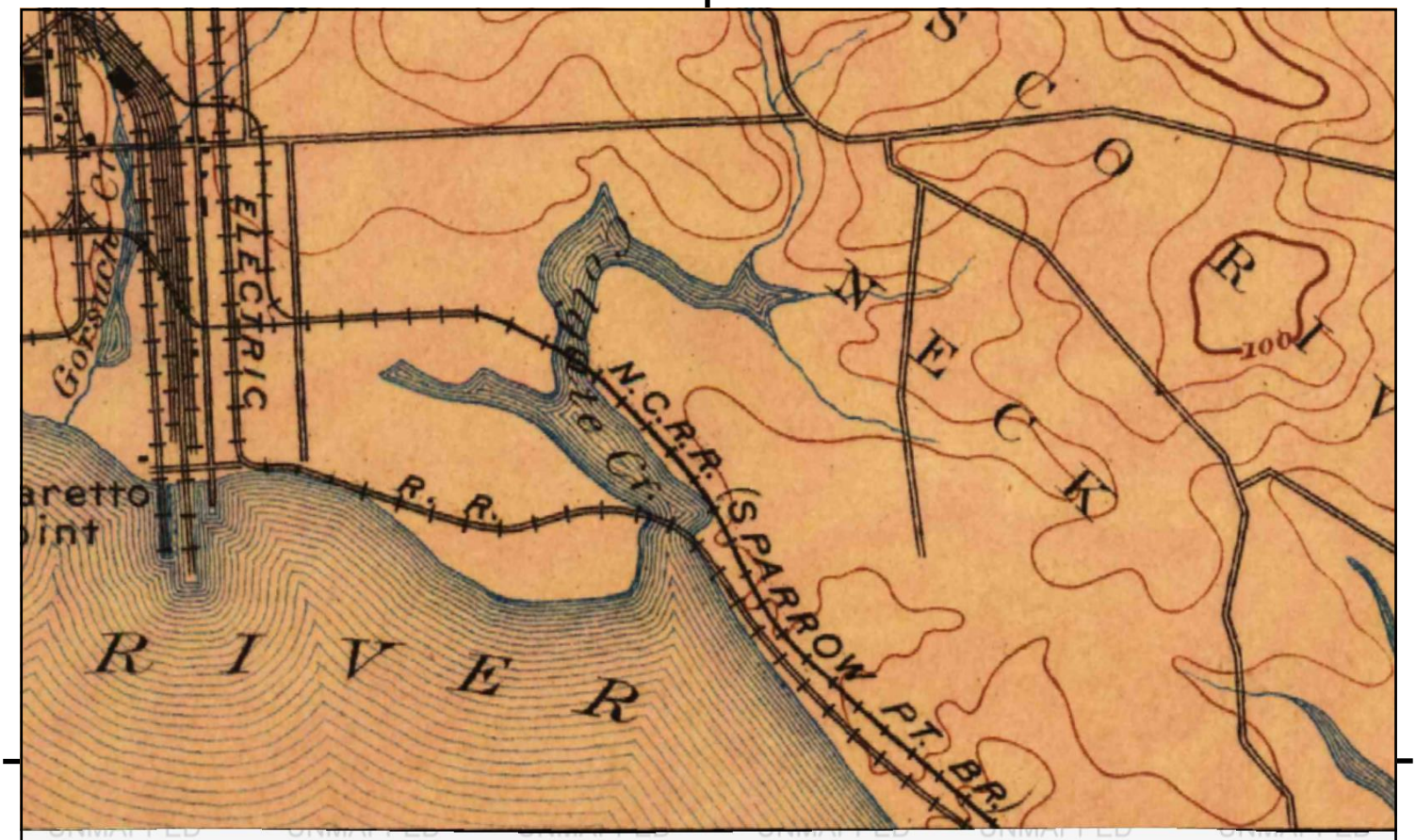
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Baltimore, 1904, 15-minute
SW, Relay, 1907, 15-minute

SITE NAME: Seagirt Study
ADDRESS: Baltimore, MD
Baltimore, MD 21224
CLIENT: U.S. Army Corps of Engineers

N



This report includes information from the following map sheet(s).

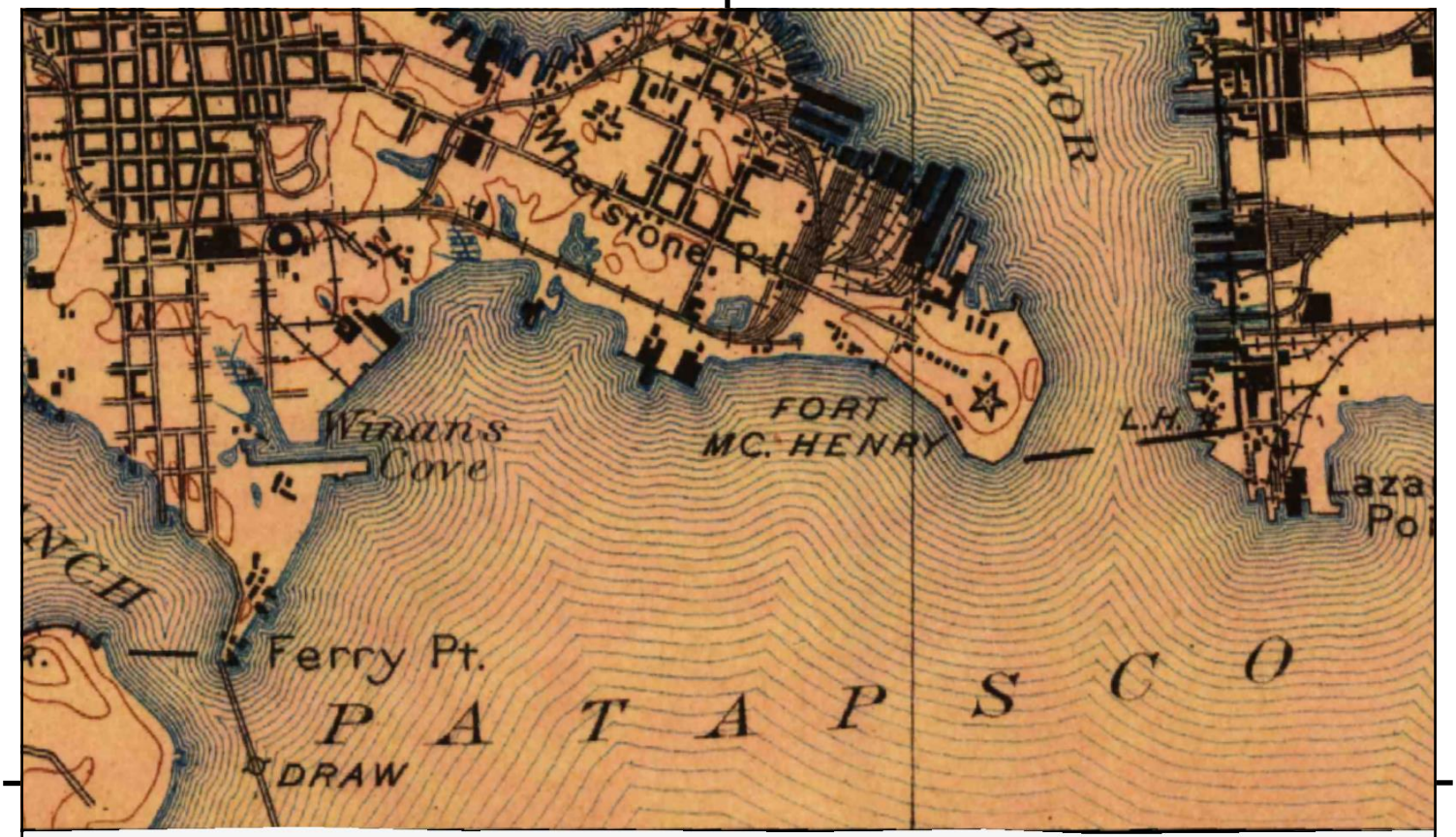
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Baltimore, 1899, 15-minute

SITE NAME: Seagirt Study
ADDRESS: Baltimore, MD
Baltimore, MD 21224
CLIENT: U.S. Army Corps of Engineers

N



This report includes information from the following map sheet(s).

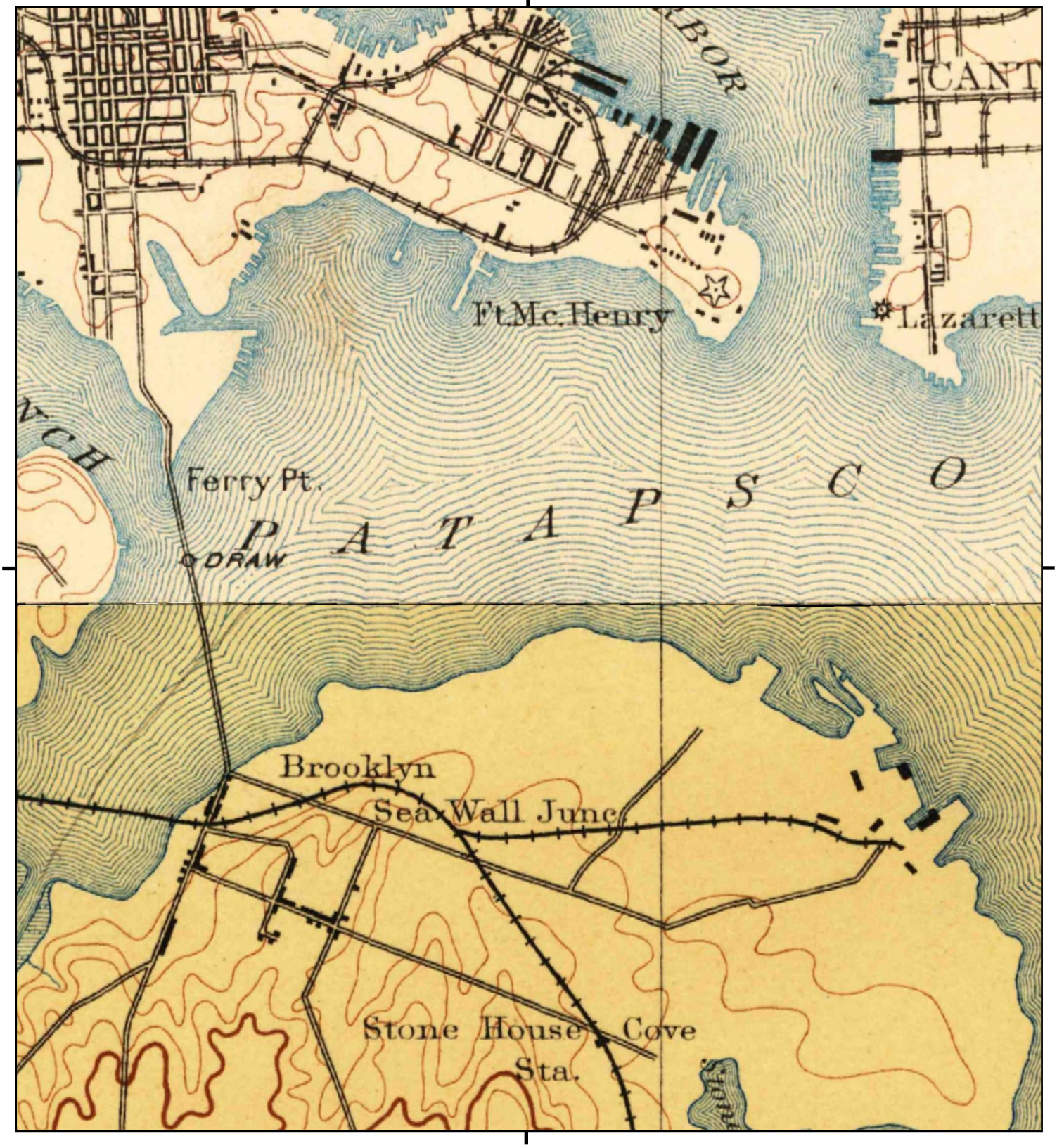
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Baltimore, 1899, 15-minute

SITE NAME: Seagirt Study
ADDRESS: Baltimore, MD
Baltimore, MD 21224
CLIENT: U.S. Army Corps of Engineers

N



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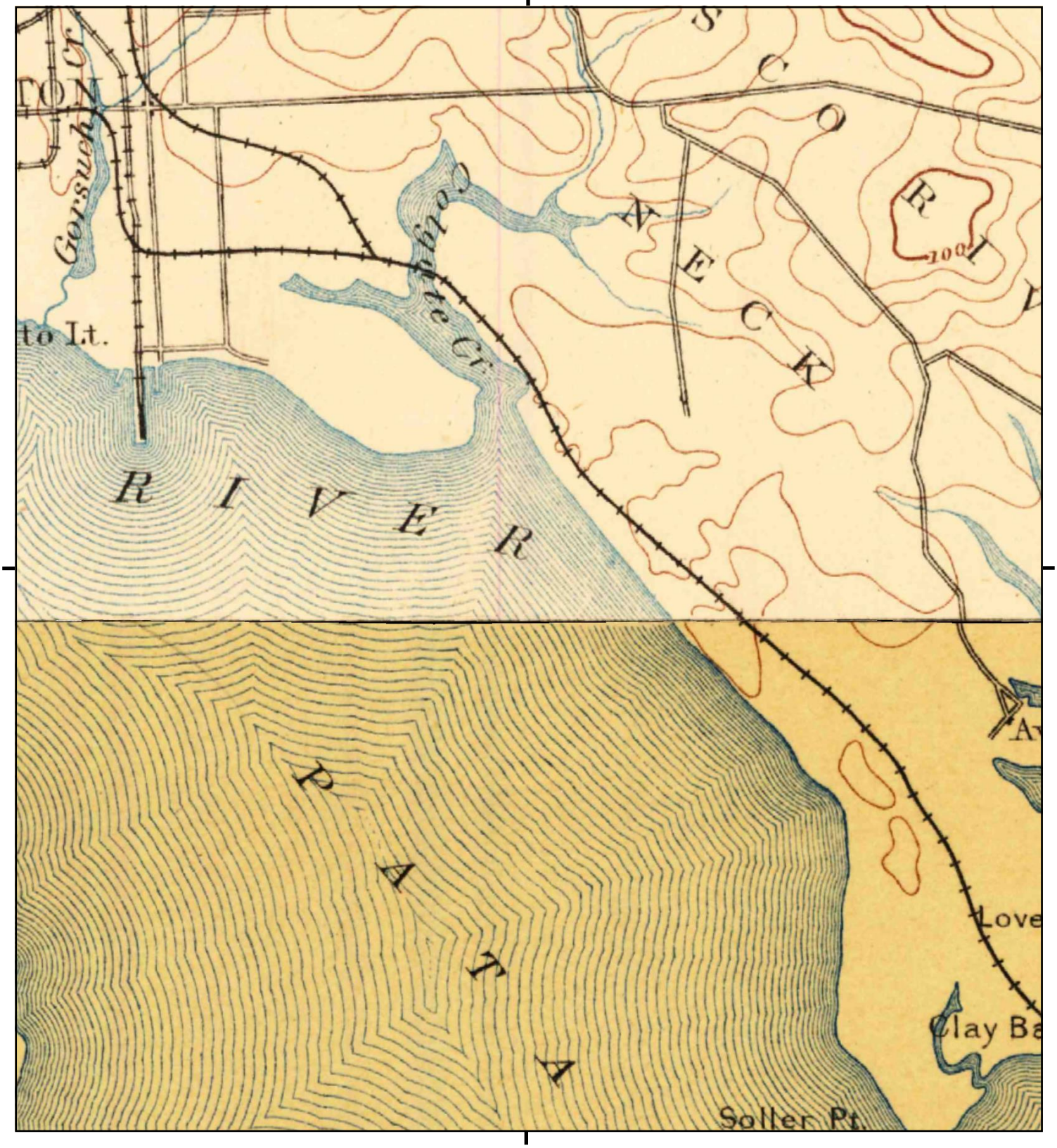
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Baltimore, 1894, 15-minute
S, Relay, 1894, 15-minute

SITE NAME: Seagirt Study
ADDRESS: Baltimore, MD
Baltimore, MD 21224
CLIENT: U.S. Army Corps of Engineers

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Baltimore, 1894, 15-minute
SW, Relay, 1894, 15-minute

SITE NAME: Seagirt Study
ADDRESS: Baltimore, MD
Baltimore, MD 21224
CLIENT: U.S. Army Corps of Engineers

N

APPENDIX E

EDR® HISTORICAL TOPOGRAPHICAL MAPS (1908-2014)

Seagirt Study

Baltimore, MD

Baltimore, MD 21224

Inquiry Number: 6519239.1

June 08, 2021

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

06/08/21

Site Name:

Seagirt Study
Baltimore, MD
Baltimore, MD 21224
EDR Inquiry # 6519239.1

Client Name:

U.S. Army Corps of Engineers
2 Hopkins Plaza
Baltimore, MD 21201
Contact: Constantine Ditsious

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by U.S. Army Corps of Engineers were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# W81W3G11489315
Project: W81W3G11489315

Coordinates:

Latitude:	39.24514 39° 14' 43" North
Longitude:	-76.54837 -76° 32' 54" West
UTM Zone:	Zone 18 North
UTM X Meters:	366384.52
UTM Y Meters:	4345122.94
Elevation:	0.00' above sea level

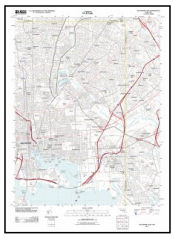
Maps Provided:

2014
1974
1966, 1969
1953, 1957
1949
1946
1944
1908
1904, 1907
1899
1894

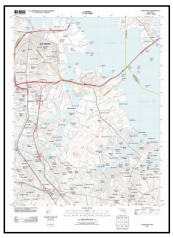
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2014 Source Sheets

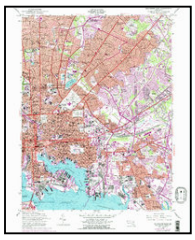


Baltimore East
2014
7.5-minute, 24000

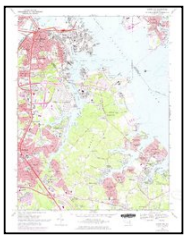


Curtis Bay
2014
7.5-minute, 24000

1974 Source Sheets



Baltimore East
1974
7.5-minute, 24000
Aerial Photo Revised 1974



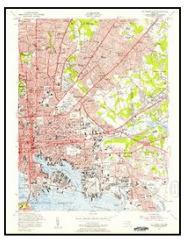
Curtis Bay
1974
7.5-minute, 24000
Aerial Photo Revised 1974

