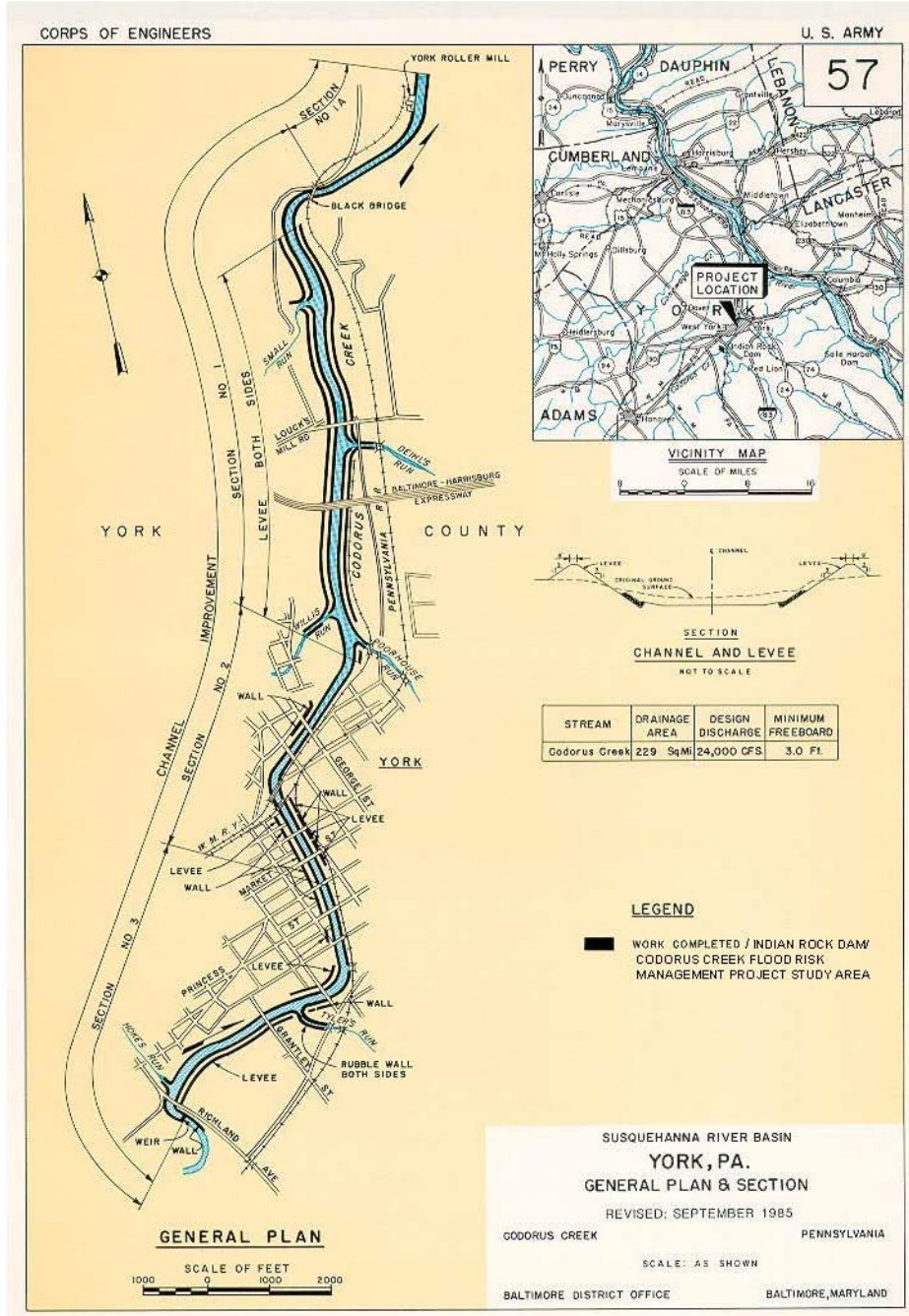


DRAFT ENVIRONMENTAL ASSESSMENT

**INDIAN ROCK DAM / CODORUS CREEK FLOOD RISK MANAGEMENT
REHABILITATION PROJECT
York County, Pennsylvania**



August 2018
U.S. Army Corps of Engineers
Baltimore District

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1.0 INTRODUCTION

The Indian Rock Dam/Codorus Creek Flood Risk Management (FRM) System Project provides flood damage reduction to the City of York, Pennsylvania and downstream communities. The project consists of two components: Indian Rock Dam and the Codorus Creek FRM levee system. These projects were authorized by the Flood Control Act of 1936, constructed in the late 1930s, and became operational in the 1940s. The focus of this document is the Codorus Creek FRM system component. However, a brief description of the Indian Rock Dam component is included in Section 1.1 for informational purposes.

USACE has a Levee Safety Program in place to (1) reduce risk and increase public safety through an informed public, (2) develop clear national levee safety policy and standards, and (3) maintain sustainable flood risk management systems that meet public safety needs. General inspections occur annually for federal projects, and periodic comprehensive inspections occur every five years. As part of this program, a periodic inspection of the Codorus Creek FRM levee system occurred in 2015. The inspection resulted in findings of structural deficiencies along the levee system (York North: Appendix 1; York South: Appendix 2). Upon finding the deficiencies, USACE prepared a budget package which included proposed repair and rehabilitation measures to address the deficiencies and restore the levee system to its authorized structural capacity and flood control design. USACE submitted the budget package to Congress in 2017, and in 2018, USACE was authorized funding for the project rehabilitation and repair work tasks.

Given that the Codorus Creek FRM project was authorized in the 1930s and became operational in the 1940s, the construction of the project occurred prior to implementation of the National Environmental Policy Act (NEPA). Therefore, USACE has prepared this Environmental Assessment (EA) in accordance with the NEPA of 1969, as amended, and in accordance with 33 Code of Federal Regulations (CFR) Part 230. The EA includes evaluation of the potential environmental and socioeconomic effects as a result of performing the proposed work tasks identified during the periodic inspection as being necessary to restore the levee system to the authorized as-built design capacity and to ensure the integrity of the levee system. Also integrated into Section 6.0 of this EA are evaluations of proposed future activities along the levee system, to include additional repair and rehabilitation work tasks, activities that involve promoting improved environmental and safety issues, and potential actions of the local stakeholders.

1.1 Project Location, Setting, History, and Existing Conditions

The Indian Rock Dam and Codorus Creek FRM projects were constructed by USACE, with portions of the levee system also being constructed by the Works Progress Administration. The cost of construction was approximately \$5 million (\$57,202,283 in 2018 dollars). USACE has sole ownership and responsibility for the operation and maintenance of the project. Over the project life, the dam and levee system have

prevented an estimated \$55 million in flood damages since their construction and have provided York and downstream communities with protection from flood hazards. Following is additional information associated with the two components:

Codorus Creek FRM Levee System: The Codorus Creek FRM levee project consists of eight hydraulically independent levee systems: York Northeast, York Northwest, York East Loucks Mill, York West Willis Run, York East Downtown, York West Downtown, York Southeast, and York Southwest (Figure 1). The incorporated area within the City of York covers a little more than 5 square miles, and lies on both banks of Codorus Creek, which flows through York and is 10 miles upstream of the confluence with the Susquehanna River. The levee system passes through West Manchester Township, Spring Garden Township, Springettsbury Township, North York Borough, and York City, all located in York County, Pennsylvania (refer to Appendices 1.1, 1.2, 1.6, 1.7, and 1.8 for location information). Although USACE owns, operates, and maintains the Codorus Creek FRM levee system, USACE does not own the lands. USACE only possesses a channel improvement easement. There are 54 outgrants at the Codorus Creek levee system, and all outgrants are Consent to Structures, which approve the use as not inhibiting the easement rights of the Government. Outgrants are instruments which authorize federal agencies, state or local governments, private organizations, or individuals to use Army (military or civil) controlled real property and administer those interests in real property. The easement setbacks along the levee system vary, with some segments consisting of a USACE setback of up to approximately 30 feet and other segments where USACE setback ends directly on the outside edge of the levee (i.e., floodwalls), approximately 5 feet. The southern segments run through the City of York and are surrounded by industrial, commercial, institutional/educational, and residential development. The northern segments run through less developed lands, with some of the adjacent lands being densely vegetated.

The levee system runs adjacent to 4.8 miles of Codorus Creek along both banks; therefore, when considering both banks, the levee provides protection to 10 miles of creek bank (4.8 miles on each bank). The construction consisted of approximately 23,000 feet of channel improvement, including channel widening and deepening, construction of floodwalls and earthen banks, protection of channel bank slopes, and removal of a mill dam which increased channel capacity to 24,000 cubic feet per second (cfs). In general, the new alignment closely followed the old channel. Concrete floodwalls were erected in localities where restricted clearances prevented the construction of earthen levees. The total length of the constructed floodwalls is approximately 7,600 feet. Floodwall segments include construction by hand laid stone, and at some locations include concrete caps. The levee system, in general, has side slopes of one foot vertical to three foot horizontal on both the creek and the land sides, and a top width of approximately 8 feet. The average height of the levee from the channel bed to the top of the levee is 25 feet. The average depth of the creek within the levee system limits is 3 feet. There is a bascule dam located within the Codorus Creek levee limits, which is owned, operated, and maintained by the City of York. The water depth behind the bascule dam, when in a raised position, is approximately 6 feet. At present time, the bascule dam is not functioning properly and is permanently in the

raised position. There are two small bridges crossing Tyler's Run, near the location of Tyler's Run confluence with Codorus Creek and where the Penn Street Floodwall ends. No design documentation has been identified which indicates the specific construction or age of the bridges. The bridges are of steel I-Beam type on each exterior span side with lateral bracing support by welded steel girders. Contained within the girder shapes are concrete platforms. It appears a portion of the masonry wall on both banks was removed for placement of the bridges. There are numerous silt, sand, and gravel deposits/shoals within the creek throughout the project, some of which are vegetated with grasses and shrubs. Locations of existing shoals include above and below Richland Avenue, between Grantley Street and Penn Street, above and below Poor House Run, and above Route 30. Limited dredging of shoal deposits at various locations occurs periodically, with the last dredging activity performed in 2015 at a shoal deposit near where the levee channel meets Tyler's Run. Typically, deposition removal actions are performed by USACE every 2 to 3 years, rotating between areas, so dredging may occur between 5 to 10 years at various locations. There are multiple roadway crossings throughout the levee system, some are owned and operated by local authorities, and others by the Pennsylvania Department of Transportation (PennDOT). Additionally, there are three rail line crossings of the levee system.

There are two areas along the levee system where structures, not owned or operated by USACE, are present within the USACE easement. One structure is located at the existing floodwall near Penn Street, adjacent to York College of Pennsylvania (York College). This structure is a building associated with a former paper mill facility, under current ownership of York College. A portion of the structure sits on top of the Penn Street floodwall. It is important to note that this portion of the building was an addition to the original paper mill that was constructed after the federal flood management project. Additionally, the building is leaning slightly toward the levee channel and is beginning to separate from the adjacent/original structure. The second structure is the Hotel Codorus located near where the levee channel flows beneath the Market Street Bridge. This structure overhangs the levee channel slightly. There are also bulges, areas that project outward overhanging the river, within the floodwall at this general location.

Living and dead trees are located sporadically along the length of the levee system, some of which may affect the integrity of the levee due to roots intruding into the levee banks and floodwalls, as well as overhanging limbs. There are 270 USACE identified drainage conduits at sporadic locations running through the levee system. Of these, 170 drainage conduits were inspected by USACE in 2015 using remote cameras. The remaining 100 drainage conduits were collapsed or filled with sediment therefore inspection by camera was not possible at the time. USACE owns some of the drainage conduits in this system; however, it is unclear of the ownership for all of the conduits. There are also multiple signs and fences, not installed by USACE, located at various locations along the levee system.

York Flood Risk Management Systems (FRMS)

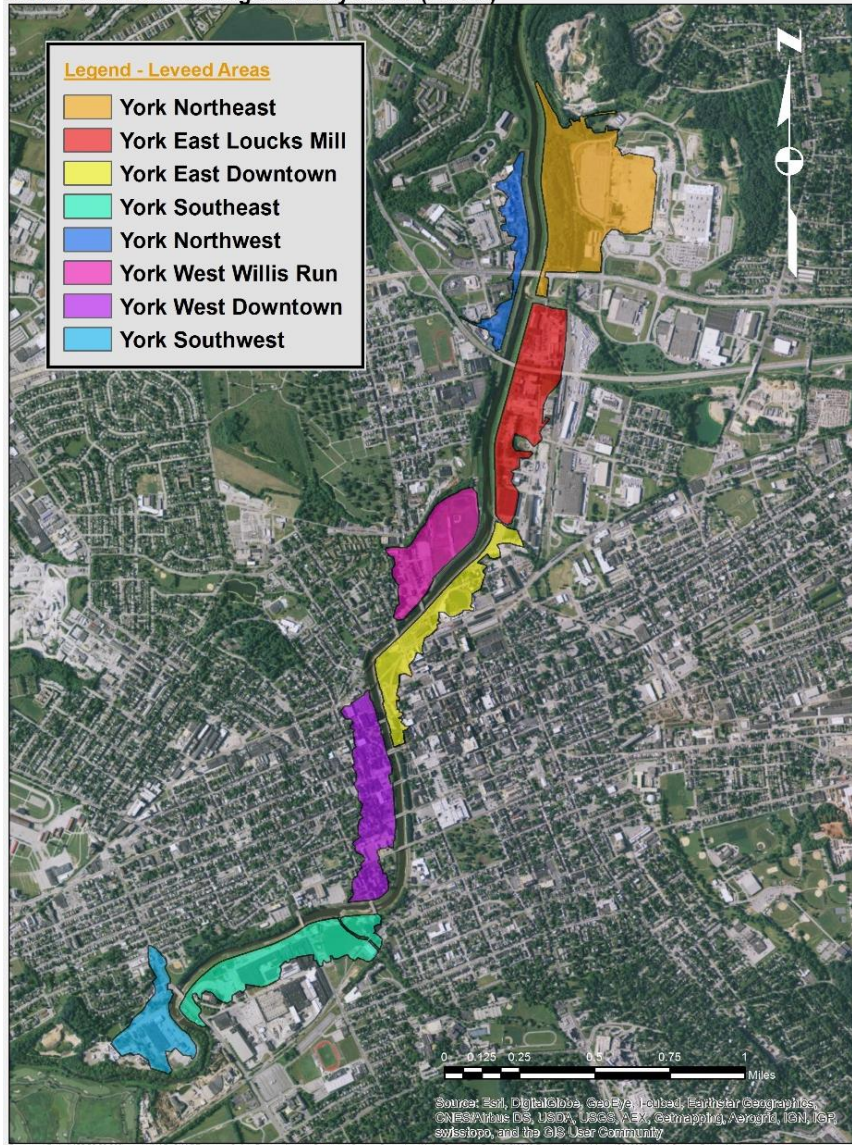


Figure 1. Codorus Creek FRM System

Indian Rock Dam: As stated, the focus of this EA is the Codorus Creek FRM levee system component. However, given that the levee system works jointly with Indian Rock Dam to reduce flood risks, a brief description of the Indian Rock Dam component is included for general informational purposes. The Indian Rock Dam is an earth and rock structure, approximately 1,000 feet long, rising 83 feet above the streambed, with a side-channel spillway and gated outlet conduit in the right abutment (Figure 2). The dam is located approximately 3 miles upstream from York. The reservoir area is typically dry, meaning that during normal circumstances, there is no pool of water present behind the dam. In the event of a storm, gates can be closed, and water flowing down Codorus Creek can be held behind Indian Rock Dam to reduce flooding downstream. The reservoir has a storage capacity of 28,000 acre-feet (9.1 billion gallons) at spillway crest and controls a drainage area of approximately 94 square

miles, equivalent to 41 percent of the watershed upstream from York. The federal government owns the Indian Rock Dam fee simple, and there are 43 outgrants, most of which are easements. However, a few outgrants consist of a license to the Pennsylvania Game Commission (PGC) for wildlife management on most of the project and a lease to the Fraternal Order of Police for a shooting range at the far end of the dam. It should be noted that the Indian Rock Dam project is being evaluated by USACE separately, for the development of a Master Plan, and associated NEPA document. It is anticipated that the evaluation would be completed, with documents available for public review and comment, in the Spring of 2019.

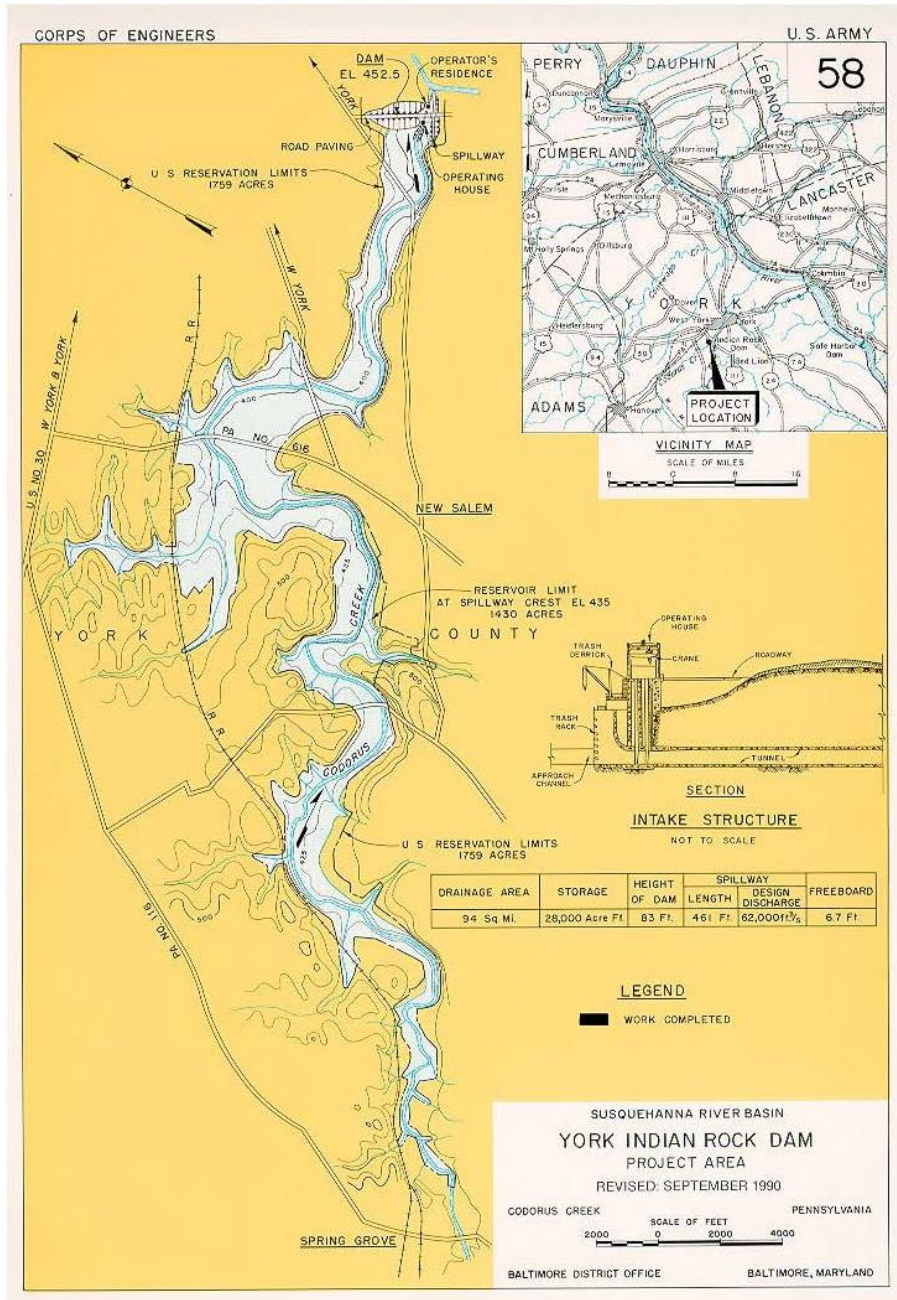


Figure 2. Indian Rock Dam

1.2 Purpose Of and Need For The Action

The Codorus Creek FRM levee system was authorized under the Flood Control Act of 1936 to provide flood protection to the City of York and downstream communities. The levee system has been in operation since the 1940s. During the USACE 2015 periodic inspection of the levee system, deficiencies were identified which need to be addressed. The purpose of this proposed action is to rehabilitate and repair the Codorus Creek FRM levee system and restore the overall reliability of the Indian Rock Dam/Codorus Creek FRM projects. The proposed work tasks are intended to restore the levee system to its originally-authorized design flood control capacity and integrity. Absent repairs and rehabilitation of the Codorus Creek FRM levee system, the levee system would continue to deteriorate.

Based on the age of the Codorus Creek FRM system, the condition of the levee is projected to continue to deteriorate. A bulge, located in the West Downtown Levee proximal to levee station 199+00 on the riverside by West Market Street, has been documented since 2015. This deficiency is noted as “the bulge” throughout the document to refer to the segment of masonry wall with the most significant deterioration in the West Market Street floodwall. There is buckling of the masonry section of the West Downtown Levee with visible voids and mortar translocation. Strain gages were installed in 2016 to track void developments. The bulge failed in February 2018, when a blowout occurred creating a six by six by two foot hole. Emergency repairs consisted of placing translated masonry stones with mortar to stabilize the concrete wall overlaying the masonry. At present, the bulge appears stable with no observable translocation. On July 26, 2018, heavy rains resulted in a different section of the masonry wall to fail along the right bank (east bank) of the Codorus Creek floodwall adjacent to the Philadelphia Street bridge in Downtown York. This approximately twenty foot segment of masonry wall collapsed into the stream resulting in an unsupported segment of concrete floodwall. Emergency repairs consist of removal of the concrete floodwall and filling with concrete, new masonry, and replacement of the concrete floodwall. These repairs are being implemented in August of 2018.

The floodwall is also substantially deteriorated on the landside with extensive cracking, spalling, and flora growing directly onto the wall. Moreover, immediately downstream and upstream of the bulge, mortar is missing with observable voiding and the development of additional buckling. Additionally, the building located at 233 West Market Street is partially supported by the floodwall. The primary concern is risk of failure of the floodwall with the collapse of the corresponding protected higher landside ground. The floodwall near Penn Street also shows significant deterioration that compromises the structural integrity of the floodwall. Buildings located on or near to the floodwall such as the City of York Pump Station and 233 West Market Street would be severely damaged. Furthermore, collapsed floodwall material would decrease the Codorus Creek channel capacity, increasing the potential for flooding by raising the water surface elevation and increasing velocities. Similar conditions are applicable to areas located downstream and upstream of the bulge.

1.3 Proposed Rehabilitation Work

The fiscal 2018 President's Budget includes \$15.9 million for operation and maintenance of the aging Codorus Creek FRM system. The proposed rehabilitation and maintenance actions include four primary work tasks that USACE identified in the 2015 Periodic Inspection as the highest priorities, and which are proposed to occur in the near future (within 5 years). These work tasks are:

- (1) Floodwall replacement near Penn Street Bridge
- (2) Bulge repairs near Market Street Bridge
- (3) Riprap installation near South Richland Avenue Bridge
- (4) Drainage conduit maintenance

Future rehabilitation and maintenance work tasks that are not covered by this EA would be included in an operations and management (O&M) plan for prioritizing USACE O&M work for the levee and channel project. These work tasks are currently planned to occur within 5 to 10 years, but are reliant upon USACE receiving additional federal funding to perform these actions. If funding becomes available for future work, USACE would evaluate the potential effects of carrying out these tasks, in accordance with NEPA requirements. The cumulative impacts of these work tasks are evaluated in Section 6.0 of this EA. The proposed future work tasks may include:

- (1) repair of masonry retaining walls;
- (2) removal of shoaling and vegetation from the channel;
- (3) repair or replacement of riprap throughout the levee system;
- (4) rehabilitation of Loucks Mill levee at the downstream tie-in to the railroad embankment;
- (5) monitoring of the floodwall near the bascule dam downtown, and repair of the floodwall, if needed;
- (6) rehabilitation of the southeast levee between Grantley Road and Tyler Run;
- (7) rehabilitation of the Willis Run levee and floodwall;
- (8) abandonment of the conduit that runs parallel to the levee at the upstream end of the west downtown levee;
- (9) removal of rubble from the west downtown levee that was generated during or near the time of the demolition of public housing;
- (10) addition of Codorus Creek access points for boating; and
- (11) evaluation and potential removal of the dam near South Richland Avenue.

1.4 EA Scope of Action

This EA has been prepared in accordance with NEPA, the Council on Environmental Quality's (CEQ) regulations published at 40 CFR Part 1500, Engineer Regulation 200-2-2 Procedures for Implementing NEPA, and Section 404 of the Federal Water Pollution Control Act of 1972 (Clean Water Act), as amended. The EA scope encompasses the Codorus Creek FRM levee system component of the Indian Rock Dam/Codorus Creek FRM system Project. The area of review encompasses the approximate 4.8 miles of the Codorus Creek FRM levee system, to the outer boundaries of the existing USACE

easement for the levee system, and three areas where Rights of Entry (ROE) would be required for construction access and staging, consisting of approximately 190 acres. The information within this EA includes descriptions of the purpose and need of the proposed action, details of the proposed action and design, alternatives analyses, existing site conditions, and an assessment of the potential effects to the human and natural environment if the preferred alternative for the work tasks would be performed. If the potential impacts are determined not to be significant, a Finding of No Significant Impact (FONSI) will be made. If the potential impacts are determined to be significant, a Notice of Intent (NOI) will be published, leading to the preparation of an EIS.

1.5 Authority

The project was authorized by the Flood Control Act of June 22, 1936, as amended by the Flood Control Act of June 28, 1938, and is described in House Document No. 702, 77th Congress, second session. The project contributes to achieving protection and restoration goals established by Executive Order 13508 to protect habitat and water quality within the Chesapeake Bay watershed. The project is currently operational.

2.0 ALTERNATIVES ANALYSIS

This section includes the evaluation of alternatives, the preferred alternative selected for implementation of the rehabilitation work tasks, and the reasoning behind the selection.

2.1 Alternatives Considered

2.1.1 Alternative 1: No Action Alternative

Under the No Action alternative, USACE would take no action and would not perform any work tasks to repair and rehabilitate the Codorus Creek FRM system. As such, under this alternative, there would be no direct impacts to waters of the U.S., federal and State threatened and endangered species, cultural resources, etc. USACE would still continue operation and maintenance activities authorized by the original Codorus Creek FRM project to include emergency repairs.

2.1.2 Alternative 2: Rehabilitation/Repair of Codorus Creek FRM project

Alternative 2 includes four work tasks presented below as alternatives 2A through 2D. These four work task have been identified by USACE in the 2015 periodic inspection as being necessary for rehabilitating the Codorus Creek FRM levee system. Alternatives 2A through 2D are proposed to occur in the near future (refer to Appendices 1.1, 1.2, 1.3 for locations and additional information).

2.A. Floodwall Replacement near Penn Street Bridge

Alternative 2A includes the replacement of the floodwall located near the Penn Street Bridge. This alternative would require a ROE for access and construction activities. The extent of the work would be replacement of the approximate 600 linear feet of the existing floodwall, extending from the south abutment of the Penn Street Bridge to the confluence of Tyler's Run tributary with Codorus Creek. The floodwall would be replaced within the approximate same footprint, and to approximate similar dimensions of the existing floodwall. Additionally, as part of this alternative, the two small bridges which cross Tyler's Run would be demolished and removed. Removal of the bridges is expected to occur from uplands using an excavator which would move bridge materials onto the adjacent uplands. Riprap would be replaced and additional riprap added, where necessary, at the base of the new floodwall for protection. The construction zones would be protected, and exposed soils would be stabilized with silt fences and other erosion and sedimentation control barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. This may include the installation of coffer dams and in-water pump around devices, if necessary to effectively protect the site. Excavated materials and bridge and floodwall debris would be contained and transported to approved upland disposal sites. The replacement of the floodwall would also require the demolition and removal of an abandoned building (shown in the Photograph 1 below), which was previously associated with a Paper Mill, and is now under the ownership of York College. Coordination with York College would occur to ensure that the construction activities associated with the replacement of the floodwall would not interfere with York College's use of the adjacent structures and for a construction access and staging area within the ROE.



Photograph 1. Site of Alternative 2.A: Floodwall Replacement near Penn Street Bridge

2.B. Bulge Repairs near Market Street Bridge

Alternative 2B involves repairing existing instability issues/bulges along the floodwall near the Market Street Bridge. This alternative would require a ROE for access and construction activities. The work is expected to involve patching the deteriorated areas

by replacing stones in the holes and securing the stones with concrete and/or grout. The work zone would be protected and stabilized using sediment and erosion control measures such as silt fences and other barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. This may include the installation of coffer dams and in-water pump around devices, if necessary to effectively protect the site. The floodwall at this location is surrounded by businesses, including one business which partially overhangs the floodwall. Coordination with the adjacent property owners would occur to ensure that the construction activities associated with the replacement of the floodwall would not interfere with their business activities and for a construction access and staging area within the ROE.



Photograph 2. Site of Alternative 2.B: Bulge Repairs near Market Street Bridge

2.C. Riprap Installation near South Richland Avenue Bridge

Alternative 2C involves stabilization of approximately 690 linear feet of floodwall near the South Richland Avenue Bridge. This alternative includes (1) stabilization of existing riprap along an approximately 500 foot length of channel bank starting from the South Richland Avenue Bridge to 500 feet upstream along the east bank of Codorus Creek to where the existing riprap ends and (2) installation of new riprap along an approximately 190 linear foot length of eroded channel bank located immediately upstream of the existing riprap (proposed for stabilization as part of this task) and riverside of the existing floodwall. Stabilization of existing riprap is anticipated to restore the levee riverbank dimensions to original design and is expected to include reestablishing the slope and placement of stone or other bank stabilization product (i.e., riprap, gabion, etc.). The installation of new riprap is anticipated to extend approximately 10 feet channelward with an area of approximately 1,880 square feet (0.04 acres) inside the channel to tie-in the riprap toe to the bottom of the channel. The new riprap would be placed in a 24 inch layer consisting of 18 inch diameter riprap with an additional 6 inches of small bedding stone, which is comparable to existing material on adjacent riprap.

This work may involve placement of fill material behind the installed riprap along the bank or other bank stabilization material to ensure the enduring stability of the slope. This alternative would require a ROE for access and construction activities. The work zone would be protected and stabilized using sediment and erosion control measures such as silt fences and other barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. This may include the installation of coffer dams and in-water pump around devices, if necessary to effectively protect the site. Coordination with the adjacent property owners would occur to ensure that the construction activities associated with the bank stabilization would not interfere with their business activities and for a construction access and staging area within the ROE.



Photograph 3. Site of Alternative 2.C: Riprap Installation near South Richland Avenue Bridge

2.D. Drainage Conduit Maintenance

Alternative 2D involves the cleaning, inspection, repair, replacement, and potential abandonment of existing drainage conduits which run through the levee system. There are 270 conduits in the levee system which have been identified by USACE. Out of these 270 conduits, only 170 have been inspected by USACE by using a camera (Appendix 1.3). The remaining 100 conduits were unable to be inspected at the time due to the conduits being collapsed or filled with sediment. This work involves (1)

inspecting the remaining 100 conduits, and (2) repairing conduits that are identified as having structural integrity. If conduits are identified as unrepairable, then these conduits will be proposed for replacement or abandonment. Unrepairable conduits will be assessed based on whether they still provide drainage benefits to the system and whether they are associated with the integrity of the levee system to determine if replacement or abandonment is a more practical solution. Another goal of this alternative is to identify ownership of the conduits which were not installed by and are not under the ownership of USACE.



Photograph 4. Examples of Alternative 2.D: Drainage Conduit Maintenance

2.1.3 Alternative 3: Floodwall Replacement near the Penn Street Bridge with an Earthen Levee, plus Work Tasks 2.B through 2.D

Alternative 3 consists of a modification of Alternative 2: 2.A. would be modified to replace the existing floodwall with an earthen levee as detailed below, and 2.B. through 2.D. would remain as described in Alternative 2. The approximate 600 linear foot floodwall near the Penn Street Bridge would be replaced with an earthen levee. This would require the need for additional permanent easement area due to the existing USACE easement ending directly on the backside (landward side) of the levee and the need for a larger tract of land to construct the earthen levee. This alternative would also require a ROE for access and construction activities. USACE would need to coordinate with York College to secure additional permanent easement area and ROE. This

alternative would require major excavation work of the uplands behind the existing floodwall to gain sufficient land area to construct the earthen levee to the appropriate dimensions. Additionally, as part of this alternative, the two small bridges which cross Tyler's Run would be demolished and removed. Removal of the bridges is expected to occur from uplands using an excavator which would move bridge materials onto the adjacent uplands. Riprap would be replaced and additional riprap added, where necessary, at the base of the new floodwall for protection. The construction zone would be protected, and exposed soils would be stabilized with silt fences and other erosion and sedimentation control barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. This may include the installation of coffer dams and in-water pump around devices, if necessary to effectively protect the site. Excavated materials and floodwall debris would be contained and transported to an approved upland disposal site. Coordination with York College would occur to ensure that the construction activities associated with the replacement of the floodwall would not interfere with York College's use of the adjacent structures, to secure a permanent easement to cover the proposed levee footprint, and for a construction access and staging area within the ROE.

2.1.4 Alternative 4: Floodwall Replacement near the Penn Street Bridge with a New Floodwall with Addition of a Floodplain, plus work tasks 2.B through 2.D.

Alternative 4 includes a modification of Alternative 2: 2.A. would be modified to replace the existing floodwall with a new floodwall setback from the river to allow for a wider floodplain at this location, and 2.B. through 2.D. would remain as described in Alternative 2. The approximate 600 linear foot floodwall near the Penn Street Bridge would be replaced with a new floodwall; however, additional floodplain would be incorporated into the levee system at this location. This would require the need for additional permanent easement area due to the existing USACE easement ending directly on the backside (landward side) of the levee and the need for a larger tract of land to construct the floodplain and modified floodwall. This alternative would also require a ROE for access and construction activities. USACE would coordinate with the York College to secure additional permanent easement area and ROE. This alternative would require significant excavation work of the uplands behind the existing floodwall to gain sufficient land area to construct a floodplain and construct the new floodwall. This alternative would also require the construction of additional length of floodwall to incorporate the floodplain into the design. Additionally as part of this alternative, the two small bridges which cross Tyler's Run would be demolished and removed. Removal of the bridges is expected to occur from uplands using an excavator which would move bridge materials onto the adjacent uplands. Riprap would be replaced and additional riprap added, where necessary, at the base of the new floodwall for protection. The construction zone would be protected, and exposed soils would be stabilized with silt fences and other erosion and sedimentation control barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. This may include the installation of coffer dams and in-water pump around devices, if

necessary to effectively protect the site. Excavated materials and floodwall debris would be contained and transported to an approved upland disposal site.

2.2 Alternatives Evaluation

2.2.1 Alternative 1: No Action

Under the No Action alternative, no new work within the levee system would occur. No additional land easements or ROEs would be needed. USACE would still continue operation and maintenance activities authorized by the original Codorus Creek FRM project to include emergency repairs. Given the existing structural instability of the floodwall near the Penn Street Bridge location, it is expected that the floodwall would continue to deteriorate and eventually fail resulting in costlier emergency repairs. The structure which is sitting at the top of the levee at this location is also expected to continue to lean toward the creek and ultimately fall into the channel resulting in large economic losses to the property owner. Additionally, the bulges along the Market Street Bridge floodwall would continue to expand, thereby compromising the structural integrity of the floodwall. The levee bank near the South Richland Avenue Bridge would continue to erode, resulting in additional sedimentation in the channel. The conduits which run through the levee system would remain clogged or collapsed, resulting in a decrease in system performance for reducing interior flooding in the levee system. The levee system could also be structurally compromised due to seepage within the levee being directed through alternate flow paths in the levee.

There would be no direct effects on cultural resources by implementing the No Action alternative. However, given the likelihood that the FRM system features along Codorus Creek could fail without repair or stabilization, cultural resources may be indirectly adversely impacted by flooding in historic structures protected by the levee system. Additionally, federal and State threatened and endangered species, other wildlife, and aquatic species would not be directly affected under a No Action alternative; indirect adverse effects, including habitat impairment, to species may occur due to the continued degradation of the channel resulting from concrete, rock, debris, etc., falling into the creek. There would also be continued and possibly increased sedimentation of the waterway from the eroding levee banks.

The levee system would be compromised if the identified rehabilitation and repair work tasks to return the levee system to its authorized capacity would not be undertaken. Based on the above information, the No Action alternative would result in potential adverse environmental consequences to the creek and associated vegetation and wildlife due to concrete, stones, debris, and sediments continuing to enter into the creek. Additionally, the No Action alternative would not provide the necessary life and safety protection which the flood control project was designed to provide, and would continue to pose a public safety concern due to its current condition. The public would also be at higher risk for economic losses from flood-related property damages. Given that the purpose of the FRM system is to provide flood protection and control, and that the purpose of the proposed project is to rehabilitate, repair, and restore the levee

system, the No Action alternative would not meet the project purpose. Therefore, the No Action alternative is not a feasible alternative.

2.2.2 Alternative 2: Rehabilitation/Repair of Codorus Creek FRM project

Following are evaluations of the work tasks listed under Sections 2.1.2. These include work tasks 2.A. through 2.D. These have been identified by USACE as being necessary for the Codorus Creek FRM project.

2.A. Floodwall Replacement near the Penn Street Bridge

This alternative would require USACE to secure a ROE to replace the floodwall. Excavation of uplands behind the existing floodwall would be minor due to the proposed floodwall being constructed within the approximate footprint of the existing floodwall. The removal of the existing floodwall and structure would eliminate the potential of concrete and other debris, and potentially the entire floodwall and structure, from falling into the Codorus Creek channel. Removal would, thereby, also eliminate a potential safety hazard to the public. Removal of the bridges would eliminate further deterioration of the bridges and of a potential safety hazard. Installation of riprap would provide protection of the new floodwall. The construction zone would be protected and contained, and exposed soils would be stabilized with silt fences and other erosion and sedimentation control barriers. This would minimize the potential for sediments and other construction generated materials entering into the aquatic environment. Construction materials would be staged in uplands within the ROE areas. The work would be expected to occur from uplands, with potentially some work being necessary to be performed within the channel. If this would be necessary, cofferdams, in-water pump around techniques, and/or other best management practices would be utilized. Upon completion of construction, all disturbed upland areas would be restored to pre-construction conditions. Excavated materials and floodwall debris would be contained and transported to an approved upland facility. The duration of the construction would be the minimal necessary and would be expected to be completed within approximately two years from commencement.

Based on the above information, this alternative would result in improvements to Codorus Creek, as the floodwall replacement would eliminate the occurrence of concrete and other structural materials from entering into the creek. Additionally, this alternative would provide the necessary life and safety protection which the flood control project was designed to provide by restoring the floodwall integrity. The public would also gain an economic advantage through reduced potential of property damage from flooding. Given the purpose of the levee system being for flood protection and control, and that the project purpose is to rehabilitate, repair, and restore the Codorus Creek FRM system to its authorized capacity and integrity, this alternative meets the project purpose. Therefore, this alternative is feasible.

2.B. Bulge Repairs near Market Street Bridge:

For this alternative, a ROE would be necessary to access the site and for staging of materials and equipment. The work would be expected to be performed by hand and from the uplands. The work zone would be protected through the use of best management practices to contain all construction materials within the limits of disturbance. The duration of the repair work would be minimal and would be expected to take a few weeks from commencement. Repairing the bulges would eliminate the occurrences of concrete, hand laid stone, and other construction debris from falling into the creek. Based on the above information, this alternative would result in beneficial environmental consequences to Codorus Creek and associated vegetation and wildlife, as the bulge repairs would eliminate the occurrence of concrete, stone, and other debris from entering into the creek. Additionally, this alternative would provide the necessary life and safety protection which the flood control project was designed to provide by restoring the floodwall integrity. The public would also gain an economic advantage through reduced potential of property damage from flooding. Given the purpose of the levee system being for flood protection and control, and that the project purpose is to rehabilitate, repair, and restore the Codorus Creek FRM levee system to its authorized capacity and integrity, this alternative meets the project purpose. Therefore, this alternative is feasible.

2.C. Riprap Installation near South Richland Avenue Bridge

This alternative would involve the need for USACE to secure a ROE for construction access and staging of materials. The work would restore the integrity of the levee banks by reestablishing the slope and protecting the banks with stabilization products (i.e., riprap, gabion, etc.). Work would occur from uplands and within the waters. The work zone would be protected and stabilized using sediment and erosion control measures such as silt fences and other barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. Machinery may be utilized within the creek. If the use of machinery would be necessary within the waterway, this would be in the dry and/or during low flow whenever possible. Additionally, in-water construction zones would be protected through the use of cofferdams, pump-around techniques, and/or other containment and control best management practices. In-water containment structures would be of the minimal dimensions necessary and would not significantly alter the flow of the creek during construction. The duration of construction activities for this alternative would be the minimal necessary and would be expected to last less than one year. Stabilization of the bank would reduce the potential for erosion and sedimentation of the creek, thereby improving water quality. Based on the above information, this alternative would result in beneficial environmental consequences to waters of the U.S., due to the reduction in erosion and sedimentation of the creek and improved local water quality. Additionally, this alternative would provide the necessary life and safety protection which the flood control project was designed to provide by restoring the levee bank integrity. The public would also gain an economic advantage through reduced potential of property damage from flooding. Given the purpose of the levee system being for flood protection and control, and that the project purpose is to rehabilitate, repair, and restore the Codorus

Creek FRM system to its authorized capacity and integrity, this alternative meets the project purpose. Therefore, this alternative is feasible.

2.D. Drainage Conduit Maintenance

The work associated with this alternative would occur from uplands and within the waters. The sediments within the pipes would be jetted toward the creek. In-water containment and collection controls/devices would be utilized to minimize the potential of the sediments entering into the creek. This may consist of installation of cofferdams, in-water pump around techniques, machinery within the creek to collect the materials, and/or other methods which would minimize impacts to the waters. If the use of machinery would be necessary within the waterway, this would be in the dry and/or during low flow whenever possible. The work zone would be protected and stabilized using sediment and erosion control measures such as silt fences and other barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. The duration of construction activities for this alternative would be the minimal necessary and would be expected to take a few months from commencement. Once the conduits are cleaned, repaired, replaced and/or abandoned, the integrity of the levee system would be restored, as upland drainage would occur efficiently and via direct paths as opposed to the current conditions of sporadic locations throughout the levee system (i.e., where the drainage finds paths). Based on the above information, this alternative would result in beneficial environmental consequences to waters of the U.S., due to the reduction of indirect upland drainage which contributes to erosion of the levee system. Additionally, this alternative would provide the necessary life and safety protection which the flood control project was designed to provide by restoring the levee bank integrity. The public would also gain an economic advantage through reduced potential of property damage from flooding. Given the purpose of the levee system being for flood protection and control, and that the project purpose is to rehabilitate, repair, and restore the Codorus Creek FRM system to its authorized capacity and integrity, this alternative meets the project purpose. Therefore, this alternative is feasible.

2.2.3 Alternative 3: Floodwall Replacement near the Penn Street Bridge with an Earthen Levee, plus Work Tasks 2.B. through 2.D.

This alternative includes a modification of Alternative 2: 2.A. would be modified to replace the existing floodwall with an earthen levee, and 2.B. through 2.D. would remain as previously described in Alternative 2. Therefore, the only work task being evaluated in this section is the altered design of the replacement of the floodwall.

This alternative would require USACE to secure a ROE for access and construction activities. This work task would also require the need for additional permanent easement area due to the existing USACE easement ending directly on the landward side of the floodwall. Construction of an earthen levee would require a larger land area than the footprint of the existing floodwall. York College is the current owner of the property where the easement would be needed, and USACE would need to acquire

additional funding to secure a much larger permanent easement, as the current budget does not allow for this larger expenditure. Requesting additional funds would require additional time, and the deficiencies of the floodwall would continue in the interim. This alternative would also require major excavation work of the uplands behind the existing floodwall to gain sufficient land area to construct the earthen levee to the appropriate dimensions. Removal of the bridges would eliminate further deterioration of the bridges and removal of a potential safety hazard. Installation of riprap would provide protection of the new floodwall. The work zone would be protected and stabilized using sediment and erosion control measures such as silt fences and other barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. Machinery may be utilized within the creek. If the use of machinery would be necessary within the waterway, this would be in the dry and/or during low flow whenever possible. Additionally, in-water construction zones would be protected through the use of cofferdams, pump-around techniques, and/or other containment and control best management practices. In-water containment structures would be the minimal dimensions necessary and would not significantly alter the flow of the creek during construction. Excavated materials and floodwall debris would be contained and transported to an approved upland facility. The amount of excavated material would be somewhat large due to the large excavation need to construct the earthen levee. The duration of construction activities for this alternative would be the minimal necessary and would be expected to last take approximately one year from commencement. Upon completion of construction, the earthen levee would need to be routinely mowed and monitored for intrusion of wildlife, trees, etc.

Based on the above information, this alternative would result in improvements to Codorus Creek, as the floodwall replacement would eliminate the occurrence of concrete and other structural materials from entering into the creek. Costs would be expected to be high given the need to acquire a large tract of land as easement area. Major excavation work would also be costly, not only for the excavation activity but also for the transport and disposal of the materials. Given that the purpose of the levee system is for flood protection and control, and that the project purpose is to rehabilitate, repair, and restore the Codorus Creek FRM project to its authorized capacity and integrity, the replacement of the existing floodwall with an earthen levee would provide benefits to life and safety and would meet the project purpose. However, due to the need for additional federal funding to secure a much larger permanent easement, and the added time required to request funding which would result in no floodwall replacement until a later timeframe, this alternative is not considered to be feasible. Further evaluation did not occur due the need for the replacement of the floodwall at the current time.

2.2.4 Alternative 4: Floodwall Replacement near the Penn Street Bridge with a New Floodwall with Addition of a Floodplain, plus Work Tasks 2.B. through 2.D.

This alternative includes a modification of Alternative 2: 2.A. would be modified to replace the existing floodwall with a new floodwall setback from the river to allow for a

wider floodplain at this location, and 2.B. through 2.D. would remain as described in Alternative 2. Therefore, the only work task being evaluated in this section is the altered design of the replacement of the floodwall.

This alternative would require USACE to secure a ROE for access and construction activities. This work task would also require the need for additional permanent easement area due to the existing USACE easement, as the land area needed to construct a floodplain adjacent to the creek and new floodwall would be larger than the footprint of the existing floodwall. York College is the current owner of the property where the easement would be needed, and USACE would need to acquire additional funding to secure a much larger permanent easement, as the current budget does not allow for this larger expenditure. Requesting additional funds would require additional time, and the deficiencies of the floodwall would continue in the interim. This alternative would also require major excavation work of the uplands behind the existing floodwall to gain sufficient land area to construct the floodplain. Removal of the bridges would eliminate further deterioration of the bridges and of a potential safety hazard. Installation of riprap would provide protection of the new floodwall. The work zone would be protected and stabilized using sediment and erosion control measures such as silt fences and other barriers, which would reduce the potential for sedimentation and minimize the entry of soil into the aquatic environment. Machinery may be utilized within the creek. If the use of machinery would be necessary within the waterway, this would be in the dry and/or during low flow whenever possible. Additionally, in-water construction zones would be protected through the use of cofferdams, pump-around techniques, and/or other containment and control best management practices. In-water containment structures would be the minimal dimensions necessary and would not significantly alter the flow of the creek during construction. Excavated materials and floodwall debris would be contained and transported to an approved upland facility. The amount of excavated material would be somewhat large due to the large excavation need to construct the floodplain. The duration of construction activities for this alternative would be the minimal necessary and would be expected to last take approximately one year from commencement. Upon completion of construction, the floodplain would require routine maintenance given that the addition of floodplain would be a low point as compared to the adjacent levee banks and would collect debris during high water events.

Based on the above information, this alternative would result in improvements to Codorus Creek, as the floodwall replacement would eliminate the occurrence of concrete and other structural materials from entering into the creek. There would also be improvements to floodplain habitat by extending the width of the floodplain at this location. Costs would be expected to be high given the need to acquire a large tract of land as easement area. Major excavation work would also be costly, not only for the excavation activity but also for the transport and disposal of the materials. Additionally, the new floodwall design would be more extensive to accommodate a floodplain adjacent to the creek, further increasing costs. Given that the purpose of the levee system is for flood protection and control, and that the project purpose is to rehabilitate, repair, and restore the Codorus Creek FRM levee system to its authorized capacity and

integrity, the replacement of the existing floodwall with a new floodwall and floodplain would provide benefits to life and safety and would meet the project purpose. However, due to the need for additional funding to secure a much larger permanent easement, and the added time required to request funding which would result in no floodwall replacement until a later timeframe, this alternative is not considered to be feasible. Further evaluation did not occur due the need for the replacement of the floodwall at the current time.

2.3 Alternatives Carried Forward

The following evaluation criteria were used to assess the alternatives presented in this EA: life and safety of the public, environmental impact, costs, economic efficiency, and implementation time. The USACE considered the above alternatives and has determined that Alternatives 3 and 4 are not feasible to be carried forward within this EA. Alternatives 3 and 4 would result in additional real estate acquisitions that would drastically increase the rehabilitation costs and increase the length of time for design, construction, and budgeting to implement these proposed alternatives. The immediate need for rehabilitation in the project and the availability of limited congressional funds for repairs and rehabilitation further constrained evaluation of Alternatives 3 and 4. The alternatives carried forward and evaluated in Section 4.0 include Alternative 1: No Action, and Alternative 2: Rehabilitation/Repair of Codorus Creek FRM project, as identified above. Alternative 2 is considered to be the preferred alternative because it meets the rehabilitation needs of the FRM project while also reducing risk to the public, having lower costs, and a shorter implementation timeline since there are limited real estate challenged to this proposed alternative. Therefore, Alternative 2 is identified as the Proposed Action from this point forward.

3.0: AFFECTED ENVIRONMENT

This section describes the existing conditions of the natural and human environments within the Codorus Creek FRM project area of review. The project area reviewed consists of an approximate length of 4.8 miles of Codorus Creek, measured down through the approximate center line of the creek, with a 500 foot wide buffer.

3.1 Land Use and Land Cover

According to the City of York Zoning Map, the land use within the Codorus Creek FRM project area of review includes water features, roads, and rail lines (Appendix 1.4) (City of York, 2018). The water features consist of Codorus Creek and segments of its confluence with multiple tributaries, to include Hoke's Run, Tyler's Run, Poorhouse Run, Willis Run, Deihl's Run (Mill Creek), and Small Run (Appendix 1.5). Additionally, there are transportation land use classifications consisting of roads and rail lines which cross the levee system. The adjacent land uses include residential, mixed use, institutional, commercial, industrial, and open space. North York Borough bounds the city's north side, while West York Borough bounds the southwest side of the city. The city is bordered by Manchester, Springettsbury, Spring Garden, and West Manchester

townships on its north, east, south, and west sides, respectively. Further review of the City of York Zoning Map indicates that lands along the east and south bank (right bank looking downstream) of Codorus Creek in and adjacent to the levee system are zoned predominantly as either “central business district” or “employment center district” from West Princess Street downstream. A small parcel of land from West Princess Street to West College Avenue is zoned “urban mixed residential commercial.” Land along Codorus Creek between West College Avenue and South Penn Street on the right bank is zoned as open space.

3.2 Geology and Topography

The City of York lies within the physiographic provinces of the Piedmont Uplands and Piedmont Lowlands (Appendices 1.6 and 1.7). The Piedmont Upland physiographic province is characterized by broad, rounded to flat-topped hills and shallow valleys. The underlying rock type consists mainly of schist, gneiss, and quartzite; some saprolite. The geologic structure is identified as extremely complexly folded and faulted. The topography of this province consists of low to moderate local relief (Appendix 1.6). The approximate elevations of the Piedmont Upland physiographic province range between approximately 100 feet to 1,200 feet. The drainage pattern is dendritic, which refers to a system where streams branch in multiple directions and angles, resembling the branching of trees. This pattern is produced as a consequence where a stream receives several tributaries which, in turn, are fed by smaller tributaries (Speleogenesis Scientific Network, 2018). The characteristics of Piedmont lowlands include broad, moderately dissected, karst valleys separated by broad, low hills (Appendix 1.6). The underlying rock type consists dominantly of limestone and dolomite, with some phyllitic shale and sandstone, as well. The geologic structure is described as complexly folded and faulted (Appendices 1.6 and 1.7). The topography is low, and the approximate elevations range between approximately 60 to 700 feet. The drainage pattern is dendritic and karst. Karst is described as a pattern consisting of hydrologic features which develop due to the dissolution of soluble bedrock, resulting in sinkholes, losing streams, and springs (United States Geological Survey, 2018).

3.3 Soils

Review of the web-based Natural Resources Conservation Service (NRCS) mapping program (United States Department of Agriculture, 2018) identified that the primary map unit symbol within the area of review is water (W) (Appendix 1.8). Additional map unit symbols which are identified, either within or directly adjacent to the levee system area of review, include Lindside silt loam (Lw); Edgemont channery loam, 3 to 8 percent slopes (Edc); Edgemont channery loam, 25 to 70 percent slopes, very stony (EeF); Mt. Airy and Manor soils, 25 to 35 percent slopes, (MOE); Glenelg channery silt loam, 15 to 25 percent slopes (GbD); and Urban land (Uc) (Appendix 1.8). No areas of soils classified by the U.S. Department of Agriculture (USDA) as prime farmland soils are identified as occurring within the area of review. Additionally, based on review of the National Wetland Inventory (NWI) mapping tool (<https://www.fws.gov/wetlands/>

Data/Mapper.html), there are no wetland soils identified to occur within the levee system area of review (Appendix 1.9). Fill material is present overlaying the project site at various locations as a result of historic disturbance, demolition of structures, discharges of trash, and debris. The fill material includes gravel, silts, sands, brick, concrete debris, etc.

3.4 Hydrology

3.4.1 Surface Waters

The primary surface water located within the Codorus Creek FRM project area of review is Codorus Creek. Approximately 4.8 miles of the creek are within the levee boundaries, and the creek is classified as a nontidal freshwater tributary with perennial flow. Table 1 represents the identified statistics of daily discharge based on a 56 year record. Within the limits of the FRM levee system, approximately 22,969 feet of the creek have been modified through channel improvement, including channel widening and deepening, construction of floodwalls and earthen banks, protection of channel bank slopes, and removal of a mill dam. The creek banks consist of maintained/mowed grassy banks; multiple groundhog burrows along the grassy banks; concrete and hand laid stone floodwalls with caps in some locations; 270 identified drainage conduits running through the levee system; riprap of assorted sizes; rubble riprap from adjacent structural demolition; evident deterioration of the floodwalls; and erosion of the levee banks at various locations. There are multiple bridges crossing Codorus Creek within the levee limits, as well as two small bridge crossings of Tyler's Run (near its confluence with Codorus Creek).

The width of Codorus Creek within the levee system varies, from a base width of approximately 80 feet to approximately 200 feet. The average depth is approximately feet. A bascule dam is present within the creek near downtown York. The dam is owned, operated, and maintained by the City of York. The water depth behind the bascule dam, when in a raised position, is approximately six feet. The dam is currently not operating properly and is permanently in the raised position.

The substrate of the surface waters consists primarily of silt and sand, as well as gravel and sediment deposits/shoals throughout the project. The current locations where sediment deposits/shoals are present include above and below South Richland Avenue, between Grantley Street and Penn Street, above and below Poor House Run, and above Route 30.

Multiple tributaries connect to Codorus Creek within the limits of the levee system, to include Hoke's Run, Tyler's Run, Poorhouse Run, Willis Run, Deihl's Run (Mill Creek), and Small Run, all of which are nontidal freshwater tributaries (Appendix 1.5). Codorus Creek flows southwest to northeast, is a tributary to the Susquehanna River (confluence near Saginaw, Pennsylvania), and is within the Lower Susquehanna Watershed (HUC 02050306). Streams of this region are characterized by a comparatively quick rise and a peak flow of short duration which mitigates the dangers from seepage, sand boils, etc.

The distance from the southern limits of the levee system to its confluence with the Susquehanna River is approximately 11 nautical miles, and approximately 9 miles as the bird flies. According to United States Geological Survey (USGS) data at Station 0157550 near York, Pennsylvania, the drainage of Codorus Creek is approximately 222 square miles (United States Geological Survey, 2018)

Table 1: Daily Discharge, Cubic Feet Per Second – Statistics for May 6 Based on 56 Years of Record*

Min (1969)	25th percentile	Median	Most Recent Instantaneous Value May 6	Mean	75th percentile	Max (1989)
52.0	134	203	234	349	363	3030

***Mean of Daily Mean Values for Each Day for 56 - 57 Years of Record: 1939-10-01 > 1996-09-30**

To determine whether any environmentally sensitive (high quality) stream habitats or natural trout streams occur in the area, the Pennsylvania Natural Heritage Program, online Pennsylvania Natural Diversity Inventory (PNDI) web tool was utilized (<https://conservationexplorer.dcnr.pa.gov/>). The PNDI mapping identifies no wilderness trout streams, Class A streams, nor streams supporting natural trout reproduction occurring in the project area of review (Appendix 1.9). No Chapter 93 special protection streams (e.g., high quality waters and exceptional value waters) are mapped to occur in the area of review, and within the limits of the levee system, Codorus Creek is not identified as an existing use classification. Within the limits of the levee system, Chapter 93 identifies Codorus Creek to be designated as a stream which supports warm water fishes and migratory fishes.

Review of the U.S. EPA Watershed Resources Registry website indicates that the area of review is identified as a Municipal Separate Storm Sewer System (MS4) Municipality (Watershed Resources Registry, 2018). According to the Pennsylvania Department of Environmental Protection (PADEP), Bureau of Point and Non-Point Source Management, Frequently Asked Questions webpage, an MS4 is a conveyance or system of conveyances that is: a. Owned by a state, city, town, village, or other public entity that discharges to waters of the Commonwealth; b. Designed or used to collect or convey storm water (including storm drains, pipes, ditches, etc.); c. Not a combined sewer; and d. Not part of a Publicly Owned Treatment Works (sewage treatment plant) (Pennsylvania Department of Environmental Protection, 2018).

3.4.2 Wild and Scenic Rivers

The Wild and Scenic Rivers Act, P. L. 90-542, (as amended) (16 U.S.C. 1271-1287) states: “It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their

immediate environments shall be protected for the benefit and enjoyment of present and future generations. The U.S. Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.”

The National Park Services (NPS) National Wild and Scenic Rivers System website lists designated rivers by state (National Park Service, 2018). Additional information concerning the rivers entering the Chesapeake Bay is contained on the Chesapeake Bay Foundation’s Web site. A review of the NPS Wild and Scenic Rivers System website indicates that there are no federally designated wild and scenic river reaches within the watershed.

Issued in 1997, Executive Order number 13061 for the American Heritage Rivers Initiative, was issued to protect and restore rivers and their adjacent communities. The American Heritage Rivers initiative has three objectives: natural resource and environmental protection, economic revitalization, and historic and cultural preservation. EO 13061 orders that “Executive agencies, to the extent permitted by law and consistent with their missions and resources, shall coordinate Federal plans, functions, programs, and resources to preserve, protect, and restore rivers and their associated resources important to our history, culture, and natural heritage.” No American Heritage Rivers are found in the study area.

3.4.3 Navigation

Codorus Creek was historically used for commercial navigation. In 1833, Codorus Navigation Works completed construction of approximately 11-miles of canal and slackwater within Codorus Creek which provided navigability for canal boats measuring up to approximately 70 foot long. This enabled canal boats to navigate between downtown York and the Susquehanna River (Smith, 2018). Currently, navigation for commercial vessels does not occur within the project area of review, nor within the vicinity. Despite having no present function in navigation, Codorus Creek remains regulated under Section 10 of the Rivers and Harbors Act of 1899. There are two dams located within the Codorus Creek FRM system—the bascule dam owned and operated by the City of York, and the USACE owned and operated South Richland Avenue Dam-- which further obstruct navigation. The waters within the limits of the levee system are utilized for recreational boating, such as kayaking and canoeing.

3.5 Floodplains

Issued in 1977, Executive Order number 11988 requires the Federal government to take into consideration the effects that its actions would have on floodplains. The Commonwealth of Pennsylvania has established guidelines to encourage planning and development in floodplains that are consistent with sound land use practices. Additionally, as identified on the Federal Emergency Management Agency (FEMA)

mapping (Appendix 1.11), the proposed project area is located within Zone AE. Zone AE is defined as areas that have a 1 percent probability of flooding every year, which is also referred to as the 100-year floodplain. Additionally, Zone AE identifies areas where predicted flood water elevations above mean sea level have been established. The National Flood Insurance Program (NFIP) considers properties that are located within areas identified as Zone AE to be at high risk of flooding. The proposed work tasks would occur within the existing boundaries of the Codorus Creek FRM project, which consists of floodwalls, earthen levee banks, Codorus Creek waters, etc. Additionally, ROEs at three locations for construction access would be necessary to perform the work. The existing infrastructure within the proposed ROEs consist primarily of parking lots, maintained grassy areas, and businesses. Given the constrained area between the waters and outer boundaries of the levee easement, available floodplain habitat for wildlife and aquatic organisms is minimal.

3.6 Biological Resources

3.6.1 Terrestrial Resources

The majority of the Codorus Creek FRM project consists of waters; therefore, the terrestrial resources present within the area of review are minimal. These include vegetated (grassy)/mowed earthen levee banks; gravel and sediment deposits/shoals, some of which are vegetated with herbaceous and shrub species; riprap stabilization along the levee banks; etc. The vegetation and living organisms present within the levee system running through the City of York are common to urban communities. Vegetation includes perennial grasses, weeds, shrub, and tree species.

Wildlife species which may utilize the terrestrial resources throughout the length of the project area would include mice, rats, rabbits, raccoons, groundhogs, deer, etc. Avian species frequent the area of review, to include migratory, federal, and State threatened and endangered species. The northern segment of the levee system is surrounded by less developed lands; therefore, more diverse and abundant wildlife species may utilize available terrestrial resources more frequently than within the City of York segment. Construction of the work tasks would also require the use of ROEs. The existing infrastructure within the proposed ROEs consists primarily of parking lots and maintained grassy areas. Terrestrial resources within these areas are limited given the proximity to the developed lands within the City of York and steep levee banks.

3.6.2 Wetlands

USACE generated a report for the proposed project area to evaluate the potential impacts to wetlands using the Information, Planning, and Conservation (IPaC) website (<https://ecos.fws.gov/ipac/>) (Appendix 2.1). The project area reviewed consists of an approximate length of 4.8 miles of Codorus Creek, measured down through the approximate center line of the creek, with a 500 foot width buffer. The IPaC report included a NWI map, which identified Codorus Creek as a riverine wetland (R2UBH). Review of the Pennsylvania National Wetlands Inventory (PANWI) Land Analysis

mapping tool (http://maps.psiee.psu.edu/PANWI_LandAnalysis/index2.html) also identified Codorus Creek within the project area of review as a Riverine wetland (R2UBH) (Appendix 1.12). However, this aquatic feature exhibits the characteristics of a stream, which include a bed, bank, and regular and reoccurring flow. Therefore, this feature is more appropriately identified as a perennial stream and not wetlands. The PNDI report and NWI map do not identify any other wetland polygons as being present within the levee system area of review. The PANWI indicates that a freshwater pond (PUBH) is present outside of the project area of review near the Norfolk Southern rail line at the northern portion of the area of review. No work is proposed to occur near this location. Review of the NRCS soils survey indicated that the soils within the area of review are not hydric (Appendix 1.8).

3.7 Threatened and Endangered Species

USACE used multiple tools to identify the potential presence of threatened and endangered species, and their critical habitat within the project area. Review of the resource list generated through the IPaC website (<https://ecos.fws.gov/ipac/>) on February 27, 2018 identified two federally listed threatened species and one endangered species as occurring within the project area of review (Appendix 2.1). The federally listed species include the threatened Northern long-eared bat (*Myotis septentrionalis*), threatened bog turtle (*Clemmys muhlenbergii*), and endangered Indiana bat (*Myotis sodalists*). No critical habitat for any federally listed threatened or endangered species was identified within the project area of review, which includes the 500-foot buffer. Additionally, the report included two migratory birds and one wetland feature. The wetland feature encompasses the entire length of Codorus Creek. However, the feature is more appropriately classified as a perennial stream, as it possesses bed and bank features. The wetland feature is discussed in more detail in Section 3.6.2. The migratory bird species include the bald eagle (*Haliaeetus leucocephalus*) and wood thrush (*Hylocichla mustelina*).

Additionally, USACE utilized the PNDI report provided by the USFWS, dated March 22, 2018, and generated a new PNDI report on April 27, 2018 (Appendix 1.10). Following are the search results consistent for both PNDI reports:

Pennsylvania Game Commission (PGC): The following state listed species were identified by the PGC as having potential impacts from the project:

Table 2: Pennsylvania Game Commission PNDI Search Results

Scientific Name	Common Name	Current State Status
<i>Ardea alba</i>	Great Egret	Endangered
<i>Ardea herodias</i>	Great Blue Heron	Special Concern Species
<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron	Endangered
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	Endangered

Pennsylvania Department of Conservation and Natural Resources (PA DCNR): No Impact is anticipated to state-listed threatened and endangered species and/or special concern species and resources.

Pennsylvania Fish and Boat Commission (PFBC): The following state-listed species were identified by the PFBC as having potential impacts from the project. .

Table 3: Pennsylvania Fish and Boat Commission PNDI Search Results

Scientific Name	Common Name	Current Status
<i>Crangonyx dearolfi</i> **	Pennsylvania Cave Amphipod	Special Concern Species*
<i>Caecidotea pricei</i> **	Price's Cave Isopod	Special Concern Species*

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

PFBC information also includes that Codorus Creek supports limited populations of warm water fish species including yellow bullhead, rock bass, redbreast sunfish, bluegill, walleye, smallmouth bass, and largemouth bass.

United States Fish and Wildlife Service (USFWS): The PNDI report identified that a bald eagle nest occurs in the vicinity of Codorus Creek. Additionally, the PNDI report included the following USFWS avoidance measure: “Due to the proximity of this project to a bald eagle nest, it is possible that project activities may disturb bald eagles, which is a form of "take" under the Bald and Golden Eagle Protection Act and may require a permit. The Service has prepared a project screening form to help you determine which specific measures may be necessary to avoid disturbing bald eagles and their nests, based on the type and scope of your proposed project or activity, and its distance from a bald eagle nest.” The avoidance measure also includes the following statement: “If you agree to implement the above Avoidance Measure, no further coordination with this agency regarding threatened and endangered species and/or special concern species and resources is required.” The project screening form process would be followed to identify specific avoidance measures.

According to the USFWS Pennsylvania Bald Eagle Nest Locations and Buffer Zones website (https://www.fws.gov/northeast/pafo/bald_eagle_map.html), a bald eagle nesting location was identified north of Arsenal Road during the Pennsylvania Bald Eagle Nesting Sites 2015, 2016, and 2017 Updates. The project proposes maintenance of drainage conduits, and there are drainage conduits located within the 330, 660, and 1,000 foot buffer zone breaks from a bald eagle nest (Figure 4).

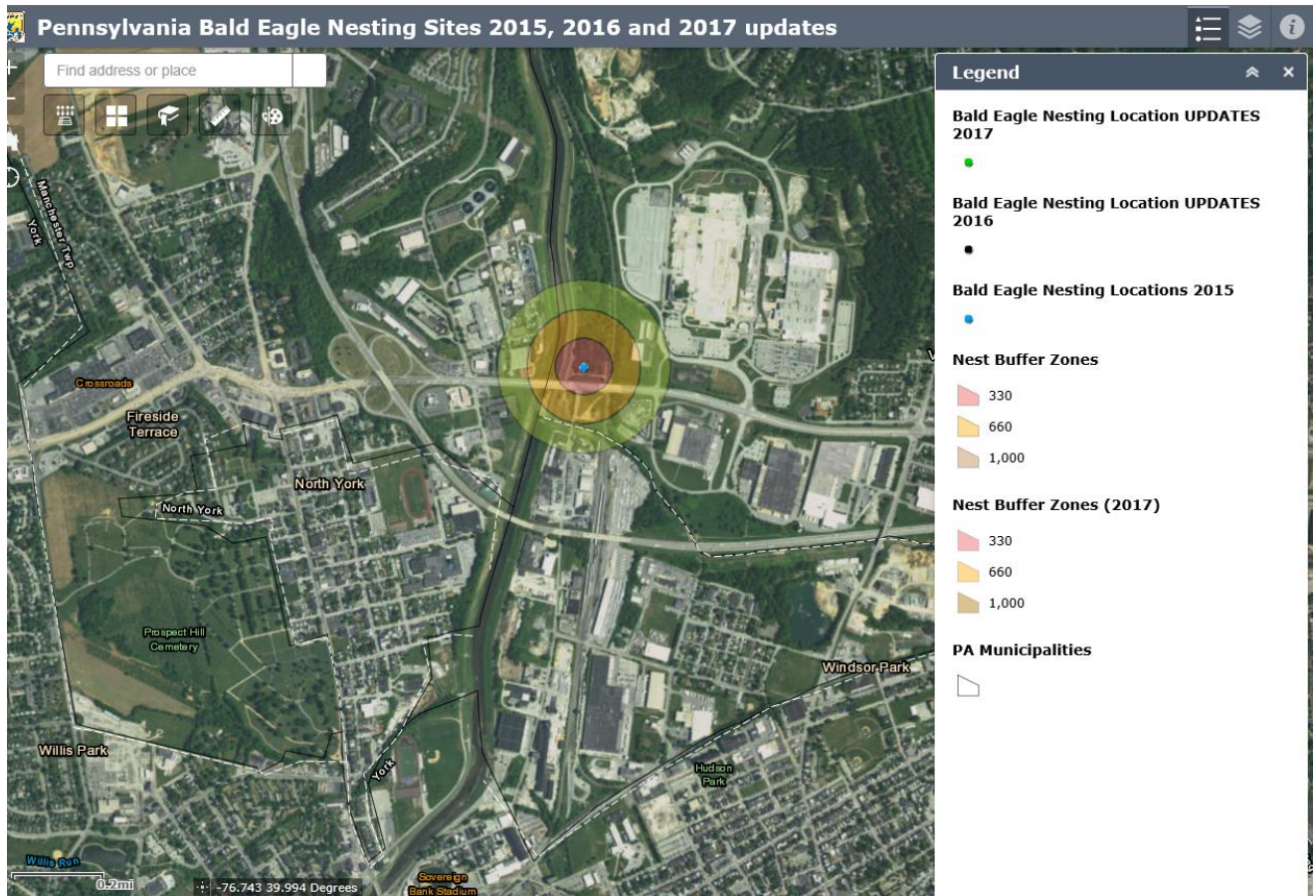


Figure 4. USFWS Bald Eagle Nesting Sites 2015, 2016, 2017 Updates

Additionally, regarding State listed species, according to information provided by the City of York, State listed species have been identified as frequenting shoals located within the limits of the Codorus Creek FRM project limits. The species mentioned include the great egret, black crowned night heron, and intermittent appearances of yellow crowned night herons. City of York staff have commented that these species do not appear to rely upon the shoals as habitat.

3.8 Cultural, Historical, and Archaeological Resources

Cultural resources are locations of human activity, use, or occupation. They can be defined by expressions of human culture and history in the physical environment, such as prehistoric or historic archaeological sites, buildings, structures, objects, districts, sacred sites, among others. Cultural resources may also include natural features, plants, and animals that are deemed important or significant to a cultural group or community. In explaining the proposed actions' effects on cultural resources, this

section provides an overall cultural context for the project area and discusses cultural resources identification efforts to date.

It is important to note that historic properties, as defined by 36 CFR 800, the implementing regulations of Section 106 of the National Historic Preservation Act (NHPA) of 1966, are cultural resources that are eligible for inclusion in the National Register of Historic Places (NRHP). Historic properties may be districts, sites, buildings, structures, artifacts, ruins, objects, works of art, natural features important in human history at the national, state, or local level, or properties of traditional religious and cultural importance.

Section 106 of the NHPA requires consultation with the State Historic Preservation Office (SHPO) for proposed actions that may affect historic properties. The Pennsylvania Historical and Museum Commission (PHMC) is designated as the SHPO for Pennsylvania. Consultation with PHMC, the Advisory Council on Historic Preservation, and Native American Tribes is currently ongoing to identify cultural resources that may be impacted by the proposed project. A consultation letter was submitted to PHMC in May of 2018. Consultation is expected to be completed by the end of September of 2018.

3.8.1 Affected Environment

The Codorus Creek project area is 4.8 miles in length, consisting of earthen levees, floodwalls, a stop-log closure structure, and numerous drainage conduits. For this analysis, the area of potential effect (APE) includes those areas where direct construction impacts are proposed, as well as, areas within which the undertaking may directly or indirectly cause alterations in the character or use of historic properties, including visual effects. Given this, the APE would include work performed on the floodwalls adjacent to Codorus Creek and Tyler Run, staging areas, and any other areas of potential ground disturbance. The viewsheds of any nearby historic properties would also be included in the APE.

3.8.2 Cultural Contexts

Prehistoric cultural periods in south-central Pennsylvania have typically been separated into four periods including Paleo-Indian (ca. 15,000 – 8000 BC), Archaic (8000 BC – 1000 BC), Woodland (1000 BC – AD 1500), and Proto-Historic (AD 1500 – AD 1750).

The Paleo-Indian Period is characterized by a hunting and gathering subsistence pattern, where people were organized into small nomadic bands that traveled frequently in search of food and other resources. Short term base camps would have been created at a variety of locations, including along terraces or hilltops and rock shelters. It is thought that these base camps would have been revisited on a periodic basis. Smaller temporary camps would have also been established while scouting or as kill sites. Paleo-Indian sites, commonly associated with fluted Clovis projectile points, are uncommon in this region of Pennsylvania (Hay 1988, Cheek 1991).

The Archaic Period is typically divided into the Early (8000 BC – 6000 BC), Middle (6000 BC – 4000 BC), and Late (4000 BC – 1000 BC) Archaic Periods based on changes to subsistence patterns and technological variation through time. For example, an environment more favorable to human habitation was created as ice sheets gradually retreated and the climate became warmer. This resulted in the increased exploitation of game animals, fish, shellfish, seed plants, nut-bearing tree species, among others. Also evident is the increased regional variation in artifact types and styles, reflecting adaptation to local environmental conditions and seasonality in resource exploitation (Hay 1988, Cheek 1991).

Early Archaic lithic artifacts include various styles of stemmed and notched projectile points that are found over a broad area of the Eastern Woodlands. Sites of Middle Archaic affiliation are less recognizable than those of the earlier period because of unclear typological definitions. The Middle Archaic period is frequently associated with warm and humid conditions. The Late Archaic period is characterized by higher population density and greater site differentiation. Sites are increasingly oriented to river valleys, a change related to the stabilization of alluvial environments at this time. Several Late Archaic traditions are represented in Pennsylvania by a variety of projectile point styles, including Broadspear types like Perikomen, Susquehanna, and Lehigh, as well as small-stemmed and/or narrow bladed forms, including Normanskill, Lamoka, and Orient. Other typical Late Archaic artifacts found in the region include soapstone vessels and pipes, groundstone gorgets, chipped-stone celts, and grooved axes. The most common site types associated with the Archaic period are seasonally occupied base camps and resource procurement stations (Hay 1988, Cheek 1991).

The Woodland period is also divided into Early (1000 BC – 200 AD), Middle (200 AD – 1000 AD), and Late (1000 AD – 1500 AD) periods. The major diagnostic traits of the Woodland period include larger populations, an increased complexity of social organizations, a settlement pattern characterized by increased sedentism, and a subsistence pattern that included horticulture. This period is also associated with the production of ceramics vessels, which, along with subterranean storage pits, facilitated the accumulation of seasonally abundant foods. A generalized pattern of seasonal hunting and gathering persisted from the Late Archaic into the Early and Middle Woodland. As horticulture assumed greater importance during the Late Woodland, seasonal population movements gave way to more sedentary village life. In Pennsylvania, Early Woodland diagnostics include Meadowood and Adena point types. Early pottery vessels were typically tempered with crushed rock and had thick walls that often displayed cord-marking on both interior and exterior surfaces. The Middle Woodland period is characterized by an increasing reliance food production, which supported semi-permanent hamlets in riverine settings. Diagnostic artifacts from the Middle Woodland include Fox Creek and Jack's Reef point types and limestone-tempered pottery with a variety of cord-markings and incised decorations. The Late Woodland is characterized by the introduction of the bow and arrow and associated triangular arrow points (Hay 1988, Cheek 1991).

By the 16th century, during the Proto-Historic, the Susquehannock Indians had moved into the area and had gradually replaced the earlier Woodland cultures in central Pennsylvania. The Susquehannocks were an Iroquoian group that typically built large stockade villages near major rivers in central Pennsylvania. The Susquehannocks controlled the fur trade in Pennsylvania during the early 17th century. They dominated the region by 1660 after conducting a series of conflicts with adjacent tribal groups. Proto-Historic artifacts include shell-tempered pottery, triangular projectile points, and items of European manufacture (Hay 1988, Cheek 1991).

In 1681, William Penn founded the Pennsylvania colony to establish a safe haven for persecuted religious minorities. At the time, the majority of lands were controlled by the Susquehannock, Shawnee, and Delaware Indians. Penn forbade intrusion into Indian Territory until the lands had been legally purchased. This policy slowed the rate of development on the frontier but was often disregarded by settlers. In 1736 the provincial government negotiated a treaty with the Iroquois that extended the boundaries of Lancaster County indefinitely west, and effectively ceded all lands west of the Susquehanna to the Penns. The lands comprising present-day York County were included in this treaty (Gibson 1886; USACE 2007).

The town of York was laid out in 1741, however, York County was formed in 1749 when settlers petitioned for the creation of a new county. As population increased west of the Susquehanna, the distance to the main governing body, Lancaster Court, grew increasingly distant. After two petitions in 1747 and 1748, land from Lancaster County was separated to form York County in 1749 (Gibson 1886).

York County was a focal point for early industry, especially regarding iron works. It was known even before its founding that York County possessed plenty of iron ore for extraction. During the mid-18th century and early 19th century, numerous industrial sites, such as the Spring Forge and Bloomary, Mary Ann Furnace, Hellam Iron Works, Castle Fin Forge, and the York Foundry, Furnace, and Forge operated within county lines. Hellam Iron Works, for example, is most remembered for its casting of cannons and cannon balls for use during the Revolutionary War (Gibson 1886).

Throughout the rest of the 18th and in the 19th century, York County was involved in major bouts of warfare. During the French and Indian Wars, a series of attacks by the French and their Native American allies prompted leaders from York County, and other neighboring counties, to form companies and grant commissions in 1756. In 1758, York County militia aided in the capture of Fort Duquesne in present-day Pittsburgh. At the onset of the Revolutionary War, York County provided military support by forming militias and dividing the county into five battalions. Later on in 1777 and into 1778, the town of York was to serve as a meeting location for the Continental Congress. During the Civil War, the governor's call for volunteer soldiers in York was met with no hesitation as Gibson states that the companies "responded unanimously to the call, and obeyed with alacrity the order of the governor" (Gibson 1886: 166). However, this enthusiasm did not prevent the Confederate army from entering the town in 1863.

Historically, the City of York grows in significance through an assortment of architecturally significant residential, commercial, industrial, and public buildings constructed between the late 18th and mid-20th centuries. Historic districts throughout the town are represented by these various categories of buildings and themes. As is mentioned in Section 3.8.3, three historic districts are within the proposed project boundaries: York Historic District, York Historic District West Addition, and the Fairmount Historic District. Each district derives its importance from historically significant events associated with York or significant architectural elements that have remained intact. The York Historic District and its West Addition, for example, are crucial for conveying the significance of the original Colonial town plan, meeting of the Continental Congress, growth during the industrious 19th century, and continued development into a commercial center during the mid-20th century (Roman and Arnold 2001). Similarly, the Fairmount Historic District is significant for its association of York suburban community development and is an excellent example of intact Victorian-era housing (Raid 1999).

3.8.3 Cultural Resources Identification Efforts

PHMC’s Cultural Resources Geographic Information System (CRGIS) was utilized to identify previously mapped archaeological and architectural resources and cultural resource surveys conducted within 0.5 miles of the project area (CRGIS 2018). Tables 4 and 5 list the results of the CRGIS search. Based on the CRGIS results, portions of the project are within the York Historic District, York Historic District West Addition, and the Fairmount Historic District. Although numerous architectural resources are listed in Table 4, only two, the Philip J. King House and the Hotel Codorus could potentially be impacted by the proposed project. One of the previous relevant cultural resource surveys was located with the project’s APE; however, no archaeological resources have been identified that would be impacted by the proposed project. Further details on impacts to cultural resources are discussed in Section 4.8.

Table 4: Previously Identified Cultural Resources within 0.5 Miles

	Districts	Architectural Resources	Archaeological Resources
NRHP Listed	3	14	1
NRHP Eligible	2	9	-
Contributing Resource	-	310	-
Insufficient Information to Evaluate	1	1148	7

Table 5: Previous Relevant Cultural Resource Surveys

Survey Title	Survey Within APE	Description and Results
Kinsey 1984 – Phase I Archaeological Survey Investigations, Codorus Creek Interceptor, York Co., PA	Yes	Kinsey 1984 surveyed a four-mile-long (1.0 acres) tract of land along the west side of Codorus Creek as part of a sewer project. He recommended that one multi-component prehistoric site, 36Yo59, either be avoided or evaluated for NRHP eligibility. Site 36Yo59 is not within the APE of the USACE Codorus Creek Project.
Geidel 1991 – Phase I and II Archaeological Investigations of Regent’s Glen Spring Garden Twp, York County, PA	No	Geidel 1991 surveyed 256 acres prior to construction of a golf course. Background research identified four prehistoric sites and the survey identified three additional historic sites within the project area. One of the prehistoric sites, 36Yo118, was recommended for and underwent Phase II testing, but was determined ineligible for the NRHP.
Basalik 2003 – Broad Street Greenway Project, City of York, York Co., PA, Phase Ia Archaeological Survey Report	No	Basalik 2003 surveyed 1.4 acres for a proposed greenway project. No archaeological resources were documented and no additional investigations were recommended.
Dinsmore 2012 – Harley Davidson Pleasureville 115 kV Transmission	No	Dinsmore 2012 surveyed 8.9 acres for a proposed transmission line. No archaeological resources were documented and no additional investigations were recommended.

Basalik 2014 – Phase I Archaeological Survey, Trileaf Corporation Site #612237 (Hartley), York City, York County, Pennsylvania	No	Basalik 2014 surveyed 0.1 acres for the proposed installation of a stealth treepole. No archaeological resources were documented and no additional investigations were recommended.
Coppock and Tucker 2018 – North George Street Improvements, SR 0181, Section 017 Manchester Township, York County	No	Coppock and Tucker 2018 surveyed 14.1 acres for proposed improvements along North George Street. No archaeological resources were documented and no additional investigations were recommended.

3.9 Air Quality

Six criteria pollutants are evaluated by the EPA under the auspices of the Clean Air Act to determine outdoor air quality in an area. These pollutants can injure health, harm the environment and cause property damage. The EPA calls these pollutants criteria air pollutants because the agency has developed science-based guidelines as the basis for setting permissible levels. There are National Ambient Air Quality Standards (NAAQS) for each of the criteria pollutants that apply to the concentration of a pollutant in outdoor air. If the air quality in a geographic area meets or has lower concentration of the pollutant than the national standard, it is called an attainment area; areas that don't meet the national standard are called nonattainment areas, and the air is more polluted than acceptable.

Areas (by state) that fail to meet the NAAQS for a criteria pollutant are required to develop a state implementation plan (SIP) to improve air quality. A SIP outlines the measures that the state would take to improve air quality, and include emission inventories, air quality projections, and control measures designed to reduce emissions. Once a nonattainment area meets the standards and additional re-designation requirements in the Clean Air Act, the EPA would designate the area as a maintenance area.

Two criteria air pollutants have been of particular concern in York County. These are ground-level ozone, and very fine particulate matter (PM-2.5). Ground-level ozone is created by sunlight-driven chemical reactions between oxides of nitrogen and volatile organic compounds that themselves derive from emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents. PM-2.5 forms in the atmosphere as a result of complex reactions of other pollutants emitted

from power plants, industries and automobiles. Particulate matter is also emitted directly from sources such as construction sites, unpaved roads, and smokestacks.

According to the USEPA Green Book Nonattainment Pollutant Report, York County had been designated a nonattainment County for multiple years for ozone and PM-25. York County has subsequently been re-designated to a maintenance area (Appendix 1.13) (United States Environmental Protection Agency, 2018; n.d.).

3.10 Hazardous Materials and Solid Waste

Concerns over soil contamination focus on health risks from direct contact with the contaminated soil and vapors from contaminants, as well as escape of contaminants into the environment. Soil contamination is typically caused by industrial activity, agricultural chemicals, or improper disposal of waste.