1966, 1969 Source Sheets

Baltimore East
1966
7.5-minute, 24000
Aerial Photo Revised 1966

Curtis Bay
1969
7.5-minute, 24000
Aerial Photo Revised 1966

1953, 1957 Source Sheets



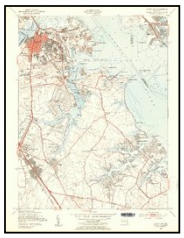
Baltimore East
1953
7.5-minute, 24000
Aerial Photo Revised 1943

Curtis Bay
1957
7.5-minute, 24000
Aerial Photo Revised 1955

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

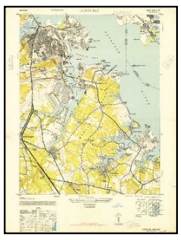
1949 Source Sheets



Curtis Bay
1949
7.5-minute, 24000
Aerial Photo Revised 1947

1946 Source Sheets

BALTIMORE EAST
1946
7.5-minute, 24000



Curtis Bay
1946
7.5-minute, 24000
Aerial Photo Revised 1943

1944 Source Sheets

Curtis Bay
1944
7.5-minute, 31680
Aerial Photo Revised 1943

Baltimore East
1944
7.5-minute, 31680
Aerial Photo Revised 1943

1908 Source Sheets

Patapsco
1908
30-minute, 125000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1904, 1907 Source Sheets

Baltimore
1904
15-minute, 62500

Relay
1907
15-minute, 62500

1899 Source Sheets

Baltimore
1899
15-minute, 62500

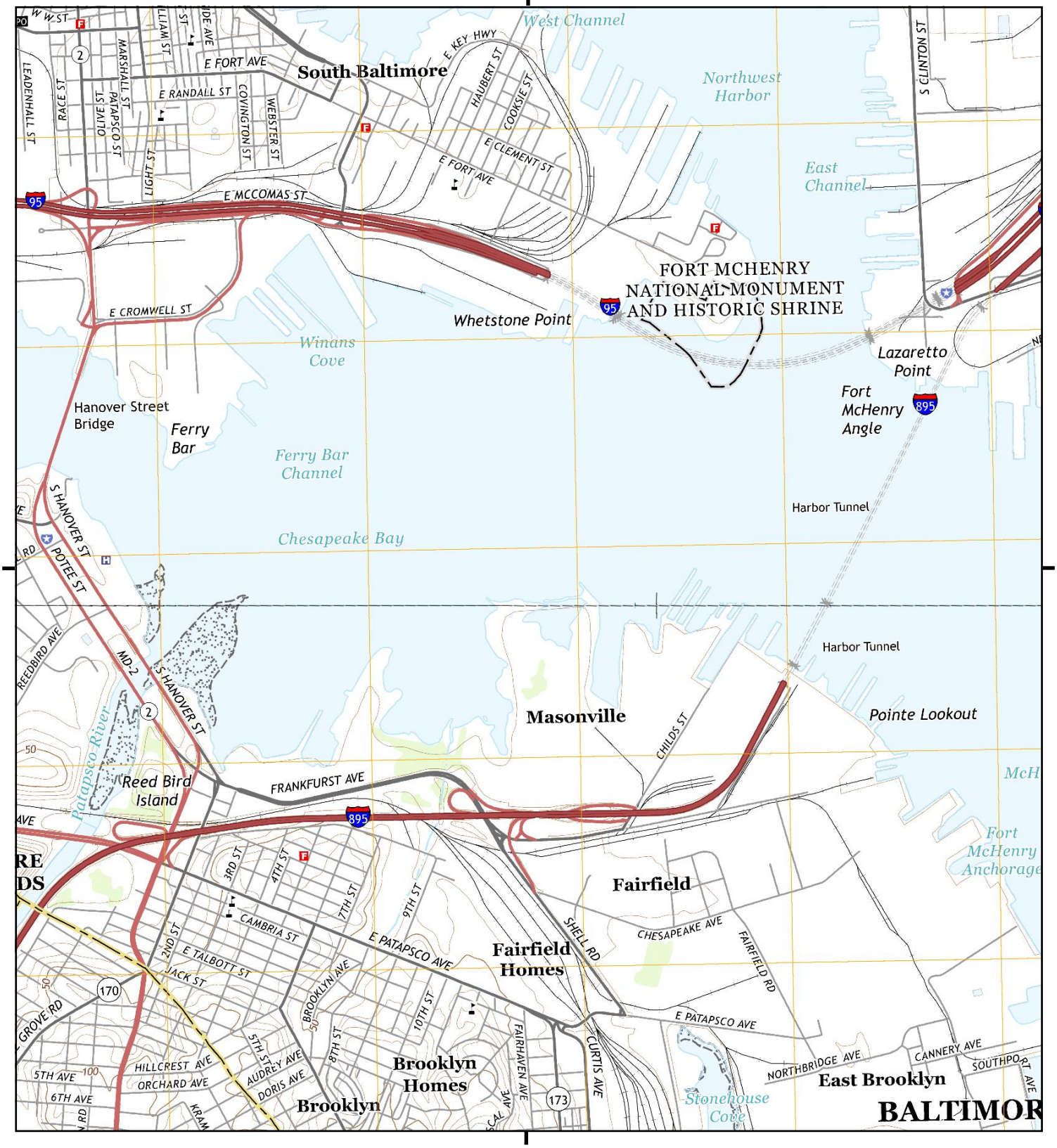
1894 Source Sheets

Baltimore
1894
15-minute, 62500

Relay
1894
15-minute, 62500

Historical Topo Map

2014



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
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TP, Baltimore East, 2014, 7.5-minute
S, Curtis Bay, 2014, 7.5-minute

SITE NAME: Seagirt Study
ADDRESS: Baltimore, MD
Baltimore, MD 21224
CLIENT: U.S. Army Corps of Engineers

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Historical Topo Map

2014

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0 Miles 0.25 0.5 1 1.5

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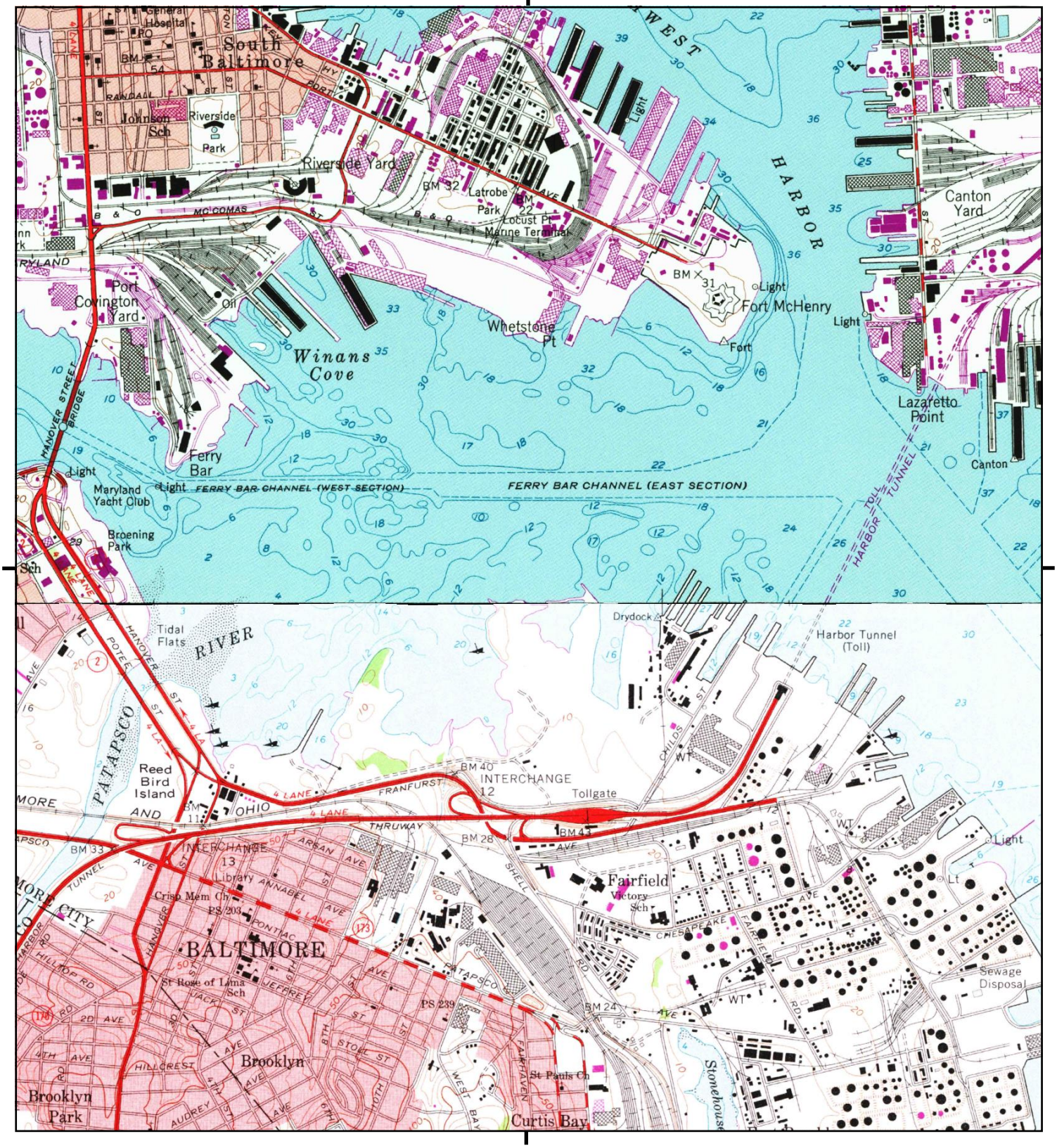

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S, Curtis Bay, 1974, 7.5-minute

SITE NAME: Seagirt Study
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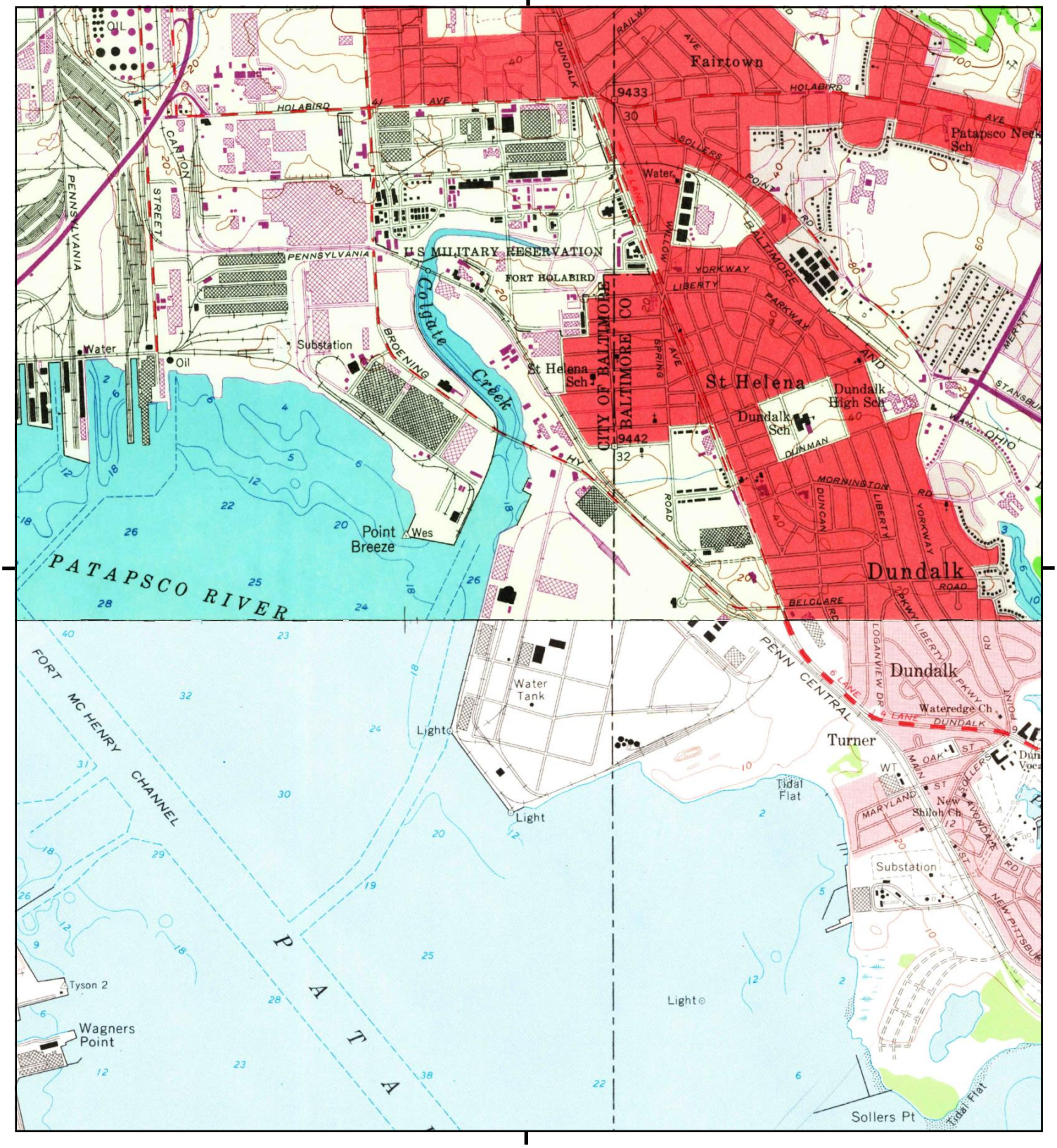

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SITE NAME: Seagirt Study
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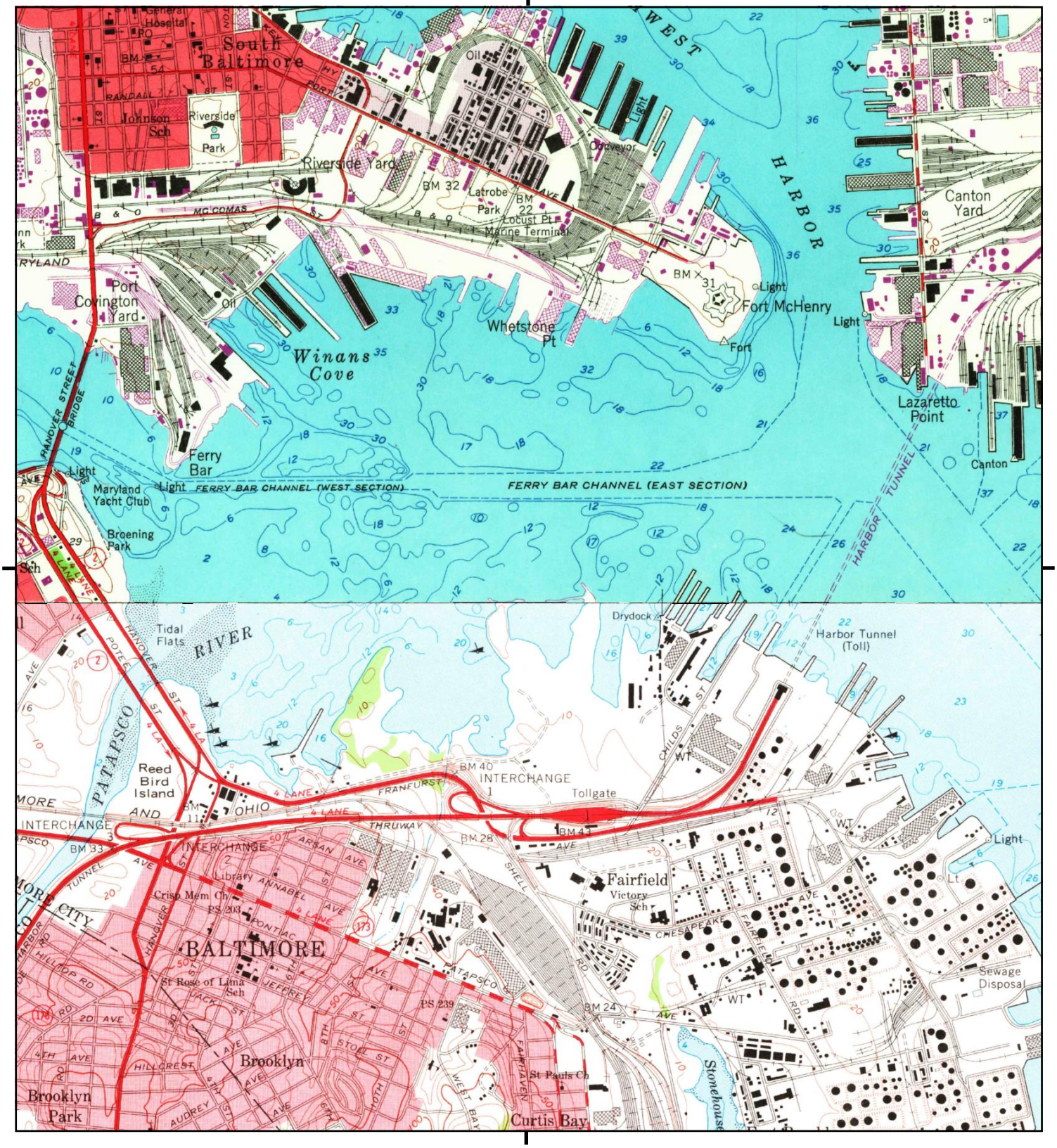
Historical Topo Map

1966, 1969



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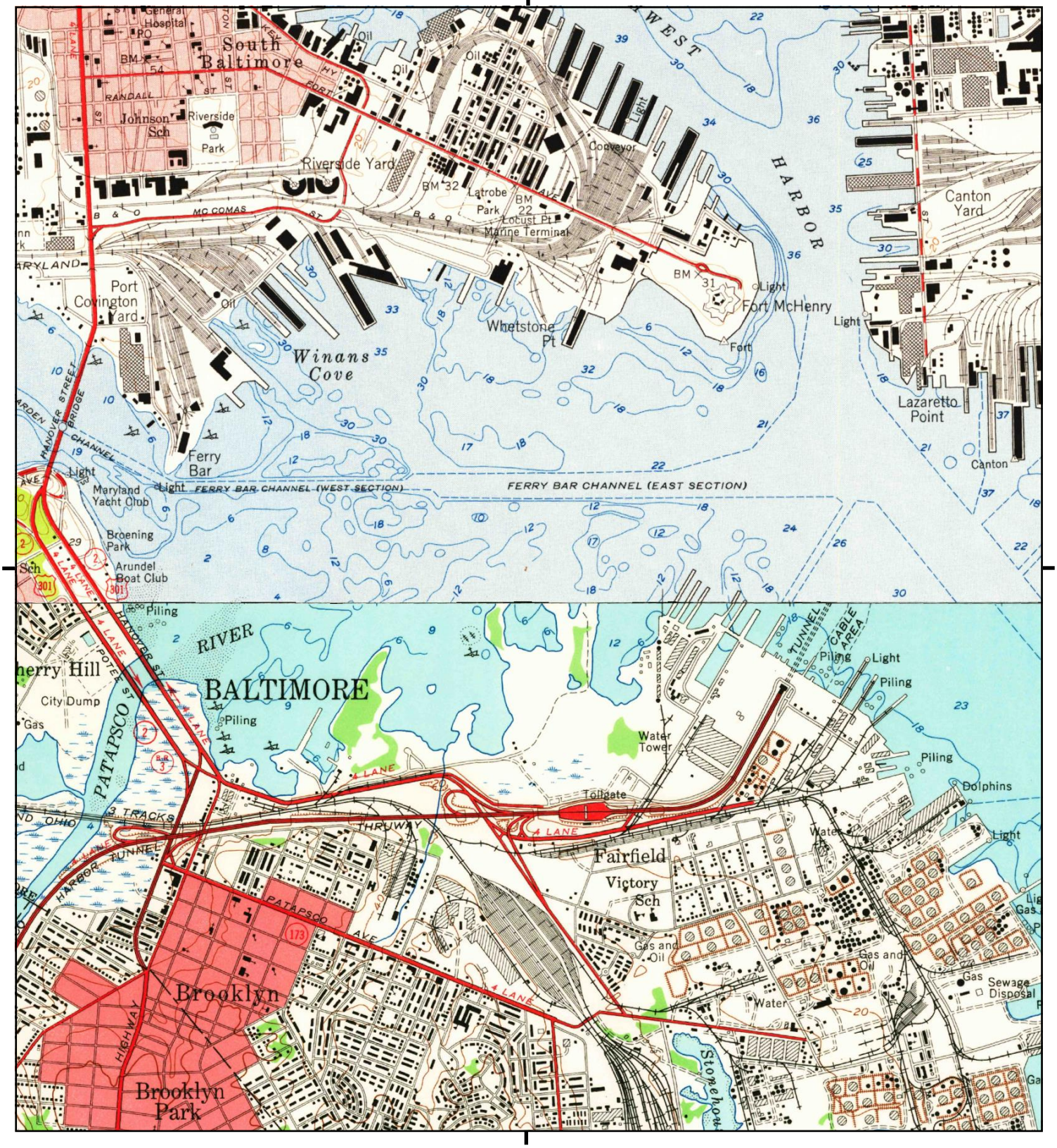

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ADDRESS: Baltimore, MD
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CLIENT: U.S. Army Corps of Engineers

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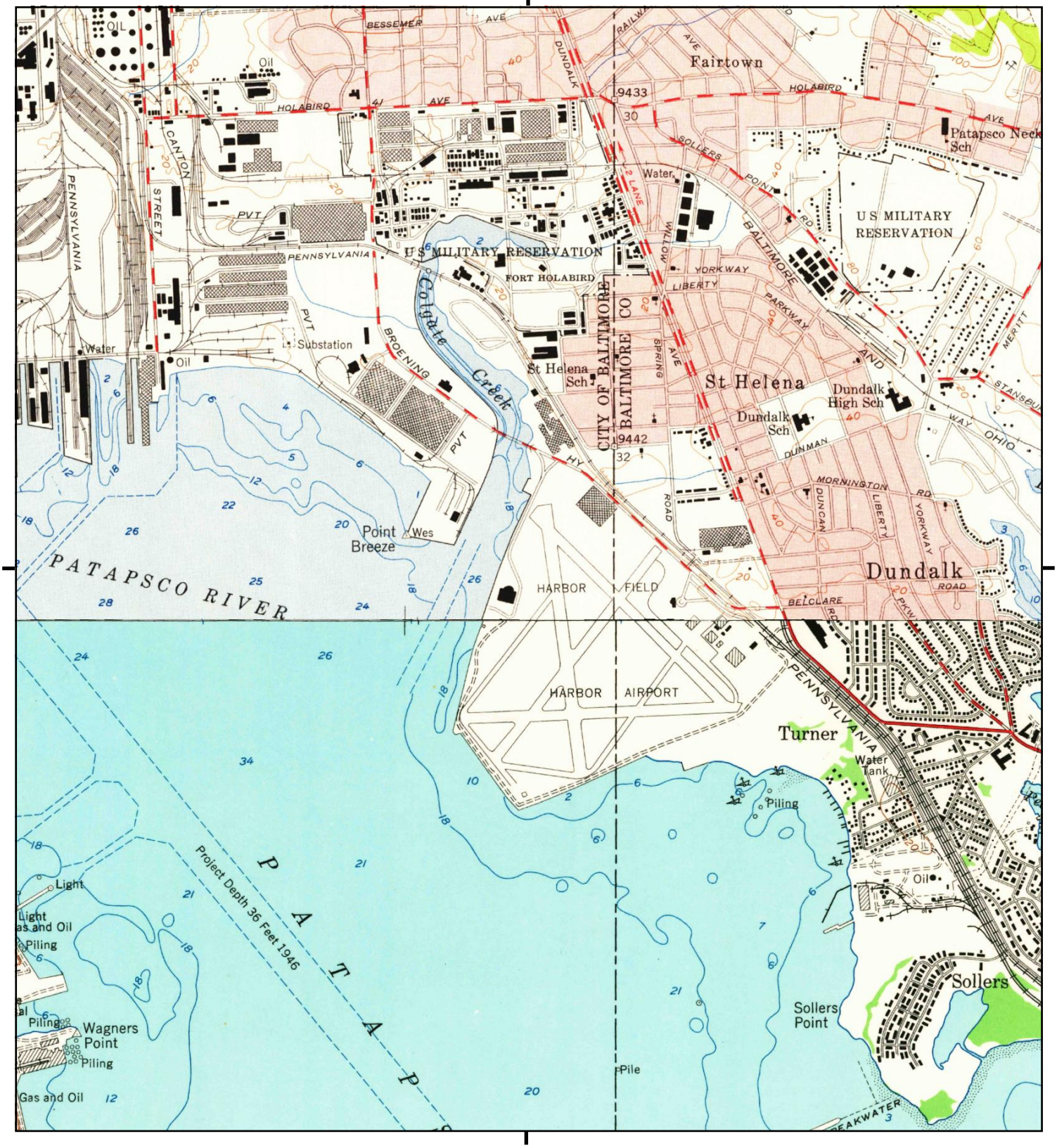

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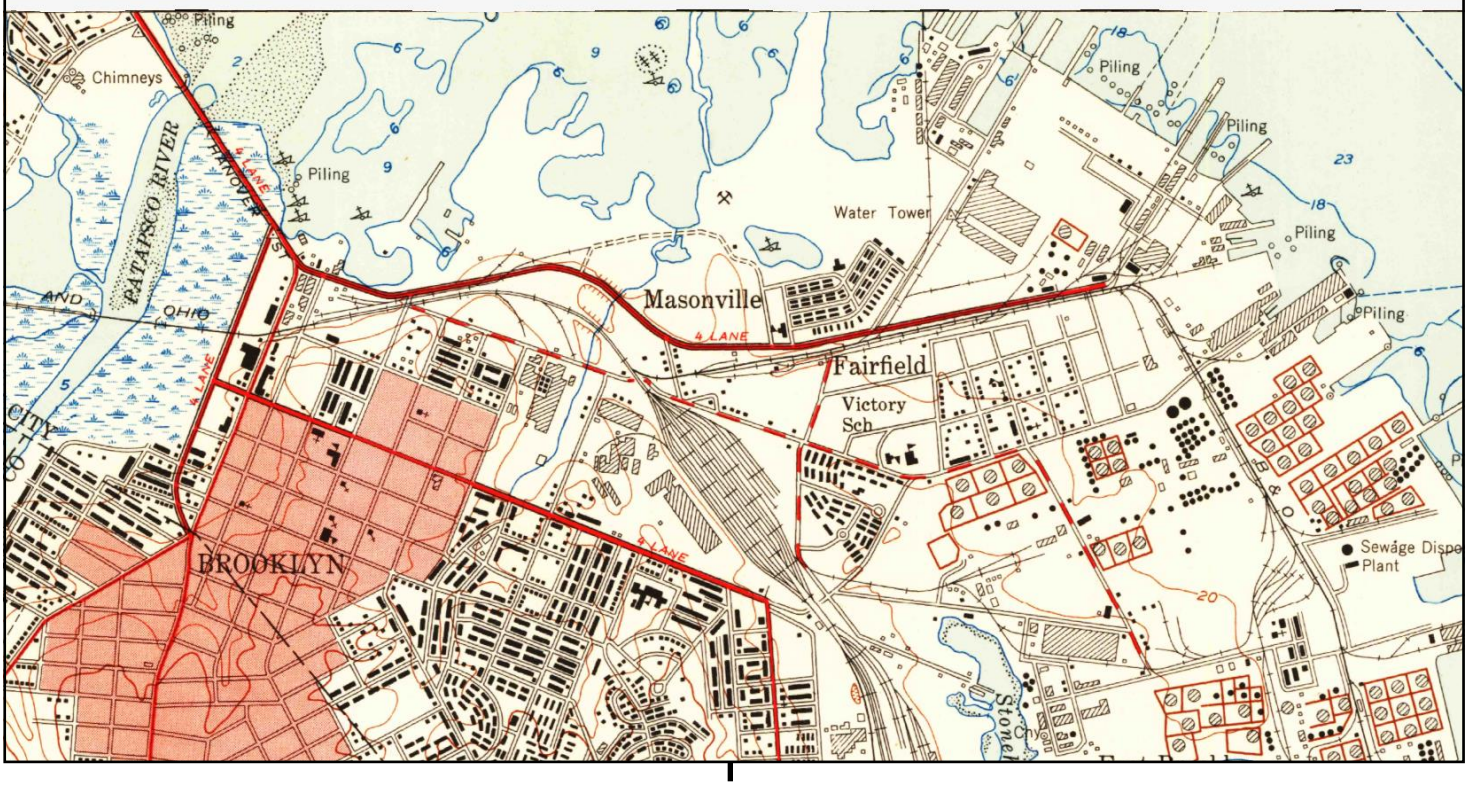

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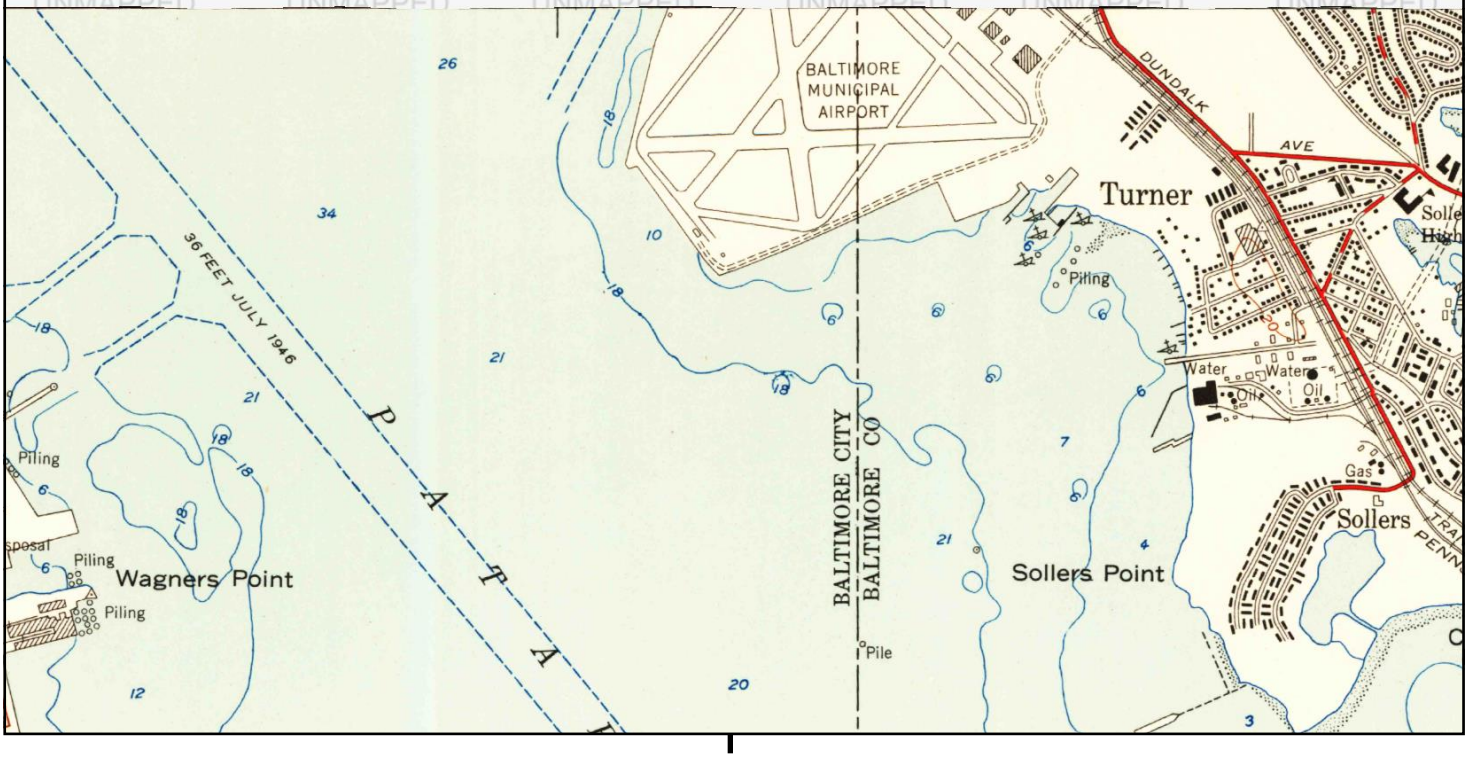

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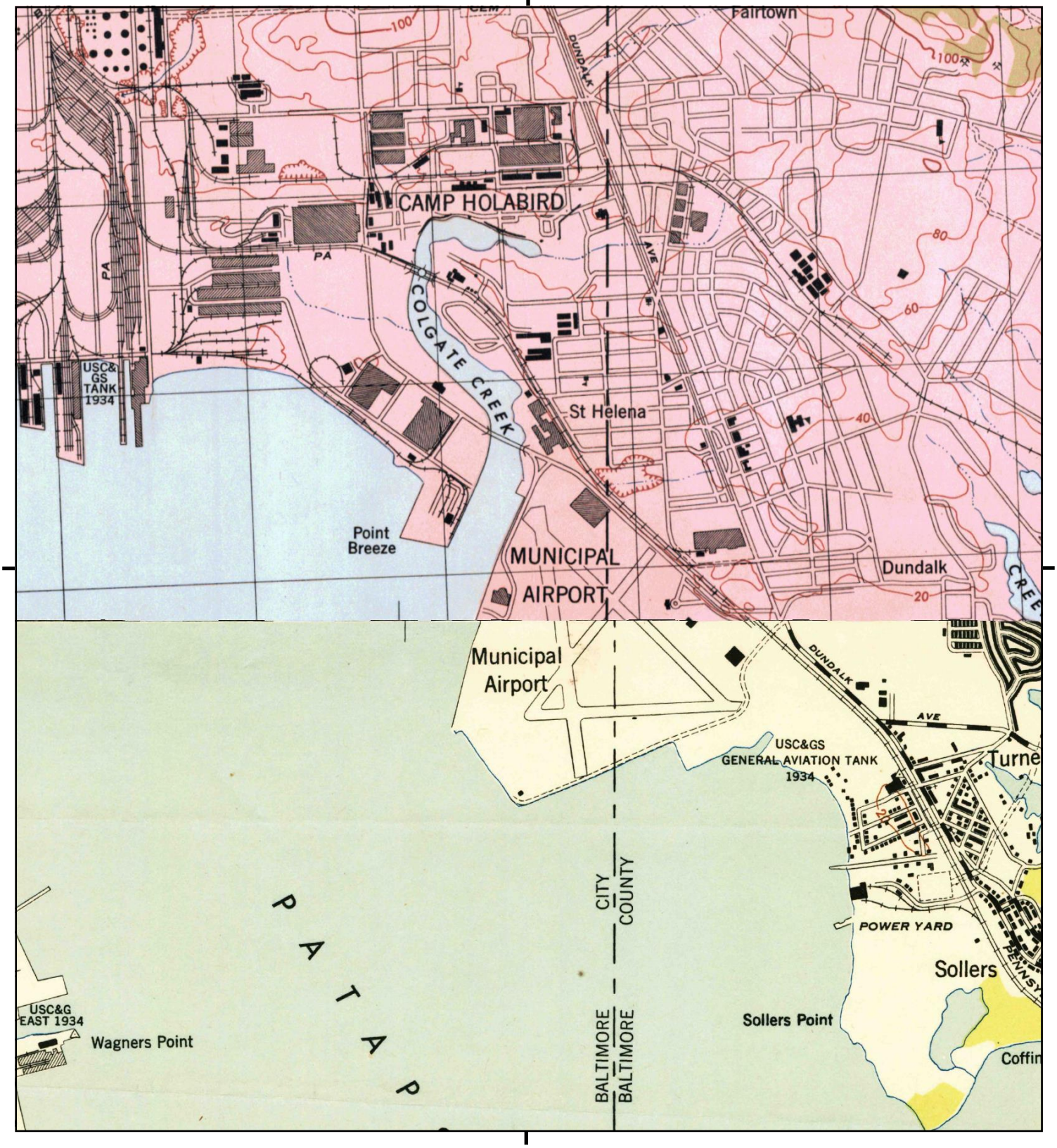