USACE used the EPA EnviroMapper website to identify potential hazardous materials and solid waste sources within or near the project area (United States Environmental Protection Agency, 2018). This website provides information regarding U.S. EPA-regulated hazardous waste, toxic and air releases, and water discharges, as well as impaired surface waters. Facilities generating pollutants (such as gas stations and municipal public works departments), as well as contaminated sites (such as superfund and brownfields) are included. According to the website, there are no properties which are listed on the Toxic Release Inventory; generators, transporters, treaters, storers, or disposers of hazardous waste; or Brownfield sites located within the levee system area of review. The website does indicate the presence of mentioned sites outside the area of review and within the City of York limits. Additionally, review of the EPA Superfund National Priorities List (NPL) website, indicates that there are no active NPL superfund sites mapped within the limits of, or in near proximity to, the levee system area of review (United States Environmental Protection Agency, 2018). There is one non-active site located approximately 2,000 feet south of Codorus Creek along Grantley Road. There are also several archived superfund sites within the County. One of these lies along Market Street, approximately 1,250 feet east of Codorus Creek. The City of York has six brownfield sites located within approximately 1,000 feet of Codorus Creek from Philadelphia Street downstream to the city's eastern boundary.

The area adjacent to the floodwall near the Penn Street Bridge was previously the property of the early 20th century Schmidt-Ault Paper, with a history of cardboard manufacturing. The property and structures are currently under the ownership of York College. USACE performed a groundwater evaluation in 2011 and soils evaluation in 2012. The evaluation consisted of four soil borings drilled to 25-feet below ground surface or bedrock, whichever was shallower, two test pits; two existing monitoring wells, and one surface water sample. The findings of the soil samples indicated that the samples tested below the PADEP Act 2 non-residential direct contact surface soil standard 1000 mg/kg, except for an isolated occurrence, with a lead concentration of 2800 mg/kg. The findings of the groundwater survey indicated that groundwater was encountered at a depth of 15.3 to 19.5 feet below ground surface, and the groundwater

samples were below the PADEP Act 2 MSC for non-use aquifers; and the surface water samples were below the PADEP surface water quality standards of contamination.

3.11 Climate

According to the U.S. Climate Data website, during a typical year, York's highest temperature months are generally July and August, with averages of 87 degrees in July and 85 degrees in August (U.S. Climate Data, 2018). The lowest temperature months are January and February, with the average of 39 degrees in January and 43 degrees in February. Average annual rainfall precipitation is approximately 42.91 inches. Average snowfall is approximately 25 inches. The County of York Hazard Mitigation Plan identifies at least 10 tropical depressions, tropical storms, or hurricanes that have resulted in major disaster or disaster emergency declarations in the county since 1954 (York County, 2013). Additionally, the county has historically been affected by winter storms that result in flooding and icejam related flooding in vulnerable areas throughout the county.

3.12 Parks and Recreation

There are multiple parks within the City of York, some of which are within and adjacent to the FRM project area of review. Within the City of York, between Grantley Road and South Richland Avenue, Brantz Park lies on the north bank (left bank looking upstream) of Codorus Creek. Brantz Park is forested along Codorus Creek, but is otherwise lawn with shade trees and contains a baseball field just upstream of South Richland Avenue. York County Parks, with support from the State of Pennsylvania, owns and operates the 21 mile long "Heritage Rail Trail County Park" which extends from John Rudy County Park north of York City (in East Manchester Township) south to the Pennsylvania/Maryland state line, at New Freedom, Pennsylvania. The trail connects to Maryland's 20-mile long Torrey C. Brown Trail. The waters within the project area of review are utilized for public water related recreation, such as fishing, kayaking, and canoeing.

3.13 Aesthetics

The Codorus Creek FRM project area of review includes the levee which consists of Codorus Creek, floodwalls, earthen levee/dikes, drainage pipes, riprap, shoals within the channel, City of York operated bascule dam, USACE constructed and maintained Richland Avenue dam, connecting tributaries, two structures, and roadway and rail line crossings. Living and dead trees are present within and adjacent to the levee system, some of which overhang the creek. There are also fences and signs within the area of review, some of which were not installed by USACE. There is light being emitted along segments of the levee system from adjacent properties. Currently, there are visual signs of deterioration at various locations along the levee system. These include the deterioration of the floodwall near the Penn Street Bridge, bulges and other instability signs within the floodwall near the Market Street Bridge, clogged and collapsed

drainage pipes throughout the levee system, and bank erosion near Richland Avenue. Additionally, shoaling with vegetation is present at various locations throughout the creek. The levee project is surrounded by residential, commercial, educational/institutional, and industrial development; transportation crossings; community parks; trails; open space; and forested tracts.

3.14 Noise

The City of York is a busy urban setting with notable noise, as is common in similar settings. There are commercial and industrial businesses, residences, community parks, educational institution facilities, roadways, rail lines, bridges, and trails within and adjacent to the Codorus Creek FRM project area of review. The major sources of noise in the affected area are anthropogenic, produced by vehicular and railway traffic which utilize the bridge crossings and adjacent roadways. This would also include emergency vehicles and noises produced at the local fire station. Other sources of noise would include those produced by the general public during daily activities, which would be minimal. Natural sounds produced by strong wind and precipitation, as well as from the water flow within the creek, can mask noises produced by anthropogenic sources when human activities are minimal.

3.15 Transportation and Traffic

There are multiple transportation corridors running through and adjacent to the project area of review. Interstate 83 provides north/south regional surface transportation for vehicles and partially encircles the City of York along the city's southern, eastern, and northern sides. US Route 30 provides a regional east/west vehicle surface transportation route, passing through the northern part of the city. Business 83 (George Street) passes north/south through the City of York, crossing Codorus Creek in the northern part of the city. Other numbered roads passing through the City of York include Market Street (462) passing roughly east/west and Route 74 (Queen Street to Carlisle Avenue). There are multiple road bridges crossing Codorus Creek in the City of York, from upstream (south) to downstream (north) these are South Richland Avenue, Grantley Road, South Penn Street, West College Avenue, West Princess Street, West King Street, Market Street, West Philadelphia Street, Beaver Street, and North George Street (83).

The closest public airport to the City of York is Harrisburg International Airport, which is located approximately 15 miles away and provides commercial air travel. A private airport, Gilbert Airport (73PA), is located approximately 3 miles southwest of the City of York. This airport does not offer commercial flights.

Norfolk Southern Railway tracks extend southward from Harrisburg to York City along the east side of Codorus Creek. Local line haul / switching and terminal railroad tracks extend from the City of York southwest to Hanover, Pennsylvania, utilizing two bridges crossing Codorus Creek between Beaver Street and Philadelphia Street.

3.16 Health and Safety

The incorporated area within the City of York covers a little more than 5 square miles, and lies on both banks of Codorus Creek, which flows through York and is 10 miles upstream of the confluence with the Susquehanna River. The Indian Rock Dam and Codorus Creek FRM levee projects were authorized by the Flood Control Act of 1936. These projects work jointly to help reduce flood risks to people and property in York, as well as communities downstream. It is estimated that the dam and levee system have prevented more than \$55 million in flood damages since their construction and have provided York and downstream communities with protection from flood hazards. Given the identified deficiencies of the Codorus Creek FRM project, the ability of the levee system to maintain flood capacity and control during storm events may become compromised.

In recognition of mounting scientific information demonstrating that America's children suffer disproportionately from environmental health and safety risks, President Clinton issued Executive Order number 13045 on April 21, 1997, "Protection of Children from Environmental Health Risks and Safety Risks." Under this Executive Order, each Federal Agency "shall (a) make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities and standards address disproportionate risks to children that result from environmental health risks or safety risks." Children are identified as individuals under 18 years old. According to the 2016 U.S. Census, approximately 28.6 percent of the population within the City of York were under the age of 18. Consideration of the environmental health risks to children is included in Section 4.0 of this EA.

3.17 Population and Socioeconomics

According to the 2016 U.S. Census, the population reported within the City of York was 43,859, and 443,744 within York County. Approximately 7.8 percent of the population were under the age of 5 within the City of York, and 5.7 percent within York County. Approximately 28.6 percent of the population within the City of York were under the age of 18, and approximately 9.1 percent were 65 years of age or older. Approximately 22.2 percent of the population within the York County were under the age of 18, and approximately 16.6 percent were 65 years of age or older. Of these total populations, within the City of York, approximately 49 percent were males, and 51 percent were females; and within York County, approximately 49.4 percent were males, and 50.6 percent were females. Approximately 41.4 percent were other than white within the City of York and 10.6 percent in York County. The median household income within the City of York was \$30,068 and \$59,853 in York County (United States Census, 2016). Within the City of York, approximately 78.4 percent of the population aged 25 years or older had an education level of high school graduate or higher, and approximately 88.5 percent in York County.

There are a several colleges and universities within and nearby the City of York, including the York College of Pennsylvania and Pennsylvania State University York Campus. Industries located within and adjacent to the City of York include printing and packaging; refrigeration, cooling and heating; electronics and controls; snack and food manufacturers and distributors; construction and building supply products; industrial and military; chemical and pharmaceutical; medical supply manufacturers and distributors; transportation and trucking; information technology; architectural firms; restaurants, and others.

The workforce of York is primarily composed of private wage and salary workers (89.6 percent) (United States Census, 2016). The City of York has been historically dominated by manufacturing industries which has seen significant declines in the preceding decades. Industries with notable concentrations of workers include manufacturing (19.2 percent), educational services and health care (21 percent), and retail trade (12 percent). Unemployment rates have varied over the years and as of February 2018, the unemployment rate is identified as being approximately 8.4 percent, which is higher than the State and national averages (4.6 percent and 4.1 percent).

3.18 Environmental Justice

On February 11, 1994, Executive Order 12898 was issued. EO 12898 requires, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The EO directs each Federal Agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations," including tribal populations.

As defined by the "Environmental Justice: Guidance Under the NEPA" (CEQ, 1997), "minority" includes persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin) or Hispanic. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. Low-income populations are identified using the Census Bureau's statistical poverty threshold, which is based on income and family size. The Census Bureau defines a "poverty area" as a Census tract with 20 percent or more of its residents below the poverty threshold and an "extreme poverty area" as one with 40 percent or more below the poverty level (Census Bureau, 1995).

According to the 2016 U.S. Census Bureau data, minorities (other than white) comprised approximately 41.4 percent of the total population of the City of York and approximately 10.6 percent of within York County. Additionally, the U.S. Census Bureau data for 2016 indicates persons below poverty within the City of York equates to 36.0 percent and 9.8 percent in York County. USACE also generated a report using the EPA Environmental Justice Screening and Mapping Tool (Version 2017) (<https://epa.gov/ejscreen>) which included an approximate 7 mile buffer surrounding the

City of York. The report indicated that the minority population is 28 percent within the buffer, with the State average of 22 percent. Also, the low income population within the buffer is 31 percent, equal to the State average. The information does not specify the incomes as compared to the family size. Based on this data, the area of review is not defined as having a minority population of greater than 50 percent. Given that the low income population is 31 percent, and the Census Bureau defines a poverty area as a Census tract with 20 percent or more below the poverty threshold, the area of review would be considered a poverty area.

4.0 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

4.1 Land Use

4.1.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work tasks would occur. There would be no temporary or permanent changes to land use and land cover. However, the Codorus Creek levee system would continue to degrade. If this would occur, the integrity of the levee system would be compromised which may ultimately result in adverse effects to land use and land cover if the community is not adequately protected from potential flood hazards.

4.1.2 Alternative 2: Proposed Action

Under the proposed action, the repair and rehabilitation activities identified in Section 2.1.2 would occur to restore the levee system to its authorized FRM system capacity, standards, and integrity. The land uses would not change, as the repair and rehabilitation work tasks would occur to the levee system. Although ROEs would be necessary, the work within these areas would be temporary, and no land use changes would be required. Additionally, the transportation land uses (i.e., roads and rail lines) would not be changed, as the work would occur within the levee system only and does not propose to affect these land use features, neither permanently nor temporarily. Adjacent land uses may change over time as a result of the City of York and other stakeholders proposing open space, recreation facilities, development, etc., along the levee system, some of which may require review by USACE under Section 408. Section 408 refers to the following: Congress required that any use or alteration of a Civil Works project by another party is subject to the approval of USACE to ensure that Civil Works projects continue to provide their intended benefits to the public. This requirement was established in Section 14 of the Rivers and Harbors Act of 1899, which has since been amended several times and is codified at 33 USC 408 (Section 408). Section 408 provides that USACE may grant permission for another party to alter a Civil Works project upon a determination that the alteration proposed would not be injurious to the public interest and would not impair the usefulness of the Civil Works project. Based on the above information, the performance of the work tasks identified in 2.1.2 would not alter existing land uses within the Codorus Creek FRM project area of review.

4.2 Geology and Topography

4.2.1: Alternative 1: No Action Alternative

Under the No Action Alternative and no rehabilitation work tasks would occur. Although the levee system would continue to degrade, it is not expected that this would result in changes to geology and topography.

4.2.2 Alternative 2: Proposed Action

Performance of the Codorus Creek FRM project work tasks identified in Section 2.1.2 would have little to no impact to the underlying geologic formations in both the short and long term. The project work tasks are intended to restore the levee system to its authorized flood control capacity and design, which involves rehabilitation and repair activities where deterioration and deficiencies along the levee system have been identified. The work would be within the existing footprint of the levee system and would not significantly alter the topography. Only minor modifications in topography are proposed to stabilize the banks of Codorus Creek near South Richland Avenue, which will reduce the steepness of the terrain and reduce erosion at the site. Additionally, project work tasks would prevent continued deterioration and improve the integrity of the levee system. Given the proposed work tasks to restore the Codorus Creek FRM project, and permanent activities outside of the existing footprint are not proposed (only temporary construction access and staging activities outside of the levee system would occur), the project would not adversely affect the geology or topography of the area.

4.3 Soils

4.3.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation of the Codorus Creek FRM project would occur. Although under this alternative, soils would not be directly affected, the continued degradation and compromised integrity of the levee system would result in levee bank de-stabilization. This would alter soils along the levee banks and adjacent to the levee system through erosion. Soils would enter into Codorus Creek and ultimately to receiving waters.

4.3.2 Alternative 2: Proposed Action

Some of the project work tasks would cause a minor long-term change to existing soils, such as the replacement of the floodwall near the Penn Street Bridge, the levee stabilization activities near the South Richland Avenue Bridge, and the work associated with the drainage pipes. These activities would require disturbance to soils, to include excavation and discharge of fill. Soil disturbance activities would occur within USACE levee system footprint, as well as within the ROEs for construction, access, etc. The effect would be minor given that the work would restore the levee system to its authorized flood control capacity. Additionally, the soils have been disturbed previously

as a result of the construction of the levee and adjacent infrastructure. Indirect effects to soils, such as increased erosion potential and soil movement during construction activities, would occur. However, the effects would be minimal and temporary, as the project would include implementation of erosion control best management practices during construction and stabilization post construction. This would include a sediment and erosion control plan being developed to reduce the potential indirect impacts to aquatic resources downstream by reducing sediment loss from the construction site. Additionally, there would be long-term, beneficial effects to the soil stability along the levee system at locations where it has been identified that stabilization is necessary. These locations would be stabilized through sloping of the banks, placement of riprap or other stabilization product, etc., thereby reducing the potential for soils to erode from the banks and enter into the waterway. Based on these factors, there would be minor and short term, direct effects to soils.

4.4 Hydrology

4.4.1 Surface Waters

4.4.1.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no rehabilitation activities to the Codorus Creek FRM project. Although direct effects to surface waters would not occur under this alternative, the levee system would continue to deteriorate, which would result in floodwall debris and eroded sediments entering into the creek. Therefore, under the No Action Alternative, surface waters would be indirectly adversely affected.

4.4.1.2 Alternative 2: Proposed Action

Codorus Creek, within the footprint of the levee system, has been modified as a result of the construction of the levee, and the project work tasks would restore the levee system to its authorized flood control capacity and standards. There would be temporary and permanent impacts to waters of the U.S. as a result of some of the work tasks. The floodwall replacement near the Penn Street Bridge would be performed within its approximate same footprint. The riprap would result in permanent impacts to approximately 0.3 acre of the Codorus Creek riverbank at this location; however, much of the area currently contains riprap. Additionally, two small bridges which cross Tyler's Run, adjacent to the floodwall would be removed. The levee bank stabilization work task near the South Richland Avenue Bridge would address the existing erosion issue and restore the slope to its authorized standards. The current conditions of the eroding bank result in upland soils entering into the waterway, increasing sedimentation of the creek. Stabilization of the slope would reduce the occurrence of erosion, thereby improving the water quality through reduction of sedimentation. The installation of riprap or other bank stabilization features at this location would also provide for habitat and cover for aquatic organisms. The riprap would result in permanent impacts to approximately 0.13 acre of surface waters. The work task involving the bulge repairs would have no adverse effect on waters of the U.S., as the bulges are currently located

above the ordinary high water mark of the creek. The repair of the bulges would restore the integrity of the floodwalls and eliminate the potential for the hand laid stones from falling into the creek. The drainage conduits located within the levee system would be inspected to determine their integrity and jetted, where feasible, to clean out existing sediments if integrity remains. The contractor would be required to contain the sediments as they are discharged from the pipes to minimize the potential that sediments would enter into the creek. Materials from this project must be disposed at an approved upland location.

Construction activities would be performed from outside of the creek boundaries, from the top of the levee banks, wherever possible, and would not require work in waters. Some work tasks (e.g., floodwall replacement, riprap bank stabilization, and conduit maintenance) would require in-water containment structures to protect the project work zones. Short-term adverse effects would occur during construction associated with the use of best management practices to contain the work zone, use of machinery within waters disturbing substrate, etc. For example, installation of sheet piles for cofferdams would result in temporary containment of waters which would displace aquatic organisms, machinery within waters would result in temporary suspended particulates, etc. However, the effects would be minimal given that larger, more mobile aquatic organisms would utilize adjacent waters, macroinvertebrates would repopulate any stream sections once all construction activities ended, and the use of turbidity barriers would reduce transport of suspended particulates. There would be minor short-term and long-term adverse effects to surface waters and long-term beneficial effects as a result of the rehabilitation activities.

4.4.2 Wild and Scenic Rivers

This project is not located in a Wild or Scenic River or an American Heritage River. Therefore, there would be no effect to these resources.

4.4.3 Navigation

4.4.3.1 Alternative 1: No Action Alternative

Under the No Action Alternative, the Codorus Creek FRM project rehabilitation activities would not occur. Therefore, there would be no direct effects on navigation. However, without rehabilitation actions, the levee system would continue to deteriorate, resulting in floodwall debris and sediments entering into the creek. Therefore, navigation would be indirectly adversely affected.

4.4.3.2 Alternative 2: Proposed Action

The waters within the project area of review are not utilized for commercial navigation. The waters are utilized for recreational boating, such as kayaking and canoeing. Impacts to recreation are discussed in 4.12. During construction of some work tasks where in-water containment features may be necessary, areas of the waters would not

be accessible for recreational navigation activities. Additionally, upon completing construction of the work tasks, the water area conditions for recreational navigation would be similar to pre-construction conditions. Based on the above factors, the project work tasks would result in minor and temporary adverse effects to navigation during construction. Navigation would be restored similar to pre-construction conditions upon completion of construction and removal of the temporary containment features.

4.5 Floodplains

4.5.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, floodplains would not be directly affected. However, the levee system would continue to deteriorate which would result in the levee integrity being compromised. This may, in turn, result in indirect effects to the adjacent floodplain if the levee project does not adequately provide the intended flood protection.

4.5.2 Alternative 2: Proposed Action

The Codorus Creek FRM project area of review is within the 100 year floodplain of Codorus Creek. The proposed work tasks would occur within the existing boundaries of the Codorus Creek FRM project, which consists of floodwalls, earthen levee banks, Codorus Creek waters, etc. Additionally, the existing infrastructure within the proposed ROEs consist primarily of parking lots, maintained grassy areas, and businesses. The reconditioned levee system integrity would provide the necessary flood control and protection within the local and downstream communities. Given that the main purpose of the proposed work tasks is to rehabilitate, repair, and restore the levee system to its authorized flood control capacity and standards, the performance of the work tasks would result in maintaining the existing floodplains in their existing state. Natural floodplain function would not be improved or restored. Additionally, wildlife and aquatic species that utilize floodplain habitat would not be affected, as available habitat is limited within the area of review.

4.6 Biological Resources

4.6.1 Terrestrial Resources

4.6.1.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, terrestrial resources would not be directly affected. However, the levee system would continue to deteriorate which would result in the levee integrity being compromised. Indirect impacts to terrestrial resources may occur as a result if levee banks and floodwalls do not provide sufficient protection of the adjacent lands.

4.6.1.2 Alternative 2: Proposed Action

The proposed project work tasks would occur within the existing boundaries of the levee system, with three proposed ROE areas directly adjacent to the levee boundaries. Given that the land uses within the area of review are primarily waters, and the limited undeveloped land area between the waters and outer boundaries of the levee system, terrestrial resource areas are limited. The proposed work tasks would result in temporary disturbances in the ROE areas, as well as within areas where best management practices would be utilized for construction. Much of the work would occur from existing parking lots, maintained upland areas, etc., with minimal tree removal expected to perform the work. The bulge repair would require temporary access; however, given the locations of the bulge deficiencies to the adjacent development, it is not expected that construction activities would result in adverse impacts to terrestrial resources. The bank stabilization work task would restore an eroding bank, and bank stabilization materials would provide opportunity for shelter and habitat for species. The conduit work task would not be expected to alter the existing terrestrial resources, as the work would occur internally through the levee system. If repair and/or replacement of conduits would be required, this may result in temporary impacts to terrestrial resources. Wildlife may utilize the terrestrial areas for feeding, and would avoid the construction zones during work activities. However, given the urban environment adjacent to where several of the work tasks are proposed, it is expected that the project areas would be utilized on a more transient basis, and project activities would not adversely affect wildlife. Species would be expected to return to the project sites post-construction. Disturbance to terrestrial areas, which includes maintained grassy areas, may occur within approximately 7 or more acres but would be temporary and not all occur at the same time. Based on the above information, it is expected that the proposed work tasks would result in temporary and short term adverse effects to terrestrial resources. No long term effects are anticipated.

4.6.2 Wetlands

There are no wetlands identified as being present within the project area of review which would be impacted by the performance of the proposed work tasks. Therefore, there would be no effects to wetlands under the No Action Alternative or the Proposed Action Alternative.

4.7 Threatened and Endangered Species

4.7.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, it is not expected that there would be effects to threatened and endangered species.

4.7.2 Alternative 2: Proposed Action

According to information generated on the IPaC and PNDI reports, there is potential for federal and state listed species, as well as USFWS migratory birds of conservation concern, to be within or near the limits of the project area of review. The USFWS provided an Avoidance Measure for the bald eagle due to the report indicating that the project is within proximity of a bald eagle nest. USACE would adhere to the Avoidance Measure prior to commencement of project work tasks. No other recommendations or construction conditions were provided by the USFWS. Therefore, the work tasks would be in compliance with the Section 7 of the Endangered Species Act.

Regarding state listed species, according to information provided by the City of York, state listed species have been identified as frequenting shoals located within the limits of the Codorus Creek FRM levee system limits. City of York staff have commented that these species do not appear to rely upon the shoals as habitat. The current work tasks does not include dredging of shoals; therefore, there would be no effect to state listed species using the shoals.

USACE received comments from the PFBC regarding fish habitat. The PFBC recommends that USACE evaluate opportunities to incorporate “fish friendly” habitat structures into the levee system design. The PFBC offered to assist USACE with this endeavor. Given that the purpose of the levee system is for flood protection and control, the proposed project is to rehabilitate and repair the levee system deficiencies, and the authorized federal funding is for the restoration of the levee system to its authorized flood protection parameters, USACE is limited in regard to deviations of the existing levee design. However, USACE would coordinate with the PFBC to evaluate potential “fish friendly” habitat if it is feasible and would not jeopardize the integrity of the levee system.

Coordination with the PFBC, PGC, and the USFWS is included in Appendix 2.3. The PFBC and PGC have both provided “no impact” statements to state listed threatened, endangered, and species of special concern from the proposed action. Coordination with USFWS is ongoing. Refer to Section 5.3 for information regarding USACE consultation and coordination with federal and State resource agencies. Based on the above information, the project may affect, but would not adversely affect threatened and endangered species in the study area.

4.8 Cultural, Historical, and Archaeological Resources

4.8.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM system. This would include no removal of the structure located adjacent to the Penn Street floodwall. However, if the floodwall would fail at this location, the structure may become undermined and fall into the creek. The USACE is consulting with the PHMC in regard to potential effects to historic properties. However, a determination has not yet been made and is expected by the end of the September of

2018, prior to completion of this EA. Therefore, at this time it is not clear if indirect effects of a no action alternative would occur.

4.8.2 Alternative 2: Proposed Action

Following are the expected effects to cultural resources as a result of replacing the floodwall near the Penn Street Bridge, bulge repair/stabilization near the Market Street Bridge, riprap/bank stabilization near the South Richland Bridge and elsewhere along the levee, and the drainage conduit inspections.

4.8.2.1 Replace Floodwall near Penn Street Bridge

The existing concrete floodwall along Codorus Creek near Penn Street is deteriorating and suffering from structural erosion. At the eastern terminus of the floodwall is a portion of the abandoned early 20th century Schmidt-Ault paper mill that is sitting on top of the floodwall. In order for the wall to be replaced, a portion of the encroaching paper mill would need to be demolished. Demolition of this building could result in an adverse effect if the paper mill is determined to be eligible or potentially eligible for the NRHP, hence, a Determination of Eligibility form would be completed prior to commencement of construction, in accordance with the *Guidelines for Architectural Investigations in Pennsylvania*. Just south of the Schmidt-Ault paper mill sits the Philip J. King House, which has been determined to be eligible for listing on the NRHP, but the proposed alternative or demolition should not have an impact on this building. Also proposed are minor repairs, consisting of concrete and/or grout application to the masonry wall where it intersects with the concrete floodwall at Tyler Run. The proposed action may have an effect on cultural resources if the Schmidt-Ault paper mill is determined eligible or potentially eligible for the NRHP. It is undetermined whether this work task would adversely impact cultural resources. USACE is in consultation with the SHPO and Tribes regarding potential effects to cultural resources. Consultation is expected to be completed by the end of September of 2018. Work would not occur until full compliance with Section 106 of the NHPA is achieved.

4.8.1.2 Repair/Stabilize Floodwall near Market Street Bridge

The masonry wall immediately downstream of the Market Street Bridge is in need of repair and stabilization. The masonry wall has suffered from degradation, such as a bulge moving outward toward Codorus Creek, and it has been impacted by a previous USACE project dating to the 1970s (concrete capstone). The masonry wall is located within the York Historic District and is attached to the 19th century Hotel Codorus to the north. The Hotel Codorus is also a contributing resource to the York Historic District. Repair and stabilization of the masonry wall is not expected to adversely impact either the Hotel Codorus or the York Historic District. The proposed action would not have an effect on cultural resources.

4.8.1.3 Install Riprap

Upstream of the existing levee on Codorus Creek, riprap would be installed to hinder excessive bank destabilization. Displaced riprap would also be replaced near the bridge at Penn Street, the location of which is within the York Historic District West Addition. Riprap currently exists along the project area, so installation or replacement of riprap material would not be a visual intrusion to the cultural landscape. Furthermore, placement of riprap would occur in previously disturbed areas. The proposed action would not have an effect on cultural resources.

4.8.1.4 Repair Drainage Conduits

The existing drainage conduits are located along the length of the project area, and consist of storm drains and relief culverts. Some of the drainage conduits are within historic districts, such as the York Historic District, York Historic District West Addition, and the Fairmount Historic District, but inspecting and repairing them is not anticipated to require any ground disturbance. If ground disturbance is deemed necessary, it would be limited to previously-disturbed areas. The proposed action would not have an effect on cultural resources.

4.9 Air Quality

4.9.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, there would be no increase in use of construction vehicles. Therefore, the No Action Alternative would have no effect on air quality.

4.9.2 Alternative 2: Proposed Action

The project work tasks would require the use of heavy machinery. This may result in emissions of vehicle fumes within the vicinity. However, given the federal emission standards for vehicles and engines, and related fuel sulfur standards, the level of emissions would be minor and short term (i.e., during construction activities). Additionally, the proposed project activities would occur within an area which has been re-designated from a nonattainment area to a maintenance area for EPA criteria pollutant levels. Addition of vehicle fumes during construction would be short term and would not significantly alter the existing air quality. Upon completion of construction of each work task, air quality conditions would return to pre-construction conditions. Therefore, the proposed work tasks would have a minor and short term adverse effect on air quality. No long term effects are anticipated.

4.10 Hazardous Materials and Solid Waste

4.10.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM system. Under this alternative, no construction activities would occur which would disturb soils behind the Penn Street Floodwall. However, given the expectation that the levee system would continue to deteriorate, there is the potential that the floodwall would not provide the appropriate flood protection and containment of upland soils, and soils behind the Penn Street floodwall may enter into the creek. No monitoring of soils would occur under this alternative. Therefore, it would be unclear if contaminated soils would enter into the creek.

4.10.2 Alternative 2: Proposed Action

There are no properties which are listed on the Toxic Release Inventory; no generators, transporters, treaters, storers, or disposers of hazardous waste exist in the area; nor have any Brownfield sites been identified as being located within the levee system area of review. However, the area adjacent to the floodwall near the Penn Street Bridge was previously the property of a paper company, with a history of cardboard manufacturing. The property and structures are currently under the ownership of York College. An Environmental Investigation Report for soil and groundwater conditions at the Penn Street floodwall site was completed by USACE in October of 2017. The findings of the soil sample results were below the PADEP Act 2 non-residential surface soil criteria, except for an isolated occurrence with a lead concentration of 2800 mg/kg. The findings of the groundwater survey indicated that groundwater was encountered at a depth of 15.3 to 19.5 feet below ground surface, and the groundwater samples were below the PADEP Act 2 MSC for non-use aquifers. The surface water had no exceedance of the PADEP surface water quality standards. Given that the replacement of floodwall near the Penn Street Bridge location would involve removal of material from behind the wall for construction, the mentioned soils would be disturbed. Additionally, sediments would be jetted from the drainage conduits for the work task associated with cleaning the conduits located within the levee system. Appropriate remediation and worker safety measures would be implemented to ensure protection of the construction zone and to avoid contamination of the waterway and adjacent lands. This would include all required conditions enforced by federal, State, and local agencies. Testing and monitoring of soils near the Penn Street floodwall would occur prior to and during construction to ensure no release of toxic material into waters would occur. All excavated floodwall materials, and sediments discharged from the conduits, would be collected, contained, and disposed of at approved upland locations, including ones which meet the requirements of acceptance of contaminated materials, if necessary. Management actions would be taken to prevent construction activities from resulting in an increase of, or effect on, hazardous materials and toxic wastes. Given the above factors, it is not expected that releases of hazardous materials and solid waste would be occur for the floodwall replacement work task. Additionally it is not expected that the proposed work tasks involving the bulge repairs, bank stabilization, or conduit

maintenance would result in an increase of, or effect on, hazardous materials and toxic wastes. By implementing the appropriate construction best management practices, worker safety, adherence to required conditions, and remediation measures for the floodwall replacement and conduit work tasks, it is expected that the proposed project work tasks would not result in adverse effects to the environment in regard to hazardous material and toxic wastes.

4.11 Climate

The project would have no effect on climate or climate change as a result of construction of the work tasks along and within the levee system under the No Action Alternative or the Proposed Action Alternative.

4.12 Parks and Recreation

4.12.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, parks and recreation would not be directly affected. However, the levee system would continue to deteriorate which would result in the levee integrity being compromised. This may, in turn, result in indirect effects to the parks and recreation if the floodwall debris and sediments from erosion continue to enter into the creek, as this would affect the quality of the recreational experience through reduced navigation from obstructions (e.g., floodwall debris) and sediment laden waters.

4.12.2 Alternative 2: Proposed Action

There are existing parks, water access areas, and trails that are located within and adjacent to the levee system. Additionally, the City of York anticipates construction of additional parks and recreation areas where feasible for public use, adjacent to the levee. Water access points to Codorus Creek may be installed for the public. However, these are not included as part of the funded work tasks, and the City would be required to coordinate this action with the USACE in regard to Section 408 and with all regulatory authorities if Section 404 and other permits are required for this action. Additional trail segments may also be added by the Trail Authority. The proposed repairs and rehabilitation work task activities may adversely affect parks and recreation during construction, as there would be areas which would be off limits to the public for safety purposes. Construction of some work tasks may require water access and implementation of temporary erosion and sediment control measures that would restrict access to Codorus Creek for recreational boaters. Upon completion of construction activities, the areas where recreation occurs would return similar to pre-construction conditions, as the areas would no longer be unavailable for public use. Based on the above factors, the project work tasks would result in minor and short term adverse effects but would provide a long-term improvement to the existing conditions of parks and recreation.

4.13 Aesthetics

4.13.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, aesthetics would not be directly affected. However, the levee system would continue to deteriorate which would result in the levee integrity being compromised. Therefore, the floodwall debris would be expected to continue to fall into the creek, as bulges along the floodwalls would continue to appear, and erosion of the earthen banks would continue. Therefore, the No Action Alternative would result in adverse indirect effects to aesthetics.

4.13.2 Alternative 2: Proposed Action

The levee system is currently showing signs of deficiencies along segments which are in need of rehabilitation, repair, or replacement. The existing conditions at these locations are that of deteriorating floodwalls, bulges within the floodwalls, eroding stream banks, etc. The project would result in the replacement of the floodwall near the Penn Street Bridge within its approximate footprint and dimensions. Riprap would be added, where necessary, at the base of the floodwall. However, riprap currently exists within this location. Two small deteriorating bridges would also be removed near the Penn Street floodwall location. The effects to aesthetics would be minimal as a result of these activities. The project would also result in repair of the bulges within the floodwalls near Market Street Bridge, and stabilization of the eroding stream bank near the South Richland Avenue Bridge. These work tasks would eliminate the existing appearance of bulging stone walls and eroding levee banks and would result in improved aesthetics. The work tasks involving conduit cleaning, repair, replacement, or abandonment would be less visible in regard to aesthetics, other than during the work activities, as these features are located within the levee structure. Aesthetics would be adversely affected by all work tasks during construction. However this would be limited to the duration of each work task. Based on the above factors, the project work tasks are expected to result in minor short term adverse effects, and long-term benefits to the aesthetics within the levee system.

4.14 Noise

4.14.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, no addition of construction vehicles would be introduced into the area of review. Additionally, no construction actions, such as demolition of the structure at the Penn Street Floodwall, would occur. Continued deterioration of the levee system is not expected to result in added noise. Given the above factors, noise would not be affected under the No Action Alternative.

4.14.2 Alternative 2: Proposed Action

The proposed work tasks would add noise within the vicinity of the construction zones. Some work tasks would emit higher levels of noise than others. For example, the work for the Penn Street Floodwall replacement would require the use of heavy machinery, and the work would involve demolition of an existing structure, floodwall, and two small bridges. The duration for this work is anticipated to cover approximately two years. The riprap bank stabilization work task near the South Richland Avenue Bridge would also require the use of heavy machinery for re-sloping of the bank and placement of riprap. This work is anticipated to cover approximately six months. The bulge repair work task is not expected to result in a significant amount of added noise, as this would likely be performed manually. The conduit maintenance work task would involve machinery to jet the pipes and to collect the materials. Installation of cofferdams, if utilized for project activities, would also result in added noise for installation. Heavy machinery would be necessary for installation and removal, adding further noise within the vicinity of the construction zones.

The floodwall replacement work task is located directly adjacent to an abandoned structure owned by the City of York. Additionally, there are York campus facilities, industrial structures, and residences located within the general vicinity of this work task. The riprap bank stabilization at the South Richland Avenue Bridge is directly adjacent to a dental office and athletic club. Additionally, industrial facilities and residences are located at a more distant location from where this work would occur. Individuals who are employed by, visit, and reside within the vicinity of these work tasks would be adversely affected by noise from construction activities. The work for the floodwall replacement is anticipated to cover approximately two years from commencement, and the bank stabilization work task would cover approximately six months from commencement. Work would occur during daytime hours. Given the existence of bridges near these locations, there is currently a significant amount of noise; however, construction activities noise would differ from traffic.

The area where the bulge repair is proposed to occur is directly adjacent to businesses. As stated, the noise level generated from this activity would be minimal and short term. The conduit maintenance activities would occur at sporadic locations along the levee system and would be adjacent to various types of infrastructure, to include residential, commercial, and educational. These work tasks are not expected to generate a significant amount of noise from jetting, and activities would be short term in duration.

Based on the above findings, the proposed work tasks would result in short-term adverse effects in regard to noise levels. This would be limited to the duration of construction activities. Contractors would be cognizant of work hours and adhere to noise related ordinances, if applicable. The adverse effects would occur to individuals who reside, work, frequent, and pass near the vicinity of the construction zones. No long-term adverse effects would occur.

4.15 Transportation and Traffic

4.15.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, no addition of construction or worker vehicles would be introduced into the area of review. Continued deterioration of the levee system is not expected to result in added transportation, unless emergency repairs would be needed at a frequent rate. Given the above factors, transportation and traffic would not be affected under the No Action Alternative.

4.15.2 Alternative 2: Proposed Action

Transportation and traffic would increase as a result of the proposed work tasks due to the addition of heavy machinery and workers. The machinery would be expected to be stationed at the project site for the duration of each project work task. However, workers would commute daily to the sites, resulting in increased traffic. This would occur at specific times (e.g., beginning, lunch, and end of workday). Some work tasks may require more workers than others, such as the floodwall replacement work task, due to the complexity of and multiple elements to the project work task. Therefore, traffic near the Penn Street Bridge would be slightly higher than other work tasks which require less workers. The work tasks are not expected to require road closures or major traffic interruptions. Traffic may be interrupted when workers bring large equipment and construction materials to and from the project sites, such as the Penn Street Floodwall and South Richland Avenue Bridge sites. However, traffic would resume once machinery and materials are placed at or removed from the sites. Based on this information, it is not expected that transportation and traffic would be significantly adversely affected by the proposed work tasks. Short-term and temporary adverse impacts would occur, however.

4.16 Health and Safety

4.16.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, health and safety would not be directly affected. However, the levee system would continue to deteriorate which would result in the levee integrity being compromised. If this occurs, the flood protection of the community would be affected, thereby potentially adversely affecting health and safety.

4.16.2 Alternative 2: Proposed Action

As identified on the FEMA mapping, the proposed project area is located within Zone AE, which is defined as areas that have a 1 percent probability of flooding every year. The NFIP considers properties that are located within areas identified as Zone AE to be at high risk of flooding. There have been deficiencies identified along the levee system,

and if the deficiencies are not addressed, further degradation of the system would occur. As stated previously, it is estimated that the dam and levee system have prevented more than \$55 million in flood damages since their construction and have provided York and downstream communities with protection from flood hazards. The implementation and construction of the proposed work tasks would rehabilitate and restore the integrity of the levee system; thereby, providing the flood control benefits that the levee system was designed and constructed to perform.

Additionally, the construction areas would be contained and off limits to all unauthorized individuals. Furthermore, replacing the deteriorating floodwall near the Penn Street Bridge, and repairing the bulges near the Market Street Bridge and other locations, would eliminate the occurrences of concrete, hand laid stone, and other construction debris from falling into the creek. Stabilization of the levee bank would prevent further erosion and sedimentation of the waterway, as well as re-establish the integrity of the levee. Maintenance of the drainage conduits would further support the integrity of the levee system. Access to the project site would be restricted during construction, so as to ensure the safety of children and others.

According to the 2016 U.S. Census, approximately 28.6 percent of the population within the City of York were under the age of 18. Given that residential communities are located within the vicinity of the proposed work tasks, children would be subjected to air and noise pollution produced from construction activities. There are also two schools located within 1000 feet but are not adjacent to the proposed work tasks at the Penn Street floodwall, located near the McKinley School, and the Market Street floodwall, located near William Penn Senior High School. Construction impacts from noise and air pollution would be temporary and not significant for proposed work tasks. This is partly due to the absence of residential areas or schools adjacent to proposed construction work. Contractors would be required to adhere to air and noise pollution regulations and ordinances and implement appropriate safety measures to prevent trespass or injury by minors and members of the public in the project areas. The work tasks would ultimately promote the health and safety of children, and the community at-large, by reducing flood risk resulting from the current deteriorated condition of the flood management system. Therefore, children are unlikely to be affected disproportionately from environmental health or safety risks caused by the proposed work.

Based on the above information, the performance of the project activities would result in long-term, direct beneficial effects to health and safety.

4.17 Population and Socioeconomics

4.17.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, population and socioeconomics would not be directly affected. However, the levee system would continue to deteriorate which would result in the levee integrity being compromised. The consequence of this may

cause some residents to decide to relocate if they do not feel confident in the levee system flood protection. Therefore, the No Action Alternative would indirectly adversely affect population and economics of the local community.

4.17.2 Alternative 2: Proposed Action

The proposed work is expected to benefit all persons that live within the City of York, downstream, and adjacent communities, as the levee system would be rehabilitated and restored to its authorized capacity and integrity. The protection of the population from flood hazards would provide a long-term economic benefit to the population.

4.18 Environmental Justice

4.18.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no rehabilitation work would occur to the Codorus Creek FRM project. Under this alternative, Environmental Justice would not be directly affected. However, the levee system would continue to deteriorate which would result in the levee integrity being compromised. This would result in adverse indirect effects to all persons that live within the City of York, downstream, and adjacent communities.

4.18.2 Alternative 2: Proposed Action

According to the 2016 U.S. Census Bureau data, minorities (other than white) comprised approximately 41.4 percent of the total population of the City of York, and 36.0 percent were identified as being below poverty level. There are residential communities located within the general vicinity of the proposed work tasks, and the demographics of the residents within communities are unknown. However, the work task locations are primarily located adjacent to businesses, educational infrastructure, and industrial facilities. Lands which would require ROEs for construction access are owned by York College or local businesses. No additional permanent land leases would be necessary for the work. The proposed work is expected to benefit all persons that live within the City of York, downstream, and adjacent communities. Given these factors, no disproportionately high or adverse impacts to minority or low-income populations would result from the proposed action.

5.0 PUBLIC AND AGENCY COORDINATION

5.1 Public Notice Announcing Establishment of EA

A public notice announcing the preparation of an EA for the rehabilitation of the Codorus Creek FRM project was posted to the USACE website on March 12, 2018 (Appendix 3.1). Additionally, the public notice was sent to federal, State, and local agencies, requesting written comments concerning interests within each agency's area of responsibility, and to adjacent property owners, post offices, local newspapers, public libraries, and elected officials. The notice included language requesting that the public

provide information that may affect the implementation of future maintenance work within the project and that would assist USACE with the preparation of the EA. A copy of the public notice was also sent to Tribes which have been identified as potentially having interest in projects within Pennsylvania. USACE requested that comments be provided within 30 days of the date of the notice.

5.1.1 Public Notice Comments

USACE received comments from the PennDOT, federal and State resource agencies, and the public during the EA initiation comment period.

5.1.1.1 PennDOT Comments

In an e-mail, dated April 4, 2018, the PennDOT, District 8-0, provided comments to USACE, which included a map (Appendix 2.2) indicating the locations of proposed PennDOT projects in relation to the Codorus Creek FRM levee system. The comments stated that PennDOT, Engineering District 8-0 in conjunction with the Federal Highway Administration (FHWA), is undertaking environmental and engineering studies to reconstruct and widen Interstate 83 Section 70 between Exits 19 and 22 in York County, Pennsylvania. Interstate 83 crosses Codorus Creek between Exit 19 and Exit 21 just north of the City of York. The Codorus Creek crossing is an 8-span pre-stressed adjacent box/I-beam bridge spanning the Codorus Creek and the levee system. The existing 4-lane bridge would be replaced and widened to accommodate 6 lanes of traffic but would remain on the same general alignment with a minor shift to the north. The existing abutment and pier locations may also be shifted due to constructability. The new bridge, piers and abutments are not anticipated to have an impact on the hydrology of Codorus Creek. As the highway and bridge designs progress, it is anticipated that coordination with USACE related to Section 408 approval, as well as Section 404 permitting in regard to this FRM project would be necessary. Members of USACE Baltimore District regulatory branch as well as Indian Rock Dam representatives and Section 408 coordinators would participate in meetings and field views of the project area. Additionally, PennDOT is considering a partnership with the PGC and USACE to provide habitat enhancement within the Indian Rock Dam Flood Control Project area. However, this area is outside the above mentioned FRM System project limits.

USACE Response: USACE informed PennDOT of the then upcoming April 10, 2018 Stakeholder Meeting and invited PennDOT to participate. A representative attended the meeting and provided input regarding the anticipated PennDOT projects. USACE informed PennDOT that coordination would continue throughout the evaluation, design, and anticipated schedules for the proposed work tasks to ensure that USACE actions would not interfere with the schedule of PennDOT transportation projects.

5.1.1.2 Public Comments

A. In an e-mail, dated April 9, 2018, one commenter inquired how the project may affect his adjacent property. USACE reviewed the map the commenter provided,

compared to the locations of the identified proposed rehabilitation, repair, and other potential work tasks, and found that the proposed project activities would not affect the commenter's property.

USACE Response: In an e-mail, dated April 11, 2018, USACE provided a response to the commenter stating that the proposed project activities are not expected to affect the adjacent property.

B. In an e-mail, dated March 19, 2018, one commenter provided information and recommendations to USACE for the evaluation of the proposed project activities. The commenter also requested to be included on upcoming public correspondence/notifications for this work, and if there a public hearing would be scheduled. Following are the comments provided:

1. Commenter identified that the extent of this system is greater than that depicted in the map which was included with the public notice. The commenter included that it would be useful to extend the EA's scope to describe options including the improvement of flood storage behind Indian Rock Dam and the tributaries that feed into it. Many, if not all of these streams and the Codorus Creek are highly impaired by legacy sediments from mill pond deposition. York County historically has had some of the highest densities of mill dams within the region, and all of these streams are highly impaired. Removal of these sediments would improve Codorus watershed flood storage and attenuate peak flows, serving similar function as the improvements within York. Habitat restoration and reduction of suspended sediments, TMDL nutrients, and lessened dredging / maintenance of the channel may be positive long-term impacts of doing that type of work. A restored watershed may have similar flood management values as this project's levees and channelization, with greater uplift of stream functions and values.

2. The commenter also included that consideration of in-channel habitat is essential to the EA. The implementation of the original project had tremendous implications to the habitat of these reaches of the Codorus Creek, which presently is a highly impaired warm water fishery, but historically has been a trout fishery, and remains so particularly in East and West branches of the system. It also hosts several T&E species within the watershed. Channel restoration work should be focused not entirely upon flood storage and conveyance, but additionally on the restoration of historic functions and values of the system. There have been multiple attempts to improve the habitat of Codorus Creek as well as provide additional community recreation / outreach types of functions and values to this system, and they should not be neglected as part of the EA analysis.

3. Additionally, the commenter included that being a significant contributor to the Chesapeake watershed, and with close proximity to the bay, TMDL functions and values of the proposed projects should be included for analysis, and how this plan fits with the Codorus Watershed Improvement Plan and other watershed-wide efforts, including the in-development York County stormwater authority work.

4. York could benefit tremendously by incorporating recreational elements to this work, including river access, trails, tree plantings, and urban redevelopment along this project corridor. These economic elements should be considered in the study.

USACE Responses: In an e-mail, dated March 19, 2018, USACE provided an initial response to the commenter, thanking the commenter for providing the comments which would assist USACE with review of the project activities, and that USACE would provide information regarding public announcements. Following is USACE evaluation and assessment of the comments:

1. The fiscal 2018 President's Budget includes \$15.9 million for operation and maintenance of the aging Codorus Creek Flood Risk Management. The funding would need to be utilized for the rehabilitation and repairs to address the deficiencies associated with the Codorus Creek FRM System and to restore the levee to its authorized capacity and integrity. Additionally, USACE is commencing an evaluation of the Indian Rock Dam component under separate action. This would occur through the establishment of a Master Plan Revision and EA associated with the Master Plan Revision. The Master Plan Revision EA would consider effects of the Dam on the Codorus Creek FRM project. These documents are anticipated to be available for initial public review in Spring of 2019. Regarding removal of sediments, removal of shoals within the limits of the levee system is proposed as a potential work task. Regarding habitat restoration, the requirements of USACE are to restore the levee system to its authorized capacity and integrity. USACE would evaluate opportunities to provide real habitat improvements that would not compromise the integrity or capacity of the levee system.

2. Regarding the consideration of in-channel habitat, the allocated funding that has been provided to USACE is for the purpose of rehabilitating and repairing the identified deficiencies within the levee system. However, as included in the above response, stabilization of the eroding bank near the South Richland Avenue Bridge would improve water quality and provide some habitat for aquatic organisms. Also, if the South Richland Avenue dam would be removed, habitat would be improved, to include the opportunity for fish migration. Given that the levee system was constructed for the purpose of flood control, the required actions to be taken by USACE are to ensure the capacity and integrity of the levee system so that the community continues to be provided flood protection. However, where feasible, and as funding would allow, USACE would continue to evaluate the potential of improving in-channel habitat for aquatic organisms.

3. Regarding the comment associated with TMDL functions and values within Codorus Creek, the proposed project improvements would reduce sediment loads and floodwall stones/concrete from entering into the creek. The proposed approximate in-kind floodwall replacement near the Penn Street Bridge would address the current occurrence of concrete pieces from separating from the existing floodwall, as well as the leaning structure atop the floodwall, from falling into the creek, and eliminate the potential collapse of these structures into the creek. Additionally, multiple conduits

which run through the levee system are not currently functioning, and cleaning, repair, replacement, and abandonment of unnecessary conduits, would ensure the integrity of the levee system and reduce potential erosion of the levee banks. Also, the bulge repairs would eliminate the occurrence of stones and upland soils behind the wall from falling into creek. By carrying out the necessary work tasks to address the identified deficiencies, and the potential future work activities, the overall integrity of the levee system would be restored, thereby, improving the existing sediment and debris loads within the Codorus Creek levee system.

4. Regarding the comment that York could benefit tremendously by incorporating recreational elements to this work, including river access, trails, tree plantings, and urban redevelopment along this project corridor, USACE is coordinating with the City of York, trail authority, and other local stakeholders to identify the local interests and provide synergy between USACE work tasks and community's existing, proposed, and anticipated projects. These include the Community's trail projects, recreational parks, creek access, etc.

C. In e-mail, dated April 30, 2018, one commenter provided comments which included information associated with the City of York's Master Plan, which encompass portions of the Codorus Creek Waterfront from Richland Avenue to Hamilton Avenue. The commenter continues that the Master Plan includes community and environmental amenities that would support the MS4 permit, the City's economic development, and the social community. The Commenter asks if USACE has reviewed the plans to consider how the improvements that the USACE would make would ensure this project is a sustainable one (i.e., Capital Stocks, goods and services, well-being measures, and health equity that this project would affect). The Commenter includes that sustainable projects are those that meet social, environmental and fiscal needs at the same time. Unsustainable projects are those that meet only one or two needs, not all needs. The commenter requests that USACE consider reviewing the Master Plans that have been completed in the last four years by the city of York, which have been funded by DCED, DEP, DCNR and other public and private entities.

USACE Response: In an e-mail, dated May 1, 2018, USACE provided an initial response to thank the commenter for the interest in the proposed project activities and recommendation that USACE review the Master Plans prepared by the City of York. Additionally, the response included that USACE has been coordinating with the City of York to identify their existing and anticipated projects, and coordination would continue, and that USACE would look into the City of York Master Plans.

5.2 Stakeholder Meeting

On April 10, 2018, USACE held a meeting with interested or potentially affected stakeholders. The local government agencies, economic development agencies, businesses which are located directly adjacent to proposed work tasks, trail authority representatives, PennDOT, PADEP, and others were in attendance. The meeting

included a brief discussion of the history of the Codorus Creek FRM system, information regarding the USACE levee inspection program, identified deficiencies and proposed work tasks to address the deficiencies, and anticipated future work activities. The meeting also included information provided by the stakeholders associated with their existing, planned, and anticipated projects located adjacent to the levee system, as well as any deficiencies that they are aware of that USACE did not identify. A discussion of Section 408 was also provided by USACE. This included a request that the stakeholders coordinate with USACE early in their project evaluation process, as the projects would require USACE Section 408 review if the stakeholder projects would have the potential to impact a Civil Works project (e.g., federal levee).

5.3 Agency Coordination

USACE provided a copy of the public notice to the following Federal resource agencies: NRCS, USFWS, USEPA, USGS, and FEMA. Additionally, USACE provided a copy of the public notice to the following State resource agencies: PADEP, Pennsylvania Natural Heritage Program, PA DCNR, PHMC, PFBC, PGC, and Pennsylvania Emergency Management Agency.

In addition to providing the copy of the public notice, USACE consulted more directly with the USFWS, USEPA, PHMC, Pennsylvania Natural Heritage Program, PFBC, PGC, and PA DCNR. Refer to Appendix 2.3 for USACE and resource agency letters and correspondence.

5.3.1 USFWS

USACE sent a letter, dated March 8, 2018, to the USFWS regarding Section 7 of the Endangered Species Act and Fish and Wildlife Coordination Act. The letter included a brief description of the proposed project activities associated with the Codorus Creek FRM levee project, a copy of the IPaC report, and a project location map, and a request for their review and comment. The USFWS provided comments via e-mail, dated March 22, 2018, which included the attachment of a PNDI report generated by the USFWS. The comments included that there is an avoidance measure identified on the PNDI report from the USFWS due to the proximity of proposed project activities to a bald eagle nest. As discussed under Section 3.7 of this document, there are drainage conduits located within the 330, 660, and 1,000 foot buffer zone breaks from a bald eagle nest. According to the USFWS Bald Eagle Project Screening Form, maintenance activities require a time of year avoidance measure of no work between January 1 to July 1 (the breeding season), and that all activities that may disturb bald eagles would be avoided within 660 feet. USACE shall adhere to the USFWS avoidance measures.

5.3.2 EPA

In response to the public notice request for information that may affect the implementation of future maintenance work within the project, the EPA provided

recommendations via e-mail, dated April 20, 2018. The EPA included that the comments are general in nature due to the limited information available at this time. EPA requested that they be kept informed as the project progresses. EPA comments included that the EA should include a detailed description of the purpose and need; environmental analysis; wetlands and aquatic resources; stormwater management; biological and terrestrial resources; community impacts and air quality; hazardous materials, solid waste, and pollution prevention; environmental justice; cumulative and indirect impacts; and potential cumulative resource impacts of the Indian Rock Dam/Codorus Creek FRM and the North York Interstate 83 Widening Project proposed by the Federal Highway Administration (FHWA) and the Pennsylvania Department of Transportation (PennDOT).

USACE Response: USACE evaluated the recommendations of the EPA, which are consistent with the information which is to be incorporated in the EA in accordance with NEPA requirements. USACE included evaluations of the above topics throughout the body of the EA. Additionally, the Indian Rock Dam project Master Plan is to be revised in FY 2019, which would include the preparation of an EA.

5.3.3 PHMC

USACE sent a consultation letter, dated 7 May 2018, to PHMC regarding Section 106 of the NHPA. The letter included determinations of effects the project may have on historic properties. Similarly to what has been described in this environmental assessment, the letter stated that no adverse effects are anticipated for the proposed conduit inspections, riprap placement, or bulge repair near the Market Street Bridge. However, regarding the replacement of the floodwall near Penn Street, an adverse effect could take place if the Schmidt-Ault Paper Mill is determined eligible for the NRHP. If determined eligible for the NRHP, further consultation with PHMC would be required to seek methods of avoidance, minimization, or mitigation of adverse effects to the resource. Although methods specific to this project are not known at this time, such measures could include, but are not limited to, Historic American Building Survey or Historic American Engineering Record analyses, or documentation of the paper mill as it relates to early 20th century industry in York, Pennsylvania.

5.3.4 PFBC:

USACE provided a copy of the public notice to the PFBC on March 12, 2018. Additionally, on April 27, 2018, USACE generated a PNDI report (Appendix 1.9). The results indicated a potential impact to resources under the purview of the PFBC and that further review was required. On April 27, 2018, USACE uploaded the required information to the PNDI website. Refer to Table 3 in Section 3.7.

In correspondence dated April 18, 2018, the PFBC provided comments, in response to their review of the public notice. The comments included that the proposed project is located within Section 7 of Codorus Creek, which begins at the confluence with South Branch Codorus Creek and continues to the mouth at the Susquehanna River. A survey by the PFBC Area 6 Fisheries Manager was last conducted within the proposed

project area on August 14, 2008. Results from the survey show that Codorus Creek supports limited population of warm water fish species including yellow bullhead, rock bass, redbreast sunfish, bluegill, walleye, smallmouth bass, and largemouth bass. The PFBC comments continue that in accordance with their mission, the PFBC recommends that USACE evaluate opportunities to improve fish habitat within the FRM zone and assess the feasibility of providing access to the waterway. Additionally, the PFBC includes that it is their understanding that bedload deposition within the existing channel has been a recurring concern within the FRM project and that routine maintenance dredging is required. The PFBC Habitat Division has been involved in similar projects in Pennsylvania and is willing to discuss “fish friendly” habitat structures that could also aid with bedload movement through the FRM zone. By incorporating proven habitat structures into the proposed project design, the opportunity exists to not only improve the fishery for the local community but also reduce future maintenance costs.

PFBC also provided comments in a letter dated May 17, 2018 regarding the PNDI report. PFBC includes that an element occurrence of a rare, candidate, threatened, or endangered species under PFBC jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

USACE Evaluation of Comments: The purpose of the construction of the Codorus Creek FRM levee system is to provide flood control and protection of the local and downstream community. The fiscal 2018 President’s Budget includes \$15.9 million for operation and maintenance of the aging Codorus Creek FRM system. USACE proposes to utilize the funds as directed and proposes to rehabilitate and repair deficiencies that have been identified by USACE during the periodic inspection. USACE concurs that the integration of fish habitat structures would be beneficial to the aquatic habitat. However, USACE is limited in regard to variations of the existing flood control project design and parameters, as well as current funding. If future federal funding would be authorized for the Operation and Maintenance of the Codorus Creek FRM system, USACE would coordinate with the PFBC to evaluate potential options that would be consistent with the levee system design and capacity and also provide habitat for aquatic organisms, where feasible to do so. Additionally, future work may include the potential removal of the South Richland Avenue Dam and the shoals located within Codorus Creek, both of which may be beneficial to the aquatic habitat of the creek.

5.3.5 PA DCNR

On March 26, 2018, the PA DCNR provided comments to USACE via e-mail, in response to receipt of the March 12, 2018 public notice. The comments included that the PA DCNR needed additional information to provide comments or concerns and requested that USACE complete a PNDI.

USACE responded to the PA DCNR via e-mail on March 26, 2018 and provided the PNDI report, dated March 22, 2018, which was generated by the USFWS.

The PA DCNR did not provide further comments.

5.3.6 PGC

USACE provided a copy of the public notice to the PGC on March 12, 2018. Additionally, on April 27, 2018, USACE generated a PNDI report. The results indicated a potential impact to resources under the purview of the PGC and that further review was required. On April 27, 2018, USACE uploaded the required information to the PNDI website. Refer to Table 2 in Section 3.7.

PGC provided comments, dated June 5, 2018, stating that they screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only, and no impact is anticipated.

6.0 CUMULATIVE AND SECONDARY IMPACT ANALYSIS

The Council on Environmental Quality's (CEQ) regulations (40 CFR 1500-1508) implementing the procedural provisions of NEPA of 1969, as amended (42 U.S.C. 4321 et seq.), define cumulative effects as,

[t]he impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7).

6.1 Geographic and Temporal Scope

The geographic scope for this proposed project is within the Lower Susquehanna Watershed (HUC 02050306). The geographic scope consists of areas which have been significantly developed and disturbed as a result of commercial, industrial, and residential development; farming; roadways; etc. Development and poor land use planning has occurred, as well as production of byproducts of industrial waste. Additionally, the watershed still contains large tracts of undeveloped land. The temporal scope for this evaluation is 210 years (1830 through 2040). This scope is selected to include the construction of the Codorus Navigation Works canal, which was completed in 1833, and to encompass the timeframe for completion of all rehabilitation work tasks in this EA (approximately 20 years).

6.2 Direct and Indirect Cumulative Impact Analysis

The lands and waters within the area of review and vicinity of the Codorus Creek FRM levee system have been altered by various activities following settlement along the creek in the 1700s and canal construction in early 1800s. In 1833, Codorus Navigation Works completed construction of approximately 11-miles of canal and slackwater within Codorus Creek. Subsequent to the canal construction, the Codorus Creek FRM project

was constructed in the 1930s and became operational in the 1940s. The work activities involved channel widening and deepening, flood walls, levees, protection of bank slopes, and removal of a mill dam. Commercial, residential, educational, and industrial development exists adjacent to the creek. As such, impacts to aquatic resources would have likely occurred as a result of construction activities. Much of the development occurred prior to regulations, such as Section 404 of the Clean Water Act of 1972. Any development that would have occurred post the implementation of the Clean Water Act would have been required to meet the terms and conditions of avoidance, minimization, and mitigation of impacts to aquatic resources.

Actions by federal and non-federal entities that are (1) in the reasonably foreseeable future or can be reasonably forecasted, (2) planned, or (3) on-going within the vicinity of the Codorus Creek FRM levee system are summarized below with a brief description of potential impacts.

USACE: The current proposed work tasks to rehabilitate the Codorus Creek FRM levee system would result in permanent and temporary impacts to waters of the United States. The purpose of performing the work tasks is to restore the levee system to its authorized conditions and capacity. Temporary impacts would be the result of the use of best management practices to contain construction generated materials within the construction work zones. Permanent impacts would be the result of the addition of riprap and materials for bank stabilization. The permanent fill would provide the necessary rehabilitation of the levee system; thereby, resulting in improved floodwater protection for the community and downstream locations.

The proposed future work tasks which are dependent on federal funding have been identified as a result of periodic inspection. Some of the work tasks would require work in waters of the United States, such as removal of shoaling and vegetation from the Creek, repair and replacement of riprap throughout the levee system, removal of rubble from the west downtown levee, and removal of the South Richland Avenue dam, if the USACE determines that this dam is not necessary for the integrity of the levee system. Dredging of the shoals would likely occur from the banks using a long arm excavator, and all dredged materials would be disposed of at an approved upland location, such as the County landfill or other upland disposal site suitable for such materials. Replacement and addition of riprap at varied locations along the levee system would be performed to install the appropriate size of riprap for proper bank stabilization and would be the minimal necessary. Removal of the rubble would occur from uplands; however, in-water containment structures and re-sloping and stabilization of the levee banks at this location would be necessary. If the USACE determines that the removal of the dam near the South Richland Avenue Bridge would not interfere with the integrity of the levee system, removal may occur. This would likely occur from uplands. However, waters would be disturbed as dam materials are lifted out of the creek. The area would be protected to minimize adverse effects to waters outside of the construction footprint. Upon removal, the banks would be restored, and the channel depth would be consistent with the adjacent parameters. Removal would provide for unobstructed fish passage and recreational navigation. The remaining proposed future USACE work tasks may

also result in minor and/or temporary impacts to waters of the United States, ecological resources, and the human environment. However, the ultimate results of carrying out these tasks would be improvements to the existing levee system which, in turn, would provide benefits to the watershed.

PennDOT: As included in Section 5.1.1.1, on April 4, 2018, the PennDOT provided information to USACE regarding the transportation projects within the vicinity of the Codorus Creek FRM levee system project. The PennDOT, Engineering District 8-0 in conjunction with the Federal Highway Administration (FHWA), is undertaking environmental and engineering studies to reconstruct and widen Interstate 83 Section 70 between Exits 19 and 22 in York County, Pennsylvania. Interstate 83 crosses Codorus Creek between Exit 19 and Exit 21 just north of the City of York, and the bridge is an 8-span pre-stressed adjacent box/I-beam bridge spanning the Codorus Creek and the levee system. The existing 4-lane bridge would be replaced and widened to accommodate 6 lanes of traffic but would remain on the same general alignment with a minor shift to the north. The existing abutment and pier locations may also be shifted due to constructability. The new bridge, piers and abutments are not anticipated to have an impact on the hydrology of Codorus Creek. Given that the proposed bridge replacement would occur within the same general alignment, and that the Department would be required to design their project to meet the terms and conditions of Section 404 of the Clean Water Act, as well as other federal, state, and local requirements, to include Section 401 (Water Quality Certification), the bridge work is not expected to contribute to impacts to resources within the vicinity of the levee system, or the watershed.

Local Stakeholder Projects:

As identified during the April 10, 2018 Stakeholder Meeting, there are multiple projects which are currently occurring, proposed, and anticipated to occur within the vicinity of the Codorus Creek FRM levee system project. Following are the actions which were discussed during the Stakeholder Meeting:

- (1) FY 2018 Rail Trail Extension from Arsenal Road to George Street on west side of Creek: Rail Trail extension through the Rail Trail Authority of York, from Knoxville Road, which is an existing parking lot to George Street.
- (2) FY 2019 Rail Trail Extension from Philadelphia to George Streets.
- (3) Community Recreational Opportunities: Two bends along Codorus Creek which have been identified in multiple studies performed by the stakeholders as being areas which could be benched back at the points of the stream and put in recreation areas. These areas are both owned by the City of York.
- (4) New Development: An area has been identified for approximately 15 years as an opportune area for development, and the City is working with developers to make this happen.
- (5) North York Park Connection with Rail Trail: There is a park at the top of the hill which would be a connection to the linear trail, which is proposed.
- (6) Future Codorus Creek water trail access.

- (7) Tyler Run Improvements/Access Trail: The potential to provide access for college students to the creek.
- (8) Codorus Greenway: USACE access road is at this location, and the City of York would like to have mutual use of the access road. Potential portage around the bascule dam would have to occur within the flood control project. Area on the top of the parking lots would be a greenway.
- (9) Armory Redevelopment/Access Road: Proposed new educational center at this location, and the City of York would like to utilize USACE access roads.
- (10) Monitoring Wells at WWTP: The City of York would need to install some monitoring wells close to the levee.
- (11) Educational/high-water mark signage (opportunities across project) to provide information for the public.

Some of the above projects are large scale, such as new development. However, others are minimal in nature and would be expected to require a small footprint, such as creek access points. Direct impacts to aquatic resources may be necessary to perform some of the above actions. However, all projects would be required to adhere to federal, State, and local regulations, thereby ensuring that avoidance, minimization, and mitigation of unavoidable impacted aquatic resources would occur. Indirect impacts may occur as a result of construction activities. However, projects would be required to adhere to best management practices, such as containing and protecting the work zones to minimize the occurrence of construction activities resulting in materials entering into the waterway. Additionally, there are no wetlands that were identified as being within close proximity to the work zones which would be affected indirectly by the project activities. Multiple proposed work tasks would result in a reduction of materials from entering into Codorus Creek through the rehabilitation activities. The replacement of the Penn Street Floodwall would alleviate the occurrence of continued deterioration of the floodwall and floodwall debris (e.g., concrete) from falling into Codorus Creek. If debris fragments are small, they would be carried downstream with normal stream currents. Additionally, larger fragments would be transported downstream as a result of high flows and rapid currents following storm events. This is also the case for the bulge repair work task near the Market Street Bridge, as stones continue to loosen and break away from the floodwall and fall into the creek. The bank stabilization work task near the South Richland Avenue Bridge would also assist with a reduction of sedimentation of receiving waters, as the present conditions consist of an eroding levee bank, resulting in upland soils entering into the creek. By performing the identified repairs and rehabilitation work tasks, the indirect effects to downstream waters would be beneficial through a reduction of sedimentation and debris being transported to receiving waters. The current regulations also require that only minimal impacts to aquatic resources be authorized, and mitigation would be required to fully offset unavoidable impacts. Additionally, aquatic resources would be clearly identified in the field to ensure the authorized limits of disturbance are visible to contractors. Given the above factors, USACE has determined that the work tasks proposed for the Codorus Creek FRM project, in conjunction with the past, present, and projects which are anticipated to occur within the foreseeable future, are not expected to result in adverse cumulative direct or indirect impacts within the vicinity of the levee system or in the watershed. The site is a

previously disturbed area which is primarily surrounded by development. Deterioration of segments along the levee system have been identified, which is contributing to the sediment load and debris within the creek. Implementation of the project work tasks would have a positive effect on the environment, as it would stabilize the levee bank, reduce the potential for future sedimentation of the creek, and promote the integrity and capacity of the FRM project, thereby resulting in benefits to the human and natural environment.

6.3 Compensatory Mitigation

In 2008, EPA and USACE jointly promulgated regulations revising and clarifying requirements regarding compensatory mitigation. According to these regulations, compensatory mitigation means the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of wetlands, streams and other aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. Under the regulations, there are three mechanisms for providing compensatory mitigation (listed in order of preference as established by the regulations): mitigation banks, in-lieu fee programs, and permittee-responsible mitigation (Environmental Protection Agency, 2018).

The proposed Codorus Creek FRM project work tasks do not propose to impact wetlands. Additionally, the proposed work tasks are not expected to result in the loss of waters of the U.S. The work would restore the existing levee system to its authorized flood control capacity and design. The work included replacement of the existing floodwall near the Penn Street Bridge with a new floodwall within its approximate same footprint. Riprap would be replaced along the levee system where needed to ensure the protection of the levee banks. Much of the work would occur in and from uplands. Temporary impacts would occur but areas would be restored upon completion of construction. Indirect impacts are not expected due to the use of best management practices to protect and contain the work zone. This would minimize the potential for construction generated materials from entering into the waters. Additionally, the rehabilitation and restoration work would address the existing conditions of concrete, stone, debris, etc., as well as erosional materials entering into the waters. Based on this information, compensatory mitigation would not be required for the work tasks proposed for the rehabilitation and repair of the Codorus Creek FRM project.

7.0 PROJECT IMPLEMENTATION

7.1 Real Estate

Although USACE owns, operates, and maintains the Codorus Creek FRM project, USACE does not own the lands that the levee system lies on in fee simple. USACE only possesses a perpetual Channel Improvement easement at this location. There are 54 outgrants at the Codorus Creek levee system. All outgrants are Consent to Structures, which approve the use as not inhibiting the easement rights of the

Government. The easement setback along the levee system varies, with some segments consisting of a USACE setback of up to approximately 30 feet and other segments where USACE setback ends directly on the landward edge of the levee/floodwalls. The existing USACE ownership is not sufficient in area to perform the proposed construction, and subsequent operation and maintenance. Authorization from Headquarters, USACE, to acquire additional real estate for the project is required. A Real Estate Design Memorandum (REDM) is the document used for this authorization. The REDM is scheduled to be submitted to HQUSACE in July 2018. Real estate easement acquisitions would be required for 6 commercial parcels with 4 owners, and 1 publicly-owned parcel to perform the project work tasks. These are at the location of the proposed Floodwall replacement near the Penn Street Bridge, the bulge repair location at the near the Market Street Bridge, and the levee bank stabilization near the South Richland Avenue Bridge. It could be possible to get Rights of Entry for Construction (ROEC) from the property owners to allow site access for construction in advance of finalizing the real estate acquisitions to meet the compressed construction schedule. USACE Real Estate Division would work with the property owners where the ROEC's would be needed. Work would not commence until USACE has completed acquisitions, or at a minimum, received the ROEC's authorizing entrance onto the properties.

7.2 Engineering and Cost Estimate

As described in previous sections the project consists of multiple efforts executed at different locations to address deficiencies. The total project cost to remediate the deficiencies described in this EA is \$17.4 million, as estimated by the Baltimore District.

7.2.1 Market Street Bulge

The recommended plan involves stabilizing the floodwall on the West Codorus Creek Bank. Expected work includes the removal of sediment from the levee toe and installation of means for ensuring long term floodwall stability and flood resistance. A permanent solution to the bulging/buckling of this segment of wall would reduce the need for emergency repairs that are generally costlier than permanent rehabilitation of the floodwall. An emergency temporary repair of the floodwall failure at the bulge was implemented in early 2018 for \$14,000.

7.2.2 Penn Street Floodwall

The recommended plan consists of removing the existing floodwall from levee stations 234+00 to 228+00 on the East Codorus Creek Bank and replacing with a new concrete floodwall. The floodwall dimensions would ensure the same level of protection. Partial demolition of the abandoned Mill Facility would be required to allow for the removal and new construction of the floodwall. Beginning at levee station 229+00 to 228+00, a 100 feet long and 15 feet wide area shall be removed. Included with this demolition are implementation of measures to ensure structural stability of the Abandoned Mill as prevention of exterior deterioration vectors into the facility. Minor repairs such as placement of grout along Tyler Run would be included in this task. Riprap will be

replaced and added, where necessary, at the base of the new floodwall for stabilization, and the two bridges crossing Tyler Run would be removed with measures installed to ensure continued loading performance for the created floodwall gaps.

7.2.3 Riprap Replacement

In the levee station interval of 274+00 to 269+13.61 on the East Bank, riprap would be placed on barren areas to return the slope to design conditions. The new riprap would be placed in a 24 inch layer consisting of 18 inch diameter riprap with an additional 6 inches of small bedding stone, which is comparable to existing material on adjacent riprap. Unwanted flora such as tree stumps would be removed and created holes replaced with embankment material of the same kind.

7.2.4 Drainage Conduit Maintenance

This task consists of two (2) phases, where Phase I consists of visual inspection and ownership determination of 94 pipes previously not inspected. Phase II implements the recommendations of the FY2016 Pipe Survey and Phase I Reports which range from repairs, to abandonment and replacement, and no-action. The FY2016 Pipe Survey Report identified 35 as MA and 155 as U. Applying this rating distribution, noting the statistical oversimplification, to the Phase I Pipe Quantity, 10 are rated as MA and 54 as U. Further, simplifying assumptions, of the U rated Pipes, 50 percent shall be abandoned and the other half repaired in the form of slip lining for a length of 20 feet. The MA rated pipes are assumed to require minimum repairs of spot type or installation of flap gates; thus, rated at 25 percent of the non-weighted averaged U Remediation Implementation Cost.

7.3 Energy Needs

USACE evaluated the expected impact that the project would on energy needs, food and fiber production, and mineral needs. The project would increase the energy consumption during construction due to the need to utilize machinery, lights, etc. However, upon completion of construction of the proposed work tasks, energy consumption would return to pre-construction conditions, as no work tasks propose the addition of devices which would require energy to function. Therefore, there would be a minor and short term effect on energy needs during the construction activities for the proposed work tasks. Future energy needs would be similar, and would be minor and short term. Performance of the project work tasks also would not contribute to cumulative effects on energy needs.

7.4 Mineral Needs

Activities associated with the proposed levee system rehabilitation and repairs would increase the demand for aggregate, sand, and stone, to construct a new floodwall and

stabilize the levee banks. Activities would also increase the demand for other building materials, such as steel, aluminum, and copper, which are made from mineral ores, primarily for temporary and permanent construction needs (e.g., best management practices). Once construction of the individual work tasks is completed, there may be additional mineral needs for maintenance activities. However, this is expected to be minimal. Given that some materials may be utilized from onsite sources, such as existing riprap, it is expected that the effects to mineral needs would be negligible. Based on the above information, it is expected the effect to mineral needs would occur during present time and in the future; however, the effect would be minimal. Performance of the project work tasks also would not contribute to adverse cumulative effects on mineral needs.

7.5 Food and Fiber Production

No crops or farms would be affected by the proposed project work tasks. However, by performing the rehabilitation and repair work tasks to the levee system, crops and farms within the vicinity and downstream of the levee system would be protected from flooding. Therefore, the proposed project would provide a minor beneficial effect on food and fiber production during the present time and in the future. Performance of the project work tasks would not contribute to adverse cumulative effects on food and fiber production.

8.0 CONCLUSION

This EA evaluates the potential effects associated with the proposed Codorus Creek FRM project rehabilitation located through the City of York, within York County, Pennsylvania. The purpose of this proposed action is to rehabilitate and repair the Codorus Creek FRM levee system and improve the overall reliability of the Indian Rock Dam/Codorus Creek FRM project. The proposed work tasks are associated with the Codorus Creek FRM levee system component of the overall project and are intended to restore the levee system back to its originally-authorized design flood control capacity and integrity. Absent repairs and rehabilitation of the Codorus Creek FRM levee system, the existing conditions of the levee would continue to deteriorate. Proposed rehabilitation work tasks include replacement of approximately 600 linear feet of the levee wall near the Penn Street Bridge, replacement and addition of riprap at the base of the new floodwall, and removal of two bridges; bulge repairs near the Market Street Bridge; levee bank stabilization along approximately 690 linear feet near the South Richland Avenue Bridge, which includes approximately 190 linear feet of new riprap installation; drainage conduit maintenance along the length of the levee system.

Many of the proposed impacts would be short-term and temporary in nature, such as construction activities, which include upland disturbance, demolition, installation of in-water containment structures and best management procedures, increases in noise and light, and addition of vehicle emissions as a result of use of construction machinery. These impacts would occur only during construction of the work tasks, and disturbed areas would be restored to pre-construction conditions post construction activities.

Upon project completion, the work activities posed project activities would provide for stabilized levee banks, thereby reducing erosion and deterioration of the existing system. The project would require ROE to perform construction activities. These would be temporary. Some proposed work tasks would result in the addition of fill material into waters of the U.S., such as the levee bank stabilization work near the Richland Avenue Bridge. However, the work would result in restoring an eroding bank and would result in beneficial effects to resources. The additional proposed future work items would also promote the capacity, stabilization, and integrity of the levee system.

Based on the evaluations within this EA, the project is not expected to result in adverse long-term effects to any resources. Minor and short-term effects are expected to occur to soils, surface waters, recreational navigation, terrestrial resources, air quality, parks and recreation, aesthetics, and threatened and endangered species. Beneficial effects would occur to surface waters, aesthetics, health and safety, population and socioeconomics, and environmental justice. No effects would occur to Wild and Scenic rivers, floodplains, wetlands, hazardous materials and solid waste, and climate. The potential effects on cultural resources are currently undergoing evaluation with the SHPO and tribes. At present, consultation is being finalized for Section 7 of the Endangered Species Act with the Fish and Wildlife Service and to meet water quality certification waiver requirements with the Pennsylvania Department of Environmental Protection.

Given that the evaluation within this EA and that the proposed actions would rehabilitate and restore the existing Codorus Creek FRM project to its authorized capacity, design, and integrity; and that that any adverse effects would be minimal and temporary; it is not expected that the preparation of an EIS for the proposed actions being considered would be necessary. As such, a FONSI has been prepared.

9.0 Compliance of the Proposed Action with Environmental Protection Statutes and Other Environmental Requirements

<u>Federal Statutes</u>	<u>Level of Compliance¹</u>
Anadromous Fish Conservation Act	N/A
Archeological and Historic Preservation Act	Partial
Clean Air Act	Full
Clean Water Act	Partial
Coastal Barrier Resources Act	N/A
Coastal Zone Management Act	N/A
Comprehensive Environmental Response, Compensation and Liability Act	Full
Endangered Species Act	Partial
Estuary Protection Act	N/A
Federal Water Project Recreation Act	N/A
Fish and Wildlife Coordination Act	Full
Land and Water Conservation Fund Act	Full
Marine Mammal Protection Act	N/A
National Historic Preservation Act	Partial
National Environmental Policy Act	Partial
Resource Conservation and Recovery Act	Full
Rivers and Harbors Act	Partial
Watershed Protection and Flood Prevention Act	Full
Wild and Scenic Rivers Act	Full
<u>Executive Orders, Memoranda, etc.</u>	
Protection and Enhancement of Cultural Environment (E.O. 11593)	Full
Floodplain Management (E.O. 11988)	Full
Protection of Wetlands (E.O. 11990)	Full
Prime and Unique Farmlands (CEQ Memorandum, 11 Aug. 80)	Full
Environmental Justice in Minority and Low-Income Populations (E.O. 12898)	Full
Protection of Children from Health Risks & Safety Risks (E. O. 13045)	Full

¹ Level of Compliance:

Full Compliance (Full): Having met all requirements of the statute, E.O. or other environmental requirements for the current stage of planning.

Partial Compliance (Partial): Not having met some of the requirements that normally are met in the current stage of planning.

Non-Compliance (NC): Violation of a requirement of the statute, E.O. or other environmental requirement.

Not Applicable (N/A): No requirements for the statute, E.O. or other environmental requirement for the current stage of planning.