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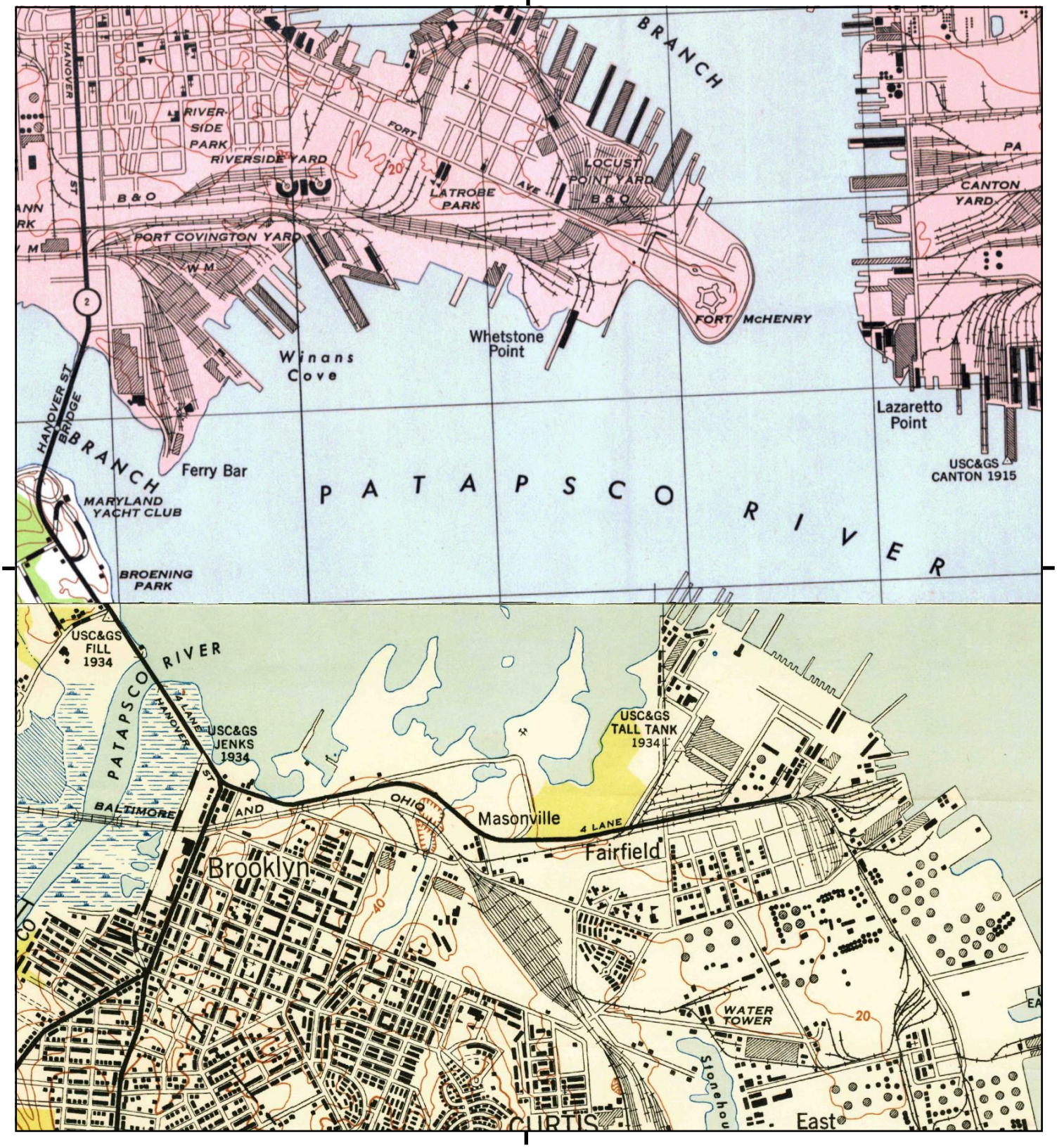

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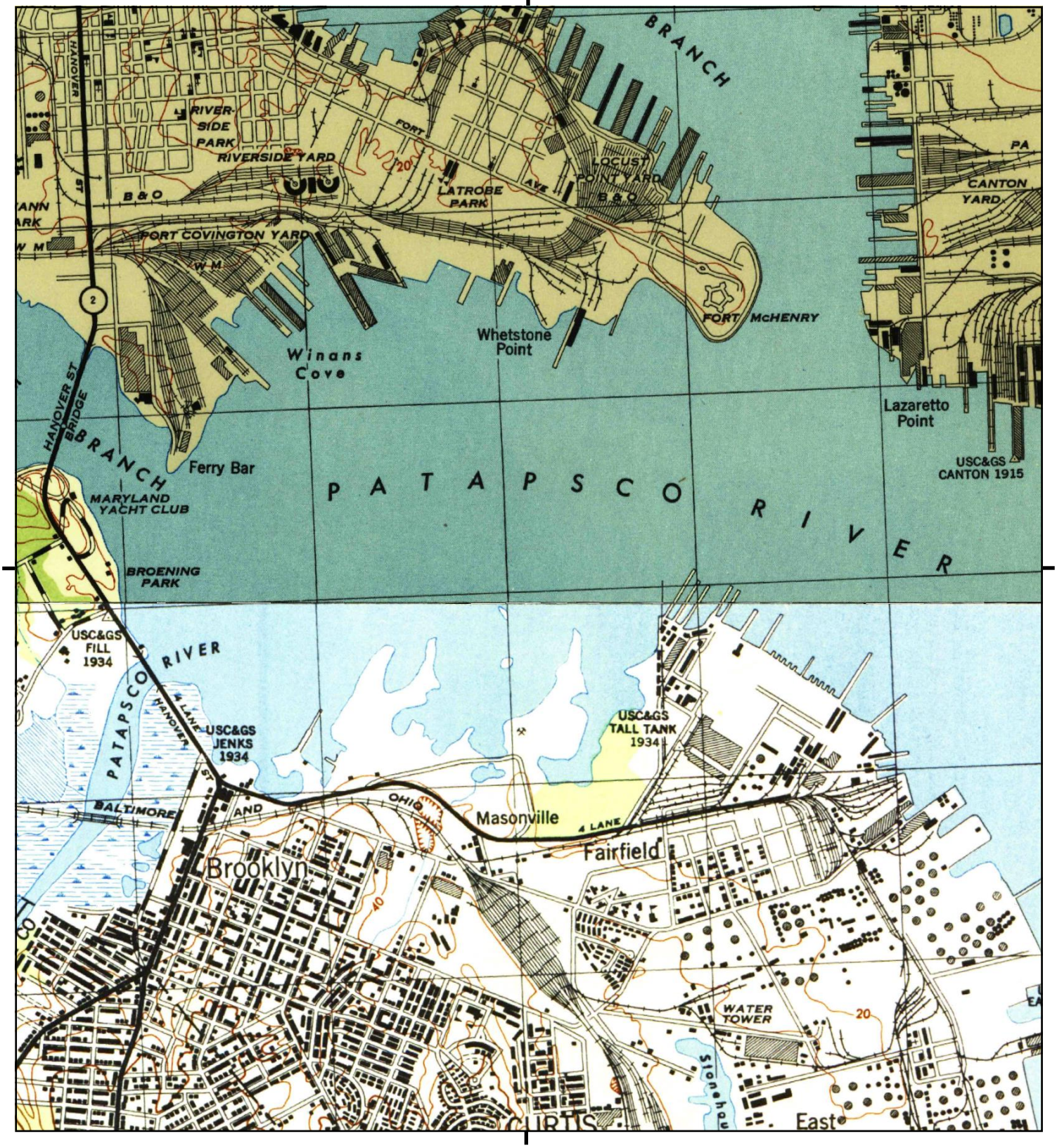

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SW S SE

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S, Curtis Bay, 1944, 7.5-minute

SITE NAME: Seagirt Study
ADDRESS: Baltimore, MD
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CLIENT: U.S. Army Corps of Engineers

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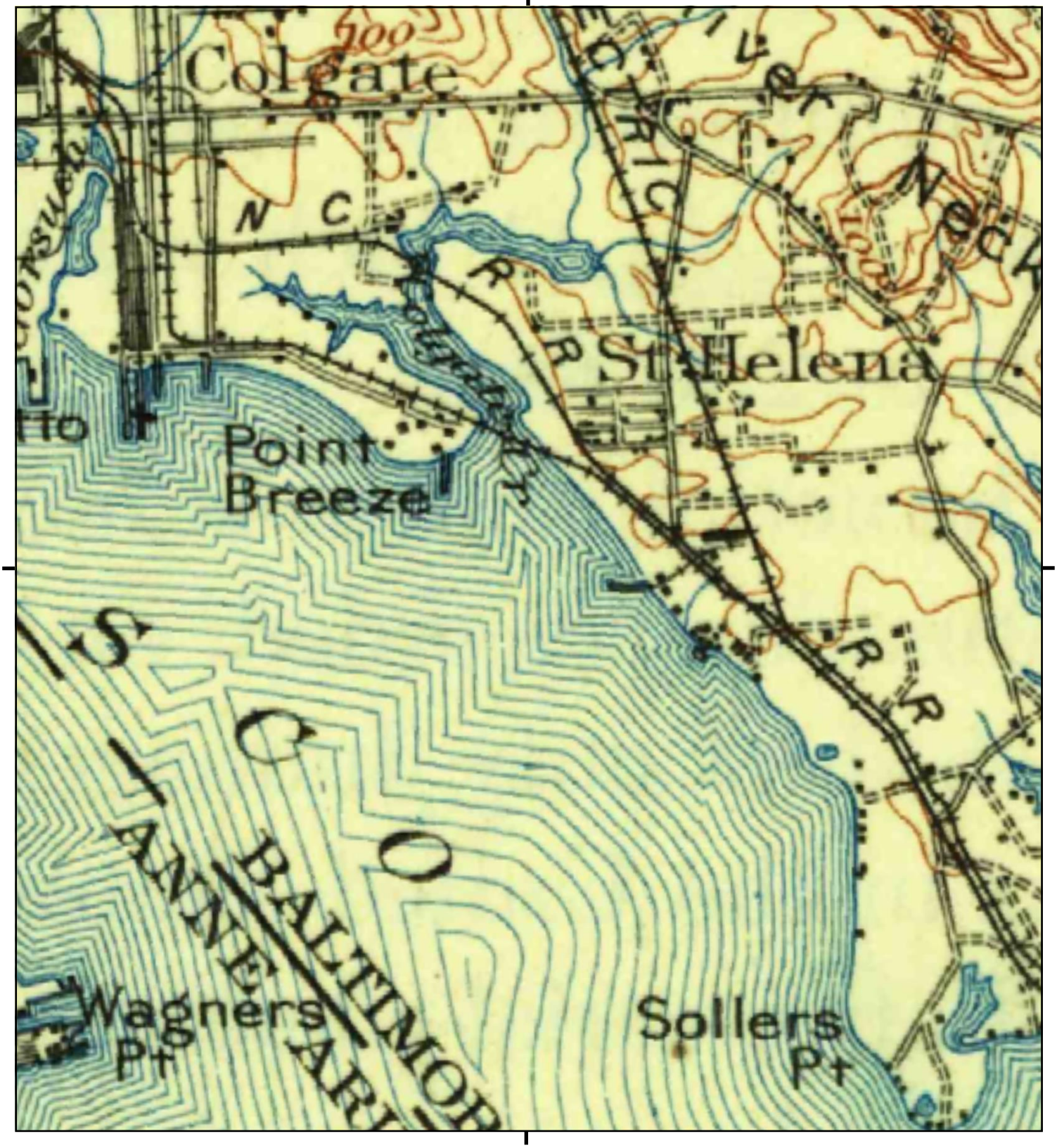

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TP, Patapsco, 1908, 30-minute

SITE NAME: Seagirt Study
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CLIENT: U.S. Army Corps of Engineers

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Cultural Resources

Previous Cultural Resources Investigations

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
Magnetometer Survey off the Historic Seawall of Fort McHenry National Monument and Historic Shrine Baltimore, Maryland	Langley 2004	Magnetometer survey off Fort McHenry's seawall that redefined the boundaries of site 18BC61 to include the entire naval battlefield.	Alternatives 4 - 7; I95 highway tunnel entrance	BC 140	Survey area is outside the CSRM project area.
Phase I Submerged Cultural Resources Survey, Baltimore Harbor and Anchorages Project, Baltimore, Maryland	R. Christopher Goodwin & Associates, Inc. 1994	Phase I maritime survey for deepening the Baltimore Harbor. No sites were identified.	Alternatives 4 - 7; I95 highway tunnel entrance	BA 112	Survey area is outside the CSRM project area.
Report of Cultural Resources Investigations for the I-95 Fort McHenry TunnelL, Baltimore Harbor	Koski-Karell 1981	Phase I maritime survey for the I-95 Fort McHenry Tunnel. No sites were identified.	Alternatives 4 - 7; I95 highway tunnel entrance	BC 19	Survey area is outside the CSRM project area.
Phase I Terrestrial and Underwater Archeological Investigations for the Naval Operations Support Center (NOSC), Baltimore, Maryland.	R. Christopher Goodwin & Associates, Inc. 2011	Phase I terrestrial and maritime survey for updates to the Naval Operations Support Center. One historic shipwreck identified that was recommended for further testing.	Alternatives 4 - 7; I95 highway tunnel entrance	BC 177	Survey area and identified resource are outside the CSRM project area.
Pipeline and Cable Identification in the Vicinity of Masonville and Fort McHenry in Baltimore Harbor, Maryland	R. Christopher Goodwin & Associates, Inc. 2005	Phase I maritime survey for pipeline and cable placement. No sites were identified.	Alternatives 4 - 7; I95 critical transportation facility	BA 180	Survey area is outside the CSRM project area.
Underwater Archeological Survey in the Vicinity of Masonville, Sparrows Point and Sollers Point in the Baltimore Harbor, Maryland	R. Christopher Goodwin & Associates, Inc. 2005	Phase I maritime survey for Masonville Cove, Sparrows Point, and Sollers Point. No sites were identified.	Alternatives 4 - 7; I895 highway tunnel entrance	BC 160	Survey area is outside the CSRM project area.
Report of an Underwater Archeological Survey of a Dredging Project Area in the Patapsco River,	Koski-Karell 1980	Phase I maritime survey for a Skyline Terminals, Inc. dredging project. No sites were identified.	Alternatives 4 - 7; I895 highway tunnel entrance	BC 18	Survey area is outside the CSRM project area.

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
Baltimore, Maryland					
Archeological Reconnaissance of the Proposed Masonville and Seagirt (Canton Company) Disposal Sites for Interstate 95-Related Spoils, Baltimore City, Maryland	Curry 1979	Phase I maritime survey for the Masonville and Seagirt placement areas. No sites were identified	Alternatives 4 - 7; I895 highway tunnel entrance	BC 10	Survey area is outside the CSRM project area.
Phase I Remote Sensing Marine Archeological Survey for the Baltimore Harbor and Anchorage Project	R. Christopher Goodwin & Associates, Inc. 2001	Phase I maritime survey for deepening the Baltimore Harbor. One historic shipwreck was identified that has not been evaluated for the NRHP.	Alternatives 4 - 7; I895 critical transportation facility	BC 156	Survey area and identified resource are outside the CSRM project area.
Marine Cultural Resources Reconnaissance for the Baltimore Harbor and Channels 42-Foot Study	Koski-Karell 1979	Phase I maritime survey for deepening the Baltimore Harbor and Channels Project to 42 feet. No sites were identified.	Alternatives 4 - 7; I895 critical transportation facility	BC 20A	Survey area is outside the CSRM project area.
Phase I Marine Archeological Remote Sensing Survey of the Proposed Rukert Terminals Corporation Dock Facility Dredging and Upgrade Project Area	R. Christopher Goodwin & Associates, Inc. 2006	Phase I maritime survey for upgrading the Rukert Terminals Corporation Dock Facility. No sites were identified.	Alternatives 4 - 7; I895 critical transportation facility	BA 183	Survey area is outside the CSRM project area.
Baltimore Light Rail Red Line Project: Red Line General Engineering Consultant Phase I Archeology, Cimaglia Park Reforestation Site.	PB, RK&K, EAC/A 2014	Phase I terrestrial survey for a light rail red line project. No sites were identified.	Alternatives 6 and 7; seagirt terminal floodwall	BC 193	Survey area is outside the CSRM project area.
A Report on an Archaeological Reconnaissance of Fort Holabird, Baltimore City, Maryland	Archaeological Services, Inc. 2014	Phase I archaeological reconnaissance of Fort Holabird. Established the boundaries and context for Fort Holabird.	Alternatives 6 and 7; seagirt terminal floodwall	BC 15	Survey area is outside the CSRM project area.

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
Archeological and Architectural Investigations at Camden Yards, Baltimore, Maryland, Vol. I.	R. Christopher Goodwin & Associates, Inc. 1992	Phase I terrestrial archaeological and architectural investigations of the Camden Yards facility. Fourteen historic period archaeological sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 74	Survey area is outside the CSRM project area.
Phase I/II Archeological Investigations for the Proposed Baltimore Convention Center Expansion, Baltimore, Maryland	R. Christopher Goodwin & Associates, Inc. 1994	Phase I and II terrestrial surveys for the proposed Baltimore Convention Center. Four historic period archaeological sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 95	Survey area is outside the CSRM project area.
An Investigation of the Archaeological Resources Associated with Piers 5 and 6 and the Harrison's at Pier 5 Complex (18BC62 & 18BC63) Baltimore, Maryland	Baltimore Center for Urban Archaeology 1990	Phase I and II terrestrial surveys investigating Piers 5 and 6 and the Harrison's at Pier 5 Complex. One archaeological site, Harrison's at Pier 6, was identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 66	Survey area and identified resource are outside the CSRM project area.
Exploratory Excavations: Inner Harbor I Urban Renewal Area, Baltimore, Maryland	Gibbs 1976	Phase I terrestrial survey for the Inner Harbor Urban Renewal Project. Seven historic period archaeological sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 110	Survey area and identified resources are outside the CSRM project area.
Letter Report: Piers 5 and 6 Coring Study, Baltimore City, Maryland	Comer 1984	Phase I coring study of Piers 5 and 6. No sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 28	Survey area is outside the CSRM project area.
Stage 1 - Phase IB Archeology Interim Report, City of Baltimore & Baltimore County, Maryland.	Ward et al. 2015	Phase I terrestrial survey for proposed Baltimore City transit improvements.	Alternative 7; Inner Harbor walkway and floodwall	BC 194	Survey area is outside the CSRM project area.
An Archaeological Investigation of the Proposed Renovation for the Hilltop of Federal Hill Park, Baltimore, Maryland	Baltimore Center for Urban Archaeology 1995	Phase I terrestrial survey for proposed renovations to Federal Hill Park. No sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 102	Survey area is outside the CSRM project area.