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11.0 LIST OF PREPARERS

Fred Kimble, Project Manager, U.S. Army Corps of Engineers, Baltimore District, Planning Division

Ethan Bean, Cultural Resources Specialist, U.S. Army Corps of Engineers, Baltimore District, Planning Division

Steve Brown, Chief, Flood Risk Management Branch, U.S. Army Corps of Engineers, Baltimore District, Operations Division

Tarrie Ostrofsky, Biologist, U.S. Army Corps of Engineers, Baltimore District, Planning Division

Luis Santiago, Community Planner, U.S. Army Corps of Engineers, Baltimore District, Planning Division

John Prince, Civil Engineer/Design Manager, U.S. Army Corps of Engineers, Baltimore District, Engineering Division

C. J. Winand, Project Manager, U.S. Army Corps of Engineers, Baltimore District, Engineering Division

Raymond Tracy, Civil Engineer, U.S. Army Corps of Engineers, Baltimore District, Engineering Division

Adam Oestreich, Real Estate Specialist, U.S. Army Corps of Engineers, Baltimore District, Real Estate Division

Remi Bollana, Construction Manager, U.S. Army Corps of Engineers, Baltimore District, Construction Division

Mark Cap, Contracting Specialist, U.S. Army Corps of Engineers, Baltimore District, Contracting Division

Louis Snead, Design Manager, U.S. Army Corps of Engineers, Baltimore District, Planning Division

Nicole Kennedy, Geotechnical Engineer, U.S. Army Corps of Engineers, Baltimore District, Engineering Division

Luan Ngo, Cost Estimator, U.S. Army Corps of Engineers, Baltimore District, Engineering Division

Appendix 1.0 Maps and Resource Sites

Appendix 1.1 Map of York North

YORK FLOOD RISK MANAGEMENT PROJECT NORTH YORK, PENNSYLVANIA




Legend

- Levee
- Floodwall
- ★ USACE Rehabilitation Projects
- ★ Levee System Deficiencies
- Transportation Projects

LEVEED AREAS
(Area in which flood risk is reduced due to the levee system)

- York Northeast
- York East Loucks Mill
- York East Downtown
- York Northwest
- York West Willis Run


US Army Corps of Engineers

REPLACE LOCKS MILL ROAD BRIDGE OVER MILL CREEK (FUTURE)

LEVEE REQUIRES ASSESSMENT OF CONDITION

WIDENING OF 193 AND REPLACING BRIDGE OVER POGORUSH CREEK (IN DESIGN)

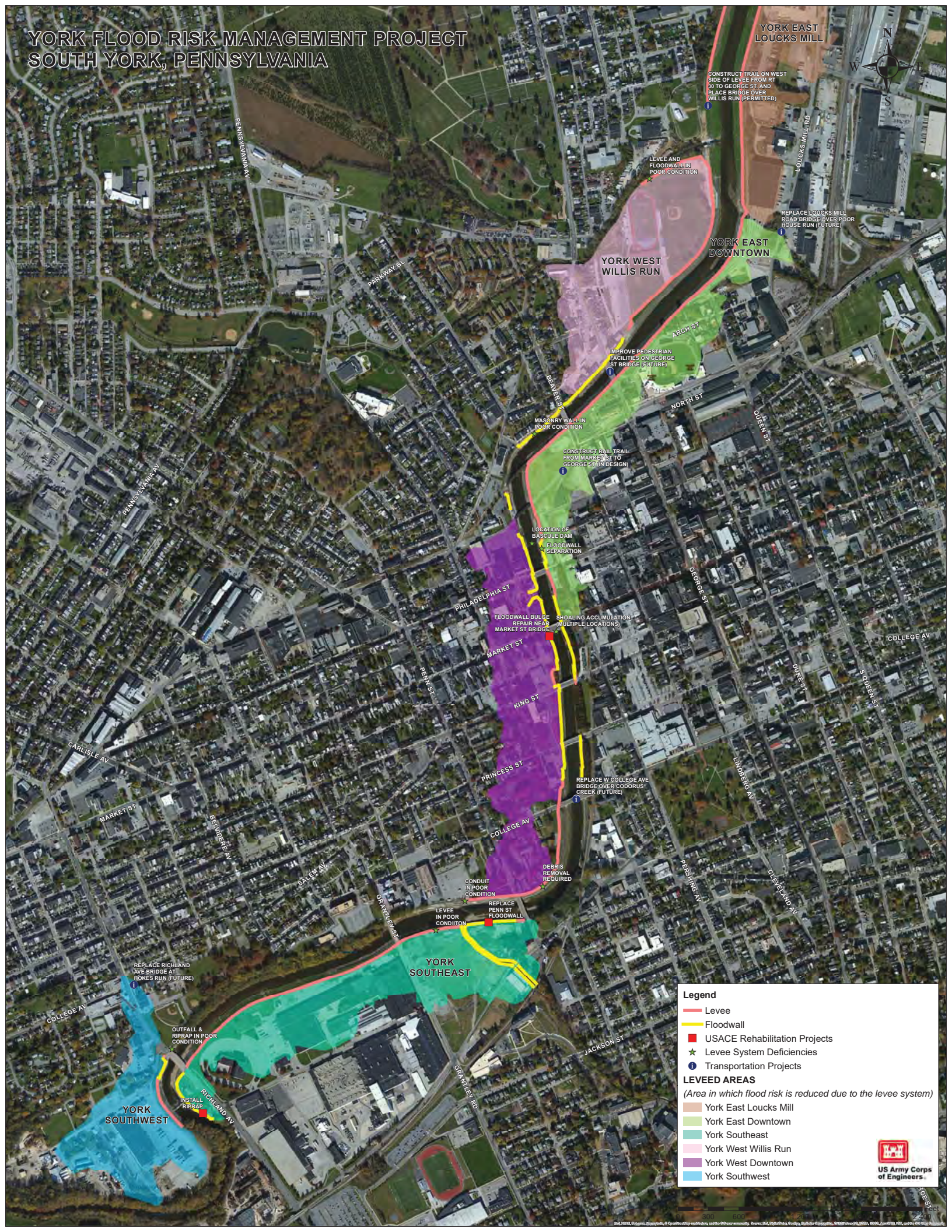
CONSTRUCT TRAIL ON WEST SIDE OF LEVEE FROM RT 30 TO GEORGE ST. AND PLACE BRIDGE OVER WILLIS RUN (PERMITTED)

REPLACE LOCKS MILL ROAD BRIDGE OVER POOR HOUSE RUN (FUTURE)

Appendix 1.2 Map of York South

YORK FLOOD RISK MANAGEMENT PROJECT

SOUTH YORK, PENNSYLVANIA



Legend

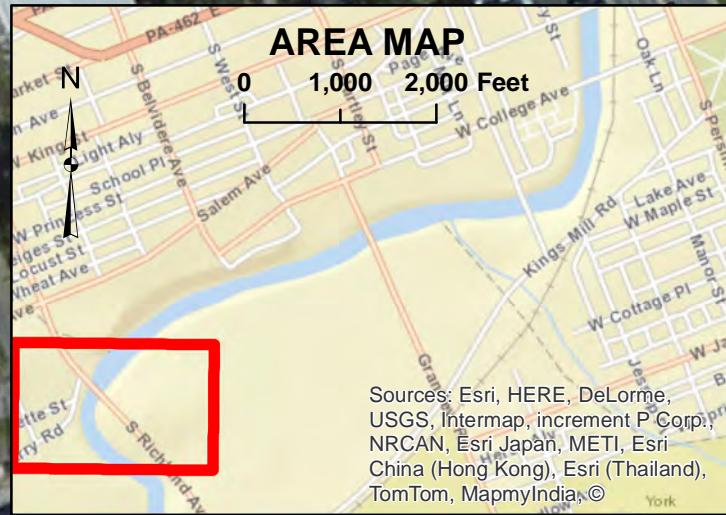
- Levee
- Floodwall
- USACE Rehabilitation Projects
- ★ Levee System Deficiencies
- ⓘ Transportation Projects

LEVEED AREAS
(Area in which flood risk is reduced due to the levee system)

- York East Loucks Mill
- York East Downtown
- York Southeast
- York West Willis Run
- York West Downtown
- York Southwest

US Army Corps of Engineers

Appendix 1.3 Drainage Conduit Location Maps



Legend

- DRAINAGE STRUCTURE
- CLOSURE STRUCTURE
- FLOODWALL CENTERLINE
- LEVEE CENTERLINE

"OBJECTID" LABELS SHOWN ON CONDUITS

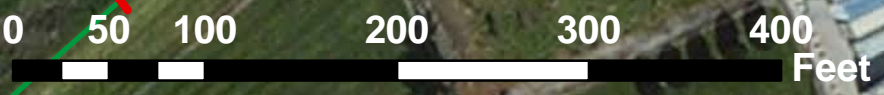
Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, Esri, HERE, DeLorme, TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS user community



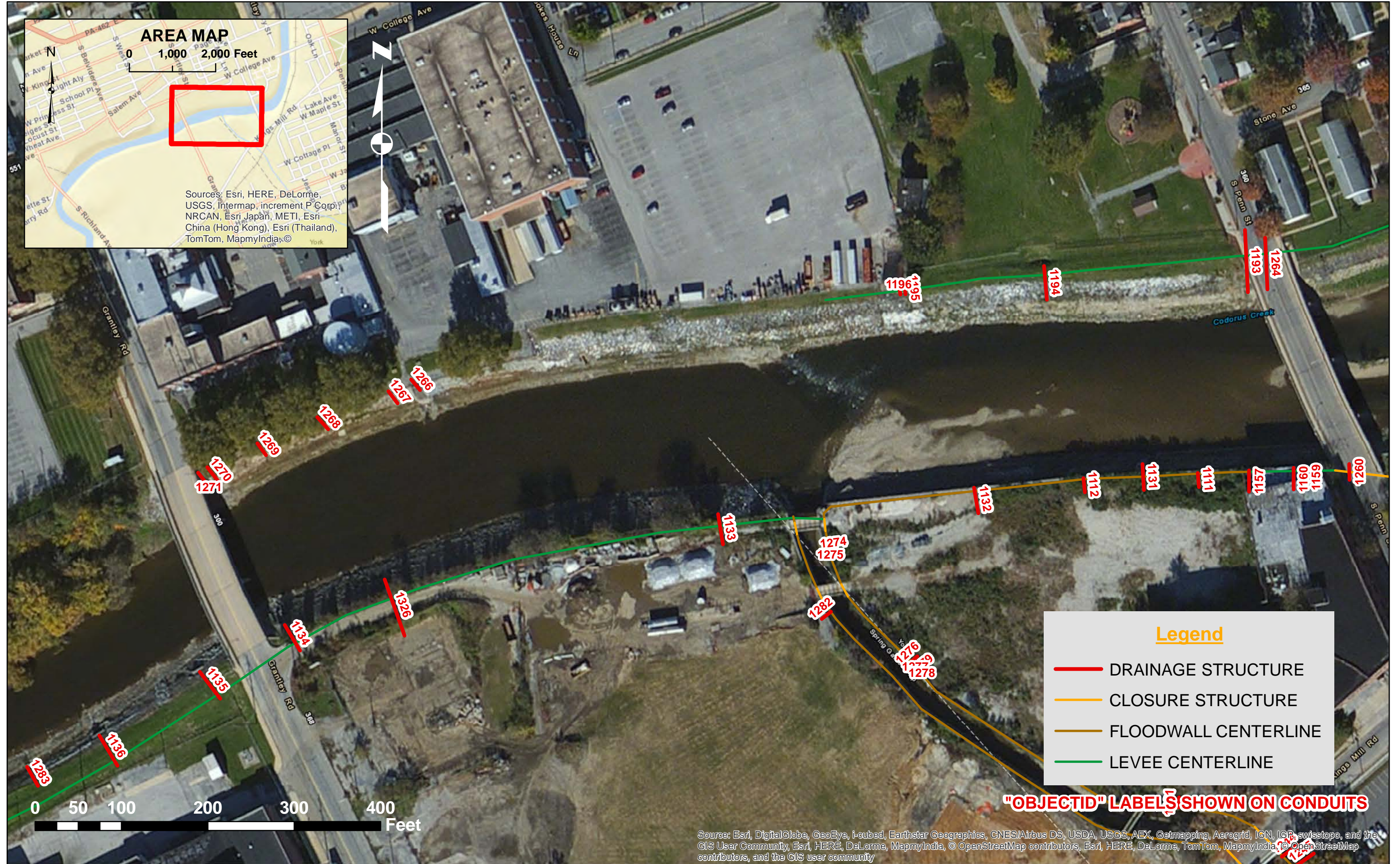
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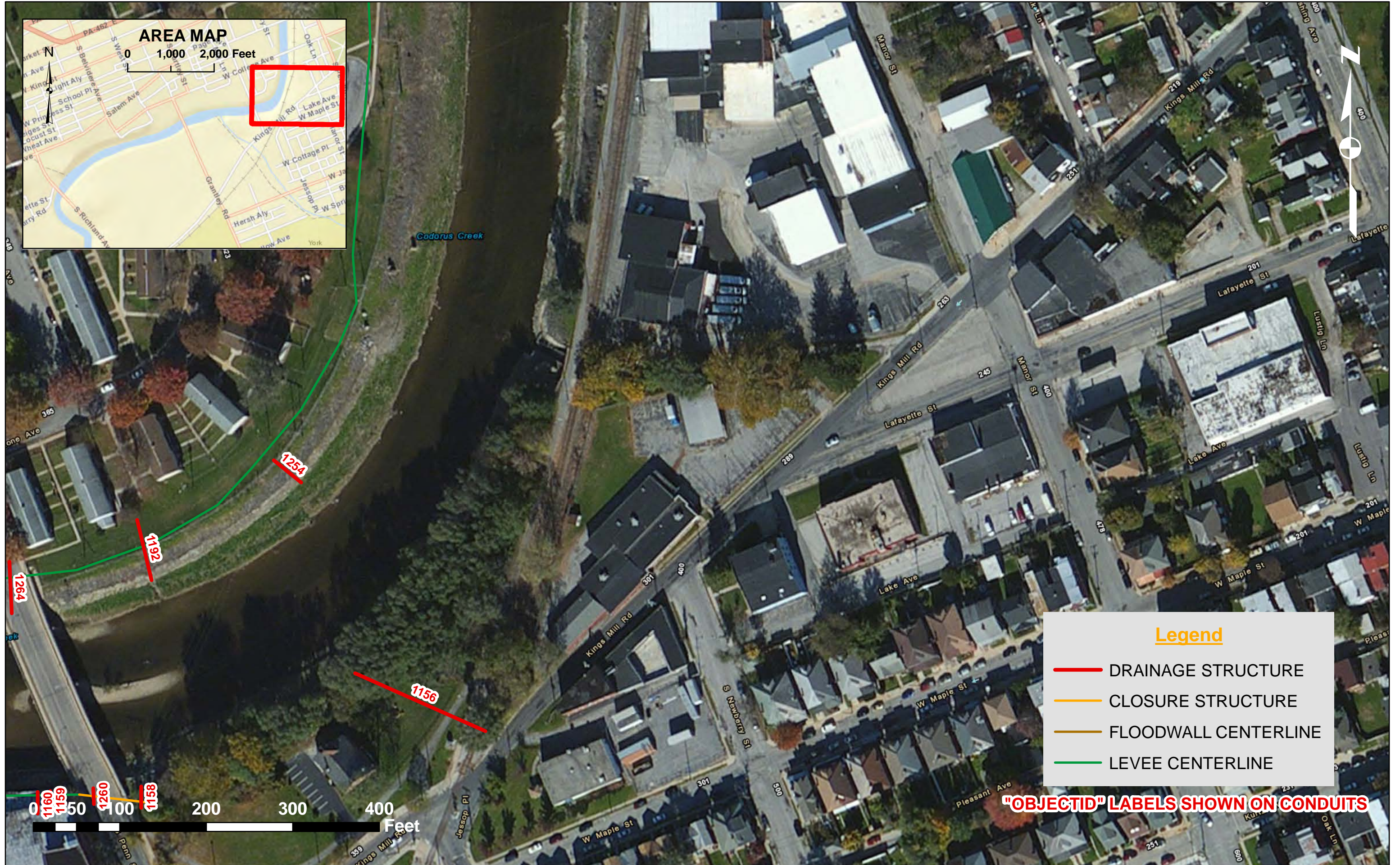
- DRAINAGE STRUCTURE
- CLOSURE STRUCTURE
- FLOODWALL CENTERLINE
- LEVEE CENTERLINE

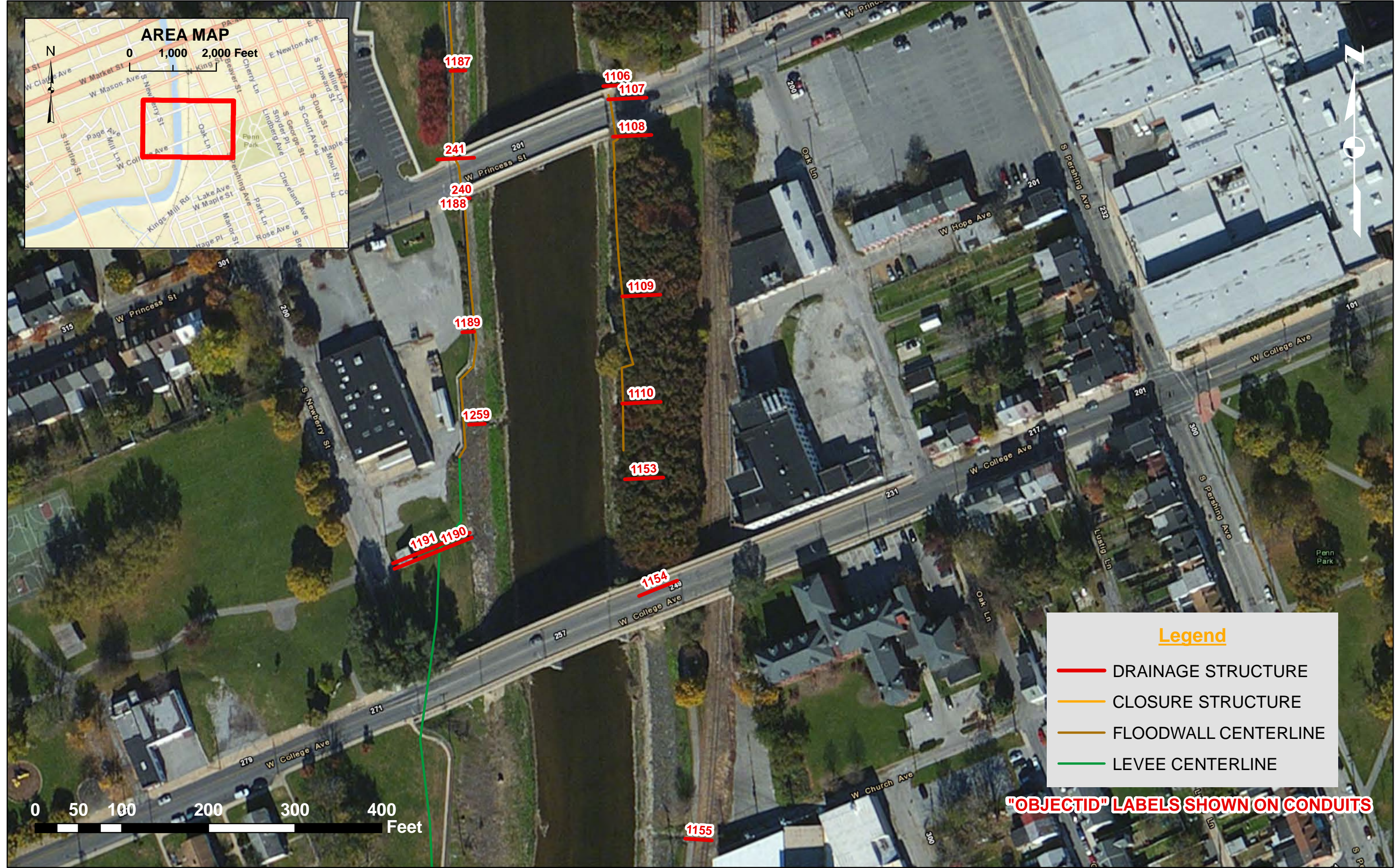
"OBJECTID" LABELS SHOWN ON CONDUITS

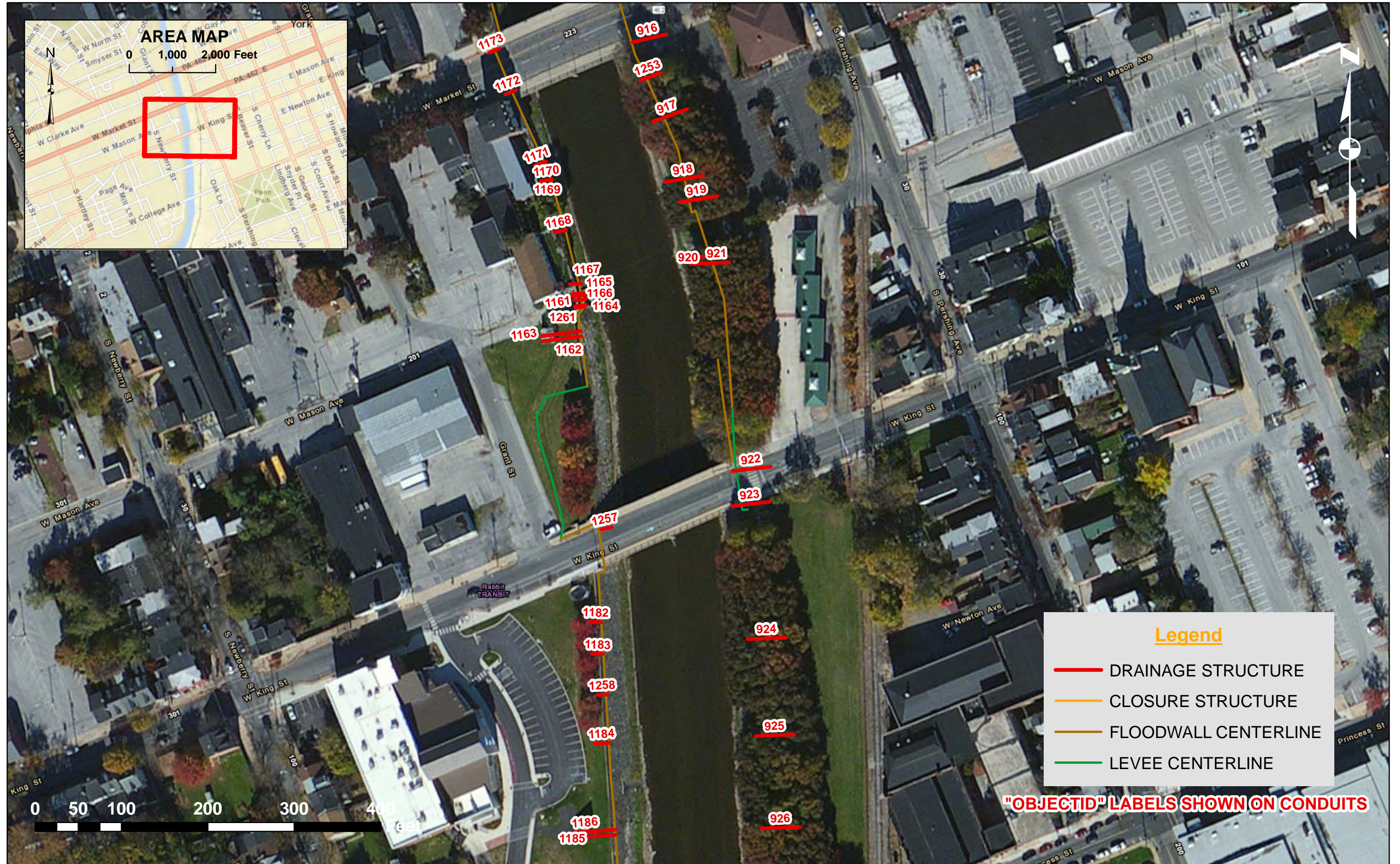


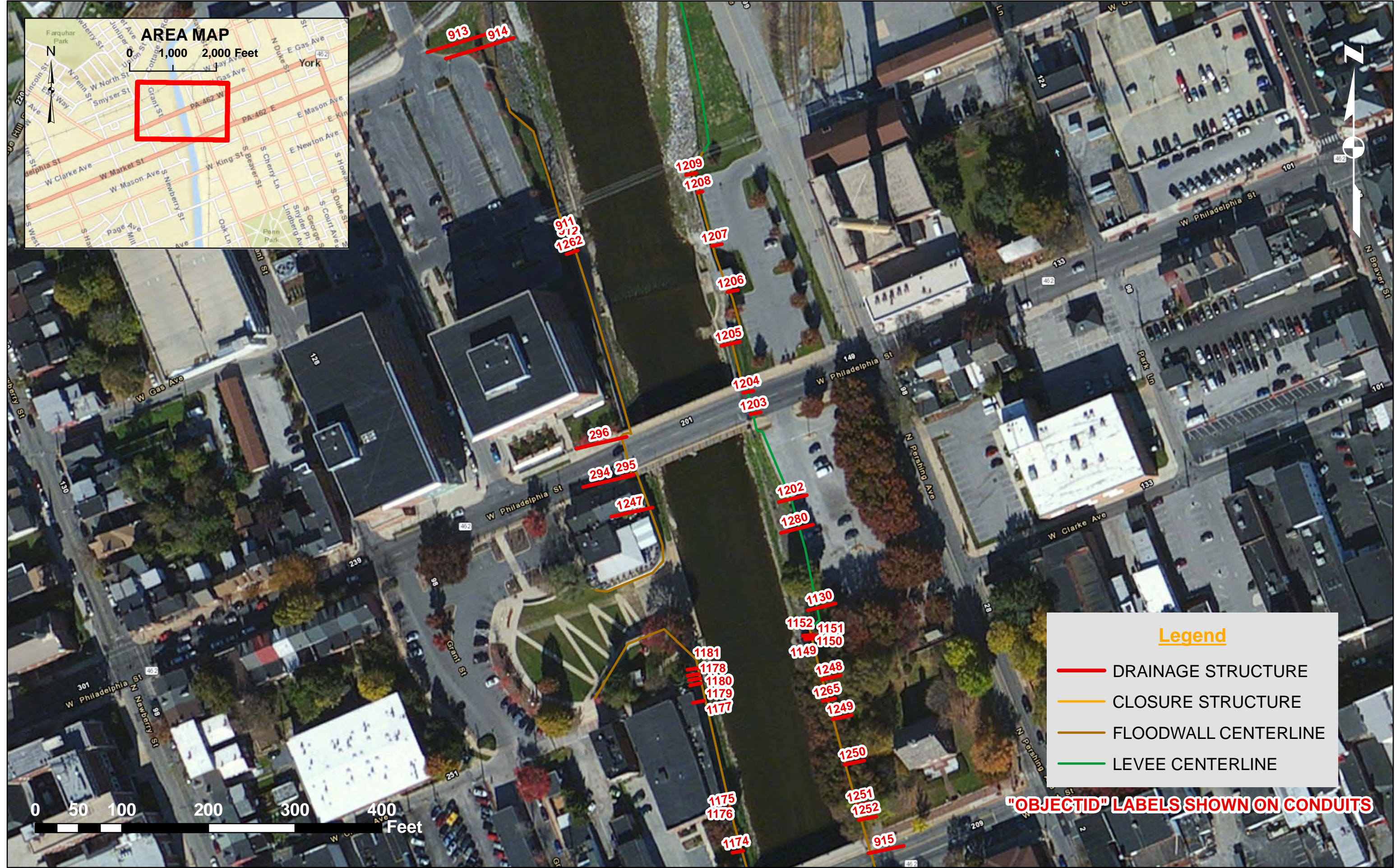
Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, Esri, HERE, DeLorme, TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS user community











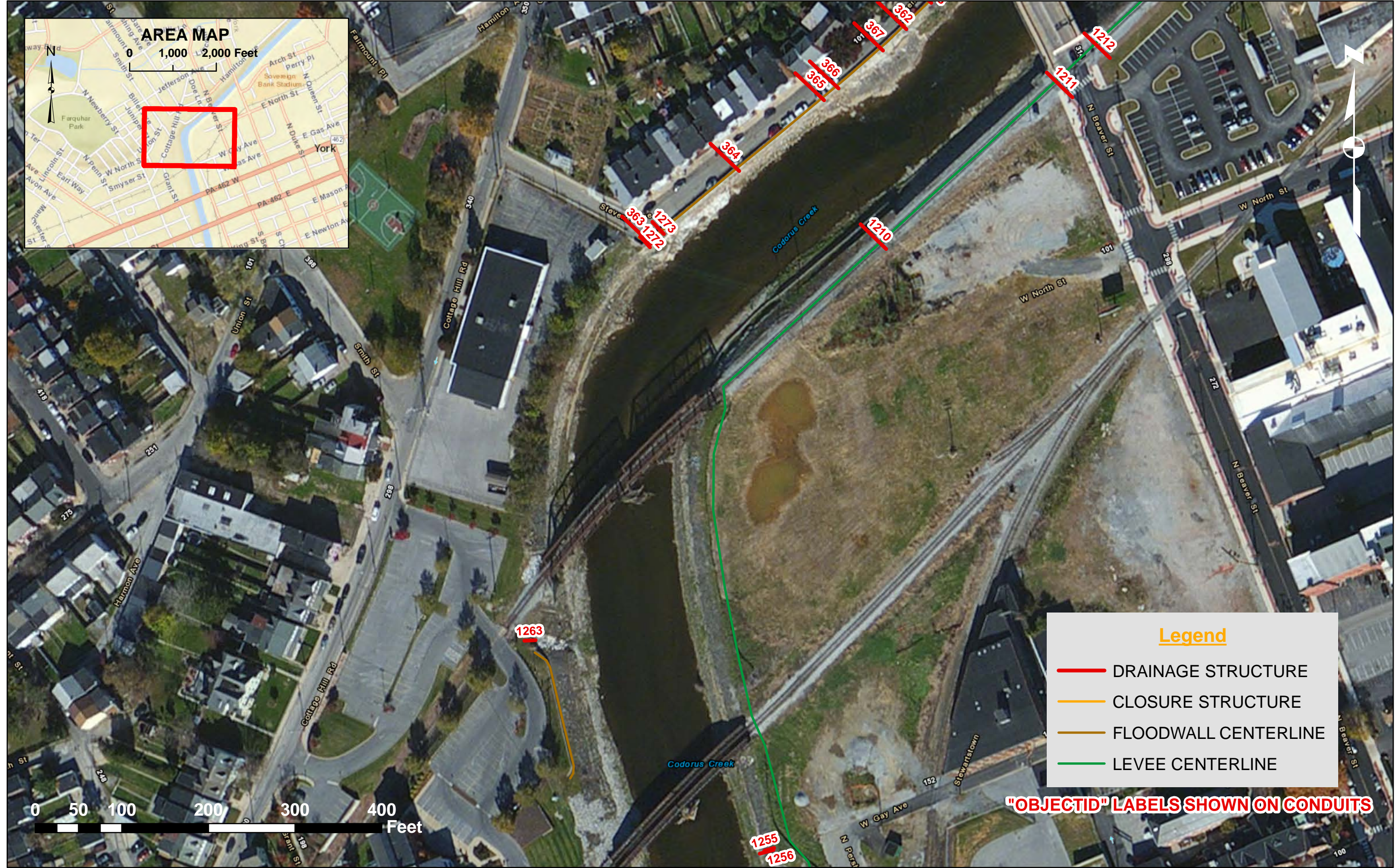
AREA MAP

0 1,000 2,000 Feet

Legend

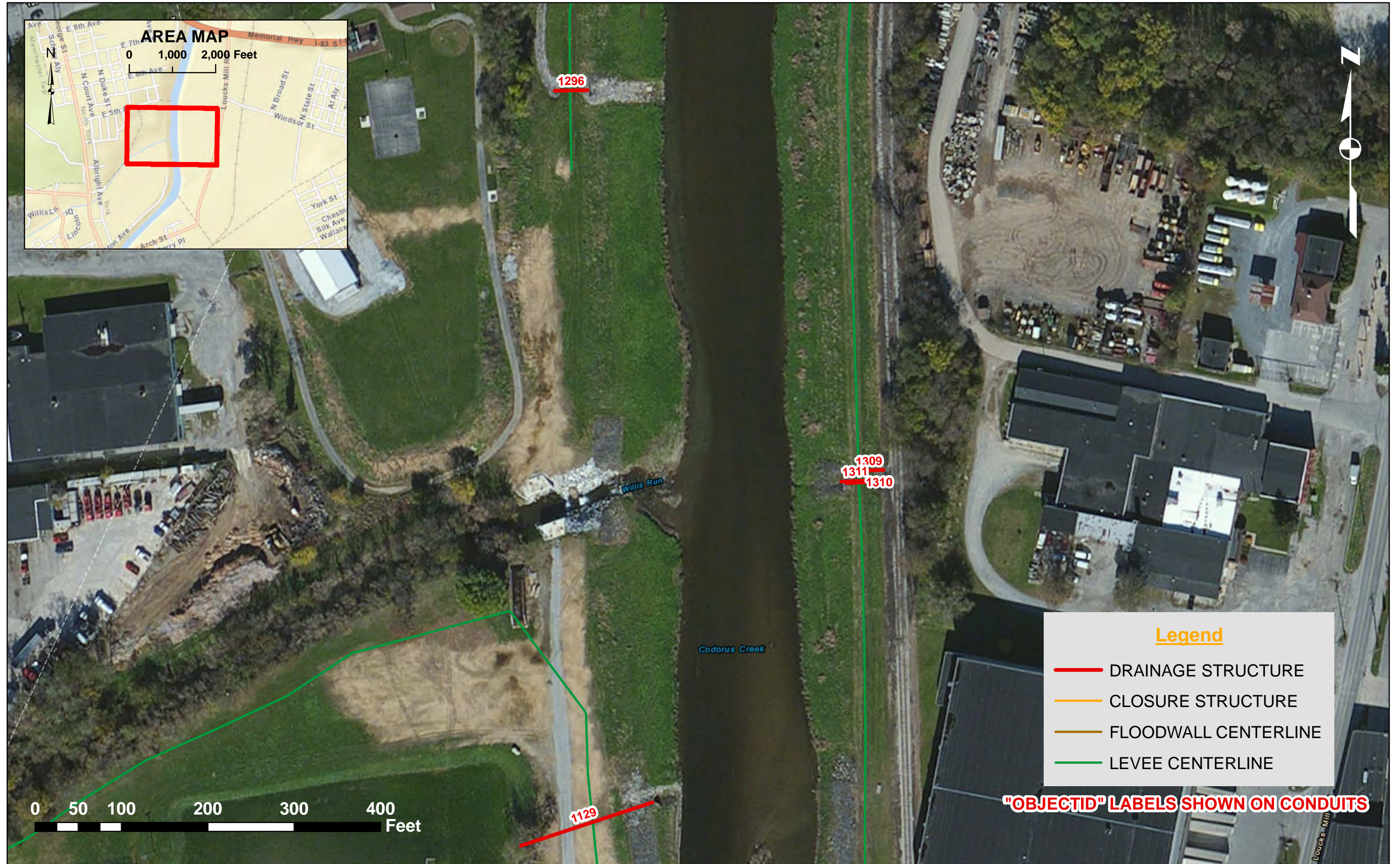
- DRAINAGE STRUCTURE
- CLOSURE STRUCTURE
- FLOODWALL CENTERLINE
- LEVEE CENTERLINE

"OBJECTID" LABELS SHOWN ON CONDUITS

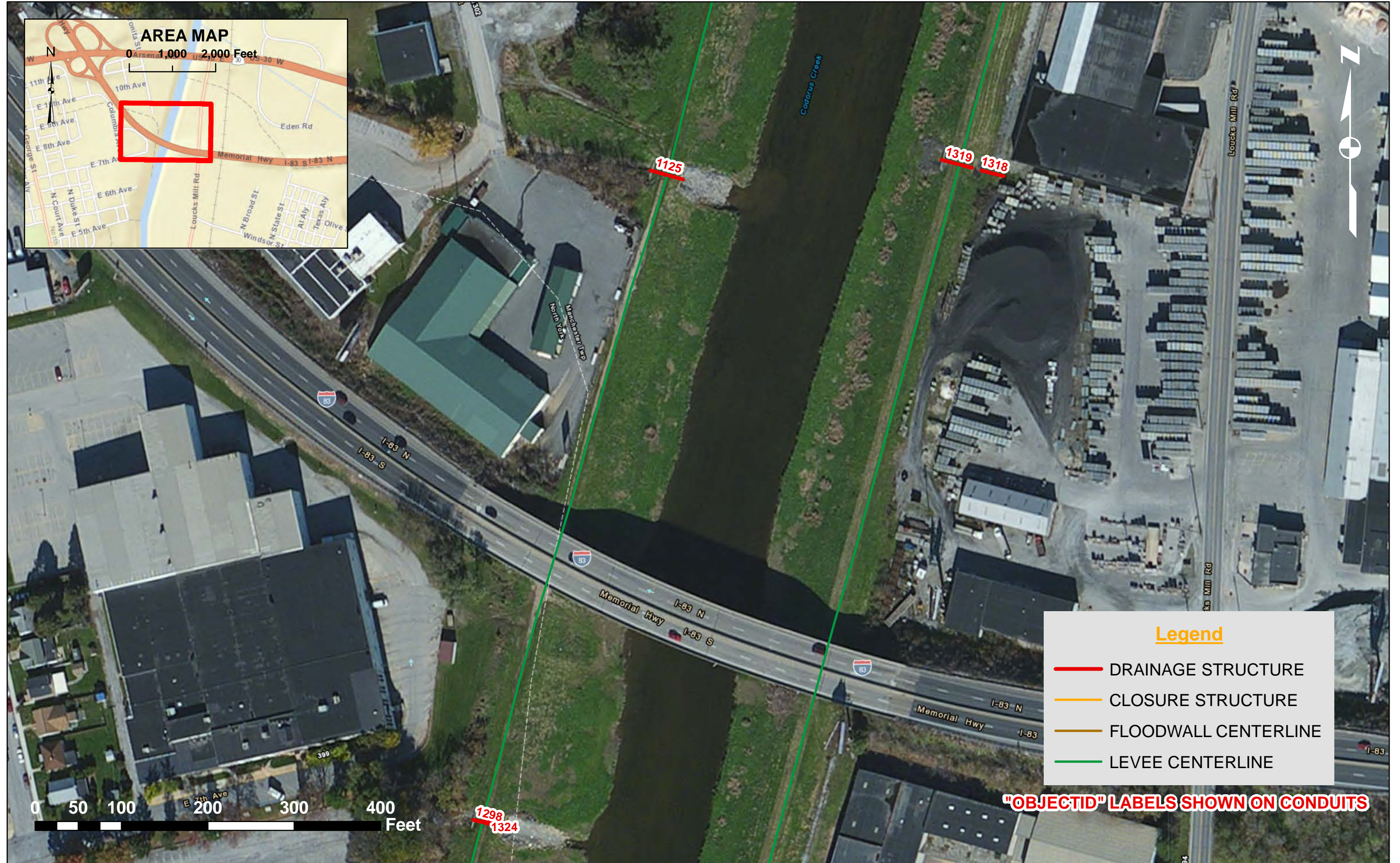


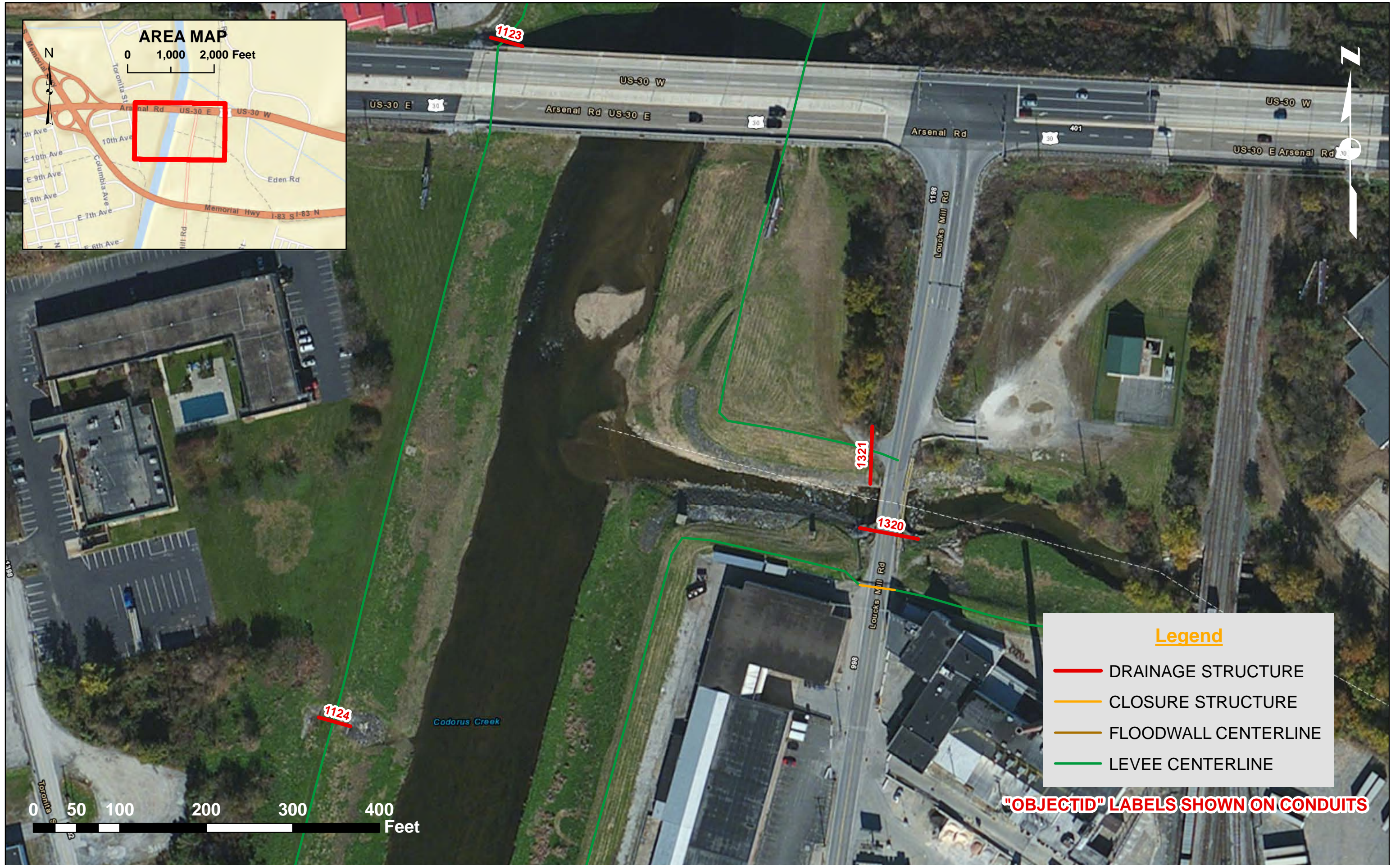
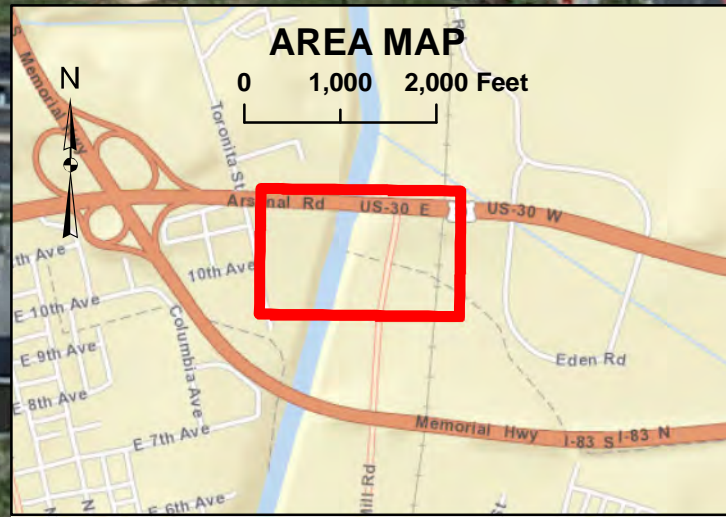












Legend

- DRAINAGE STRUCTURE
- CLOSURE STRUCTURE
- FLOODWALL CENTERLINE
- LEVEE CENTERLINE

"OBJECTID" LABELS SHOWN ON CONDUITS

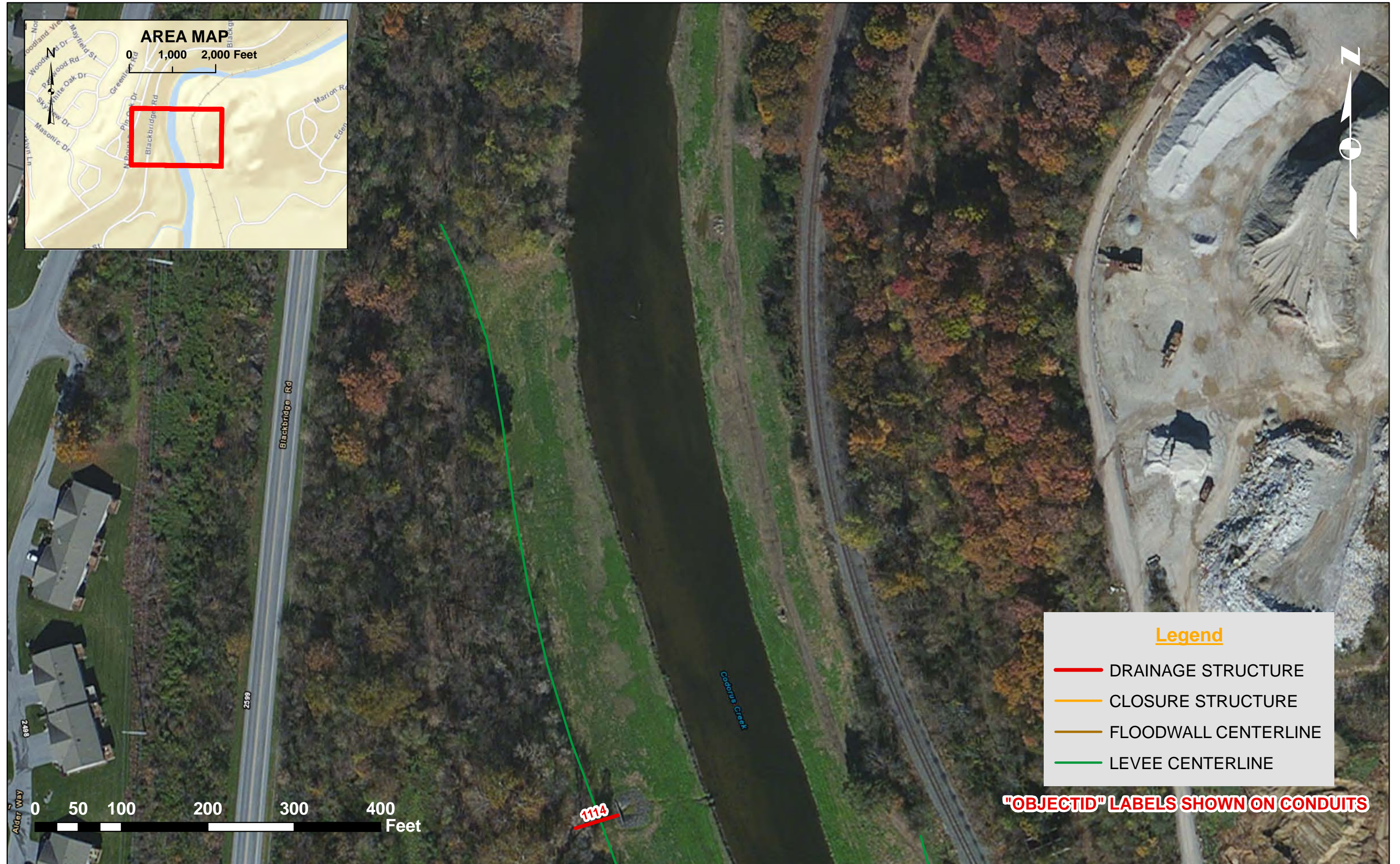




Legend

- DRAINAGE STRUCTURE
- CLOSURE STRUCTURE
- FLOODWALL CENTERLINE
- LEVEE CENTERLINE

"OBJECTID" LABELS SHOWN ON CONDUITS

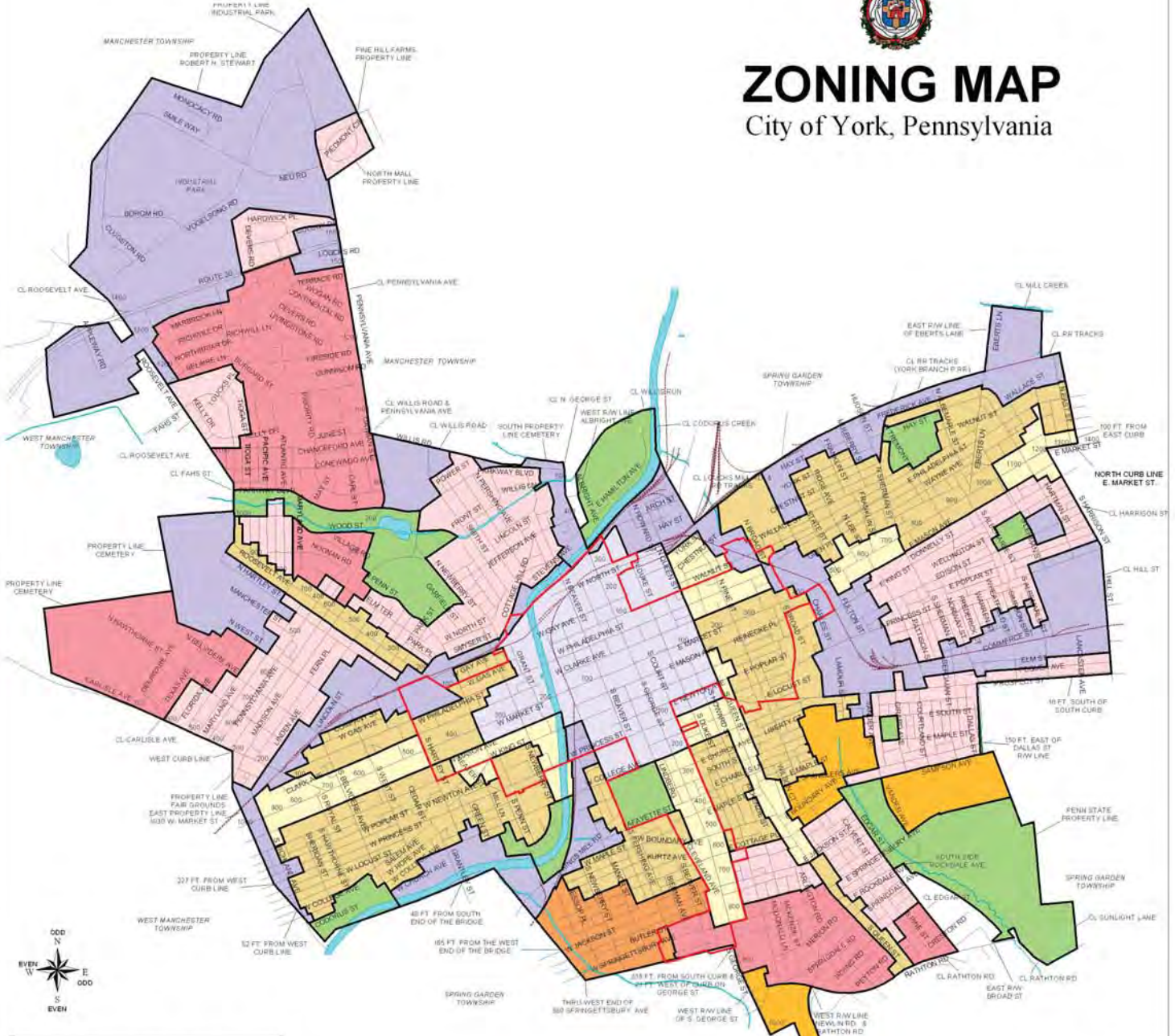


Appendix 1.4 York City Zoning Map



ZONING MAP

City of York, Pennsylvania



ZONING OVERLAY DISTRICTS

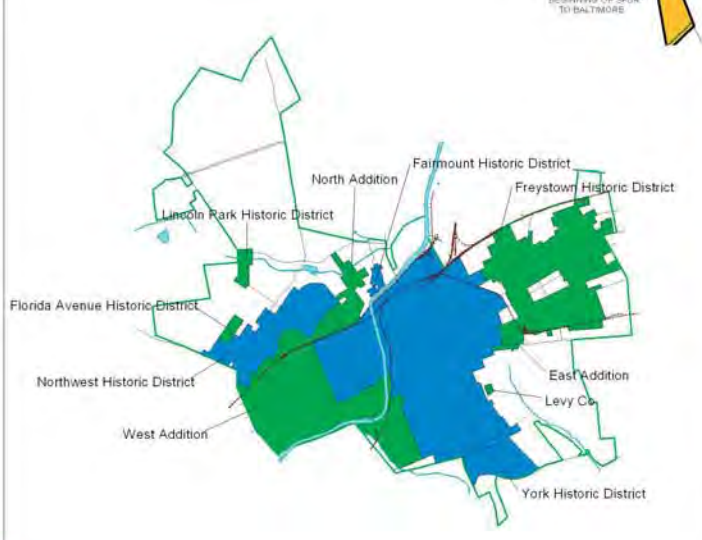
NATIONAL REGISTER HISTORIC DISTRICTS

These sections of York have been listed as Historic Districts. York has one of the largest urban districts in the Country and affords public recognition of the architectural and historic value of the City's buildings. Any Federally funded project in this area must be evaluated in respect to its impact on the historic and architectural character of this district before this project is approved. This area is indicated by the following boundary line.