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
Archival and Archaeological Investigations of the Bernstein Building (18BC75) Baltimore, Maryland	Baltimore Center for Urban Archaeology 1991	Phase I terrestrial survey of the Bernstein Building. A late 18th century trash midden was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 70	Survey area and identified resource are outside the CSRM project area.
An Investigation of the Archaeological Resources Associated with the Columbus Plaza Site (18BC67) on Eastern Avenue, Baltimore, Maryland	Baltimore Center for Urban Archaeology 1991	Phase I terrestrial survey of the Columbus Plaza Site (18BC67). No additional sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 63	Survey area is outside the CSRM project area.
Archival Overview, Disturbance Assessment, and Phase I Archeological Investigations of the Proposed Maryland Museum of African American History and Culture Property, Baltimore City, Maryland	R. Christopher Goodwin & Associates, Inc. 1999	Phase I terrestrial survey for the proposed Museum of African American History and Culture. No sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 125	Survey area is outside the CSRM project area.
A Phase I Archaeological Investigation of the Cultural Resources Associated with the McKims School, 18BC107, Baltimore, Maryland	Read 1994	Phase I terrestrial survey of the McKims School. The early nineteenth century McKims School, site 18BC107, was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 100	Survey area and identified resource are outside the CSRM project area.
Phase I Archaeological Investigations at the Oldtown Meetinghouse (18BC106), Baltimore, Maryland	ACS Consultants 1994	Phase I terrestrial survey at the Oldtown Meetinghouse (site 18BC106). The late eighteenth century Oldtown Meetinghouse was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 97	Survey area and identified resource are outside the CSRM project area.
Phase I, II and III Archeological Investigations at the Juvenile Justice Center,	R. Christopher Goodwin & Associates, Inc. 2000	Phase I, II, and III terrestrial investigations for the Baltimore Juvenile Justice Center. Six historic period	Alternative 7; Inner Harbor walkway and floodwall	BC 128	Survey area and identified resources are outside the

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
Baltimore, Maryland		archaeological sites were documented.			CSRM project area.
Archaeological and Historical Investigations for the Proposed War of 1812 Museum on the Star Spangled Banner Flag House and 1812 Museum Campus, Baltimore City, Maryland.	Greenhorne & O'Mara, Inc. 2002	Phase I terrestrial survey of the proposed War of 1812 Museum. A twentieth century domestic site was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 134	Survey area and identified resource are outside the CSRM project area.
Phase I Archaeological Investigation of President Street Station (18BC124), Baltimore, Maryland	Baltimore Center for Urban Archaeology 1997	Phase I terrestrial survey of the President Street Station. A mid-nineteenth century archaeological site was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 115	Survey area and identified resource are outside the CSRM project area.
Phase I & II Underwater Archaeological Investigations at the Baltimore Museum of Industry Baltimore, Maryland	Tidewater Atlantic Research, Inc. 1998	Phase I and II maritime survey at the Baltimore Museum of Industry. One historic shipwreck was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 175	Survey area and identified resource are outside the CSRM project area.
Pre-field Work Preparation of Old School 6, Baltimore City, Maryland	Soil Systems, Inc. 1982	Phase I terrestrial survey of the Old School 6. A late eighteenth to late twentieth century residential site was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 27	Survey area and identified resource are outside the CSRM project area.
Archeological Investigation and Archival Research Associated with the Harborwalk Southern Terminus, Property Acquisition at 1425-1435 Key Highway, Baltimore City, Maryland	Ervin 1996	Phase I terrestrial survey for the Harborwalk Southern Terminus. No sites were documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 108	Survey area is outside the CSRM project area.

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
Phase I Marine Archeological Survey of the Proposed Harbor Point Development, Baltimore, Maryland	R. Christopher Goodwin & Associates, Inc. 2005	Phase I maritime survey for the proposed Harbor Point development. No sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 162	Survey area is outside the CSRM project area.
Report on an Archeological Survey of the Henderson's Wharf Site in Baltimore, Maryland	John Milner Associates, Inc. 1981	Phase I terrestrial and maritime survey of Henderson's Wharf. No sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 17	Survey area is within the CSRM project area.
An Investigation of the Archaeological Resources Associated with the Browns Wharf Site (18BC59) on Thames Street, Baltimore, Maryland	Baltimore Center for Urban Archaeology 1989	Phase I terrestrial and maritime survey of resources associated with the Browns Wharf Site (18BC59). The late eighteenth to twentieth century Brown's Wharf was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 61	Survey area and resource are within the CSRM project area.
Report on an Archeological Survey of the Anchorage Site in the Canton Section of Baltimore, Maryland	John Milner Associates, Inc. 1980	Phase I terrestrial survey of an anchorage site in Canton. No sites were identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 16	Survey area is within the CSRM project area.
Archaeological Investigations of the Cultural Resources Associated with the Two Sisters' Site, 18BC185, 612-614 S. Wolfe Street, Fell's Point, Baltimore, Maryland. Baltimore Center for Archaeology Research Series Number 1.	Read 2015	Phase I terrestrial survey of the Two Sister's Site (18BC185). The late eighteenth to mid-nineteenth century Two Sister's House was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 203	Survey area is outside the CSRM project area.
Phase I Archeological Investigation of the North Shore at the Anchorage Project Area, Boston Street, Canton Historic	R. Christopher Goodwin & Associates, Inc. 1989	Phase I terrestrial and maritime survey of the Anchorage Project area in Canton. No sites were documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 60	Survey area is within the CSRM project area.

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
District, Baltimore, Maryland					
Searching for the War of 1812 in Patterson Park, Baltimore, Maryland.	The Louis Berger Group, Inc. 2015	Phase I and II terrestrial investigations at Patterson Park. An early to mid-nineteenth century gatekeeper's house was identified.	Alternative 7; Inner Harbor walkway and floodwall	BC 196	Survey area and identified resource are outside the CSRM project area.
The Lakewood Drain Project: an Archaeological Investigation of Cultural Resources Associated with the Harford Run Drain of the American Can Company, 18BC56 Canton, Baltimore, Maryland	Baltimore Center for Urban Archaeology 1994	Phase I terrestrial survey for the Lakewood Drain Project. The American Can Company industrial complex (18BC56) was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 94	Survey area and identified resource are outside the CSRM project area.
An Investigation of the Archaeological Resources Associated with the Port Covington Commons Business Park Site (18BC72) Baltimore, Maryland	Baltimore Center for Urban Archaeology 1990	Phase I terrestrial investigation of the Port Covington Business Park. A mid to late nineteenth century industrial building (18BC72) was documented.	Alternative 7; Inner Harbor walkway and floodwall	BC 69	Survey area and identified resource are outside the CSRM project area.
Archaeological Assessment of proposed Gwynns Falls Greenway Properties.	Read 1993	Phase I terrestrial survey of proposed development properties. No sites were identified.	Alternative 7; wheelabrator	BC 189	Survey area is outside the CSRM project area.
Cultural Resource Survey of 1300 Bush Street, Bus Maintenance Facility, Baltimore City, Maryland.	McCormick Taylor, Inc. 2008	Phase I terrestrial survey of a bus maintenance facility. No sites were identified.	Alternative 7; wheelabrator	BC 178	Survey area is outside the CSRM project area.
Phase I Archaeological Investigation for the Gwynns Falls Trail, Phase 3 Baltimore City, Maryland	Comer 2001	Phase I terrestrial survey of the Gwynns Falls Trail. No sites were identified.	Alternative 7; wheelabrator	BC 135	Survey area is outside the CSRM project area.

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
Phase IA, Underwater Archaeological Remote Sensing Survey Report, I-95 Access Improvements from Caton Avenue to Fort McHenry Tunnel, Baltimore, Maryland.	Geomar Research, LLC 2017	Phase I maritime survey of I-95 Access improvements. No sites were identified.	Alternative 7; wheelabrator	BC 201	Survey area is outside the CSRM project area.
A Phase I Archaeological Study for the Expansion of Runway 14/32 and the Midfield Complex at Martin State Airport, Baltimore County, Maryland	Engineering-Science 1990	Phase I terrestrial survey of a proposed runway expansion. One precontact site and three historic period archaeological sites were identified.	Alternative 7; martin state airport road elevation	BA 65	Survey area and identified resources are outside the CSRM project area.
A Phase I Archaeological Study of the Runway 4/22 Area, Martin State Airport, Baltimore County, Maryland	Engineering-Science 1990	Phase I terrestrial survey of a proposed runway area. No sites were identified.	Alternative 7; martin state airport road elevation	BA 71	Survey area is outside the CSRM project area.
Archaeological Identification Survey Investigations for the Proposed Phase I Improvements, Martin State Airport, Middle River, Maryland.	EAC Archaeology, Inc. 2015	Phase I terrestrial survey for proposed airport improvements. One early to mid-twentieth century site was documented.	Alternative 7; martin state airport road elevation	BA 228	Survey area and identified resource are outside the CSRM project area.
The M/DOT Archaeological Resources Survey, Volume 2: Western Shore	MHT 1981	Regional Phase I terrestrial survey of the western shore. No site were identified near the CSRM project area.	Alternative 7; martin state airport road elevation	MD 1 v. 2	Survey area is outside the CSRM project area.
Phase I Cultural Resources Investigations at the Maryland Air National Guard (ANG) Facility at Martin State Airport, Balitmore County, Maryland	R. Christopher Goodwin & Associates, Inc. 2007	Phase I terrestrial survey of a Maryland Air National Guard Facility. One late nineteenth to early twentieth century domestic site and a prehistoric isolated find were documented.	Alternative 7; martin state airport road elevation	BA 186	Survey area and identified resources are outside the CSRM project area.

Report Title	Author/Date	Description/Results	Associated Alternative and Component (within 0.5 miles)	Report Number	Notes
Phase I Archeological Survey Middle River Employment Center Access Study, Baltimore County, Maryland. SHA Archeological Report No. 211	John Milner Associates, Inc. 1999	Phase I terrestrial survey of the Middle River Employment Center. No sites were identified near the Martin State Airport.	Alternative 7; martin state airport road elevation	BA 139	Survey area is outside the CSRM project area.
Archaeological Reconnaissance and Architectural Evaluation, Middle River Depot, Middle River, Maryland.	Louis Berger & Associates, Inc. 1994	Phase I terrestrial and architectural survey of the Middle River Depot. No archaeological sites were documented; however, the Middle River Depot is under an MHT preservation easement.	Alternative 7; martin state airport road elevation	BA 109	outside the alternative
Phase I Archaeological Investigations of Maryland Route 43 from U.S. Route 40 to Maryland Route 150, Baltimore County, Maryland	The Cultural Resource Group, 1989	Phase I terrestrial survey for Maryland Route 43. No sites were identified near the CSRM project area.	Alternative 7; martin state airport road elevation	BA 57	outside the alternative

PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT,
THE MARYLAND STATE HISTORIC PRESERVATION OFFICER,
AND THE MARYLAND TRANSPORTATION AUTHORITY
REGARDING
THE BALTIMORE METROPOLITAN COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

WHEREAS, the U.S. Army Corps of Engineers, Baltimore District (USACE) is studying the feasibility of designing and constructing the Baltimore Metropolitan Coastal Storm Risk Management Project (Project) pursuant to the Baltimore Metropolitan Water Resources authority; and,

WHEREAS, the USACE and the Maryland Transportation Authority (MDTA) have proposed to design and implement measures to reduce damages caused by flooding during coastal storms; and,

WHEREAS, the USACE has drafted an Integrated Feasibility Report and Environmental Assessment that has identified a Recommended Plan that includes the construction of floodwalls and non-structural measures (Appendix A); and,

WHEREAS, the USACE is the lead Federal Agency for compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) for the Project pursuant to 36 CFR Part 800.2(a)(2); and,

WHEREAS, the Project is a federally funded undertaking, as defined in 36 CFR Part 800.16(y), and is therefore subject to the requirements of Section 106 of the NHPA (54 U.S.C. § 306108; Section 106); and,

WHEREAS, the USACE has determined that that the proposed undertaking may have the potential to cause an adverse effect on properties eligible for or listed in the National Register of Historic Places (NRHP) pursuant to Section 106 and 36 CFR Part 800; and,

WHEREAS, structural measures are proposed for critical transportation facilities along Interstate 95 and the Baltimore Harbor Tunnel (B-5333), which has been determined eligible for the NRHP; and,

WHEREAS, nonstructural measures are proposed for two Maryland Historical Trust (MHT) Preservation Easement properties, the Baltimore Museum of Industry (B-997) and United States Appraisers' Stores (B-4496), and to buildings within the NRHP-listed Business and Government (B-3935) and Fells Point (B-3714) Historic Districts; and,

WHEREAS, the USACE has consulted about the Project with the Maryland Historical Trust, which serves as the Maryland State Historic Preservation Office (SHPO), pursuant to 36 CFR Part 800, the regulations implementing Section 106; and,

WHEREAS, in consultation with the SHPO, the USACE has established the Project's area of potential effects (APE) as the areas where structural and non-structural measures may directly or indirectly alter the character defining features of historic properties; and,

WHEREAS, schedule and budgetary constraints, including Section 1001 of the Water Resources Reform and Development Act (WRRDA) of 2014 (Public Law 113-121) (limiting duration and costs of USACE final feasibility reports), limit the detailed engineering design of the Project features during the feasibility phase such that the USACE cannot conduct all of the necessary surveys to fully identify and evaluate historic and cultural resources, fully determine adverse effects of the Project on historic properties, or fully avoid, minimize, or mitigate those adverse effects, prior to completing the appropriate National Environmental Policy Act (NEPA) documentation for the feasibility phase; and,

WHEREAS, because implementation of the Preconstruction, Engineering, and Design (PED) phase (where detailed engineering design will occur) is contingent on either authorization of funds by Congress, and execution of a Design Agreement between the USACE and MDTA, the USACE may implement PED in phases to the extent that design and/or construction authority is phased and funds are appropriated, so that efforts to identify and evaluate historic properties, determine effects from Project components, identify appropriate avoidance, minimization or mitigation, and conduct related consultation may occur over a period of multiple years as the design for each Project construction phase and/or features is finalized; and,

WHEREAS, any nonstructural measures in the Recommended Plan, including any measures that may have the potential to adversely affect NRHP eligible properties, are to be implemented on a voluntary basis, and it is not known at this time which specific property owners may elect to authorize nonstructural Project components on their properties; and,

WHEREAS, 36 CFR § 800.14(b)(1)[ii] allows federal agencies to fulfill their obligations under Section 106 through the development and implementation of Programmatic Agreements (PA) when effects on historic properties cannot be determined prior to approval of an undertaking; and,

WHEREAS, the MD SHPO has concurred with the use of a PA and in being a Signatory to this PA; and,

WHEREAS, the USACE has determined that as Project components are further designed during the PED phase of the Project, the APE may be further refined, cultural resources surveys to be conducted may identify additional historic properties within the APE, and effects on historic properties may be further identified; and,

WHEREAS, in accordance with 36 CFR Part 800.6(a)(1)(i)(C) and in accordance with 36 CFR Part 800.14(b), the USACE has invited the Advisory Council on Historic Preservation (ACHP)

to participate in consultation via the ACHP e106 submission and they have elected not to participate; and,

WHEREAS, the MDTA is the non-Federal sponsor for the structural components of the Project, and the USACE has invited MDTA to sign this PA as an Invited Signatory and they have elected to participate; and,

WHEREAS, Baltimore City has expressed interest as a potential non-Federal sponsor for the nonstructural components of the Project, and the USACE has invited Baltimore City to sign this PA as an Invited Signatory, but the City has not responded; and,

WHEREAS, the Baltimore City Commission for Historical and Architectural Preservation (CHAP) is part of Baltimore City's Department of Planning and oversees review of permits and plans within local historic districts; and,

WHEREAS, USACE will not implement any nonstructural project components unless and until there is a non-Federal sponsor for those project components; and,

WHEREAS, in accordance with 36 CFR § 800.2(c)(2), the USACE has invited the Baltimore County Department of Planning and National Park Service (NPS) to sign this PA as Concurring Parties, and the NPS has elected to participate; and,

WHEREAS, in accordance with 36 CFR § 800.2(c)(3) the USACE has invited Preservation Maryland to sign this PA as a Concurring Party, but they have not responded; and,

WHEREAS, in accordance with 36 CFR § 800.14(b)(2)(i), the USACE has invited the Delaware Nation, Delaware Tribe of Indians, and the Seneca-Cayuga Tribe to sign this PA as Concurring Parties, and the Delaware Nation has elected to participate as a consulting party, but has requested not to sign this agreement; and,

WHEREAS, the USACE, MD SHPO, and MDTA are collectively referred to as Signatories in the PA; and,

WHEREAS, the NPS and Delaware Nation are hereinafter collectively referred to as Concurring Parties; and,

WHEREAS, the Signatories and Concurring Parties agree that it is advisable to accomplish compliance with Section 106 of the NHPA through the development and execution of this PA in accordance with 36 CFR § 800.6 and § 800.14 (b)(1)(ii); and,

WHEREAS, the USACE is coordinating, and shall continue to coordinate a public outreach program for this Project which in the past has consisted of a number of public meetings and the circulation of cultural resource and environmental documents related to the Section 106 and National Environmental Policy Act review processes; and,

NOW, THEREFORE, the Signatories agree that the Project shall be implemented in accordance with the following stipulations in order to consider the effects of the Project on historic properties:

STIPULATIONS

The USACE shall ensure that the following measures are carried out:

I. Timeframes and Review Procedures

A. For all draft and final documents and deliverables produced in compliance with this PA, the USACE shall provide documents electronically for formal review and for communications among the Signatories and Concurring Parties. Upon request, a hardcopy via mail may be provided to any Signatory or Concurring Party, time and size permitting. Any written comments provided on draft documents by the Signatories and Concurring Parties within 30 calendar days from the date of receipt shall be considered in the revision of the document or deliverable. The USACE shall document and report the written comments received for the document or deliverable and how comments were addressed. The USACE shall provide a revised final document or deliverable to the Signatories and Concurring Parties. The Signatories and Concurring Parties shall have 30 calendar days to respond. Failure of the Signatories and Concurring Parties to respond within 30 calendar days of receipt of any document or deliverable shall not preclude the USACE from moving to the next step of this PA. A copy of the final document or deliverable shall be provided to the Signatories and Concurring Parties subject to the limitations in Stipulation X (Confidentiality).

B. For any Project components within the review authority of the Baltimore City CHAP, the USACE will consult with them and work within the project review procedures outlined in the *Baltimore City Historic Preservation Rules and Regulations*.

II. Area of Potential Effect

A. The preliminary APE for the Project was determined by the USACE based on feasibility-level design and in consultation with the MD SHPO and other Concurring Parties. The preliminary APE is composed of Project components and corresponding viewsheds is depicted in Appendix A of this PA. Design and construction of the Project may occur in phases in which various components of the Project shall be funded and designed separately. The USACE shall refine and consult on the development of each Project phase and consult on the APE for each project feature throughout PED as designs are developed that either expand or contract direct and indirect areas of effect.