- LISTED DISTRICT
- ELIGIBLE DISTRICT

HISTORIC ARCHITECTURAL REVIEW BOARD DISTRICT

This area of the City is designated "Historic York". Applications for building permits here are additionally subject to review and approval by City Council through issuance of a certification of appropriateness. Reference City of York Ordinance No. 31, passed September 15, 1970, as amended as indicated by the following pattern on the map.



- Historic Architectural Review Board Boundary
- Zoning
- York City Limits
- Roadway
- Railroad
- Water Feature
- Road
- Zoning**
 - CBD - Central Business District
 - EC - Employment Center District
 - MU1 - Mixed-Use Residential Institutional
 - MU2 - Urban Residential Neighborhood
 - RS1 - Single-Family Detached Residential
 - RS2 - Single Family Attached
 - UN1 - Urban Mixed Residential Commercial
 - UN2 - Urban Residential Neighborhood
 - OS - Open Space

This map is not a legal document. It has been prepared as part of the summary of the City of York 1995 Zoning Ordinance and should be used for reference purposes only. Detailed district boundary lines are specified on a series of property maps included within the Zoning Ordinance as enacted.

Disclaimer: This map is for reference purposes only. The City makes no guarantee as to the accuracy or completeness of the features shown on this map.

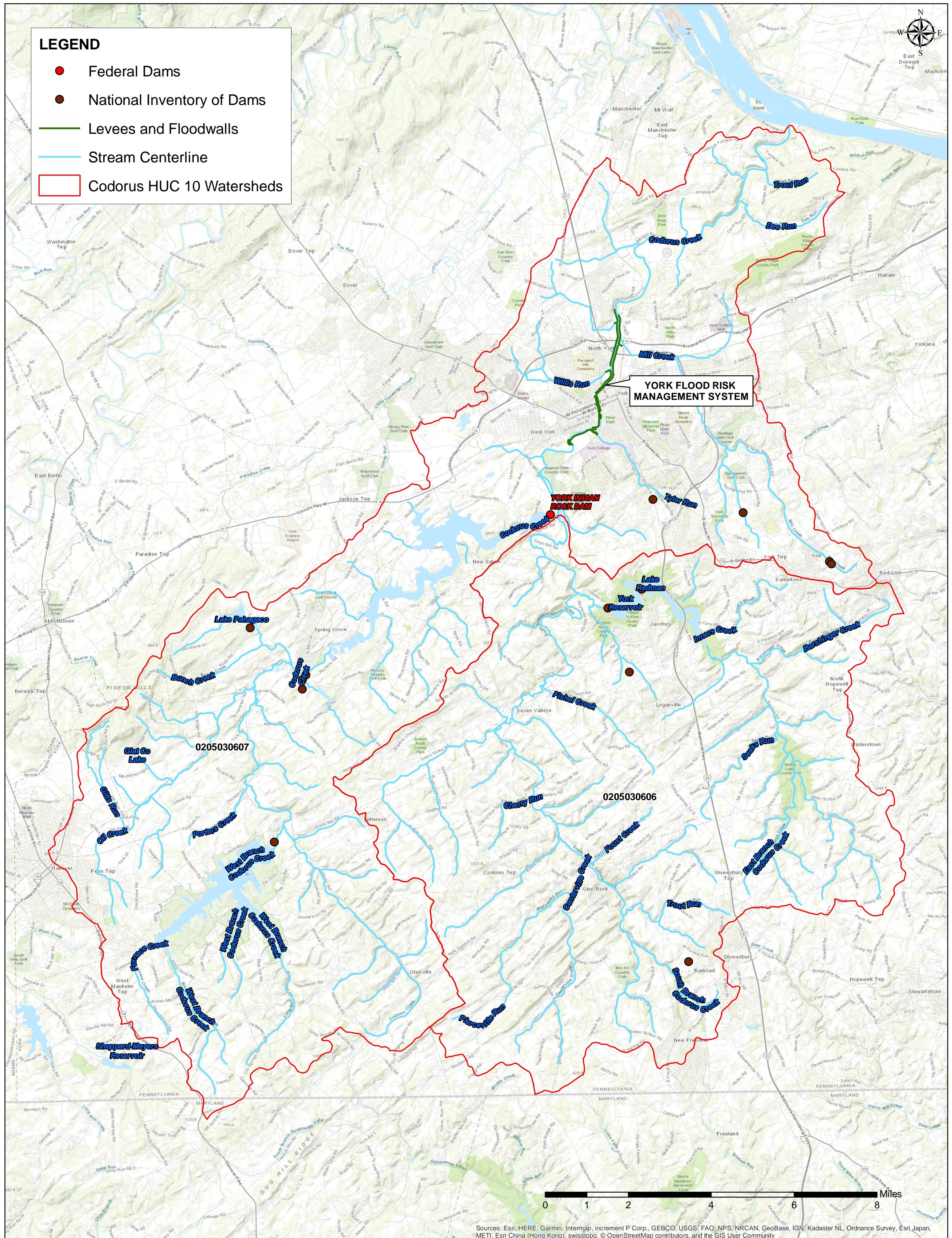
Prepared By: Office of Emergency Planning
Department of Fire/Rescue Services
01/2014

Appendix 1.5 Codorus Tributaries



LEGEND

- Federal Dams
- National Inventory of Dams
- Levees and Floodwalls
- Stream Centerline
- Codorus HUC 10 Watersheds



YORK FLOOD RISK MANAGEMENT SYSTEM



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

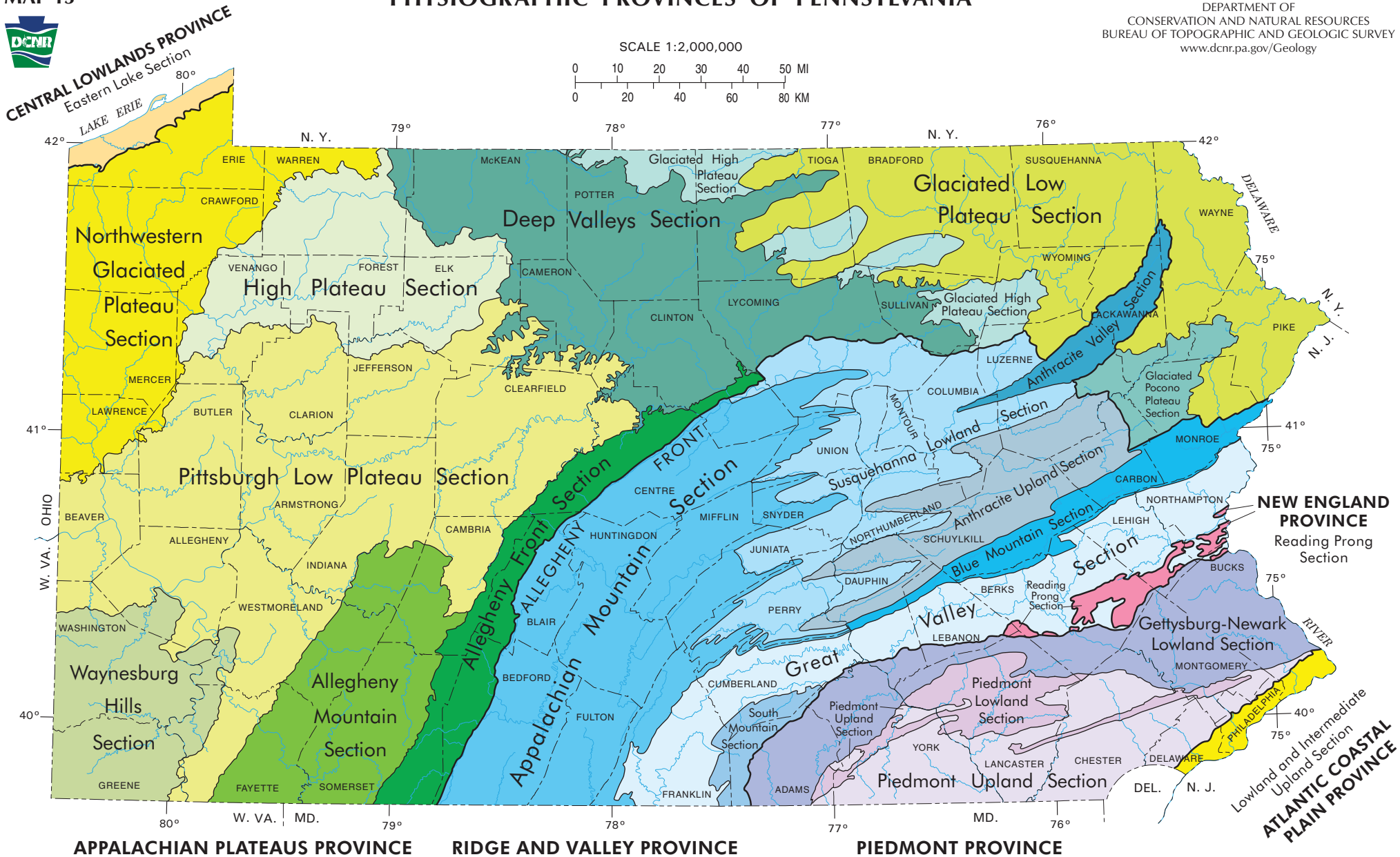
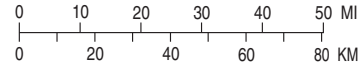
Appendix 1.6 Piedmont Province



PHYSIOGRAPHIC PROVINCES OF PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES
BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY
www.dcnr.pa.gov/Geology

SCALE 1:2,000,000



APPALACHIAN PLATEAUS PROVINCE

RIDGE AND VALLEY PROVINCE

PIEDMONT PROVINCE

EXPLANATION

CENTRAL LOWLANDS PROVINCE											APPALACHIAN PLATEAUS PROVINCE											RIDGE AND VALLEY PROVINCE							NEW ENGLAND PROVINCE	PIEDMONT PROVINCE			ATLANTIC COASTAL PLAIN PROVINCE	SYMBOLS
<ul style="list-style-type: none"> Eastern Lake Section Northwestern Glaciated Plateau Section High Plateau Section Pittsburgh Low Plateau Section Waynesburg Hills Section Allegheny Mountain Section Allegheny Front Section Deep Valleys Section Glaciated High Plateau Section Glaciated Low Plateau Section Glaciated Pocono Plateau Section 											<ul style="list-style-type: none"> Appalachian Mountain Section Susquehanna Lowland Section Anthracite Valley Section Anthracite Upland Section Blue Mountain Section Great Valley Section South Mountain Section 							<ul style="list-style-type: none"> Reading Prong Section 	<ul style="list-style-type: none"> Gettysburg-Newark Lowland Section Piedmont Lowland Section Piedmont Upland Section 			<ul style="list-style-type: none"> Lowland and Intermediate Upland Section 	<ul style="list-style-type: none"> Approximate boundary between physiographic provinces Approximate boundary between physiographic sections 											

PHYSIOGRAPHIC PROVINCES OF PENNSYLVANIA

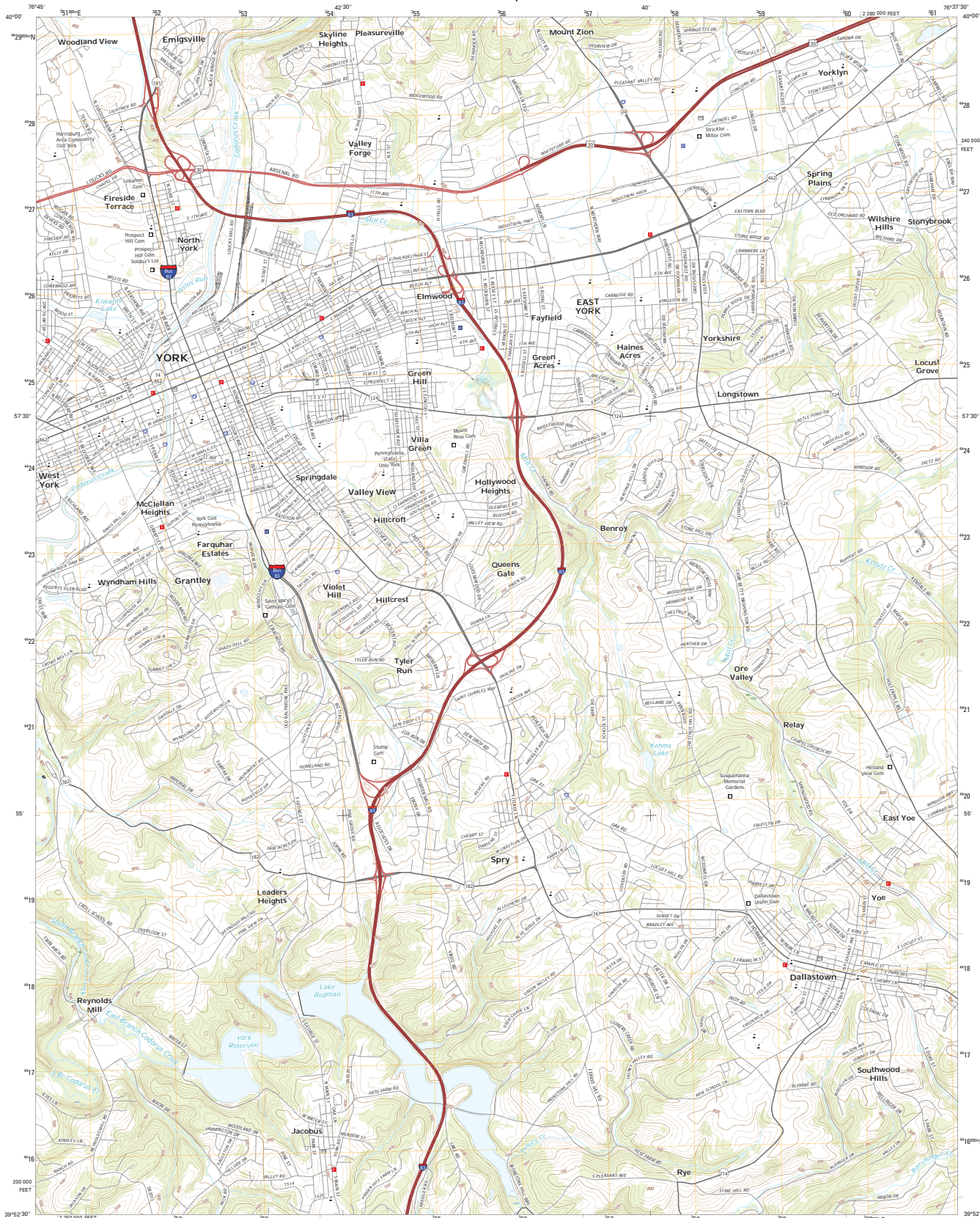
PHYSIOGRAPHIC PROVINCE	PHYSIOGRAPHIC SECTION	DOMINANT TOPOGRAPHIC FORM	LOCAL RELIEF ¹	UNDERLYING ROCK TYPE	GEOLOGIC STRUCTURE	APPROXIMATE ELEVATION ²		DRAINAGE PATTERN	BOUNDARIES	ORIGIN	
						Min.	Max.				
CENTRAL LOWLANDS	Eastern Lake	Northwest-sloping, lake-parallel, low-relief ridges.	Very low to low.	Shale and siltstone.	Beds either horizontal or having low south dip.	570	1,000	Parallel.	Northwest: Lake Erie. Southeast: Base of escarpment.	Glacial, lake, and fluvial deposition and erosion.	
	APPALACHIAN PLATEAUS	Northwestern Glaciated Plateau	Broad, rounded upland and deep, steep-sided, linear valleys partly filled with glacial deposits.	Very low to moderate.	Shale, siltstone, and sandstone.	Subhorizontal beds.	900	2,200	Dendritic.	Northwest: Base of escarpment. Southeast: Glacial border.	Fluvial and glacial erosion; glacial deposition.
		High Plateau	Broad, rounded to flat uplands having deep, angular valleys.	Moderate to high.	Sandstone, siltstone, shale, and conglomerate; some coal.	Low-amplitude, open folds.	980	2,360	Dendritic.	Northwest: Glacial border. Northeast: Margins of deep valleys. South: Arbitrary along drainage divides between coal and noncoal areas.	Fluvial erosion; periglacial mass wasting.
		Pittsburgh Low Plateau	Smooth to irregular, undulating surface; narrow, relatively shallow valleys; strip mines and reclaimed land.	Low to moderate.	Shale, siltstone, sandstone, limestone, and coal.	Moderate- to low-amplitude, open folds, decreasing in occurrence northward.	660	2,340	Dendritic.	Northwest: Glacial border. Elsewhere: Arbitrary at topographic changes with adjacent sections.	Fluvial erosion; periglacial mass wasting; strip mining.
		Waynesburg Hills	Very hilly with narrow hilltops and steep-sloped, narrow valleys.	Moderate.	Sandstone, shale, red beds, and limestone.	Horizontal beds.	848	1,638	Dendritic.	Arbitrary at change of topography.	Fluvial erosion and landslides.
		Allegheny Mountain	Wide ridges separated by broad valleys; ridge elevations decrease to north.	Moderate to high.	Sandstone, siltstone, shale, and conglomerate; some limestone and coal.	Large-amplitude, open folds.	775	3,210	Dendritic.	East: Arbitrary between coal and noncoal areas. West: Base of west flank of Chestnut Ridge. North: Approximates northeast terminus of large-amplitude, open folds.	Fluvial erosion; some periglacial mass wasting.
		Allegheny Front	East: Rounded to linear hills rising by steps to an escarpment; hills cut by narrow valleys. West: Undulating hills sloping away from escarpment.	Moderate to high.	Shale, siltstone, and sandstone.	South: Broad fold. Elsewhere: Beds having low northwest dip; some faults.	540	2,980	Parallel and trellis.	East: Stream at base of hills below escarpment. West: Arbitrary between coal and noncoal areas.	Fluvial erosion; periglacial mass wasting.
		Deep Valleys	Very deep, angular valleys; some broad to narrow uplands.	Moderate to very high.	Sandstone, siltstone, shale, and conglomerate.	Moderate-amplitude, open folds that control valley orientations.	560	2,560	Angulate and rectangular.	Arbitrary at margins of deep valleys, either at top of valley slope or along drainage divide.	Fluvial erosion; periglacial mass wasting.
		Glaciated High Plateau	Broad to narrow, rounded to flat, elongate uplands and shallow valleys.	Low to high.	Sandstone, siltstone, shale, and conglomerate; some coal.	Moderate-amplitude, open folds.	620	2,560	Angulate and dendritic.	East: Base of escarpment. Elsewhere: Arbitrary with margins of deep valleys.	Fluvial and glacial erosion; glacial deposition.
		Glaciated Low Plateau	Rounded hills and valleys.	Low to moderate.	Sandstone, siltstone, and shale.	Low-amplitude folds.	440	2,690	Dendritic.	Base of escarpments of adjacent uplands; base of Pocono escarpment. Elsewhere: Arbitrary.	Fluvial and glacial erosion; glacial deposition.
Glaciated Pocono Plateau	Broad, undulatory upland surface having dissected margins.	Low to moderate.	Sandstone, siltstone, and shale; some conglomerate.	Beds having low north dip; some small folds.	1,200	2,320	Deranged.	South and east: Base of Pocono escarpment. North: Crest of drainage divide. West: Arbitrary.	Fluvial and glacial erosion; glacial deposition.		
RIDGE AND VALLEY	Appalachian Mountain	Long, narrow ridges and broad to narrow valleys; some karst.	Moderate to very high.	Sandstone, siltstone, shale, conglomerate, limestone, and dolomite.	Open and closed plunging folds having narrow hinges and planar limbs; variety of faults.	440	2,775	Trellis, angulate, and some karst.	Southeast: Base of slope change on southeast side of Blue Mountain. West and northwest: Center of valley bottom west of westernmost linear ridge. Elsewhere: Base of slope change of eastern ridges; arbitrary between ridges.	Fluvial erosion; solution of carbonate rocks; periglacial mass wasting.	
	Susquehanna Lowland	Low to moderately high, linear ridges; linear valleys; Susquehanna River valley.	Low to moderate.	Sandstone, siltstone, shale, conglomerate, limestone, and dolomite.	Open and closed plunging folds having narrow hinges and planar limbs.	260	1,715	Trellis and angulate.	Base of slope change to higher ridges of all surrounding areas; arbitrary in valley areas.	Fluvial erosion; some glacial erosion and deposition in northeast.	
	Anthracite Valley	Narrow to wide, canoe-shaped valley having irregular to linear hills; valley enclosed by steep-sloped mountain rim.	Low to moderate.	Sandstone, siltstone, conglomerate, and anthracite.	Broad, doubly-plunging syncline, faults and smaller folds.	500	2,368	Trellis and parallel.	Outer base of surrounding mountain.	Fluvial and glacial erosion; some glacial deposition.	
	Anthracite Upland	Upland surface having low, linear to rounded hills, strip mines, and waste piles; upland surrounded by an escarpment, a valley, and a mountain rim.	Low to high.	Sandstone, shale, conglomerate, and anthracite.	Many narrow folds having steep limbs; many faults.	320	2,094	Trellis.	Northeast: Arbitrary between coal and noncoal areas. Elsewhere: Outer base of surrounding mountain.	Fluvial erosion; some glacial erosion and periglacial mass wasting.	
	Blue Mountain	Linear ridge to south and valley to north; valley widens eastward and includes low linear ridges and shallow valleys.	Moderate to high.	Sandstone, siltstone, and shale; some limestone and conglomerate.	Southwest: South limb of broad fold. Northeast: Small folds north of Blue Mountain.	300	1,680	Trellis.	Southeast: Base of slope change on southeast side of Blue Mountain. Northwest: Base of mountain; base of Pocono escarpment. Northeast: Arbitrary.	Fluvial erosion; some glacial erosion and deposition in northeast.	
	Great Valley	Very broad valley. Northwest half: Dissected upland. Southeast half: Low karst terrain.	Low to moderate.	Northwest: Shale and sandstone; slate at east end. Southeast: Limestone and dolomite.	Thrust sheets, nappes, overturned folds, and steep faults; many third- and fourth-order folds.	140	1,100	Dendritic and karst.	North: Base of slope change on southeast side of Blue Mountain. South: Base of slope change to adjacent uplands.	Fluvial erosion; solution of carbonate rocks; some periglacial mass wasting.	
	South Mountain	Linear ridges, deep valleys, and flat uplands.	Moderate to high.	Metavolcanic rocks, quartzite, and some dolomite.	Major anticlinorium having many second- and third-order folds.	450	2,080	Dendritic.	Base of slope change to adjacent lowlands.	Fluvial erosion of highly variable rocks; some periglacial mass wasting.	
NEW ENGLAND	Reading Prong	Circular to linear, rounded hills and ridges.	Moderate.	Granitic gneiss, granodiorite, and quartzite.	Multiple nappes.	140	1,364	Dendritic.	Base of slope change to adjacent lowlands.	Fluvial erosion; some periglacial mass wasting.	
PIEDMONT	Gettysburg-Newark Lowland	Rolling lowlands, shallow valleys, and isolated hills.	Low to moderate.	Mainly red shale, siltstone, and sandstone, some conglomerate and diabase.	Half-graben having low, monoclinal, northwest-dipping beds.	20	1,355	Dendritic and trellis.	Base of slope changes with adjacent uplands and lowlands. Elsewhere: Arbitrary.	Fluvial erosion of rocks of variable resistance.	
	Piedmont Lowland	Broad, moderately dissected, karst valleys separated by broad, low hills.	Low.	Dominantly limestone and dolomite; some phyllitic shale and sandstone.	Complexly folded and faulted.	60	700	Dendritic and karst.	South: Base of slope change to adjacent upland. North: Mesozoic red rocks.	Fluvial erosion; some periglacial mass wasting.	
	Piedmont Upland	Broad, rounded to flat-topped hills and shallow valleys.	Low to moderate.	Mainly schist, gneiss, and quartzite; some saprolite.	Extremely complexly folded and faulted.	100	1,220	Dendritic.	East: Base of low to vague Fall Line escarpment. North: Base of slope change to adjacent lowlands.	Fluvial erosion; some periglacial mass wasting.	
ATLANTIC COASTAL PLAIN	Lowland and Intermediate Upland	Flat upper terrace surface cut by shallow valleys; Delaware River floodplain.	Very low.	Unconsolidated to poorly consolidated sand and gravel; underlain by schist, gneiss, and other metamorphic rocks.	Unconsolidated deposits underlain by complexly folded and faulted rocks.	0	200	Dendritic.	Northwest: Base of low to vague Fall Line escarpment. East: Arbitrary.	Fluvial erosion and deposition.	

¹Local relief: 0 to 100 feet, very low; 101 to 300 feet, low; 301 to 600 feet, moderate; 601 to 1,000 feet, high; >1,000 feet, very high.

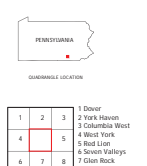
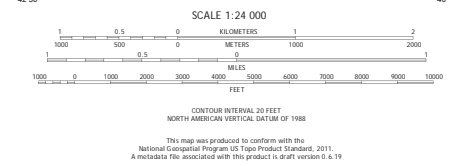
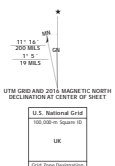
(Relief categories listed here for Pennsylvania do not necessarily apply to other states or countries.)

²Elevations are in feet.

Appendix 1.7 Topographic Map



Produced by the United States Geological Survey
 North American Datum of 1983 (NAD83)
 World Geodetic System of 1984 (WGS84) Projection and
 1 000 meter grid Universal Transverse Mercator, Zone 18S
 16 500 feet ticks- Pennsylvania Coordinate System of 1983
 (south zone)
 This map is not a legal document. Boundaries may be
 generalized for this map scale. Private lands without government
 easements may not be shown. Obtain permission before
 entering private lands.
 Imagery: NIP, June 2013
 Roads: U.S. Census Bureau, 2015 - 2016
 Names: U.S. Census Bureau, 2015 - 2016
 Hydrography: National Hydrography Dataset, 2013
 Contours: National Elevation Dataset, 2015
 Boundaries: Multiple sources; see metadata file 1972 - 2014
 Wetlands: FWS National Wetlands Inventory 1977 - 2014

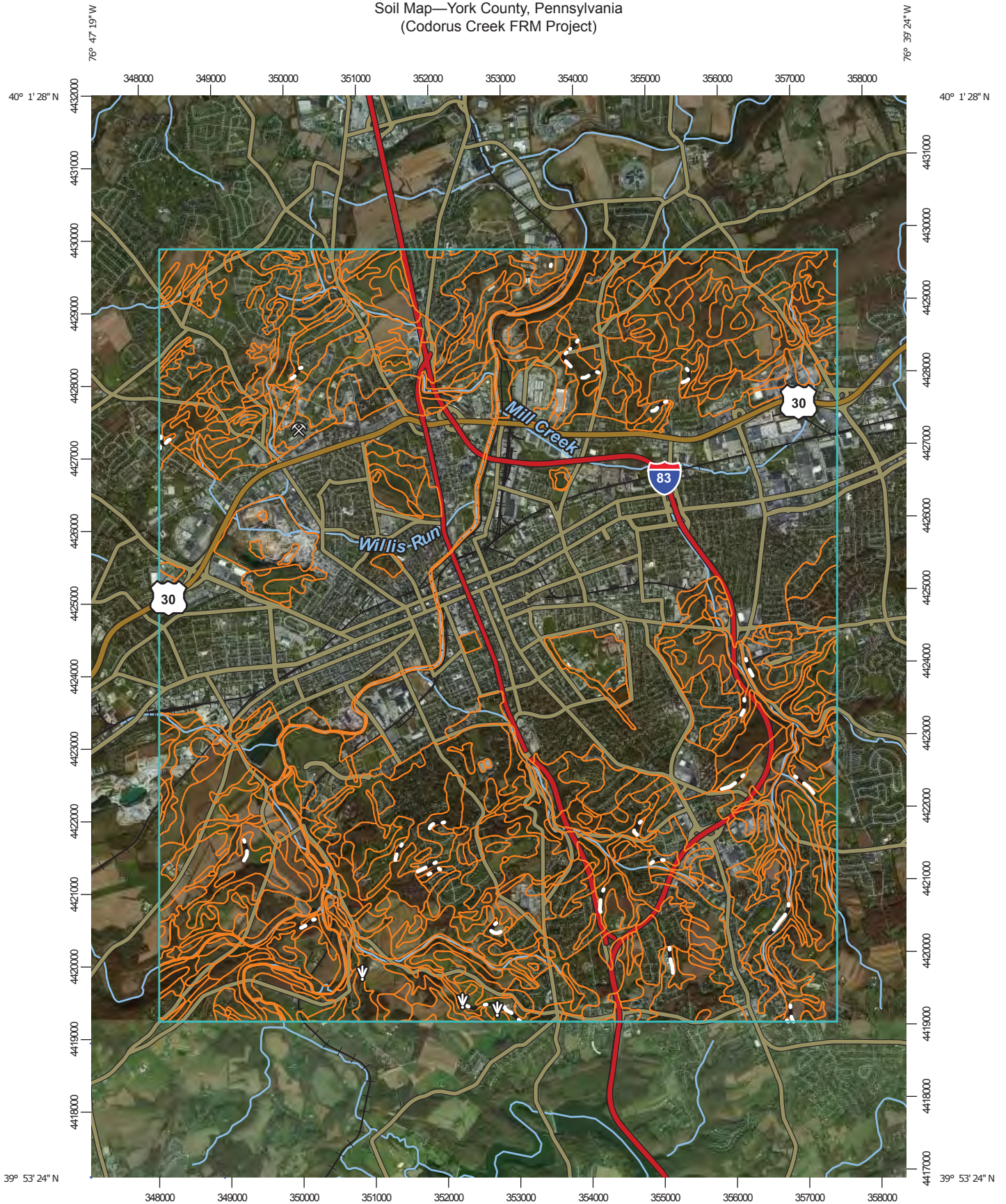


1	2	3	1 Dover
2	4	5	2 York Haven
3	6	7	3 Columbia West
4	8	9	4 West York
5	10	11	5 Red Lion
6	12	13	6 Seven Valleys
7	14	15	7 Glen Rock
8	16	17	8 Fleetwood
9	18	19	9 Fleetwood
10	20	21	10 Fleetwood



Appendix 1.8 Soils Map

Soil Map—York County, Pennsylvania
(Codorus Creek FRM Project)










































Map Scale: 1:72,700 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
 Special Point Features	 Special Line Features
 Blowout	 Streams and Canals
 Borrow Pit	 RAILS
 Clay Spot	 Interstate Highways
 Closed Depression	 US Routes
 Gravel Pit	 Major Roads
 Gravelly Spot	 Local Roads
 Landfill	 Background
 Lava Flow	 Aerial Photography
 Marsh or swamp	
 Mine or Quarry	
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Pennsylvania
Survey Area Data: Version 11, Oct 4, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Feb 22, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cd	Chagrin silt loam	76.5	0.3%
CeB	Chester silt loam, 3 to 8 percent slopes	1,450.3	5.9%
CeC	Chester silt loam, 8 to 15 percent slopes	588.3	2.4%
CkA	Clarksburg silt loam, 0 to 3 percent slopes	96.0	0.4%
CkB	Clarksburg silt loam, 3 to 8 percent slopes	16.7	0.1%
Cm	Codorus silt loam	570.7	2.3%
CnB	Conestoga silt loam, 3 to 8 percent slopes	178.6	0.7%
CnC	Conestoga silt loam, 8 to 15 percent slopes	16.9	0.1%
CrA	Croton silt loam, occasionally ponded, 0 to 3 percent slopes	8.4	0.0%
DuA	Duffield silt loam, 0 to 3 percent slopes	131.9	0.5%
DuB	Duffield silt loam, 3 to 8 percent slopes	577.1	2.3%
DuC	Duffield silt loam, 8 to 15 percent slopes	210.3	0.8%
DWD	Duffield and Hagerstown silt loams, 15 to 25 percent slopes	14.6	0.1%
EdB	Edgemont channery loam, 3 to 8 percent slopes	105.0	0.4%
EdC	Edgemont channery loam, 8 to 15 percent slopes	215.0	0.9%
EdD	Edgemont channery loam, 15 to 25 percent slopes	190.8	0.8%
EeB	Edgemont channery loam, 0 to 8 percent slopes, very stony	14.2	0.1%
EeD	Edgemont channery loam, 8 to 25 percent slopes, very stony	171.6	0.7%
EeF	Edgemont channery loam, 25 to 70 percent slopes, very stony	93.2	0.4%
EkA	Elk silt loam, 0 to 3 percent slopes	64.5	0.3%
EkB	Elk silt loam, 3 to 8 percent slopes	168.3	0.7%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GbB	Glenelg channery loam, 3 to 8 percent slopes	273.5	1.1%
GbC	Glenelg channery silt loam, 8 to 15 percent slopes	760.4	3.1%
GbD	Glenelg channery silt loam, 15 to 25 percent slopes	177.1	0.7%
GdA	Glenville silt loam, 0 to 3 percent slopes	124.9	0.5%
GdB	Glenville silt loam, 3 to 8 percent slopes	140.1	0.6%
HaA	Hagerstown silt loam, 0 to 3 percent slopes	136.3	0.6%
HaB	Hagerstown silt loam, 3 to 8 percent slopes	490.2	2.0%
HaC	Hagerstown silt loam, 8 to 15 percent slopes	46.2	0.2%
KnD	Klinesville channery silt loam, 15 to 25 percent slopes	59.2	0.2%
KnE	Klinesville channery silt loam, 25 to 40 percent slopes	9.9	0.0%
LeB	Lansdale loam, 3 to 8 percent slopes	16.2	0.1%
LfC	Lansdale channery loam, 8 to 15 percent slopes	4.1	0.0%
Lw	Lindside silt loam	285.7	1.2%
MOB	Mt. Airy and Manor soils, 3 to 8 percent slopes	555.9	2.2%
MOC	Mt. Airy and Manor soils, 8 to 15 percent slopes	2,402.0	9.7%
MOD	Mt. Airy and Manor soils, 15 to 25 percent slopes	1,268.2	5.1%
MOE	Mt. Airy and Manor soils, 25 to 35 percent slopes	204.5	0.8%
MPD	Mt. Airy and Manor soils, 8 to 25 percent slopes, very stony	75.3	0.3%
MRF	Mt. Airy and Manor soils, 25 to 60 percent slopes, extremely stony	65.0	0.3%
MvB	Murrill gravelly loam, 3 to 8 percent slopes	3.4	0.0%
MvC	Murrill gravelly loam, 8 to 15 percent slopes	19.0	0.1%
NaB	Neshaminy channery silt loam, 3 to 8 percent slopes	26.9	0.1%
PeB	Penn silt loam, 3 to 8 percent slopes	596.6	2.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PeC	Penn silt loam, 8 to 15 percent slopes	31.6	0.1%
PoC	Penn-Klinesville channery silt loams, 8 to 15 percent slopes	166.2	0.7%
PpB	Penn-Lansdale complex, 3 to 8 percent slopes	0.5	0.0%
PpC	Penn-Lansdale complex, 8 to 15 percent slopes	53.2	0.2%
Pt	Pits, quarry	413.9	1.7%
ReA	Readington silt loam, 0 to 3 percent slopes	102.5	0.4%
ReB	Readington silt loam, 3 to 8 percent slopes	48.0	0.2%
Rw	Rowland silt loam	0.9	0.0%
StD	Steinsburg channery sandy loam, 15 to 25 percent slopes	16.2	0.1%
Uc	Urban land	8,544.6	34.5%
UdB	Urban land-Chester complex, 0 to 8 percent slopes	1,145.4	4.6%
UeB	Urban land-Conestoga complex, 0 to 8 percent slopes	548.4	2.2%
UfC	Urban land-Mt. Airy complex, 8 to 15 percent slopes	772.7	3.1%
UgB	Urban land-Penn complex, 0 to 8 percent slopes	16.6	0.1%
W	Water	192.8	0.8%
Totals for Area of Interest		24,752.6	100.0%

Appendix 1.9 National Wetland Inventory Map

Wetlands in the National Wetlands Inventory

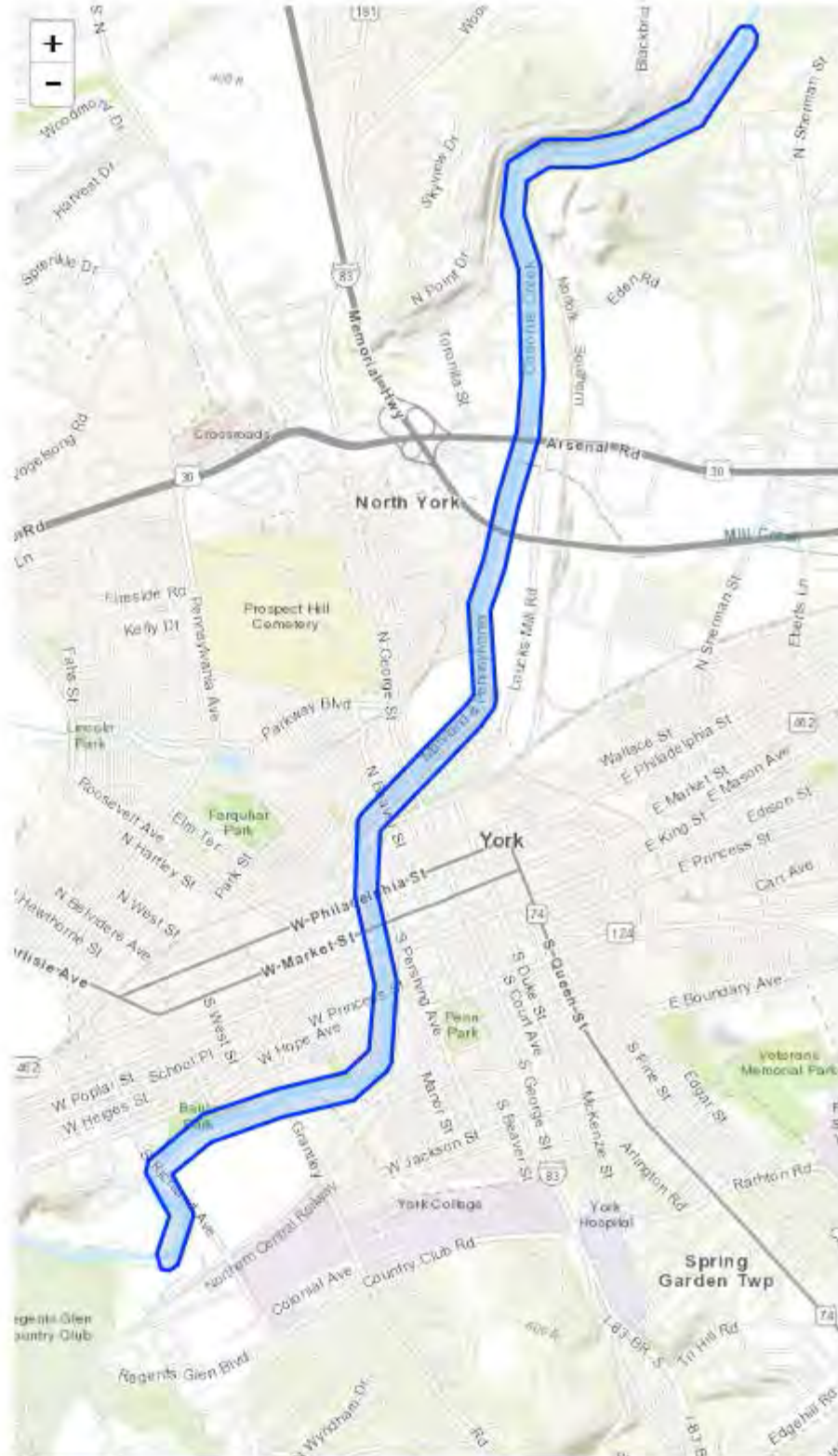
Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site. Other limitations, exclusions, and precautions are listed [below](#).