B. The APE shall be revised where necessary as project designs and details become available to incorporate all areas, including staging areas and travel routes, that will be directly, indirectly, or cumulatively affected by the Project. If the USACE revises the APE, or an individual component of the APE, the USACE shall consult with the MD SHPO and other Concurring Parties on that revision in accordance with Stipulation I. Pursuant to Stipulation III.C, Project designs will be reviewed by the Concurring Parties at 35%, 65%, and 95% levels of design. The MD Signatories and Concurring Parties may recommend revisions to the APE based on design changes. The USACE shall consult with the Signatories and Concurring Parties on recommended revisions in accordance with Stipulation I and determine the final APE for each Project component. After consultation with the Signatories and Concurring Parties, the new amended APE will be appended to this PA in Appendix A, pursuant to Stipulation XIII.B.

C. The USACE shall determine the potential for the Project to affect historic properties in a revised APE in consultation with the Signatories and Concurring Parties pursuant to 36 CFR Part 800.3 – 800.5. If the USACE assesses the Project as proposed and determines that Project designs may cause additional/different effects, of a direct, indirect, or cumulative nature, then the APE should be modified and the USACE shall consult on the modified APE and its assessment of effects in accordance with Stipulation I. Revisions to the APE will not necessitate amendments to this PA.

D. Through consultation with property owners, the USACE will continue to seek participation in the Project to determine the final number of buildings that will be subject to nonstructural measures within the APE. Due to the voluntary nature of the Project, the USACE and MD SHPO have agreed to the following actions for the various types of nonstructural measures:

1. If the owner(s) do not volunteer to participate in the Project, no further consultation is required, and the APE will be updated accordingly.

2. If the property owner(s) volunteer to participate in the Project and the building is proposed for elevation, wet-floodproofing, or dry floodproofing, the USACE will consult with the Baltimore City CHAP in accordance with Stipulation I.B above and with the MD SHPO to follow the historic property identification efforts described in Stipulation III below.

III. Treatment of Historic Properties

A. Identification and Evaluation

The USACE shall complete the identification and evaluation of historic properties as early as practicable, following Project authorization and receipt of funding, to assist in the avoidance and minimization of adverse effects to historic properties well in advance of Project construction. The USACE will begin consultation with the Signatories and Concurring Parties regarding PED timeframes, cultural resources

surveys, eligibility evaluations, proposed construction schedules, how each Project component will be identified, delineated, and effects assessed, and development of a detailed consultation and document delivery schedule to be appended to this PA in Appendix D, pursuant to Stipulation XIII.B, within six (6) months of receiving funding at the Baltimore District level.

1. *Above-Ground Structures*. As design details and funding becomes available, the USACE shall consult on the need to initiate a historic properties identification survey of all above-ground and architectural resources that will reach 50 years of age within the duration of the project and are within the APE described in Stipulation II (Area of Potential Effect). Any surveys will be consistent with the Secretary of the Interior's (SOI) Standards and Guidelines for Archeology and Historic Preservation.
    a. Prior to initiation of a survey, the USACE shall submit a scope of work for the proposed survey to the Signatories and Concurring Parties for review and comment consistent with Stipulation I (Timeframes and Review Procedures). Surveys and associated reporting will comply with all applicable guidelines and requirements listed in Stipulation VIII (Qualifications). Surveys shall ensure that above-ground and architectural resources are recorded using the appropriate MD SHPO site form.

    b. Surveys will identify historic properties within the APE and determine if these properties are eligible for inclusion in the NRHP individually or as a contributing element to a historic district and/or National Historic Landmark (NHL) as appropriate.

        i. USACE shall evaluate the Fort McHenry Tunnel (I-95) for NRHP eligibility if it remains within the APE. The Tunnel was identified by the Federal Highway Administration as an exceptionally significant feature of the Federal Interstate Highway System under the 2005 *Section 106 Exemption Regarding Effects to the Interstate Highway System* (Federal Register Vol. 70, No. 46) and continues to be subject to consideration under Section 106 requirements.

    c. The USACE shall submit identification and evaluation survey reports to the Signatories and Concurring Parties for review and comment in accordance with Stipulation I.

2. *Archaeological Resources*. As design details and funding becomes available, the USACE shall consult on the need to initiate a historic properties identification survey of archaeological resources within the APE described in Stipulation II (Area of Potential Effect). Any surveys will be consistent with the SOI's Standards and Guidelines for Archeology and Historic Preservation.

    a. Prior to initiation of a survey, the USACE shall submit a scope of work for the proposed survey to the Signatories and Concurring Parties for review

and comment consistent with Stipulation I (Timeframes and Review Procedures). Surveys and associated reporting will comply with all applicable guidelines and requirements listed in Stipulation VIII (Qualifications). Recordation of any archaeological sites shall be prepared using the appropriate MD SHPO site form.

b. Surveys will identify archaeological resources within the APE and determine if these properties are eligible for inclusion in the NRHP individually or as a contributing element to a district and/or NHL as appropriate.

c. The USACE shall submit identification and evaluation survey reports to the Signatories and Concurring Parties for review and comment in accordance with Stipulation I (Timeframes and Review Procedures).

3. *NRHP Eligibility Determinations*. The USACE shall determine NRHP eligibility based on identification and evaluation efforts and consult with the Signatories and Concurring Parties regarding these determinations. Should any Signatory or Concurring Party(s) disagree in writing to the USACE's findings of NRHP eligibility within a final document or deliverable, the USACE will immediately notify the Signatories and Concurring Parties of the objection and proceed to consult with the objecting Signatory or Concurring Party(s) for a period of time, not to exceed 30 calendar days, to resolve the objection. Should the objecting Signatory or Concurring Party(s) and the USACE be unable to agree on the issues to which the Concurring Party(s) has objected, the USACE shall proceed in accordance with Stipulation XI (Dispute Resolution); or,

a. Through mutual agreement of the Signatories, elect to consult further with the objecting Signatory or Concurring Party(s) until the objection is resolved, or dispute resolution is exercised through the process set forth in Stipulation XI (Dispute Resolution); or,

b. Treat the property as eligible for the NRHP; or,

c. Obtain a formal determination of eligibility from the Keeper of the NRHP. The Keeper's determination will be final in accordance with 36 CFR Part 63.4.

B. Assessment of Effects

If historic properties meeting the criteria for listing in the NRHP are identified as a result of the activities described in Stipulation III.A, the USACE shall assess the effects of the Project on these properties in a manner consistent with 36 CFR Part 800.5, and submit its findings to the Signatories and Concurring Parties for review and comment pursuant to Stipulation I (Timeframes and Review Procedures).

1. Findings of No Historic Properties Affected.

    a. Basis for Finding. The USACE shall make findings of "no historic properties affected" under the following circumstances:

        i. If no historic properties are present in the APE; or,

        ii. The Project component shall avoid effects to historic properties.

    b. The USACE shall notify the MD SHPO and other Concurring Parties of each finding and provide supporting documentation in accordance with 36 CFR Part 800.11(d). Unless a Signatory or Concurring Party objects to a finding within 30 calendar days, the Section 106 review of the Project component will have concluded.

    c. If a Signatory or Concurring Party(s) objects within 30 calendar days to a finding of "no historic properties affected," the USACE shall consult with the objecting Concurring Party(s) to resolve the disagreement.

        i. If the objection is resolved, the USACE either may proceed with the Project component in accordance with the resolution or reconsider effects on the historic property by applying the criteria of adverse effect pursuant to 36 CFR Part 800.5(a)(1).
        ii. If the USACE is unable to resolve the disagreement within 30 calendar days, it will forward the finding and supporting documentation to the ACHP and request that the ACHP review the USACE's finding in accordance with the process described in 36 CFR Part 800.4(d)(1)(ii). If the USACE's final determination is to reaffirm its "no historic properties affected" finding, the Section 106 review of the Project component will have concluded. If the USACE revises its finding, then it shall proceed to Stipulation III.B.2 or Stipulation III.B.3 as applicable.

2. Findings of No Adverse Effect

    a. Basis for Finding. If the USACE determines that a Project component does not meet the adverse effect criteria, the USACE shall propose a finding of "no adverse effect" and consult with the Signatories and Concurring Parties in accordance with 36 CFR Part 800.5(b) and following steps i-iii below:

        i. The USACE shall notify the Signatory and Concurring Parties of its finding; describe any project specific conditions and/or

modifications required to the undertaking to avoid adverse effects to historic properties; and provide supporting documentation pursuant to 36 CFR Part 800.11(e).

ii. Unless a Concurring Party disagrees with the finding within 30 calendar days, the USACE shall proceed with its "no adverse effects" determination and conclude the Section 106 review of the Project component.

iii. If a Signatory or Concurring Party(s) disagrees with the finding of "no adverse effect," the USACE will consult with the objecting Signatory or Concurring Party(s) to resolve the disagreement.

a) If the objection is resolved, the USACE shall proceed with the Project component in accordance with the resolution; or,

b) If the objection cannot be resolved, the USACE shall request that the ACHP review the findings in accordance with 36 CFR Part 800.5(c)(3)(i)-(ii) and submit the required supporting documentation. If the USACE's final determination is to reaffirm its "no adverse effect" finding, the Section 106 review of the Project component will have concluded. If the USACE will revise its finding, then it shall proceed to Stipulation III.B.3 below.

3. Determination of Adverse Effect

a. If the USACE determines that a Project component may diminish, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association resulting in an adverse effect to a historic property, the USACE shall notify the Signatories or and Concurring Parties of the determination.

b. Avoidance and Minimization of Adverse Effects. Avoidance of adverse effects to historic properties is the preferred treatment approach. The USACE will consider redesign of Project components in order to avoid and/or minimize historic properties and Project effects that may be adverse. Provisions for avoidance and minimization of adverse effects are outlined in Stipulation III.C. If the USACE determines that the Project component cannot be modified to avoid or minimize adverse effects, the USACE will make a

determination of "adverse effect" in accordance with Stipulation III.C.3.

C. Avoidance and Minimization of Adverse Effects

1. Project components may be avoided or minimized through adherence to the SOI's Standards for the Treatment of Historic Properties and/or other appropriate historic property standards and guidelines. Avoidance and minimization of adverse effects to historic properties may include, but are not limited to, improvements to overall alignment, use of high-quality construction materials, contextualization of design and materials specific to location, integrated public art or landscape features, and an enhanced community experience. The USACE shall prioritize identifying and implementing avoidance and minimization measures and approaches in consultation with the Signatories and Concurring Parties.

    a. The USACE will develop Project plans and specifications for each Project component at completion intervals of 35%, 65%, and 95% levels of design. At each level of design, the USACE will provide the draft plans and specifications to the Signatories and Concurring Parties for review and comment in accordance with Stipulation I (Timeframes and Review Procedures).

    b. If, through consultation with the Signatories and Concurring Parties, adverse effects to historic properties are avoided at the 35% or 65% level of design, the USACE shall make a determination of effect on the Project component in accordance with Stipulation III.B.2.a. The 95% level of design shall still be provided for review and comment in accordance with Stipulation I regardless of effects determination.

    c. If an effects determination has not been made at the 35% or 65% level of design, or if changes to the 95% design review may alter the effects determination, the USACE shall make a determination of effect in accordance with Stipulation III.B after consultation with the Signatories and Concurring Parties is complete for the 95% design review of the Project.

2. If the USACE, during its initial review of a Project component, finds the undertaking may adversely affect historic properties, the USACE shall develop and evaluate alternatives or modifications to the undertaking that could avoid or minimize adverse effects on historic properties. If an effect cannot be avoided or minimized, the USACE will follow Stipulation III.C.3 of this PA.

    a. Alternatives or modifications to the Project component that would avoid or minimize adverse effects on historic properties shall be

provided to the Signatories and Concurring Parties for review and comment in accordance with Stipulation I (Timeframes and Review Procedures).

b. After all comments provided by the Signatories and Concurring Parties in accordance with Stipulation I have been considered, the USACE shall make a determination of effect in accordance with the process described Stipulation III.B.2.a or Stipulation III.B.3.

3. In the event that an adverse effect cannot be avoided or minimized, documentation will be provided to explain why the effect cannot be avoided or minimized and outline the alternatives considered to avoid or minimize, and the USACE will consult with the Signatories and Concurring Parties to resolve the effects in accordance with Section III.D.

D. Mitigation of Adverse Effects

1. The mitigation of adverse effects on historic properties shall be funded by the USACE. For mitigation of adverse effects on historic properties owned by MDTA, USACE and MDTA will share costs following the 65 percent for USACE (federal) and 35 percent for MDTA (non-federal sponsor) cost share requirement. If adverse effects cannot be avoided or minimized, the USACE, in consultation with the Signatories and Concurring Parties, shall develop a treatment plan for the affected historic property in accordance with Stipulation III.D.2 below.

2. Historic Properties Treatment Plan

a. If the USACE determines that the Project will result in an adverse effect, they shall develop a Historic Properties Treatment Plan (HPTP) or Plans to resolve adverse effects. An HPTP would be developed after the USACE notifies the Signatories and Concurring Parties of a determination of "adverse effect" for the Project or Project component, but before construction of the component commences as outlined in Stipulation IV (Notices to Proceed with Construction).

b. An HPTP shall outline the mitigation measures necessary to resolve the adverse effects on historic properties. Proposed mitigation measures may include, but are not limited to, data recovery, HABS/HAER/HALS documentation, educational programs, informative websites, donation of preservation easements, contributions to preservation funds, historic markers, interpretive brochures, publications, and other forms of creative mitigation or combinations of these measures depending on the historic property's criterion for eligibility. An HPTP shall include a general schedule of work for each Project component, and provide a schedule of key

project milestones, and decision points at which to discuss opportunities for Project modification(s) with the Signatories and Concurring Parties.

c. Where a historic property is under private ownership, the Signatories and Concurring Parties shall to the maximum extent practicable involve the private owner(s) in the development of measures for the HPTP, provided that the HPTP measures to be developed are no more costly or extensive than would be for a comparable property under public ownership. Where a private owner refuses to participate in the development of an HPTP, the Signatories and other Concurring Parties may elect to develop an HPTP without the owner's participation. Under no circumstances will the USACE be responsible for a private owner's refusal to participate in the development of an HPTP or the refusal to conduct onsite mitigation. Mitigation options may be constrained to offsite or non-invasive approaches (e.g., documentation, offsite interpretation, or further support to other larger scale mitigation measures, etc.) and must be consistent with parameters for use of Federal funds.

d. An HPTP shall define the process and conditions under which monitoring is appropriate, as applicable. An HPTP will outline the curation process and storage criteria for all artifacts and data recovered from historic properties. An HPTP will detail the means and methods of public outreach and dissemination of the results of data recovery excavations to the general public.

e. The USACE shall ensure that the provisions of an HPTP, as developed in consultation with the Signatories and Concurring Parties and agreed to by the Signatories are documented in writing and implemented. An HPTP shall be appended to this PA in Attachment D without amending the PA. The use of an HPTP to resolve adverse effects resulting from the Project shall not require the execution of an individual Memorandum of Agreement or PA and would follow the provisions below (i-vi).

    i. Development: The USACE shall develop an HPTP in consultation with the Signatories and Concurring Parties after a determination of adverse effect is made in accordance with Stipulation III.B.3.
    ii. Review: The USACE shall submit the draft HPTP to the Signatories and Concurring Parties for review and comment pursuant to Stipulation I (Timeframes and Review Procedures).
    iii. Concurrence: Following review and acceptance of the HPTP, the Signatories and Concurring Parties will be

provided the final HPTP, which will be appended to this PA in Appendix E, pursuant to Stipulation XIII.B, and implemented in a manner consistent with the procedures outlined in this PA and the HPTP. Per Stipulation IV (Notices to Proceed with Construction) below, the HPTP shall be implemented prior to any construction or other activity associated with the undertaking that would adversely affect a historic property. Should the Signatories and Concurring Parties be unable to agree on an HPTP, the USACE shall proceed in accordance with Stipulation XI (Dispute Resolution).

iv. Reporting: Reports and other data pertaining to the treatment of effects to historic properties will be distributed to the Signatories and Concurring Parties and other members of the public, consistent with Stipulation X (Confidentiality), unless the Signatories and Concurring Parties have indicated through consultation that they do not want to receive a report or data. Reports will be consistent with the procedures outlined in the appropriate MD SHPO and SOI standards and guidelines.

v. Amendments/Addendums/Revisions: If a historic property, which is not covered by an existing HPTP, is discovered within the APE subsequent to the initial inventory effort, if there are previously unanticipated effects to a historic property, or if the USACE, MD SHPO, and other Concurring Parties mutually agree that a modification to the HPTP is necessary, the USACE shall prepare an addendum to the HPTP. If necessary, the USACE shall then submit the addendum to the Signatories and Concurring Parties for review in accordance with Stipulation I (Timeframes and Review Procedures), and if necessary, shall follow the provisions of Stipulation V (Inadvertent Discoveries). The HPTP may cover multiple discoveries for the same property type. Should the Signatories and Concurring Parties be unable to agree on an HPTP addendum, the USACE shall proceed in accordance with Stipulation XI (Dispute Resolution).

vi. Final Report Documenting Implementation of HPTP(s): Within one year after the completion of all construction for the Project, the USACE shall submit to the Signatories and Concurring Parties a final report, or reports if multiple HPTPs were used, documenting the results of all work prepared under the HPTP. The USACE may extend this period through written consent of the Signatories. The submittal of the Final Report shall be in addition to the annual report required under Stipulation XIV (Monitoring

and Reporting) of this PA and in accordance with Stipulation I (Timeframes and Review Procedures) and Stipulation X (Confidentiality).

IV. Notices to Proceed with Construction

A. After the identification and evaluation of historic properties have been completed for the Project, and an effects determination has been made per Stipulation III (Treatment of Historic Properties), the USACE may issue a notice to proceed (NTP) for Project components, defined by the USACE in its construction plans and specifications, prior to resolution of the adverse effects on historic properties, provided that:

1. The HPTP has been finalized for the undertaking in accordance with Stipulation III.D and that the construction would not impact or prevent implementation of the HPTP; and,

2. Ground-disturbing activities associated with the Project do not encroach within 50 feet of the known boundaries of any historic property as determined from archaeological site record forms, other documentation, or as otherwise defined in consultation with the Signatories and Concurring Parties, as appropriate; and,

3. If an archaeological monitor is deemed necessary by the USACE after consultation with the Signatories and Concurring Parties, an archaeological monitor that meets the professional qualifications described in Stipulation VIII (Qualifications) will be present during any activities that are anticipated to extend either vertically or horizontally into any areas designated as archaeological sensitive.

B. Notification of the USACE's intent to provide an NTP for Project components will be provided to the Signatories and Concurring Parties thirty days before the NTP is issued to the construction contractor. Notification of the NTP to Signatories and Concurring Parties will only occur in instances where an adverse effects determination was made for a Project component.

V. Inadvertent Discoveries

A. If historic properties are inadvertently discovered or if unanticipated adverse effects to known historic properties are made during implementation of a Project component the USACE will ensure that the following stipulations are met, and that the following provisions will be included in all construction, operations, and maintenance plans.

B. When a previously unidentified cultural resource, including but not limited to, archaeological sites, above ground and architectural resources, and properties of traditional religious and cultural significance to Indian Tribes, are discovered

during the execution of the Project, the individual(s) who made the discovery shall immediately notify the USACE and the Project's Contracting Officer (CO), secure the vicinity, make a reasonable effort to avoid or minimize harm to the resource and comply with the following:

1. All ground-disturbing activities shall cease within a minimum of 50 feet from the inadvertent discovery until the USACE's agency official issues the NTP following the procedure outlined in Stipulation IV (Notices to Proceed with Construction).

2. The USACE will notify the Signatories and Concurring Parties by email or telephone within 48 hours of the discovery or unanticipated effect.

3. The USACE will consult with the Signatories and Concurring Parties by email, virtual meeting, or telephone to determine whether additional investigations are needed to determine if the resource is a historic property or if the available information is sufficient to make such a determination.

    a. If the UACE determines through consultation that the resource does not warrant further investigation, they will provide written notification by email to the Signatories and Concurring Parties, outlining the Corps' justification and requesting concurrence. If no comments are received within 72 business hours of acknowledged receipt, construction may resume. Should any party object, the USACE will proceed in accordance with Stipulation XI (Dispute Resolution), except that the calendar day periods in the timeframe for resolution in XI.A, shall be reduced from 30 calendar to not to exceed 10 business days.

    b. If the USACE determines through consultation that the site warrants further investigation, a scope of work will be developed consistent with Stipulation III (Treatment of Historic Properties).

        i. The scope of work will be submitted to the Signatories and Concurring Parties for review and comment within a timeframe established in the scope of work. If no comments are received within this period, work shall be implemented in accordance with the scope. If comments are received, the USACE shall take them into account and carry out the scope of work. A report of the investigations will be completed within the timeframe established by the scope of work and copies provided to the Signatories and Concurring Parties. Should any party object to the proposed work plan or results, the USACE will proceed in accordance with Stipulation XI (Dispute Resolution), except that the calendar day periods in the timeframe for

resolution in XI.A, shall be reduced from 30 calendar to not to exceed 10 business days.

ii. If the resources are found to be not eligible for listing in the NRHP, construction may proceed as planned.

iii. If the resources are determined to be eligible for listing in the NRHP, the USACE shall then initiate communication with the Project design team to determine if alternative design or construction methods can be implemented to avoid, protect, or minimize adverse effects to the resource. If the resources cannot be avoided by construction activities, then a mitigation/treatment plan or other measures will be adopted in accordance with Stipulation III.D.2. Undertaking activities in the 50-foot buffer, or other appropriate distance determined by the USACE, will remain suspended until the USACE resolves the adverse effect.

c. Inadvertent discovery and the treatment of human remains is governed by Stipulation VI (Tribal Consultation and Treatment of Human Remains).

C. If unanticipated effects to historic properties are made during implementation of a Project phase or feature where a "no adverse effects" determination was previously made through development of Project feature design, monitoring, and/or protection plan in accordance with Stipulation III.C, the individual(s) who made the discovery shall immediately notify the USACE and the Project's CO, secure the vicinity, make a reasonable effort to stop and avoid further harm to the resource and comply with the following:

1. All ground-disturbing activities shall cease within a minimum of 50 feet from the inadvertent effect until the USACE's agency official issues the NTP following the procedure outlined in Stipulation IV (Notices to Proceed with Construction).

2. The USACE will notify the Signatories and Concurring Parties by email or telephone within 48 hours of the discovery or unanticipated effect.

3. The USACE will consult with the Signatories and Concurring Parties by email or telephone to determine the sources of the effect and whether the feature design, monitoring plan, and/or protection plan should be amended to avoid adverse effects.

a. If the USACE determines through consultation that an amendment to the feature design, monitoring plan, and/or protection plan can

be made to protect the historic property from further effect, they will provide written notification by email to the Signatories and Concurring Parties, outlining the USACE's justification and requesting concurrence. If no comments are received within 72 business hours of acknowledged receipt, construction may resume.

b. If, through consultation with the Signatories and Concurring Parties, the USACE determines that damage occurred to a historic property as a result of the unanticipated effect constitutes an adverse effect as defined in Stipulation III.B.3, or that further effects cannot be avoided through an amendment to the feature design, monitoring plan, and/or protection plan, a determination of adverse effect will be made and a HPTP will be developed in accordance with Stipulation III.D.2.

    i. A construction buffer will be made in consultation with the Signatories and Concurring Parties and construction will be allowed to continue outside of the buffer.

    ii. After the HPTP has been finalized in accordance with Stipulation V.D, a NTP will be issued for the remainder of the Project feature impacted by the unanticipated effect in accordance with Stipulation IV (Notices to Proceed with Construction).

VI. Tribal Consultation and Treatment of Human Remains

A. During any point during design or construction of a Project component that may affect historic properties, particularly TCPs or human remains of Native American Origin, any Indian Tribe(s) may request to consult on the undertaking whether or not the Tribe(s) is a Concurring Party to this PA. If requested, the USACE will consult with the Tribe(s) on a government-to-government basis in recognition of their sovereign status.

B. The USACE will make every effort to avoid the disturbance of historic and prehistoric human remains. If human remains are identified, consultation would occur with any Indian Tribe(s) that claim cultural affiliation with the identified human remains and any associated funerary objects, sacred objects, and objects of cultural patrimony.

C. If encountered, human skeletal remains and the artifacts found in association with human remains, whether in association with marked graves or unmarked burials, will be left in situ, and all ground-disturbing work within 50 feet of the remains will cease. The contractor will contact the CO immediately. When human remains are encountered, all activity that might disturb the remains shall not resume until authorized by the District Medical Examiner or the State Archaeologist.

1. If, upon inspection by the appropriate legal authorities, the remains are determined to be a criminal matter and not archaeological, the USACE will ensure that appropriate legal and contractual requirements are followed.

2. If the remains are determined to be archaeological, the State Archaeologist has jurisdiction to determine the appropriate treatment and options for the remains following additional coordination with the MD SHPO and other Concurring Parties.

    a. Human remains will be left in place and protected from further disturbance with security fencing and if necessary, a security guard until a site-specific work plan for their avoidance or, if necessary, their removal can be developed.

    b. The USACE will coordinate with the MD SHPO and other Concurring Parties, Interested Tribe(s), and other interested parties or descendent communities to develop a treatment or avoidance plan consistent with Stipulation V (Inadvertent Discoveries).

D. If human remains are identified during analysis of archaeological materials, the MD SHPO and other Concurring Parties will be immediately contacted to determine the appropriate treatment of the remains. No photographs or scientific analysis beyond the identification of the remains are permitted. Minimal contact with such remains is permitted by those conducting fieldwork or laboratory analysis.

VII. Curation

A. The USACE shall ensure that all original archaeological records (research notes, field records, maps, drawings, and photographic records) and all archaeological collections recovered from the Project produced as a result of implementing the Stipulations of this PA are provided for permanent curation. The USACE shall ensure that the records, and collections and curation facility, as applicable, comply with standards set forth in 36 C.F.R. 79, Curation of Federally Owned and Administered Archaeological Collections.

B. Any collection resulting from investigations undertaken as part of this PA are the property of the landowner at the time the collection was retrieved. The USACE does not retain ownership of any collection removed from land(s) it does not own.

C. The final disposition of collected material will be specifically outlined in the HPTP and the MD SHPO and other Concurring Parties will be notified in writing when records and collections have been placed in the permanent curation facility as agreed to in the HPTP.

VIII. Qualifications

A. Professional Qualifications
All key personnel (e.g. Principal Investigator, Bioarchaeologist/Osteologist, Architectural Historian, etc.) for technical work and specialized analysis, required for historic preservation activities implemented pursuant to this PA and outlined in research designs or HPTPs, shall meet or exceed the SOI's Historic Preservation Professional Qualifications Standards, as specified in 36 CFR Part 61 for archaeology, history, architectural history, architecture, or historic architecture as appropriate (48 FR 44739). The term "technical work" is defined as all efforts to inventory, evaluate, and perform subsequent treatment of potential historic properties that is required under this PA such as cultural resources surveys, architectural inventory, data recovery excavation or recordation. This stipulation shall not be construed to limit peer review, guidance, or editing of documents by the Signatories or other Concurring Parties.

B. Historic Preservation Standards
Historic preservation activities carried out pursuant to this PA shall meet or exceed the Archaeology and Historic Preservation; Secretary of Interior's Standards and Guidelines (48 FR 44716-44740, September 29, 1983), as well as standards and guidelines for historic preservation activities established by the MD SHPO and the City of Baltimore. The USACE shall ensure that all reports prepared pursuant to this PA are provided to the Signatories and other Concurring Parties, distributed in accordance with Stipulation X (Confidentiality), and meet the published standards of the MD SHPO, City of Baltimore, or subsequent guidelines provided by the State of Maryland.

C. Monitoring Standards

1. Archaeological monitoring activities required for exploratory, construction, or construction-related, ground disturbing activities implemented pursuant to this PA shall be carried out by an individual meeting, at a minimum, the SOI’s Historic Preservation Professional Qualifications Standards for archaeology or history, as appropriate (48 C.F.R. 44739). The term “archaeological monitoring” is defined as monitoring ground-disturbing activities that have been determined by the USACE to be occurring in areas potentially sensitive for historic properties or buried resources.

2. Archaeological monitoring will comply with all applicable guidelines and requirements specified in MD SHPO Standards and Guidelines.

3. Other monitoring required as a result of implementing the Stipulations of this PA shall be carried out by individuals meeting specific criteria outlined in the appropriate HPTP.

IX. Public Comment and Public Notice

The interested public shall be invited to provide input at appropriate times during the implementation of this PA. The USACE may carry this out through letters of notification, public meetings, site visits, and by utilizing the USACE's Baltimore District Public Website and will provide a link to that location through social media and/or a press release. The USACE shall ensure that any comments received from members of the public are considered and incorporated where appropriate. Review periods for such comments shall be consistent with Stipulation I (Timeframes and Review Procedures). In seeking input from the interested public, locations of historic properties will be handled in accordance with Stipulation X (Confidentiality).

X. Confidentiality

Signatories to this PA acknowledge that information about historic properties is subject to the provisions of Section 304 of the NHPA (54 U.S.C. § 307103) and 36 C.F.R. § 800.11(c), relating to the disclosure of information about the location, character or ownership of an historic property, and will ensure that any disclosure under this PA is consistent with the terms of this PA and with Section 304 of the NHPA, 36 C.F.R. § 800.11(c), the Freedom of Information Act (5 U.S.C. § 552), as amended, and S.C. Code Ann. § 30-4-10, et al, as applicable. Confidentiality regarding the specific nature and location of the archaeological sites and any other cultural resources discussed in this PA shall be maintained to the extent allowable by law. Dissemination of such information shall be limited to appropriate personnel within the USACE (including their contractors), Concurring Parties and those parties involved in planning, reviewing, and implementing this PA. When information is provided to the USACE by the MD SHPO or others who wish greater control over the discretionary dissemination of that information, the USACE will make a good faith effort to do so, provided the information to be controlled and the rationale for withholding is clearly identified, to the extent consistent with applicable law.

XI. Dispute Resolution

A. At any time during the term of the PA, should any Signatory or Concurring Party object to any actions proposed or the manner in which the terms of this PA are implemented, the USACE will immediately notify the Signatories and Concurring Parties of the objection and proceed to consult with the objecting party(s) for a period of time, not to exceed 30 calendar days, to resolve the objection. If the objection is resolved through consultation, the USACE may authorize the disputed action to proceed in accordance with the terms of such resolution. If the USACE determines that such objection cannot be resolved, the USACE will:
    1. Forward all documentation relevant to the dispute, including the USACE's proposed resolution, to the ACHP. The ACHP shall provide the USACE with its recommendation on the resolution of the objection within 30 calendar days of receiving adequate documentation (See 36 CFR Part 800.11). Prior to reaching a final Agency decision, the USACE shall

prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, and other relevant Concurring Parties, and provide the objecting party with a copy of this written response. The USACE will then proceed according to its final Agency decision.

2. If the ACHP does not provide its recommendation regarding the dispute within the 30-day time period, the Baltimore District Commander may make a final Agency decision and proceed accordingly. Prior to reaching such a final Agency decision, the USACE shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories or Concurring Parties to the PA and provide them and the ACHP with a copy of such written response.

3. The USACE's responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

B. At any time while this PA is in effect, should a substantial objection pertaining to the implementation of this PA be raised by a member of the public, the USACE shall notify the Signatories and other Concurring Parties and take the objection under consideration. The USACE will consult with the MD SHPO and other Concurring Parties to this PA, regarding the objection for no longer than 15 calendar days. The USACE shall consider the objection and all comments provided by the Signatories and other Concurring Parties in reaching its decision. Within 15 calendar days following closure of the Signatories and other Concurring Parties' comment period, the USACE will render a written decision regarding the objection and respond to the objecting party. The USACE will promptly provide written notification of its decision to the Signatories and other Concurring Parties, including a copy of the response to the objecting party. The USACE's decision regarding resolution of the objection will be final. Following issuance of its final decision, the USACE may authorize the action that was the subject of the dispute to proceed in accordance with the terms of that decision. The USACE's responsibility to carry out all other actions under this PA shall remain unchanged.

XII. Notices

A. Unless otherwise agreed by the Signatories and other Concurring Parties, notices, demands, requests, consents, approvals or any other types of communications regarding this PA, shall be sent digitally, requiring confirmation of receipt. If a party to this PA requests communication sent by United States Mail, that party shall be considered in receipt of the communication five (5) calendar days after the initial communication is deposited in the United States Mail, certified and postage prepaid, return receipt requested.

B. The ACHP has requested electronic documents and/or electronic communications be used for formal communication among themselves for activities in support of Stipulation I (Timeframes and Review Procedures) as well as all notices, demands, requests, consents, or approvals. Any Concurring Party may consent to electronic documents and/ or electronic communications used in lieu of hard copies.

XIII. Amendments, Termination, and Duration

A. Amendment
Any Signatory Party to this PA may propose that the PA be amended, whereupon the USACE shall consult with the Signatories to consider such amendment. This PA may only be amended when all Signatories agree in writing to such an amendment. The amendment will be effective as of the date the amendment is signed by all the Signatories and filed with the ACHP.

B. Amended Appendices
All appendices to this PA, and other instruments prepared pursuant to this PA, may be revised or updated by the USACE through consultation consistent with Stipulation I (Timeframes and Review Procedures) and written agreement of the Signatories without requiring an amendment to this PA. In accordance and Stipulation IX (Public Comment and Public Notice), the Signatories and other Concurring Parties will receive copies and interested members of the public will receive notice of any amendment(s) to the PA.

C. Termination
If any Signatory to this PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other Signatories to attempt to develop an amendment per Stipulation XIII.A, above. If within thirty (30) days (or another time period agreed to by all Signatories) an amendment cannot be reached, any Signatory may terminate the PA upon written notification to the other Signatories.

Once the PA is terminated, and prior to work continuing on the undertaking, the USACE must either (a) execute an PA pursuant to 36 CFR Part 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR Part 800.7. The USACE shall notify the Signatories as to the course of action it will pursue.

D. Duration
This PA shall remain in effect for a period of 15 years after the date it takes effect and shall expire at the end of this 15-year period, unless it is terminated prior to that time. No later than 90 calendar days prior to the expiration date of the PA, the USACE shall initiate consultation with all Signatories to determine if the PA should be allowed to expire or whether it should be extended. Unless the Signatories unanimously agree in accordance with Stipulation XIII (Amendments,

Termination, and Duration), this PA shall automatically expire and have no further force or effect.

XIV. Monitoring and Reporting

Each year following the execution of this PA until it expires or is terminated, the USACE shall provide all parties to this PA, on or about the annual anniversary date of execution, a summary memorandum detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in the USACE's efforts to carry out the terms of this PA. The annual report shall specify how Project/Project component design has been utilized to minimize harm to affected historic properties to the maximum extent possible pursuant to 36 CFR Part 800.10. The annual report also shall include an updated digital copy of the PA that includes approved HPTPs, as well as APE revisions and updates to Appendices A through E.

XV. The Anti-Deficiency Act

The USACE's and other Federal agencies' obligations under this PA are subject to the availability of appropriated funds, and the stipulations of the PA are subject to the provisions of the Anti-deficiency Act, 31 U.S.C. Part 1341, et seq. The USACE and other Federal agencies shall make reasonable and good faith efforts to secure the necessary funds to implement their obligations under this PA. If compliance with the Anti-deficiency Act alters or impairs the USACE's ability to implement its obligations under this PA, the USACE shall consult in accordance with the amendment and termination procedures found in Stipulation XIII (Amendments, Termination, and Duration), or proceed in accordance with the procedures found in Stipulation III.D.2.e.(v), if the USACE and Concurring Parties agree that an addendum to an HPTP is appropriate.

XVI. Communications

Electronic mail (email) may serve as the official correspondence method for all communications regarding this PA and its provisions. See Appendix C for a list of contacts and email addresses. Contact information in Appendix C may be updated as needed without an amendment to this PA. It is the responsibility of each party to the PA to immediately inform the USACE of any change in name, address, email address, or phone number of any point-of-contact. The USACE shall forward this information to all parties to this PA by email.

XVII. Electronic Copies

Within one (1) week of the last signature on this PA, the USACE shall provide the Signatories and other Concurring Parties with one (1) high-quality, legible, color, electronic copy of this fully executed PA and all of its appendices fully integrated into one, single document. Internet links shall not be used as a means to provide copies of the appendices since web-based information often changes. If the electronic copy is too large

to send by email, the USACE shall provide the Signatories and other Concurring Parties with a copy of this PA on a compact disc or other appropriate means.