This location overlaps the following wetlands:

RIVERINE
[R2UBH](#)



Appendix 1.10 PNDI Map

1. PROJECT INFORMATION

Project Name: **Indian Rock Dam/ Codorus Creek Flood Risk Management**

Date of Review: **3/22/2018 09:18:19 AM**

Project Category: **In-stream / Riverine Activities and Projects, Levees and similar flood control structures (construction, modification, maintenance)**

Project Area: **198.31 acres**

County(s): **York**

Township/Municipality(s): **MANCHESTER; NORTH YORK; SPRING GARDEN; SPRINGETTSBURY; WEST MANCHESTER; YORK**

ZIP Code: **17401; 17402; 17403; 17404**

Quadrangle Name(s): **YORK; YORK HAVEN**

Watersheds HUC 8: **Lower Susquehanna**

Watersheds HUC 12: **Codorus Creek-Susquehanna River; Mill Creek; Willis Run-Codorus Creek**

Decimal Degrees: **39.952754, -76.738055**

Degrees Minutes Seconds: **39° 57' 9.9128" N, 76° 44' 16.9979" W**

2. SEARCH RESULTS



Agency	Results	Response
PA Game Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	Avoidance Measure	See Agency Response

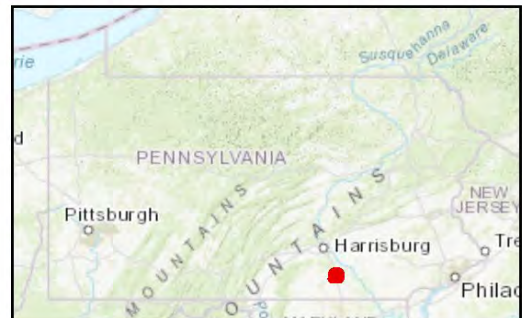
As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 must comply with the bog turtle habitat screening requirements of the PASPGP.

Indian Rock Dam/ Codorus Creek Flood Risk Management

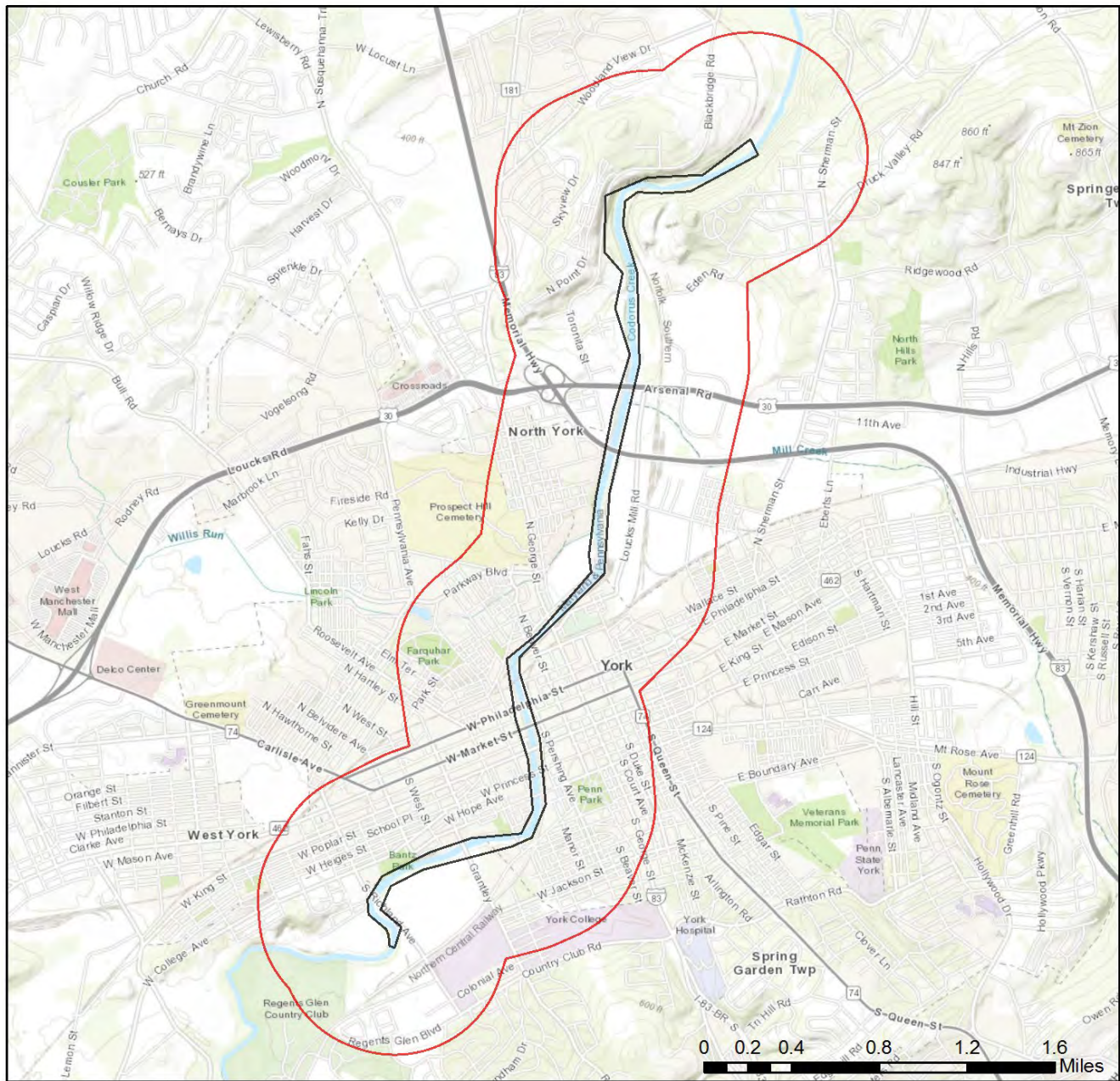


-  Project Boundary
-  Buffered Project Boundary



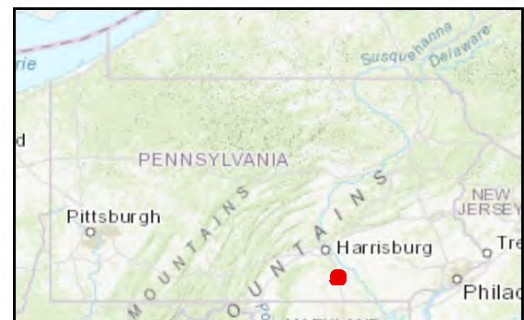
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Indian Rock Dam/ Codorus Creek Flood Risk Management



- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS,



3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PGC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Ardea alba	Great Egret	Endangered
Ardea herodias	Great Blue Heron	Special Concern Species*
Nyctanassa violacea	Yellow-crowned Night-heron	Endangered
Nycticorax nycticorax	Black-crowned Night-heron	Endangered

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Special Concern Species*
Sensitive Species**		Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE:

Information Request: Due to the proximity of this project to a bald eagle nest, it is possible that project activities may disturb bald eagles, which is a form of "take" under the Bald and Golden Eagle Protection Act and may require a permit. The Service has prepared a project screening form to help you determine which specific measures may be necessary to avoid disturbing bald eagles and their nests, based on the type and scope of your proposed project or activity, and its distance from a bald eagle nest. Complete the "Bald Eagle Project Screening Form" (see https://www.fws.gov/northeast/pafo/pdf/Bald_Eagle_Project_Screening_Form_102716.pdf) and implement the measures identified on that form. Submit a copy of the completed Screening Form to the appropriate federal or state permitting agencies (e.g., PA DEP).

As the project proponent or applicant, I certify that I will implement the above Avoidance Measure:
_____(Signature)

SPECIAL NOTE: If you agree to implement the above Avoidance Measure, no further coordination with this agency regarding threatened and endangered species and/or special concern species and resources is required. If you are not able to comply with the Avoidance Measures, you are required to coordinate with this agency - please send project information to this agency for review (see "What to Send" section).

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).

***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:

___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

___ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

___ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission

Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone: (____) _____ Fax: (____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date

1. PROJECT INFORMATION

Project Name: **Indian Rock Dam/Codorus Creek Flood Risk Management Project Repairs**

Date of Review: **4/27/2018 07:38:18 AM**

Project Category: **In-stream / Riverine Activities and Projects, Levees and similar flood control structures (construction, modification, maintenance)**

Project Area: **265.42 acres**

County(s): **York**

Township/Municipality(s): **MANCHESTER; NORTH YORK; SPRING GARDEN; SPRINGETTSBURY; WEST MANCHESTER; YORK**

ZIP Code: **17401; 17402; 17403; 17404**

Quadrangle Name(s): **YORK; YORK HAVEN**

Watersheds HUC 8: **Lower Susquehanna**

Watersheds HUC 12: **Codorus Creek-Susquehanna River; Mill Creek; Willis Run-Codorus Creek**

Decimal Degrees: **39.969845, -76.728084**

Degrees Minutes Seconds: **39° 58' 11.4411" N, 76° 43' 41.1017" W**

2. SEARCH RESULTS



Agency	Results	Response
PA Game Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	Avoidance Measure	See Agency Response

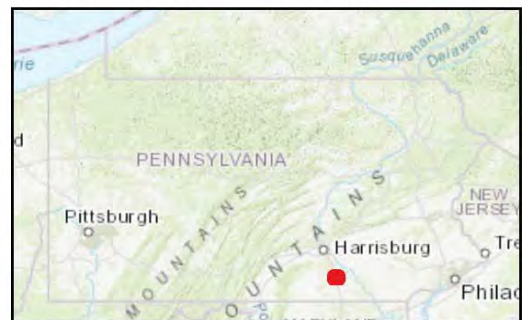
As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 must comply with the bog turtle habitat screening requirements of the PASPGP.

Indian Rock Dam/Codorus Creek Flood Risk Management Project Repairs

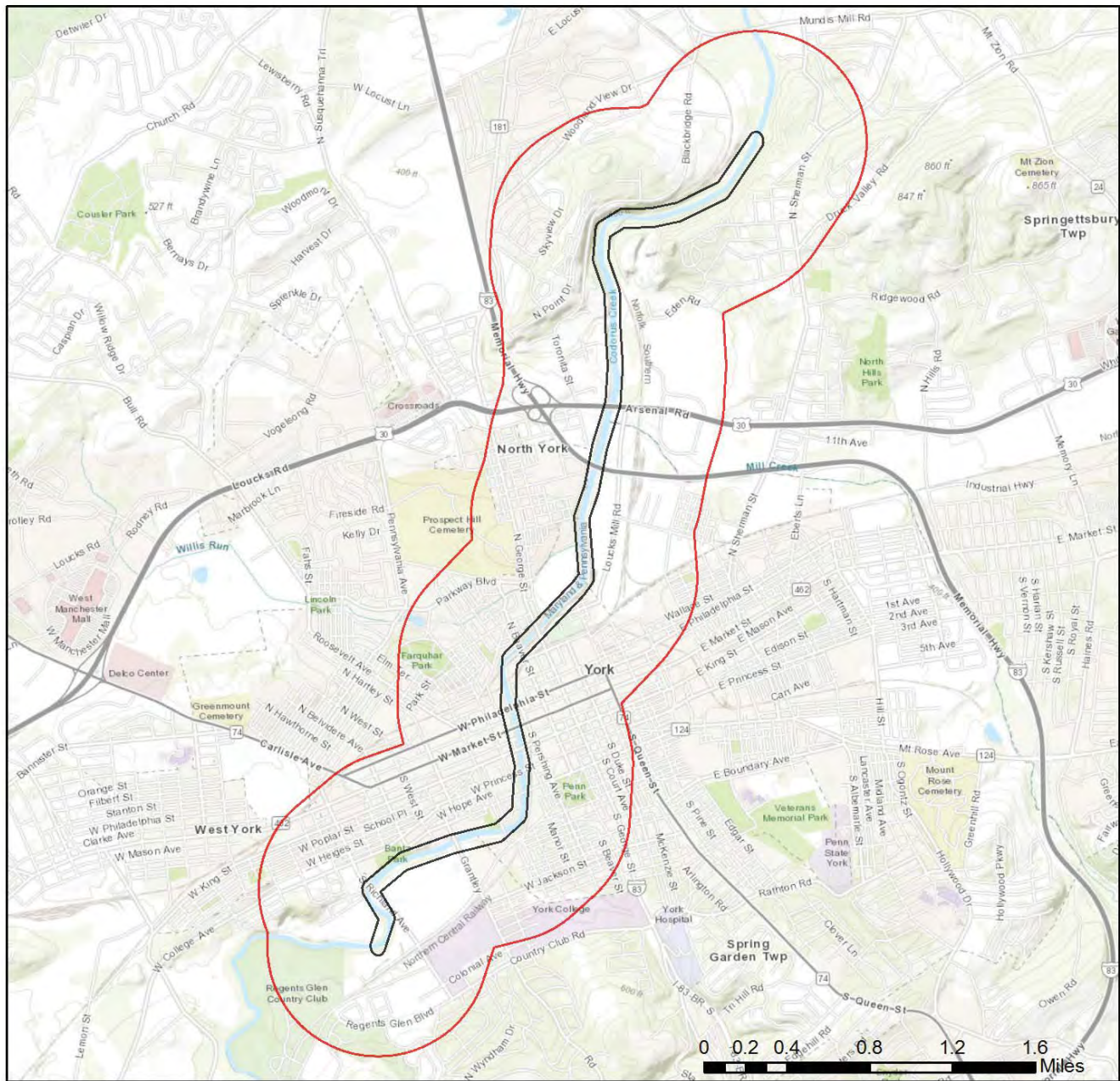


-  Project Boundary
-  Buffered Project Boundary



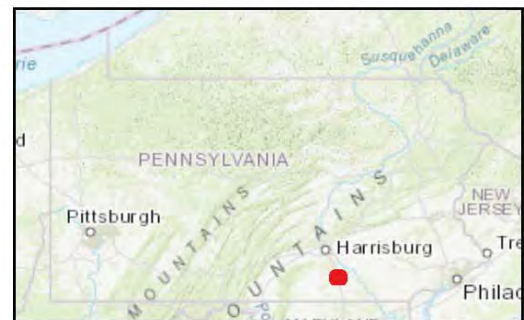
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Indian Rock Dam/Codorus Creek Flood Risk Management Project Repairs



- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS,



3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PGC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Ardea alba	Great Egret	Endangered
Ardea herodias	Great Blue Heron	Special Concern Species*
Nyctanassa violacea	Yellow-crowned Night-heron	Endangered
Nycticorax nycticorax	Black-crowned Night-heron	Endangered

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Special Concern Species*
Sensitive Species**		Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE:

Information Request: Due to the proximity of this project to a bald eagle nest, it is possible that project activities may disturb bald eagles, which is a form of "take" under the Bald and Golden Eagle Protection Act and may require a permit. The Service has prepared a project screening form to help you determine which specific measures may be necessary to avoid disturbing bald eagles and their nests, based on the type and scope of your proposed project or activity, and its distance from a bald eagle nest. Complete the "Bald Eagle Project Screening Form" (see https://www.fws.gov/northeast/pafo/pdf/Bald_Eagle_Project_Screening_Form_102716.pdf) and implement the measures identified on that form. Submit a copy of the completed Screening Form to the appropriate federal or state permitting agencies (e.g., PA DEP).

As the project proponent or applicant, I certify that I will implement the above Avoidance Measure:

(Signature)

SPECIAL NOTE: If you agree to implement the above Avoidance Measure, no further coordination with this agency regarding threatened and endangered species and/or special concern species and resources is required. If you are not able to comply with the Avoidance Measures, you are required to coordinate with this agency - please send project information to this agency for review (see "What to Send" section).

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).

***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:

___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

___ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

___ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission

Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone:(_____) _____ Fax:(_____) _____
Email: _____

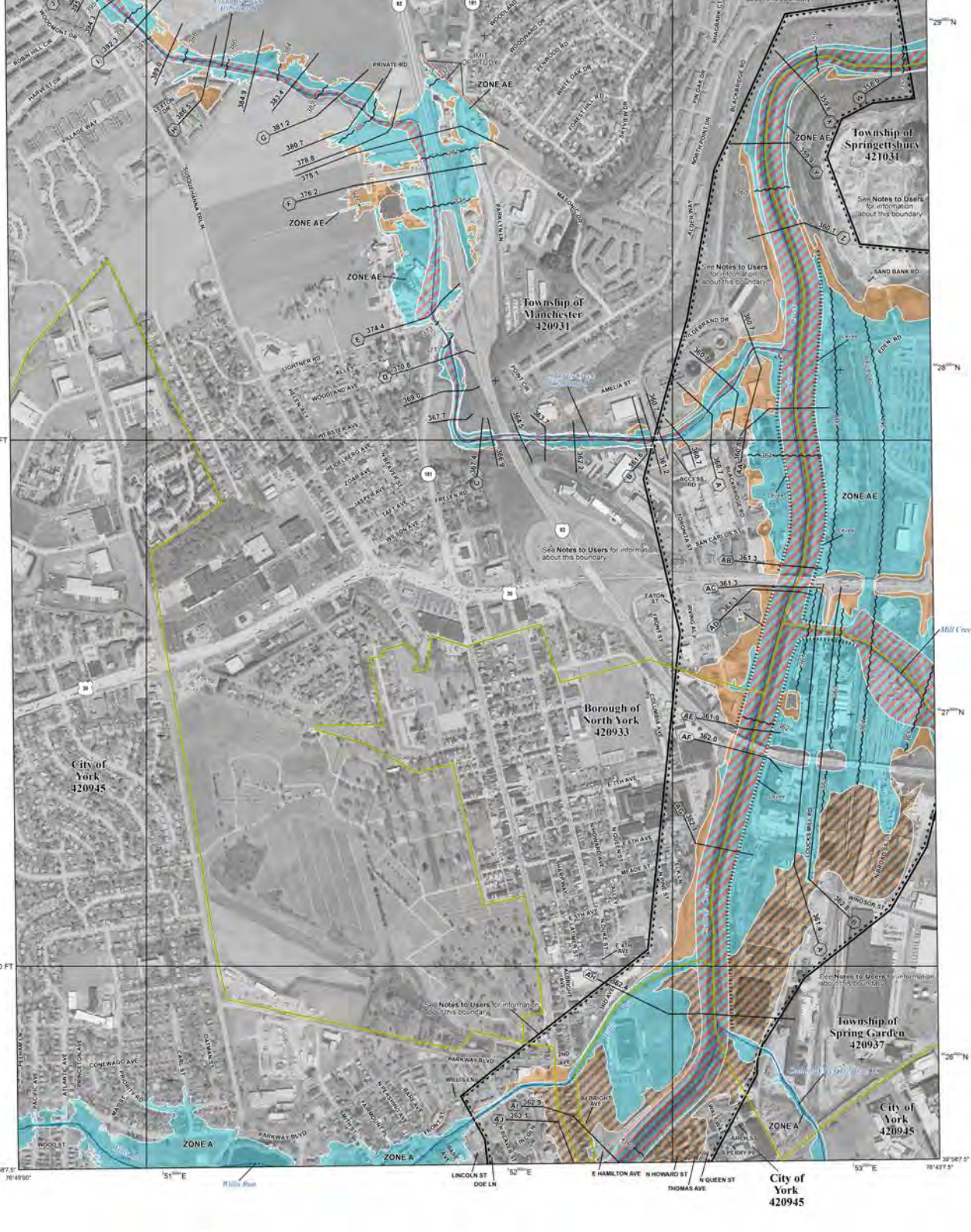
8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date

Appendix 1.11 FEMA Maps



FLOOD HAZARD INFORMATION

SEE THIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTP://MSC.FEMA.GOV](http://MSC.FEMA.GOV)

- Without Base Flood Elevation (BFE) (Zone A, AE, AD, AH, VE, AR)
- With BFE or Depth (Zone AE, AD, AH, VE, AR)
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with average depth less than one foot or with drainage areas of less than one square mile (Zone X)
- Future Conditions 1% Annual Chance Flood Hazard (Zone X)
- Area with Reduced Flood Risk due to Levee (See Notes, Zone B)
- Areas of Minimal Flood Hazard (Zone B)
- Area of Undetermined Flood Hazard (Zone C, D)
- Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
- Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)

NOTES TO USERS

For information and questions about this map, available products associated with the FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program, in general, please call the FEMA Map Information Exchange at 1-877-FEMA-8087 (1-877-336-2627) or visit the FEMA Map Service Center website at <http://msc.fema.gov>. Available products may include: previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information Exchange.

Communities planning land use in adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRI index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for the jurisdiction.

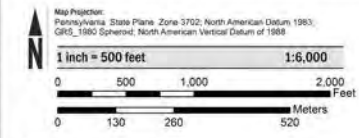
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6020.

Base map information shown on this FIRM was provided in digital format by multiple agencies. York County Planning Commission provided digital format of base transportation and political boundaries, dated 2011. The United States Geological Survey (USGS) provided 1:50,000 Series Topographic Maps. Dated 1989. Pennsylvania Department of Conservation and Natural Resources, PMAAP provided the ortho imagery for York County, dated 2008.

ATTENTION: The levee, dike, or other structure that protects flood hazards inside the boundary has not been shown to comply with Section 60.10 of the NFIP Regulations. As such, this FIRM panel will be revised at a later date to update the flood hazard information associated with this structure.

The Flood Hazard data inside this boundary on the FIRM panel has been interpolated from the previous effective (historic) FIRM for this area, after being converted from NAVD83 to NAVD88.

SCALE



PANEL LOCATOR



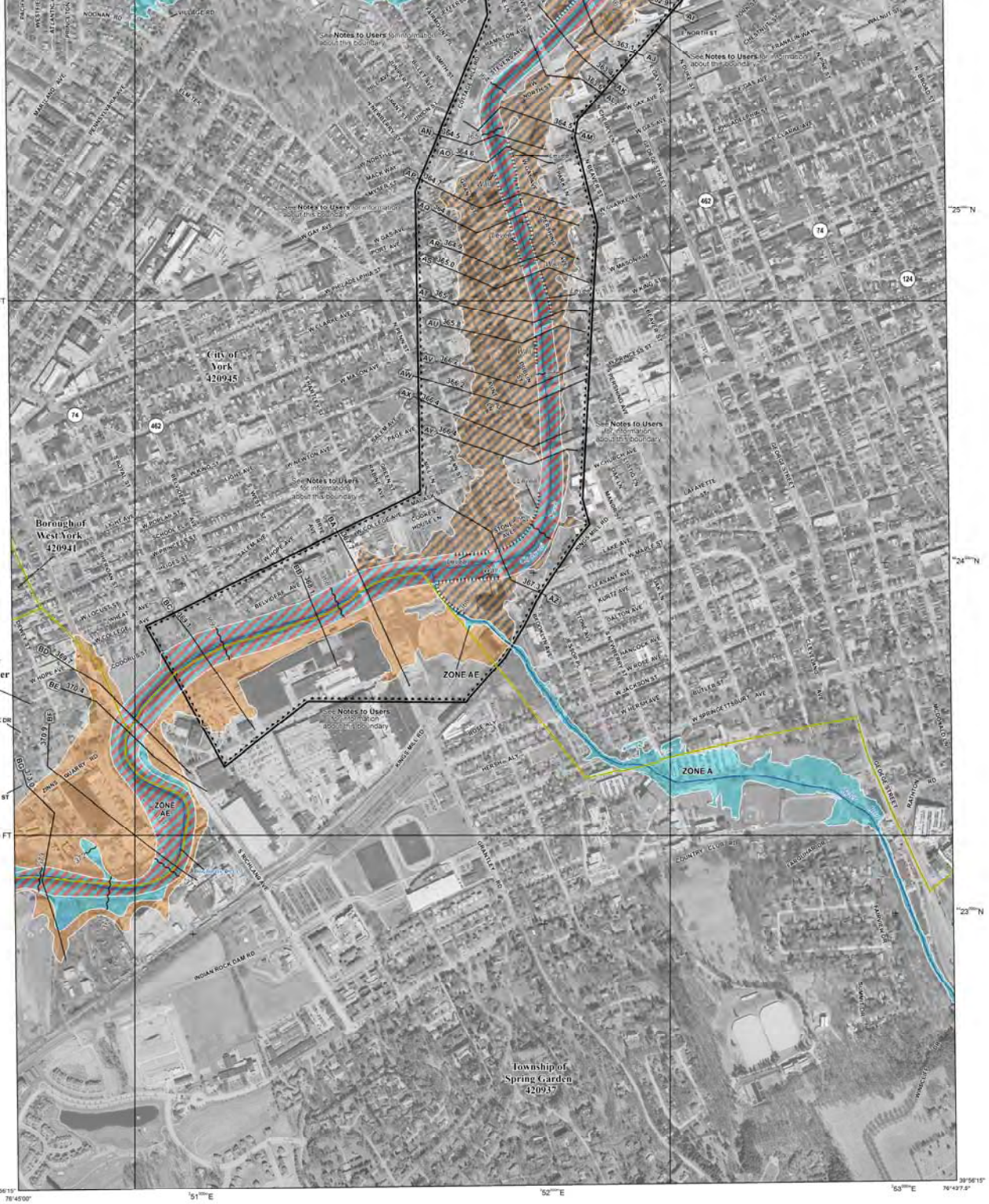
FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
YORK COUNTY, PENNSYLVANIA
 (All Jurisdictions)

PANEL 326 OF 701

COMMUNITY	NUMBER	PANEL SUFFIX
MANCHESTER, TOWNSHIP	420931	0326 F
NORTH YORK, BOROUGH	420933	0326 F
SPRING GARDEN, TOWNSHIP	420937	0326 F
SPRINGTTSBURY, TOWNSHIP	421031	0326 F
YORK, CITY OF	420945	0326 F





FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTP://MSC.FEMA.GOV](http://MSC.FEMA.GOV)

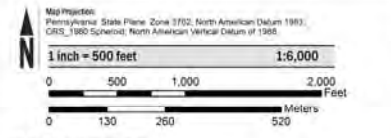
- Without Base Flood Elevation (BFE) Zone A, AE, X
- With BFE or Depth Zone AE, X, V, VE, CA, R
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard. Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes. Zone X
- Areas of Minimal Flood Hazard Zone X
- Area of Undetermined Flood Hazard Zone F
- Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
- Cross Sections with 1% Annual Chance Water Surface Elevation (WSE) 18.2, 17.5

NOTES TO USERS

For information and questions about this map, available products associated with the FIRM, including historic versions of the FIRM, how to order products in the National Flood Insurance Program or, generally, please visit the FEMA Map Information Exchange at 1-877-FEMA-MAP (1-877-368-6227) or visit the FEMA Map Service Center website at <http://msc.fema.gov>. Available products may include: previously issued Letters of Map Change, a Flood Insurance Study Report, and digital versions of the map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information Exchange. Communities acquiring land or adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be obtained directly from the Map Service Center at the number listed above. For community and investigative map dates refer to the Flood Insurance Study report for this jurisdiction. To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6622.

Base map information shown on this FIRM was provided in digital format by multiple agencies. York County Planning Commission provided digital format of base transportation and political boundaries, dated 2011. The United States Geological Survey (USGS) provided 1:50,000 Scale Topographic Maps, dated 1985. Pennsylvania Department of Conservation and Natural Resources' PDMAP provided the orthorectified base map data. Users should be advised that the FIRM data inside this boundary (if the FIRM panel has been republished from the previous effective (historic) FIRM for this area, after being converted from 600x200 to 600x200).

SCALE



PANEL LOCATOR



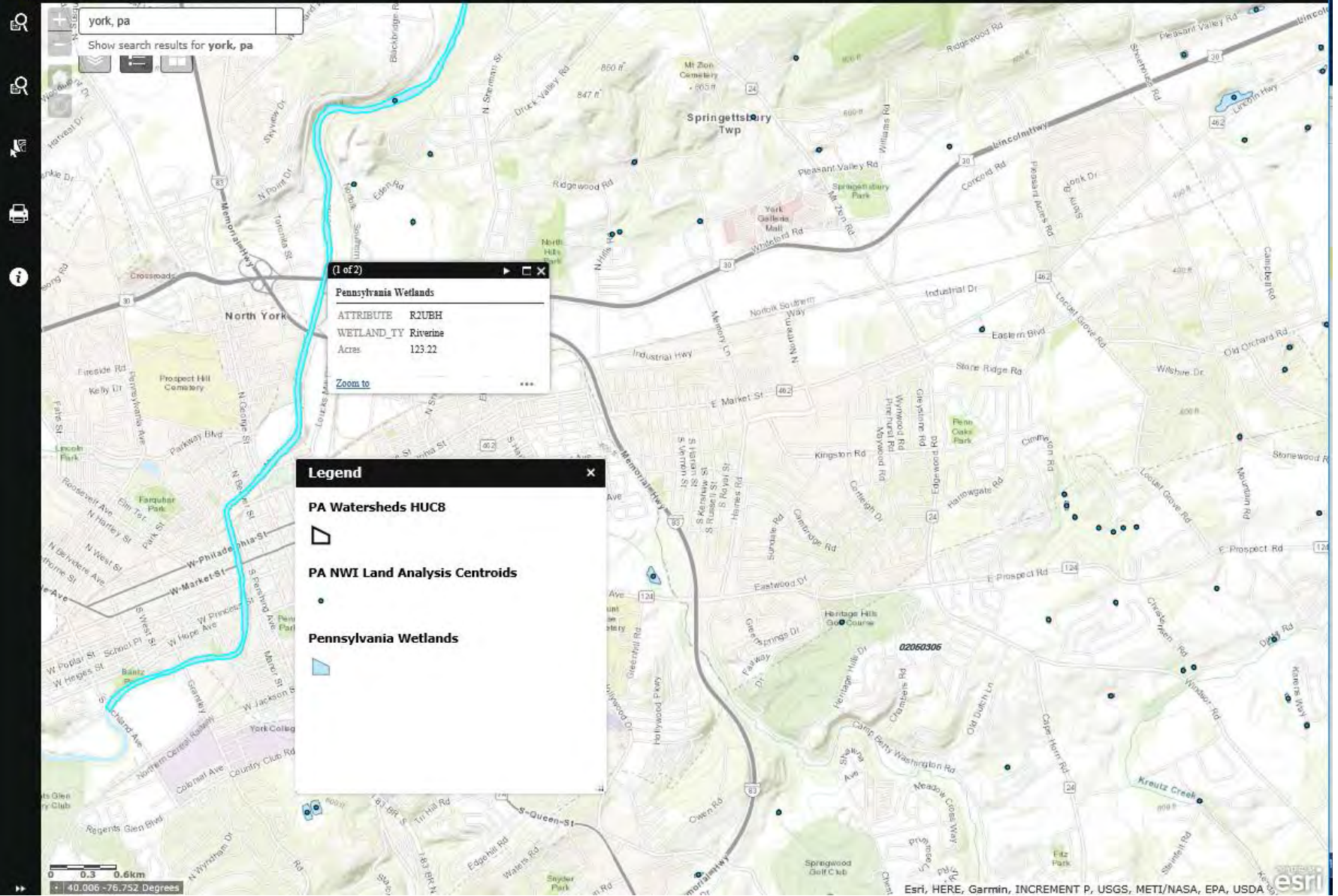
FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
YORK COUNTY, PENNSYLVANIA
(All Jurisdictions)

PANEL 328 OF 701

COMMUNITY	NUMBER	PANEL SUFFIX
NORTH YORK, BOROUGH OF	420933	0328 F
SPRING GARDEN, TOWNSHIP OF	420937	0328 F
WEST MANCHESTER, TOWNSHIP OF	422233	0328 F
WEST YORK, BOROUGH OF	420945	0328 F

Appendix 1.12 PANWI Map



Appendix 1.13 EPA Green Book



You are here: EPA Home > Green Book > >National Area and County-Level Multi-Pollutant Information >Pennsylvania Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants

Pennsylvania Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants

Data is current as of April 30, 2018

Listed by County, NAAQS, Area. The 8-hour Ozone (1997) standard was revoked on April 6, 2015 and the 1-hour Ozone (1979) standard was revoked on June 15, 2005.

* The 1997 Primary Annual PM-2.5 NAAQS (level of 15 µg/m³) is revoked in attainment and maintenance areas for that NAAQS. For additional information see the PM-2.5 NAAQS SIP Requirements Final Rule, effective October 24, 2016. (81 FR 58009)

Change the State:

PENNSYLVANIA

Important Notes

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/Part County	Population (2010)	State/County FIPS Codes
PENNSYLVANIA								
Adams County	1-Hour Ozone (1979) -NAAQS revoked	York, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	101,407	42/001
Adams County	8-Hour Ozone (1997) -NAAQS revoked	York, PA	04 05 06 07	02/13/2008	Former Subpart 1	Whole	101,407	42/001
Allegheny County	1-Hour Ozone (1979) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	92 93 94 95 96 97 98 99 00	11/19/2001	Moderate	Whole	1,223,348	42/003
Allegheny County	8-Hour Ozone (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	1,223,348	42/003

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Allegheny County	8-Hour Ozone (2008)	Pittsburgh-Beaver Valley, PA	12 13 14 15 16 17 18	//	Marginal	Whole	1,223,348	42/003
Allegheny County	Carbon Monoxide (1971)	Pittsburgh, PA	92 93 94 95 96 97 98 99 00 01 02	01/13/2003	Not Classified	Part	320,395	42/003
Allegheny County	PM-10 (1987)	Clairton & 4 Boroughs, PA	92 93 94 95 96 97 98 99 00 01 02	10/14/2003	Moderate	Part	18,700	42/003
Allegheny County	PM-2.5 (1997)	Liberty-Clairton, PA	05 06 07 08 09 10 11 12 13 14 15 16 17 18	//	Moderate	Part	20,789	42/003
Allegheny County	PM-2.5 (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	05 06 07 08 09 10 11 12 13 14	10/02/2015 *	Moderate	Part	1,206,540	42/003
Allegheny County	PM-2.5 (2006)	Liberty-Clairton, PA	09 10 11 12 13 14 15 16 17 18	//	Moderate	Part	20,789	42/003
Allegheny County	PM-2.5 (2006)	Pittsburgh-Beaver Valley, PA	09 10 11 12 13 14	10/02/2015	Moderate	Part	1,206,540	42/003
Allegheny County	PM-2.5 (2012)	Allegheny County, PA	15 16 17 18	//	Moderate	Whole	1,223,348	42/003
Allegheny County	Sulfur Dioxide (1971)	Hazelwood, PA	92 93 94 95 96 97 98 99 00 01 02 03	08/20/2004		Part	387,190	42/003
Allegheny County	Sulfur Dioxide (2010)	Allegheny, PA	13 14 15 16 17 18	//		Part	126,934	42/003
Armstrong County	1-Hour Ozone (1979) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	92 93 94 95 96 97 98 99 00	11/19/2001	Moderate	Whole	68,941	42/005
Armstrong County	8-Hour Ozone (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	68,941	42/005
Armstrong County	8-Hour Ozone (2008)	Pittsburgh-Beaver Valley, PA	12 13 14 15 16 17 18	//	Marginal	Whole	68,941	42/005
Armstrong County	PM-2.5 (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	05 06 07 08 09 10 11 12 13 14	10/02/2015 *	Moderate	Part	4,511	42/005
Armstrong County	PM-2.5 (2006)	Pittsburgh-Beaver Valley, PA	09 10 11 12 13 14	10/02/2015	Moderate	Part	4,511	42/005

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
Armstrong County	Sulfur Dioxide (1971)	Armstrong Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18	//		Part	4,516	42/005
Armstrong County	Sulfur Dioxide (2010)	Indiana, PA	13 14 15 16 17 18	//		Part	3,898	42/005
Beaver County	1-Hour Ozone (1979) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	92 93 94 95 96 97 98 99 00	11/19/2001	Moderate	Whole	170,539	42/007
Beaver County	8-Hour Ozone (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	170,539	42/007
Beaver County	8-Hour Ozone (2008)	Pittsburgh-Beaver Valley, PA	12 13 14 15 16 17 18	//	Marginal	Whole	170,539	42/007
Beaver County	Lead (2008)	Lower Beaver Valley, PA	10 11 12 13 14 15 16 17 18	//		Part	17,654	42/007
Beaver County	PM-2.5 (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	05 06 07 08 09 10 11 12 13 14	10/02/2015 *	Moderate	Whole	170,539	42/007
Beaver County	PM-2.5 (2006)	Pittsburgh-Beaver Valley, PA	09 10 11 12 13 14	10/02/2015	Moderate	Whole	170,539	42/007
Beaver County	Sulfur Dioxide (2010)	Beaver, PA	13 14 15 16 17 18	//		Part	14,780	42/007
Berks County	1-Hour Ozone (1979) -NAAQS revoked	Reading, PA	92 93 94 95 96	06/06/1997	Moderate	Whole	411,442	42/011
Berks County	8-Hour Ozone (1997) -NAAQS revoked	Reading, PA	04 05 06	09/10/2007	Former Subpart 1	Whole	411,442	42/011
Berks County	8-Hour Ozone (2008)	Reading, PA	12 13 14 15 16 17 18	//	Marginal	Whole	411,442	42/011
Berks County	Lead (2008)	Lyons, PA	10 11 12 13 14 15 16 17 18	//		Part	19,480	42/011

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Berks County	Lead (2008)	North Reading, PA	10 11 12 13 14 15 16 17 18	//		Part	29,334	42/011
Berks County	PM-2.5 (1997) -NAAQS revoked	Reading, PA	05 06 07 08 09 10 11 12 13 14	03/04/2015 *	Moderate	Whole	411,442	42/011
Blair County	1-Hour Ozone (1979) -NAAQS revoked	Altoona, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	127,089	42/013
Blair County	8-Hour Ozone (1997) -NAAQS revoked	Altoona, PA	04 05 06	08/01/2007	Former Subpart 1	Whole	127,089	42/013
Bucks County	1-Hour Ozone (1979) -NAAQS revoked	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Severe 15	Whole	625,249	42/017
Bucks County	8-Hour Ozone (1997) -NAAQS revoked	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	625,249	42/017
Bucks County	8-Hour Ozone (2008)	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	12 13 14 15 16 17 18	//	Marginal	Whole	625,249	42/017
Bucks County	PM-2.5 (1997) -NAAQS revoked	Philadelphia-Wilmington, PA-NJ-DE	05 06 07 08 09 10 11 12 13 14	04/21/2015 *	Moderate	Whole	625,249	42/017
Bucks County	PM-2.5 (2006)	Philadelphia-Wilmington, PA-NJ-DE	09 10 11 12 13 14	04/21/2015	Moderate	Whole	625,249	42/017
Butler County	1-Hour Ozone (1979) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	92 93 94 95 96 97 98 99 00	11/19/2001	Moderate	Whole	183,862	42/019
Butler County	8-Hour Ozone (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	183,862	42/019

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Butler County	8-Hour Ozone (2008)	Pittsburgh-Beaver Valley, PA	12 13 14 15 16 17 18	//	Marginal	Whole	183,862	42/019
Butler County	PM-2.5 (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	05 06 07 08 09 10 11 12 13 14	10/02/2015 *	Moderate	Whole	183,862	42/019
Butler County	PM-2.5 (2006)	Pittsburgh-Beaver Valley, PA	09 10 11 12 13 14	10/02/2015	Moderate	Whole	183,862	42/019
Cambria County	1-Hour Ozone (1979) -NAAQS revoked	Johnstown, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	143,679	42/021
Cambria County	8-Hour Ozone (1997) -NAAQS revoked	Johnstown, PA	04 05 06	08/01/2007	Former Subpart 1	Whole	143,679	42/021
Cambria County	PM-2.5 (1997) -NAAQS revoked	Johnstown, PA	05 06 07 08 09 10 11 12 13 14	07/16/2015 *	Moderate	Whole	143,679	42/021
Cambria County	PM-2.5 (2006)	Johnstown, PA	09 10 11 12 13 14	07/16/2015	Moderate	Whole	143,679	42/021
Carbon County	1-Hour Ozone (1979) -NAAQS revoked	Allentown-Bethlehem-Easton, PA-NJ	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	65,249	42/025
Carbon County	8-Hour Ozone (1997) -NAAQS revoked	Allentown-Bethlehem-Easton, PA	04 05 06 07	04/03/2008	Former Subpart 1	Whole	65,249	42/025
Carbon County	8-Hour Ozone (2008)	Allentown-Bethlehem-Easton, PA	12 13 14 15 16 17 18	//	Marginal	Whole	65,249	42/025
Centre County	8-Hour Ozone (1997) -NAAQS revoked	State College, PA	04 05 06	12/14/2007	Former Subpart 1	Whole	153,990	42/027