XVIII. Effective Date

This PA shall take effect on the date that it has been fully executed by the Signatories.

XIX. Execution

By execution of this PA in the pages provided below, the Signatories agree to the terms of this PA, and the execution and the implementation of the terms of this PA by the Signatories evidence that the USACE has taken into account the effects of this Project on historic properties and afforded the ACHP an opportunity to comment.

Appendix A – Area of Potential Effects
Appendix B – Properties Proposed for Nonstructural Measures in the APE
Appendix C – Contact Information
Appendix D – Project Schedule (to be appended once funding is available at the Baltimore District level)
Appendix E – Historic Property Treatment Plans (to be appended once finalized)

Signatures Follow on Separate Page

PROGRAMMATIC AGREEMENT AMONG THE U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT, THE MARYLAND STATE HISTORIC PRESERVATION OFFICER, AND THE MARYLAND TRANSPORTATION AUTHORITY REGARDING THE BALTIMORE METROPOLITAN COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

SIGNATORY:

U.S. Army Corps of Engineers

PINCHASIN.ESTHER.SARAH.1020943676

Digitally signed by PINCHASIN.ESTHER.SARAH.1020943676
Date: 2023.11.29 08:24:07 -05'00'

_____ _____

Colonel Esther S. Pinchasin, Date
Commander and District Engineer

PROGRAMMATIC AGREEMENT AMONG THE U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT, THE MARYLAND STATE HISTORIC PRESERVATION OFFICER, AND THE MARYLAND TRANSPORTATION AUTHORITY REGARDING THE BALTIMORE METROPOLITAN COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

SIGNATORY:

Maryland State Historic Preservation Officer

Elizabeth Hughes, SHPO

1·30·2024
Date

PROGRAMMATIC AGREEMENT AMONG THE U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT, THE MARYLAND STATE HISTORIC PRESERVATION OFFICER, AND THE MARYLAND TRANSPORTATION AUTHORITY REGARDING THE BALTIMORE METROPOLITAN COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

SIGNATORY:

Maryland Transportation Authority

Bruce Gartner, Executive Director

2-2-24
Date

PROGRAMMATIC AGREEMENT AMONG THE U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT, THE MARYLAND STATE HISTORIC PRESERVATION OFFICER, AND THE MARYLAND TRANSPORTATION AUTHORITY REGARDING THE BALTIMORE METROPOLITAN COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

CONCURRING PARTY:

National Park Service

_____ _____
Robert Stewart, Acting Superintendent Date
Fort McHenry National Monument & Historic Shrine,
Hampton National Historic Site,
Star-Spangled Banner National Historic Trail

APPENDIX A
Area of Potential Effects

APPENDIX B
Properties Proposed for Structural and Nonstructural Measures in the APE

Property Name/Address*	MIHP Designation	NRHP Status	Within Historic District	Proposed Measure
I-95	N/A	Not Evaluated**	N/A	Structural
Baltimore Harbor Tunnel	B-5333	Eligible	N/A	Structural
801 S Wolfe St	N/A	Not Evaluated	Fells Point Historic District	Nonstructural
600 Light St	N/A	Not Evaluated	N/A	Nonstructural
601 Light St	N/A	Not Evaluated	N/A	Nonstructural
No Address	N/A	Not Evaluated	N/A	Nonstructural
410 Key Hwy	N/A	Not Evaluated	N/A	Nonstructural
1201 Wallace St Unit # 1	N/A	Not Evaluated	N/A	Nonstructural
1201 Wallace St Unit # 2	N/A	Not Evaluated	N/A	Nonstructural
2025 E Mccomas St Unit # 1	N/A	Not Evaluated	N/A	Nonstructural
1201 Wallace St Unit # 3	N/A	Not Evaluated	N/A	Nonstructural
1100 E Key Hwy Unit # 4 (Domino Sugar Plant)	B-994	Eligible	N/A	Nonstructural
1100 E Key Hwy Unit # 5 (Domino Sugar Plant)	B-994	Eligible	N/A	Nonstructural
2300 E Fort Ave Unit # 4	N/A	Not Evaluated	N/A	Nonstructural
2300 E Fort Ave Unit # 6	N/A	Not Evaluated	N/A	Nonstructural
2300 E Fort Ave Unit # 7	N/A	Not Evaluated	N/A	Nonstructural
1001 E McComas St Unit # 1 (Warehouse)	DOE-BC-0143	Not Eligible	N/A	Nonstructural
1101 E McComas St Unit # 1 (Warehouse)	DOE-BC-0143	Not Eligible	N/A	Nonstructural
2025 E McComas St Unit # 2	N/A	Not Evaluated	N/A	Nonstructural
1101 E McComas St Unit # 2 (Warehouse)	DOE-BC-0143	Not Eligible	N/A	Nonstructural
1001 E McComas St Unit # 2 (Warehouse)	DOE-BC-0143	Not Eligible	N/A	Nonstructural
621 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural
103 S Gay St (United States Appraisers' Stores)	B-4496	Eligible	Business and Government Historic District and Preservation Easement	Nonstructural
500 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural
115 Market Pl (Candler Building)	B-1002	Eligible	N/A	Nonstructural
111 S Calvert St	N/A	Not Evaluated	N/A	Nonstructural
100 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural
401 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural
711 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural

Property Name/Address*	MIHP Designation	NRHP Status	Within Historic District	Proposed Measure
701 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural
301 Light St	N/A	Not Evaluated	N/A	Nonstructural
501 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural
731 Eastern Ave	N/A	Not Evaluated	N/A	Nonstructural
320 Light St	N/A	Not Evaluated	N/A	Nonstructural
300 Light St	N/A	Not Evaluated	N/A	Nonstructural
124 Market Pl	N/A	Not Evaluated	N/A	Nonstructural
600 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural
719 Eastern Ave Unit # 2 (Piers 5 & 6, Inner Harbor)	B-4487	Eligible	N/A	Nonstructural
719 Eastern Ave Unit # 3 (Piers 5 & 6, Inner Harbor)	B-4487	Eligible	N/A	Nonstructural
500 Dugans Wharf	N/A	Not Evaluated	N/A	Nonstructural
2300 E Fort Ave Unit # 9	N/A	Not Evaluated	N/A	Nonstructural
705 S Wolfe St	N/A	Not Evaluated	Fells Point Historic District	Nonstructural
1429 Aliceanna St	N/A	Not Evaluated	Fells Point Historic District	Nonstructural
1401 Eastern Ave	N/A	Not Evaluated	N/A	Nonstructural
1100 E Key Hwy Unit # 2 (Domino Sugar Plant)	B-994	Eligible	N/A	Nonstructural
1407 Key Hwy Unit # 2	N/A	Not Evaluated	N/A	Nonstructural
1415 Key Hwy	N/A	Not Evaluated	Preservation Easement	Nonstructural
1100 E Key Hwy Unit # 6 (Domino Sugar Plant)	B-994	Eligible	N/A	Nonstructural
2300 E Fort Ave Unit # 8	N/A	Not Evaluated	N/A	Nonstructural
601 E Pratt St (Pratt Street Power Plant)	B-1021	Listed	N/A	Nonstructural
55 Market Pl	N/A	Not Evaluated	N/A	Nonstructural
1 E Pratt St	N/A	Not Evaluated	N/A	Nonstructural
No Address	N/A	Not Evaluated	N/A	Nonstructural
1321 Key Hwy Unit # 2	N/A	Not Evaluated	N/A	Nonstructural
711 Eastern Ave	N/A	Not Evaluated	N/A	Nonstructural
100 S Gay St	N/A	Not Evaluated	N/A	Nonstructural

*Actual number of properties proposed for nonstructural measures and the APE are subject to further refinement as the study moves into Planning Engineering and Design.

**Identified by the Federal Highway Administration as an exceptionally significant feature of the Federal Interstate Highway System under the 2005 *Section 106 Exemption Regarding Effects to the Interstate Highway System* (Federal Register Vol. 70, No. 46).

APPENDIX C
Contact Information

U.S. Army Corps of Engineers, Baltimore District

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Ethan Bean
Cultural Resources Specialist
U.S. Army Corps of Engineers
Baltimore District (NAB)
2 Hopkins Plaza
Baltimore, MD 21201
Office: 410-962-2173
Ethan.a.bean@usace.army.mil

Maryland Historical Trust

100 Community Place, 3rd Floor
Crownsville, MD 21032
Office: (410) 697-9591

Maryland Transportation Authority

Carl Chamberlain
Maryland Transportation Authority
2310 Broening Highway
Baltimore, MD 21224
cchamberlin@mdta.state.md.us

APPENDIX D
PROJECT SCHEDULE (to be appended once funding is available at the NAB level)

APPENDIX E
HISTORIC PROPERTY TREATMENT PLAN (to be appended if used and/or once finalized)

Baltimore Metro and Martin State Airport Soils Analysis Table				
Martin State Airport Planning Units				
Map Unit Symbol	**Map Unit Name**	**Hydric Rating**	**K-Factor**	**Farmland Classification**
BfB	Beltsville-Urban land complex, 0 to 5 percent slopes	5	0.37	Not prime farmland
CmA	Corsica mucky loam, 0 to 2 percent slopes	95	N/A	Farmland of statewide importance
EeA	Elkton silt loam, 0 to 2 percent slopes	95	0.43	Not prime farmland
EfA	Elkton-Urban land complex, 0 to 2 percent slopes	70	0.43	Not prime farmland
FaaA	Fallsington sandy loams, 0 to 2 percent slopes, northern coastal plain	75	N/A	Prime farmland if drained
FBA	Fallsington-Urban land complex, 0 to 2 percent slopes	55	0.20	Not prime farmland
FcB	Fort Mott loamy sand, 0 to 5 percent slopes	0	0.17	Prime farmland if irrigated
FdB	Fort Mott-Urban land complex, 0 to 5 percent slopes	0	0.17	Not prime farmland
GbB	Galestown loamy sand, 0 to 5 percent slopes	0	0.10	Prime farmland if irrigated
GbC	Galestown loamy sand, 5 to 10 percent slopes	0	0.10	Farmland of statewide importance
IsA	Issue silt loam, occasionally flooded	10	0.37	Not prime farmland
IuA	Issue-Urban land complex, occasionally flooded	10	0.37	Not prime farmland
KeA	Keyport silt loam, 0 to 2 percent slopes	5	0.49	All areas are prime farmland
KeB	Keyport silt loam, 2 to 5 percent slopes	5	0.49	All areas are prime farmland
KeC	Keyport silt loam, 5 to 10 percent slopes	5	0.49	Farmland of statewide importance

Martin State Airport Planning Units				
Map Unit Symbol	**Map Unit Name**	**Hydric Rating**	**K-Factor**	**Farmland Classification**
KuB	Keyport-Urban land complex, 0 to 5 percent slopes	5	0.49	Not prime farmland
MfC	Matapeake silt loam, 5 to 10 percent slopes	0	0.49	Farmland of statewide importance
MgB	Matapeake-Urban land complex, 0 to 5 percent slopes	0	0.49	Not prime farmland
MhaB	Mattapex silt loam, 2 to 5 percent slopes, northern coastal plain	5	0.49	All areas are prime farmland
MhC	Mattapex silt loam, 5 to 10 percent slopes	2	0.49	Farmland of statewide importance
MkB	Mattapex-Urban land complex, 0-5 percent slopes	0	0.49	Not prime farmland
NM	Nanticoke and Mannington soils, very frequently flooded, tidal	100	0.43	Not prime farmland
OtA	Othello silt loams, 0 to 2 percent slopes, northern coastal plain	95	0.43	Farmland of statewide importance
OuB	Othello-Urban land complex, 0 to 5 percent slopes	65	N/A	Not prime farmland
RsB	Russett fine sandy loam, 2 to 5 percent slopes	0	0.28	All areas are prime farmland
RsC	Russett fine sandy loam, 5 to 10 percent slopes	0	0.28	Farmland of statewide importance
RuB	Russett-Urban land complex, 0 to 5 percent slopes	0	N/A	Not prime farmland
SaaA	Sassafras sandy loam, 0 to 2 percent slopes, Northern Coastal Plain	4	0.20	All areas are prime farmland
SaaB	Sassafras sandy loam, 2 to 5 percent slopes, Northern Coastal Plain	4	0.20	All areas are prime farmland

Martin State Airport Planning Units				
Map Unit Symbol	**Map Unit Name**	**Hydric Rating**	**K-Factor**	**Farmland Classification**
SaaC	Sassafras sandy loam, 5 to 10 percent slopes, Northern Coastal Plain	4	0.20	Farmland of statewide importance
SaD	Sassafras sandy loam, 10 to 15 percent slopes	5	0.37	Not prime farmland
SbA	Sassafras loam, 0 to 2 percent slopes	4	0.32	All areas are prime farmland
SbB	Sassafras loam, 2 to 5 percent slopes	4	0.32	All areas are prime farmland
SbC	Sassafras loam, 5 to 10 percent slopes	0	0.32	Farmland of statewide importance
SfB	Sassafras-Urban land complex, 0 to 5 percent slopes	0	0.24	Not prime farmland
ShD	Sassafras-Croom-Urban land complex, 5 to 15 percent slopes	0	0.15	Not prime farmland
UaB	Udorthents, 0 to 8 percent slopes	0	0.24	Not prime farmland
UcF	Udorthents, highway, 0 to 65 percent slopes	0	N/A	Not prime farmland
Ur	Urban land, 0 to 8 percent slopes	0	N/A	Not prime farmland
UuB	Urban land-Udorthents complex, 0 to 8 percent	0	N/A	Not prime farmland
WdaA	Woodstown sandy loam, 0 to 2 percent slopes, Northern Coastal Plain	7	0.24	All areas are prime farmland
WdaB	Woodstown sandy loam, 2 to 5 percent slopes, Northern Coastal Plain	7	0.24	All areas are prime farmland
WuB	Woodstown-Urban land complex, 0 to 5 percent slopes	5	0.28	Not prime farmland

Baltimore Metro Planning Units				
Map Unit Symbol	**Map Unit Name**	**Hydric Rating**	**K-Factor**	**Farmland Classification**
2B	Beltsville-Keyport complex, 0 to 8 percent slopes	0	0.37	Not prime farmland
2UB	Beltsville-Urban land complex, 0 to 8 percent slopes	5	0.37	Not prime farmland
3UB	Urban land-Beltsville-Keyport complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
4UB	Urban land-Beltsville complex, 0 to 8 percent slopes	5	N/A	Not prime farmland
7UB	Christiana-Urban land complex, 0 to 8 percent slopes	0	0.37	Not prime farmland
7UC	Christiana-Urban land complex, 8 to 15 percent slopes	0	0.37	Not prime farmland
9UB	Elkton-Urban land complex, 0 to 5 percent slopes	41	N/A	Not prime farmland
11B	Galestown loamy sand, 0 to 8 percent slopes	0	0.15	Not prime farmland
13UB	Joppa-Urban land complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
13UC	Joppa-Urban land complex, 8 to 15 percent slopes	0	N/A	Not prime farmland
14UB	Urban land-Joppa complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
15B	Keyport loam, 0 to 8 percent slopes	5	0.43	Not prime farmland
15UB	Keyport-Urban land complex, 0 to 8 percent slopes	5	0.43	Not prime farmland
16UB	Urban land-Keyport complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
17B	Legore loam, 0 to 8 percent slopes	0	0.32	Not prime farmland
17C	Legore loam, 8 to 15 percent slopes	0	0.32	Not prime farmland

Baltimore Metro Planning Units				
Map Unit Symbol	**Map Unit Name**	**Hydric Rating**	**K-Factor**	**Farmland Classification**
18UB	Legore-Urban land complex, 0 to 8 percent slopes	0	0.32	Not prime farmland
20UB	Leonardtown-Urban land complex, 0 to 8 percent slopes	46	0.49	Not prime farmland
24UB	Matapeake-Urban land complex, 0 to 8 percent slopes	0	0.55	Not prime farmland
25UB	Mattapex-Urban land complex, 0 to 8 percent slopes	5	0.49	Not prime farmland
29B	Sassafras, gravelly loam, 0 to 8 percent slopes	0	0.20	Not prime farmland
29UB	Sassafras-Urban land complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
30B	Sassafras-Joppa complex, 0 to 8 percent slopes	0	0.20	Not prime farmland
31UB	Urban land-Sassafras complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
32	Sulfaquepts, dredge	100	N/A	Not prime farmland
33UB	Urban land-Sunnyside complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
33UC	Sunnyside-Urban land complex, 8 to 15 percent slopes	0	N/A	Not prime farmland
34UB	Urban land-Sunnyside- Christiana complex, 0 to 8 percent slopes	0	N/A	Not prime farmland

Baltimore Metro Planning Units				
Map Unit Symbol	**Map Unit Name**	**Hydric Rating**	**K-Factor**	**Farmland Classification**
34UC	Urban land-Sunnyside- Christiana complex, 8 to 15 percent slopes	0	N/A	Not prime farmland
35B	Sunnyside fine sandy loam, 0 to 8 percent slopes	0	0.28	Not prime farmland
35C	Sunnyside fine sandy loam, 8 to 15 percent slopes	0	0.28	Not prime farmland
36UB	Sunnyside-Urban land complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
37	Sulfaquepts, frequently flooded	100	N/A	Not prime farmland
38C	Udorthents, clayey, very deep, 0 to 15 percent slopes	0	0.32	Not prime farmland
39C	Udorthents, sanitary landfill, 0 to 15 percent slopes	0	N/A	Not prime farmland
40B	Udorthents, loamy, very deep, 0 to 8 percent slopes	0	0.32	Not prime farmland
40C	Udorthents, loamy, very deep, 8 to 15 percent slopes	0	0.32	Not prime farmland
40E	Udorthents, loamy, very deep, 15 to 60 percent slopes	0	0.32	Not prime farmland
42E	Udorthents, smoothed, 0 to 35 percent slopes	0	0.10	Not prime farmland
43U	Urban land-Udorthents complex, occasionally flooded	3	N/A	Not prime farmland

Baltimore Metro Planning Units				
Map Unit Symbol	**Map Unit Name**	**Hydric Rating**	**K-Factor**	**Farmland Classification**
44UC	Urban land, 0 to 15 percent slopes	0	N/A	Not prime farmland
45UB	Woodstown-Urban land complex, 0 to 8 percent slopes	0	N/A	Not prime farmland
50A	Hatboro-Codorus complex, 0 to 3 percent slopes, frequently flooded	60	0.49	Not prime farmland