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Chester County	1-Hour Ozone (1979) -NAAQS revoked	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Severe 15	Whole	498,886	42/029
Chester County	8-Hour Ozone (1997) -NAAQS revoked	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	498,886	42/029
Chester County	8-Hour Ozone (2008)	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	12 13 14 15 16 17 18	//	Marginal	Whole	498,886	42/029
Chester County	PM-2.5 (1997) -NAAQS revoked	Philadelphia-Wilmington, PA-NJ-DE	05 06 07 08 09 10 11 12 13 14	04/21/2015 *	Moderate	Whole	498,886	42/029
Chester County	PM-2.5 (2006)	Philadelphia-Wilmington, PA-NJ-DE	09 10 11 12 13 14	04/21/2015	Moderate	Whole	498,886	42/029
Clearfield County	8-Hour Ozone (1997) -NAAQS revoked	Clearfield and Indiana Cos, PA	04 05 06 07 08	04/20/2009	Former Subpart 1	Whole	81,642	42/033
Columbia County	1-Hour Ozone (1979) -NAAQS revoked	Scranton-Wilkes-Barre, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	67,295	42/037
Crawford County	1-Hour Ozone (1979) -NAAQS revoked	Crawford Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	88,765	42/039
Cumberland County	1-Hour Ozone (1979) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	235,406	42/041
Cumberland County	8-Hour Ozone (1997) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	04 05 06	07/25/2007	Former Subpart 1	Whole	235,406	42/041

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Cumberland County	PM-2.5 (1997) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	05 06 07 08 09 10 11 12 13	12/08/2014 *	Moderate	Whole	235,406	42/041
Cumberland County	PM-2.5 (2006)	Harrisburg-Lebanon-Carlisle-York, PA	09 10 11 12 13	12/08/2014	Moderate	Whole	235,406	42/041
Dauphin County	1-Hour Ozone (1979) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	268,100	42/043
Dauphin County	8-Hour Ozone (1997) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	04 05 06	07/25/2007	Former Subpart 1	Whole	268,100	42/043
Dauphin County	PM-2.5 (1997) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	05 06 07 08 09 10 11 12 13	12/08/2014 *	Moderate	Whole	268,100	42/043
Dauphin County	PM-2.5 (2006)	Harrisburg-Lebanon-Carlisle-York, PA	09 10 11 12 13	12/08/2014	Moderate	Whole	268,100	42/043
Delaware County	1-Hour Ozone (1979) -NAAQS revoked	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Severe 15	Whole	558,979	42/045
Delaware County	8-Hour Ozone (1997) -NAAQS revoked	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	558,979	42/045
Delaware County	8-Hour Ozone (2008)	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	12 13 14 15 16 17 18	//	Marginal	Whole	558,979	42/045
Delaware County	PM-2.5 (1997) -NAAQS revoked	Philadelphia-Wilmington, PA-NJ-DE	05 06 07 08 09 10 11 12 13 14	04/21/2015 *	Moderate	Whole	558,979	42/045
Delaware County	PM-2.5 (2006)	Philadelphia-Wilmington, PA-NJ-DE	09 10 11 12 13 14	04/21/2015	Moderate	Whole	558,979	42/045

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Delaware County	PM-2.5 (2012)	Delaware County, PA	15 16 17 18	//	Moderate	Whole	558,979	42/045
Erie County	1-Hour Ozone (1979) -NAAQS revoked	Erie, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	280,566	42/049
Erie County	8-Hour Ozone (1997) -NAAQS revoked	Erie, PA	04 05 06	11/08/2007	Former Subpart 1	Whole	280,566	42/049
Fayette County	1-Hour Ozone (1979) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	92 93 94 95 96 97 98 99 00	11/19/2001	Moderate	Whole	136,606	42/051
Fayette County	8-Hour Ozone (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	136,606	42/051
Fayette County	8-Hour Ozone (2008)	Pittsburgh-Beaver Valley, PA	12 13 14 15 16 17 18	//	Marginal	Whole	136,606	42/051
Franklin County	1-Hour Ozone (1979) -NAAQS revoked	Franklin Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	149,618	42/055
Franklin County	8-Hour Ozone (1997) -NAAQS revoked	Franklin Co, PA	04 05 06	07/25/2007	Former Subpart 1	Whole	149,618	42/055
Greene County	1-Hour Ozone (1979) -NAAQS revoked	Greene Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	38,686	42/059
Greene County	8-Hour Ozone (1997) -NAAQS revoked	Greene Co, PA	04 05 06 07 08	04/20/2009	Former Subpart 1	Whole	38,686	42/059

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Greene County	PM-2.5 (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	05 06 07 08 09 10 11 12 13 14	10/02/2015 *	Moderate	Part	2,818	42/059
Greene County	PM-2.5 (2006)	Pittsburgh-Beaver Valley, PA	09 10 11 12 13 14	10/02/2015	Moderate	Part	2,818	42/059
Indiana County	8-Hour Ozone (1997) -NAAQS revoked	Clearfield and Indiana Cos, PA	04 05 06 07 08	04/20/2009	Former Subpart 1	Whole	88,880	42/063
Indiana County	PM-2.5 (1997) -NAAQS revoked	Johnstown, PA	05 06 07 08 09 10 11 12 13 14	07/16/2015 *	Moderate	Part	13,244	42/063
Indiana County	PM-2.5 (2006)	Johnstown, PA	09 10 11 12 13 14	07/16/2015	Moderate	Part	13,244	42/063
Indiana County	Sulfur Dioxide (2010)	Indiana, PA	13 14 15 16 17 18	//		Whole	88,880	42/063
Juniata County	1-Hour Ozone (1979) -NAAQS revoked	Juniata Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	24,636	42/067
Lackawanna County	1-Hour Ozone (1979) -NAAQS revoked	Scranton-Wilkes-Barre, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	214,437	42/069
Lackawanna County	8-Hour Ozone (1997) -NAAQS revoked	Scranton-Wilkes-Barre, PA	04 05 06	12/19/2007	Former Subpart 1	Whole	214,437	42/069
Lancaster County	1-Hour Ozone (1979) -NAAQS revoked	Lancaster, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	519,445	42/071
Lancaster County	8-Hour Ozone (1997) -NAAQS revoked	Lancaster, PA	04 05 06	07/06/2007	Marginal	Whole	519,445	42/071

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Lancaster County	8-Hour Ozone (2008)	Lancaster, PA	12 13 14 15 16 17 18	//	Marginal	Whole	519,445	42/071
Lancaster County	PM-2.5 (1997) -NAAQS revoked	Lancaster, PA	05 06 07 08 09 10 11 12 13 14	07/16/2015 *	Moderate	Whole	519,445	42/071
Lancaster County	PM-2.5 (2006)	Lancaster, PA	09 10 11 12 13 14	07/16/2015	Moderate	Whole	519,445	42/071
Lawrence County	1-Hour Ozone (1979) -NAAQS revoked	Lawrence Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	91,108	42/073
Lawrence County	PM-2.5 (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	05 06 07 08 09 10 11 12 13 14	10/02/2015 *	Moderate	Part	1,722	42/073
Lawrence County	PM-2.5 (2006)	Pittsburgh-Beaver Valley, PA	09 10 11 12 13 14	10/02/2015	Moderate	Part	1,722	42/073
Lebanon County	1-Hour Ozone (1979) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	133,568	42/075
Lebanon County	8-Hour Ozone (1997) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	04 05 06	07/25/2007	Former Subpart 1	Whole	133,568	42/075
Lebanon County	PM-2.5 (1997) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	05 06 07 08 09 10 11 12 13	12/08/2014 *	Moderate	Whole	133,568	42/075
Lebanon County	PM-2.5 (2006)	Harrisburg-Lebanon-Carlisle-York, PA	09 10 11 12 13	12/08/2014	Moderate	Whole	133,568	42/075
Lebanon County	PM-2.5 (2012)	Lebanon County, PA	15 16 17 18	//	Moderate	Whole	133,568	42/075
Lehigh County	1-Hour Ozone (1979) -NAAQS revoked	Allentown-Bethlehem-Easton, PA-NJ	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	349,497	42/077

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/ County FIPS Codes
Lehigh County	8-Hour Ozone (1997) -NAAQS revoked	Allentown-Bethlehem-Easton, PA	04 05 06 07	04/03/2008	Former Subpart 1	Whole	349,497	42/077
Lehigh County	8-Hour Ozone (2008)	Allentown-Bethlehem-Easton, PA	12 13 14 15 16 17 18	//	Marginal	Whole	349,497	42/077
Lehigh County	PM-2.5 (2006)	Allentown, PA	09 10 11 12 13 14	04/13/2015	Moderate	Whole	349,497	42/077
Luzerne County	1-Hour Ozone (1979) -NAAQS revoked	Scranton-Wilkes-Barre, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	320,918	42/079
Luzerne County	8-Hour Ozone (1997) -NAAQS revoked	Scranton-Wilkes-Barre, PA	04 05 06	12/19/2007	Former Subpart 1	Whole	320,918	42/079
Mercer County	1-Hour Ozone (1979) -NAAQS revoked	Youngstown-Warren-Sharon, OH-PA (PA portion)	92 93 94 95 96 97 98 99 00 01 02 03 04	// [Split]	Marginal	Whole	116,638	42/085
Mercer County	8-Hour Ozone (1997) -NAAQS revoked	Youngstown-Warren-Sharon, OH-PA	04 05 06	11/19/2007	Former Subpart 1	Whole	116,638	42/085
Monroe County	1-Hour Ozone (1979) -NAAQS revoked	Scranton-Wilkes-Barre, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	169,842	42/089
Monroe County	8-Hour Ozone (1997) -NAAQS revoked	Scranton-Wilkes-Barre, PA	04 05 06	12/19/2007	Former Subpart 1	Whole	169,842	42/089
Montgomery County	1-Hour Ozone (1979) -NAAQS revoked	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Severe 15	Whole	799,874	42/091

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Montgomery County	8-Hour Ozone (1997) -NAAQS revoked	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	799,874	42/091
Montgomery County	8-Hour Ozone (2008)	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	12 13 14 15 16 17 18	//	Marginal	Whole	799,874	42/091
Montgomery County	PM-2.5 (1997) -NAAQS revoked	Philadelphia-Wilmington, PA-NJ-DE	05 06 07 08 09 10 11 12 13 14	04/21/2015 *	Moderate	Whole	799,874	42/091
Montgomery County	PM-2.5 (2006)	Philadelphia-Wilmington, PA-NJ-DE	09 10 11 12 13 14	04/21/2015	Moderate	Whole	799,874	42/091
Northampton County	1-Hour Ozone (1979) -NAAQS revoked	Allentown-Bethlehem-Easton, PA-NJ	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	297,735	42/095
Northampton County	8-Hour Ozone (1997) -NAAQS revoked	Allentown-Bethlehem-Easton, PA	04 05 06 07	04/03/2008	Former Subpart 1	Whole	297,735	42/095
Northampton County	8-Hour Ozone (2008)	Allentown-Bethlehem-Easton, PA	12 13 14 15 16 17 18	//	Marginal	Whole	297,735	42/095
Northampton County	PM-2.5 (2006)	Allentown, PA	09 10 11 12 13 14	04/13/2015	Moderate	Whole	297,735	42/095
Northumberland County	1-Hour Ozone (1979) -NAAQS revoked	Northumberland Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	94,528	42/097
Perry County	1-Hour Ozone (1979) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	45,969	42/099
Perry County	8-Hour Ozone (1997) -NAAQS revoked	Harrisburg-Lebanon-Carlisle, PA	04 05 06	07/25/2007	Former Subpart 1	Whole	45,969	42/099

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Philadelphia County	1-Hour Ozone (1979) -NAAQS revoked	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Severe 15	Whole	1,526,006	42/101
Philadelphia County	8-Hour Ozone (1997) -NAAQS revoked	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	1,526,006	42/101
Philadelphia County	8-Hour Ozone (2008)	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE	12 13 14 15 16 17 18	//	Marginal	Whole	1,526,006	42/101
Philadelphia County	Carbon Monoxide (1971)	Philadelphia-Camden Co, PA-NJ	92 93 94 95	03/15/1996	Moderate <= 12.7ppm	Part	673,750	42/101
Philadelphia County	PM-2.5 (1997) -NAAQS revoked	Philadelphia-Wilmington, PA-NJ-DE	05 06 07 08 09 10 11 12 13 14	04/21/2015 *	Moderate	Whole	1,526,006	42/101
Philadelphia County	PM-2.5 (2006)	Philadelphia-Wilmington, PA-NJ-DE	09 10 11 12 13 14	04/21/2015	Moderate	Whole	1,526,006	42/101
Pike County	1-Hour Ozone (1979) -NAAQS revoked	Pike Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	57,369	42/103
Schuylkill County	1-Hour Ozone (1979) -NAAQS revoked	Schuylkill Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	148,289	42/107
Snyder County	1-Hour Ozone (1979) -NAAQS revoked	Snyder Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	39,702	42/109
Somerset County	1-Hour Ozone (1979) -NAAQS revoked	Johnstown, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	77,742	42/111

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or/ Part County	Population (2010)	State/County FIPS Codes
Susquehanna County	1-Hour Ozone (1979) -NAAQS revoked	Susquehanna Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	43,356	42/115
Tioga County	8-Hour Ozone (1997) -NAAQS revoked	Tioga Co, PA	04 05 06	07/06/2007	Former Subpart 1	Whole	41,981	42/117
Warren County	1-Hour Ozone (1979) -NAAQS revoked	Warren Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	41,815	42/123
Warren County	Sulfur Dioxide (1971)	Conewango Township (Warren County), PA	92 93 94 95 96 97 98 99 00 01 02 03	08/02/2004		Part	3,594	42/123
Warren County	Sulfur Dioxide (1971)	Warren Co, PA	92 93 94 95 96 97 98 99 00 01 02 03	08/02/2004		Part	15,781	42/123
Warren County	Sulfur Dioxide (2010)	Warren, PA	13 14 15 16 17 18	//		Part	18,056	42/123
Washington County	1-Hour Ozone (1979) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	92 93 94 95 96 97 98 99 00	11/19/2001	Moderate	Whole	207,820	42/125
Washington County	8-Hour Ozone (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	207,820	42/125
Washington County	8-Hour Ozone (2008)	Pittsburgh-Beaver Valley, PA	12 13 14 15 16 17 18	//	Marginal	Whole	207,820	42/125
Washington County	PM-2.5 (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	05 06 07 08 09 10 11 12 13 14	10/02/2015 *	Moderate	Whole	207,820	42/125
Washington County	PM-2.5 (2006)	Pittsburgh-Beaver Valley, PA	09 10 11 12 13 14	10/02/2015	Moderate	Whole	207,820	42/125

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
Wayne County	1-Hour Ozone (1979) -NAAQS revoked	Wayne Co, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Incomplete Data	Whole	52,822	42/127
Westmoreland County	1-Hour Ozone (1979) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	92 93 94 95 96 97 98 99 00	11/19/2001	Moderate	Whole	365,169	42/129
Westmoreland County	8-Hour Ozone (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	04 05 06 07 08 09 10 11 12 13 14	//	Moderate	Whole	365,169	42/129
Westmoreland County	8-Hour Ozone (2008)	Pittsburgh-Beaver Valley, PA	12 13 14 15 16 17 18	//	Marginal	Whole	365,169	42/129
Westmoreland County	PM-2.5 (1997) -NAAQS revoked	Pittsburgh-Beaver Valley, PA	05 06 07 08 09 10 11 12 13 14	10/02/2015 *	Moderate	Whole	365,169	42/129
Westmoreland County	PM-2.5 (2006)	Pittsburgh-Beaver Valley, PA	09 10 11 12 13 14	10/02/2015	Moderate	Whole	365,169	42/129
Wyoming County	1-Hour Ozone (1979) -NAAQS revoked	Scranton-Wilkes-Barre, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	28,276	42/131
Wyoming County	8-Hour Ozone (1997) -NAAQS revoked	Scranton-Wilkes-Barre, PA	04 05 06	12/19/2007	Former Subpart 1	Whole	28,276	42/131
York County	1-Hour Ozone (1979) -NAAQS revoked	York, PA	92 93 94 95 96 97 98 99 00 01 02 03 04	//	Marginal	Whole	434,972	42/133
York County	8-Hour Ozone (1997) -NAAQS revoked	York, PA	04 05 06 07	02/13/2008	Former Subpart 1	Whole	434,972	42/133

County	NAAQS	Area Name	Nonattainment in Year	Redesignation to Maintenance	Classification	Whole or Part County	Population (2010)	State/County FIPS Codes
York County	PM-2.5 (1997) -NAAQS revoked	York, PA	05 06 07 08 09 10 11 12 13	12/08/2014 *	Moderate	Whole	434,972	42/133
York County	PM-2.5 (2006)	Harrisburg-Lebanon-Carlisle-York, PA	09 10 11 12 13	12/08/2014	Moderate	Whole	434,972	42/133

Important Notes

Discover.

Connect.

Ask.

Follow.

2018-4-30

Appendix 2.0 Agency Coordination

Appendix 2.1 IPaC Resource List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
Phone: (814) 234-4090 Fax: (814) 234-0748
<http://www.fws.gov/northeast/pafo/>

In Reply Refer To:
Consultation Code: 05E2PA00-2018-SLI-0639
Event Code: 05E2PA00-2018-E-02865
Project Name: York Codorus FRM Project

February 27, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

Any activity proposed on National Wildlife Refuge lands must undergo a "Compatibility Determination" conducted by the Refuge. Please contact the individual Refuge to discuss any questions or concerns.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Pennsylvania Ecological Services Field Office

110 Radnor Road Suite 101

State College, PA 16801-7987

(814) 234-4090

Project Summary

Consultation Code: 05E2PA00-2018-SLI-0639

Event Code: 05E2PA00-2018-E-02865

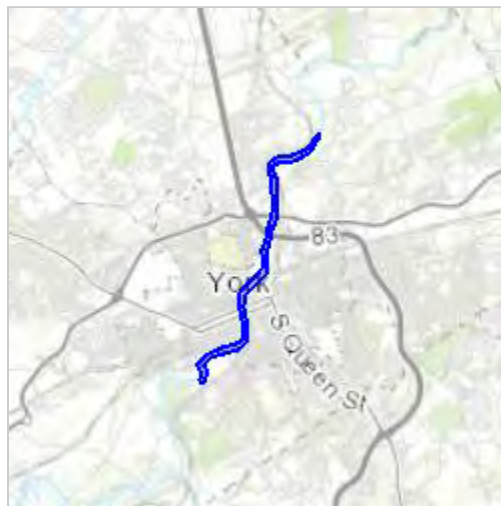
Project Name: York Codorus FRM Project

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: Line down through Codorus Creek along approximate project center line with 500 feet width (latter selected through IPaC). Includes areas in York County in which work not proposed as of February 2018.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/39.97412622733437N76.72622151470142W>



Counties: York, PA

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Bog Turtle <i>Clemmys muhlenbergii</i> Population: Wherever found, except GA, NC, SC, TN, VA No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Appendix 2.2 PennDOT Map



**US Army Corps
of Engineers**
Baltimore District

MAR 12 2018

Planning Division

Public Notice

Indian Rock Dam/Codorus Creek Flood Risk Management Project, Pennsylvania

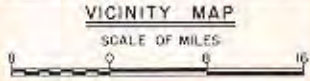
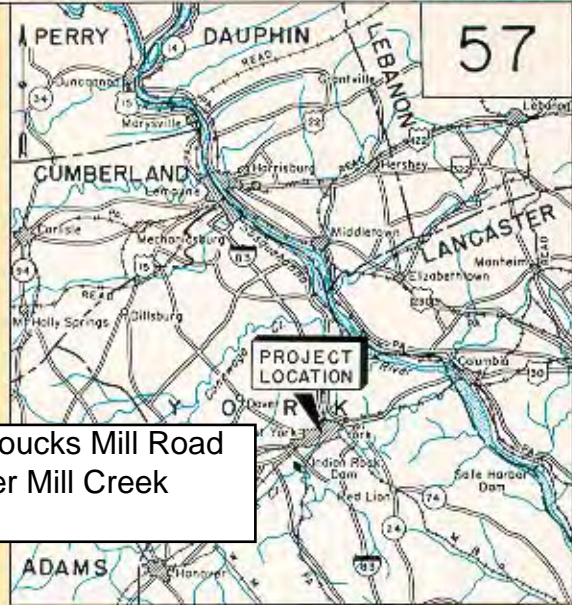
All Interested Parties: The U.S. Army Corps of Engineers, Baltimore District, (USACE-Baltimore) is proposing to undertake major repairs to the Codorus Creek Flood Risk Management (FRM) component of the overall Indian Rock Dam/Codorus Creek FRM Project on Codorus Creek. The project passes through West Manchester Township, Spring Garden Township, York City, North York Borough, and Springettsbury Township, all located in York County, Pennsylvania (Enclosure 1). USACE-Baltimore operates and maintains the FRM project, which was constructed in the 1930s and operational in the 1940s. The FRM project is 4.8 miles in length, and includes a widened and deepened creek channel, levees, floodwalls, and bank protective works. The project's infrastructure is aging and in need of major repairs to ensure it continues to properly perform its FRM functions. At this time, rehabilitation of floodwall, levee, drainage structures, and bank protective works is anticipated. USACE-Baltimore is preparing an environmental assessment (EA) for the proposed repairs in accordance with the National Environmental Policy Act of 1969, as amended. The current schedule calls for the draft EA to be publicly released in Summer 2018.

The purpose of this notice is to inform the public of the start of this assessment and to request any information that may affect the implementation of future maintenance work within the project. We request that federal and state agencies provide information concerning interests within your organization's area of responsibility or expertise, and the public provide information which may be pertinent to this project, within 30 days from the date of this notice to the address or listed below. A timely review of the enclosed information and a written response will be greatly appreciated and will assist us with preparation of the EA.

If you have any questions regarding this project, please contact Ms. Tarrie Ostrofsky by phone at (410) 962-4633, by e-mail at Tarrie.L.Ostrofsky@usace.army.mil or by mail at USACE, Planning Division (ATTN: Ostrofsky), 2 Hopkins Plaza, Baltimore, MD 21201.

for Michele Honney
Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

57



Construct trail on west side of levee from Rt 30 to George St. and place bridge over Willis Run (permitted)

Replace Loucks Mill Road Bridge over Mill Creek (future)

Widening I-83 and replacing bridge over Codorus Creek (in design)

Improve Pedestrian Facilities on George St. bridge (future)

Replace Loucks Mill Road over Poor House Run (future)

Construct rail trail from Market to George St. (in design)

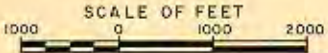
Replace Richland Ave. Bridge over Hokes Run (future)

Replace West College Ave Bridge over Codorus Creek (future)

AGE	DESIGN DISCHARGE	MINIMUM FREEBOARD
1941	24,000 CFS	3.0 FT.

LEGEND
 WORK COMPLETED / INDIAN ROCK DAM/
 CODORUS CREEK FLOOD RISK
 MANAGEMENT PROJECT STUDY AREA

GENERAL PLAN



SUSQUEHANNA RIVER BASIN
YORK, PA.
 GENERAL PLAN & SECTION

REVISED: SEPTEMBER 1985

CODORUS CREEK

PENNSYLVANIA

SCALE: AS SHOWN

BALTIMORE DISTRICT OFFICE

BALTIMORE, MARYLAND

Appendix 2.3 USACE and Resource agency letters and Correspondence



07 2018

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, BALTIMORE DISTRICT
2 HOPKINS PLAZA
BALTIMORE, MD 21201

May 7, 2018

Ms. Andrea MacDonald
Deputy State Historic Preservation Officer
Pennsylvania Historical and
Museum Commission
400 North Street
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120-0093

Dear Ms. MacDonald,

The purpose of this letter is to initiate consultation with your office in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800, regarding the Codorus Creek Flood Risk Management (FRM) Project. The United States Army Corps of Engineers, Baltimore District (USACE) is proposing to rehabilitate critical FRM features along Codorus Creek in downtown York, PA (Enclosure 1). The FRM features, consisting of floodwalls, levees, and bank protective works, are one component of the overall York Indian Rock Dam Project. The proposed project consists of 1) the cleaning and inspection of approximately 100 drainage conduits; 2) the installation of riprap upstream of the existing Southeast levee on Codorus Creek and near the Penn Street bridge; 3) the repair and stabilization of the floodwall located immediately downstream of the Market Street Bridge; and 4) the replacement of the existing concrete floodwall near Penn Street.

The existing drainage conduits are located along the entire project area from South Richland Avenue to Blackbridge Road, and consist of storm drains and relief culverts. As part of ongoing maintenance measures, USACE has previously inspected and cleaned approximately 200 drainage conduits. USACE is proposing to inspect the remaining structures and clean, repair, or replace them as deemed necessary. Refer to Enclosure 2 for the locations of the remaining drainage structures. Ground disturbance, while not anticipated, will be limited to previously-disturbed areas.

Upstream of the existing levee on Codorus Creek, riprap will be installed to hinder the excessive bank destabilization (Enclosure 3). The bank has succumbed to extreme erosion and scouring, and needs to be stabilized to protect the existing concrete floodwall from failure. Displaced riprap will also be replaced near the bridge at Penn Street. Riprap currently exists along the project area, so installation or replacement of riprap material would not be a visual intrusion to the cultural landscape. Furthermore, placement of riprap will occur in previously disturbed areas.

The masonry wall, capped by concrete as part of a 1970s USACE project, sits immediately downstream of the Market Street Bridge and is in need of repair and stabilization (Enclosure 4). Recently, some of the masonry stones detached from the wall, but emergency repair work was

conducted in February to replace the masonry stones and mortar. Currently, the masonry wall features a new bulge moving outward toward Codorus Creek. Repair of this bulge is a more immediate concern, but stabilization of the entire wall is the overall objective. While replacing the wall in kind is a possible alternative, total replacement is not desired due to its proximity and physical connection to the 19th century Hotel Codorus, a contributing resource to the York Historic District. If replacement in kind is not chosen as an alternative, then repair or rehabilitation would be pursued.

The final task for this project is to replace the existing concrete flood wall along Codorus Creek near Penn Street due to deterioration and structural erosion (Enclosure 5). Of note is a portion of the abandoned Schmidt-Ault Paper Mill currently located on top of the existing flood wall. In order for the wall to be replaced, a portion of the encroaching paper mill will need to be demolished. Just south of the paper mill sits the Philip J. King House, which has been determined to be eligible for listing on the National Register of Historic Places (NRHP), but the proposed project or demolition should not have an impact on this building. Also proposed are repairs, consisting of concrete and/or grout application, to the masonry wall where it intersects with the concrete flood wall at Tyler Run.

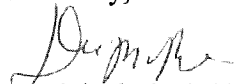
The area of potential effect (APE) for the project is the area of direct construction impacts and the areas within which the undertaking may directly or indirectly cause alterations in the character or use of historic properties, including visual effects. The APE would include work performed on the floodwalls adjacent to Codorus Creek and Tyler Run, staging areas, and any other areas of potential ground disturbance. The viewsheds of any nearby historic properties would also be included in the APE.

USACE believes that partial demolition of the Schmidt-Ault Paper Mill could constitute an adverse effect if it is deemed eligible or potentially eligible for the NRHP. It may be warranted to complete a Determination of Eligibility form, in accordance with the *Guidelines for Architectural Investigations in Pennsylvania*, to assess the eligibility of this property.

We look forward to consulting with your office regarding the nature and scope of investigations to identify historic properties in the project area, and to assess potential effects to those properties should they exist. We would appreciate your review of the tasks described in this letter for their potential effect on historic properties.

Thank you for your assistance with the Codorus Creek FRM Project. If you have any questions please contact Mr. Ethan A. Bean at (410) 962-2173 or ethan.a.bean@usace.army.mil.

Sincerely,



Daniel Bierly, P.E.

Chief, Civil Projects Development Branch
Planning Division

Enclosures

Ostrofsky, Tarrie L CIV USARMY CENAB (US)

From: Dershem, Bonnie <bonnie_dershem@fws.gov>
Sent: Thursday, March 22, 2018 9:24 AM
To: Ostrofsky, Tarrie L CIV USARMY CESAJ (US)
Subject: [Non-DoD Source] Indian Creek Dam PNDI
Attachments: indian_rock_dam_codorus_c_652992_FINAL_1.pdf

Tarrie,

I ran a PNDI for you on this project. As you can see, there a an avoidance measure from the USFWS. This is a finalized receipt that you can use. You will get no further correspondence from this office.

Bonnie

Bonnie Dershem
Endangered Species Biologist
U.S. Fish and Wildlife Service

Pennsylvania Field Office

110 Radnor Rd; Suite 101
State College, PA 16801
814-206-7453

1. PROJECT INFORMATION

Project Name: **Indian Rock Dam/ Codorus Creek Flood Risk Management**

Date of Review: **3/22/2018 09:18:19 AM**

Project Category: **In-stream / Riverine Activities and Projects, Levees and similar flood control structures (construction, modification, maintenance)**

Project Area: **198.31 acres**

County(s): **York**

Township/Municipality(s): **MANCHESTER; NORTH YORK; SPRING GARDEN; SPRINGGETTSBURY; WEST MANCHESTER; YORK**

ZIP Code: **17401; 17402; 17403; 17404**

Quadrangle Name(s): **YORK; YORK HAVEN**

Watersheds HUC 8: **Lower Susquehanna**

Watersheds HUC 12: **Codorus Creek-Susquehanna River; Mill Creek; Willis Run-Codorus Creek**

Decimal Degrees: **39.952754, -76.738055**

Degrees Minutes Seconds: **39° 57' 9.9128" N, 76° 44' 16.9979" W**

2. SEARCH RESULTS



Agency	Results	Response
PA Game Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	Avoidance Measure	See Agency Response

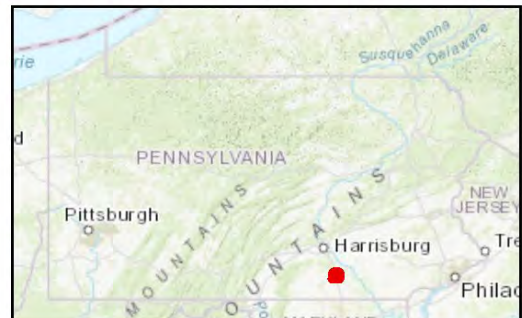
As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 must comply with the bog turtle habitat screening requirements of the PASPGP.

Indian Rock Dam/ Codorus Creek Flood Risk Management

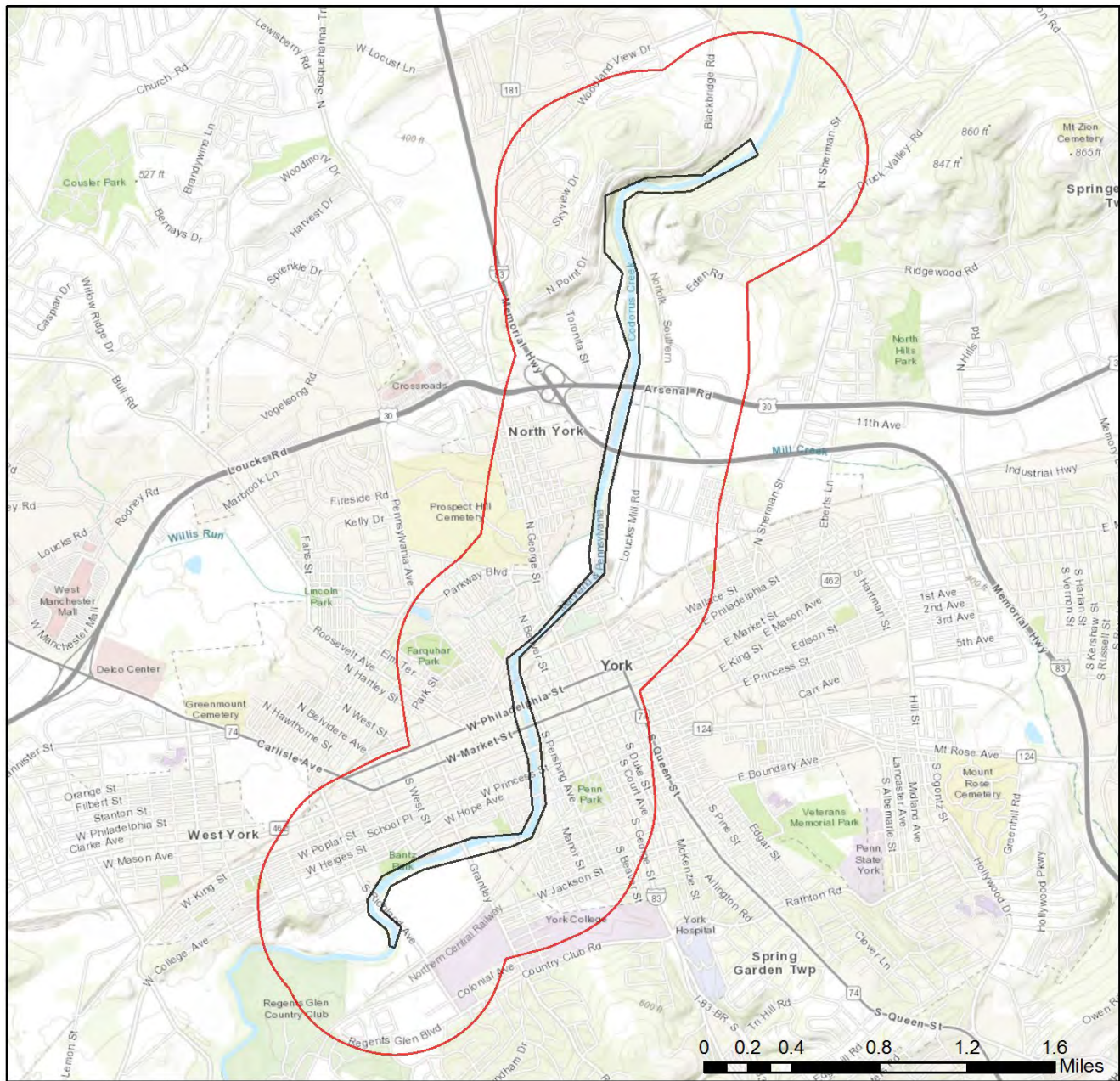


-  Project Boundary
-  Buffered Project Boundary



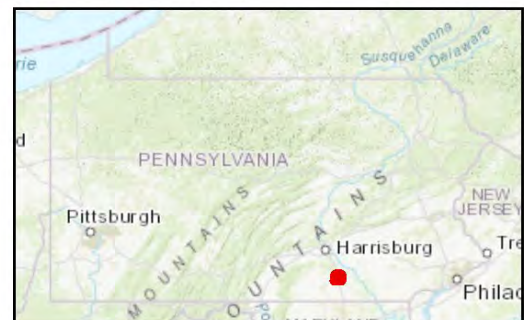
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Indian Rock Dam/ Codorus Creek Flood Risk Management



- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS,



3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PGC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Ardea alba	Great Egret	Endangered
Ardea herodias	Great Blue Heron	Special Concern Species*
Nyctanassa violacea	Yellow-crowned Night-heron	Endangered
Nycticorax nycticorax	Black-crowned Night-heron	Endangered

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Special Concern Species*
Sensitive Species**		Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE:

Information Request: Due to the proximity of this project to a bald eagle nest, it is possible that project activities may disturb bald eagles, which is a form of "take" under the Bald and Golden Eagle Protection Act and may require a permit. The Service has prepared a project screening form to help you determine which specific measures may be necessary to avoid disturbing bald eagles and their nests, based on the type and scope of your proposed project or activity, and its distance from a bald eagle nest. Complete the "Bald Eagle Project Screening Form" (see https://www.fws.gov/northeast/pafo/pdf/Bald_Eagle_Project_Screening_Form_102716.pdf) and implement the measures identified on that form. Submit a copy of the completed Screening Form to the appropriate federal or state permitting agencies (e.g., PA DEP).

As the project proponent or applicant, I certify that I will implement the above Avoidance Measure:
_____(Signature)

SPECIAL NOTE: If you agree to implement the above Avoidance Measure, no further coordination with this agency regarding threatened and endangered species and/or special concern species and resources is required. If you are not able to comply with the Avoidance Measures, you are required to coordinate with this agency - please send project information to this agency for review (see "What to Send" section).

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).

***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:

___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

___ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

___ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.



5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission

Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone: (_____) _____ Fax: (_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

Planning Division

March 8, 2018

Mr. Robert Anderson
U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 322
State College, Pennsylvania 16801

Dear Mr. Anderson:

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is proposing to undertake major repairs to the Indian Rock Dam/Codorus Creek Flood Risk Management (FRM) Project on Codorus Creek. The project passes through West Manchester Township, Spring Garden Township, York City, North York Borough, and Springettsbury Township, all located in York County, Pennsylvania (Enclosure 1). USACE-Baltimore operates and maintains the FRM project, which was constructed in the 1930s and operational in the 1940s. The project consists of 4.8 miles of FRM improvements, including a widened and deepened creek channel, levees, floodwalls, and bank protective works. The project's infrastructure is aging and in need of major repairs to ensure it continues to properly perform its FRM functions. At this time, rehabilitation of floodwall, levee, drainage structures, and bank protective works is anticipated. USACE is preparing an environmental assessment (EA) for the proposed repairs in accordance with the National Environmental Policy Act of 1969, as amended. The purpose of this letter is to inform you of the assessment and to solicit U.S. Fish and Wildlife Service (USFWS) input pursuant to the Fish and Wildlife Coordination Act (FWCA) and Endangered Species Act (ESA).

The USACE-Baltimore is requesting any information your office has on the presence of federally protected species of animals and plants listed by Section 7 of the ESA within the project area. The USFWS Information, Planning, and Conservation (IPaC) web site (<http://ecos.fws.gov/ipac/>) was consulted on 27 February 2018, and a draft IPaC resources list (Consultation Code: 05E2PA00-2018-SLI-0639) was prepared for the project's boundaries using an uploaded SHAPE file (Enclosure 2). The draft IPaC resource list identifies federally listed endangered species, migratory birds, and wetlands as occurring within the project boundaries. The federally listed endangered species include the endangered Indiana bat (*Myotis sodalists*), threatened Northern long-eared bat (*Myotis septentrionalis*), and threatened bog turtle (*Clemmys muhlenbergii*). No critical habitat was identified within the project boundaries. The migratory birds, protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, include 12 species, identified as birds of particular concern. The wetland polygon is classified as National Wetlands Inventory riverine wetlands, and the polygon encompasses the 4.8-mile length of the Codorus Creek channel associated with this project.

We would also like to discuss the appropriate level of involvement for the U.S. Fish and Wildlife Service pursuant to the FWCA (i.e., technical services, planning aid letter, or FWCA report). Please provide us with a point of contact for FWCA activities and collaborative planning on this project.

If you have any questions, please contact Ms. Tarrie Ostrofsky by phone at (410) 962-4633, by e-mail at tarrie.l.ostrofsky@usace.army.mil, or by mail at USACE, Planning Division (Attn: Ostrofsky), 2 Hopkins Plaza, Baltimore, MD 21201.

Sincerely,



Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

Enclosures
(1: Study Area Map; 2: IPaC Draft Resource List)



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
Phone: (814) 234-4090 Fax: (814) 234-0748
<http://www.fws.gov/northeast/pafo/>

In Reply Refer To:
Consultation Code: 05E2PA00-2018-SLI-0639
Event Code: 05E2PA00-2018-E-02865
Project Name: York Codorus FRM Project

February 27, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

Any activity proposed on National Wildlife Refuge lands must undergo a "Compatibility Determination" conducted by the Refuge. Please contact the individual Refuge to discuss any questions or concerns.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Pennsylvania Ecological Services Field Office

110 Radnor Road Suite 101

State College, PA 16801-7987

(814) 234-4090

Project Summary

Consultation Code: 05E2PA00-2018-SLI-0639

Event Code: 05E2PA00-2018-E-02865

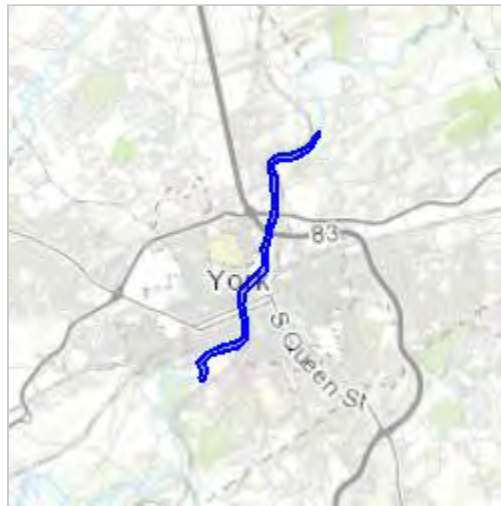
Project Name: York Codorus FRM Project

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: Line down through Codorus Creek along approximate project center line with 500 feet width (latter selected through IPaC). Includes areas in York County in which work not proposed as of February 2018.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/39.97412622733437N76.72622151470142W>



Counties: York, PA

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Bog Turtle <i>Clemmys muhlenbergii</i> Population: Wherever found, except GA, NC, SC, TN, VA No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962	Threatened

Critical habitats

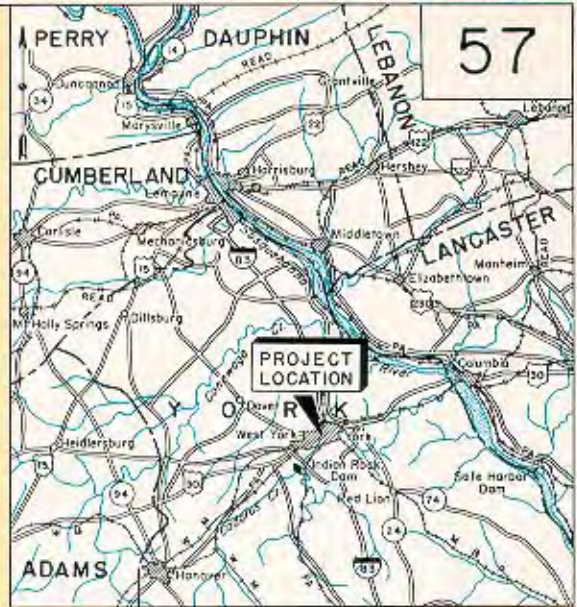
THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

57



VICINITY MAP

SCALE OF MILES



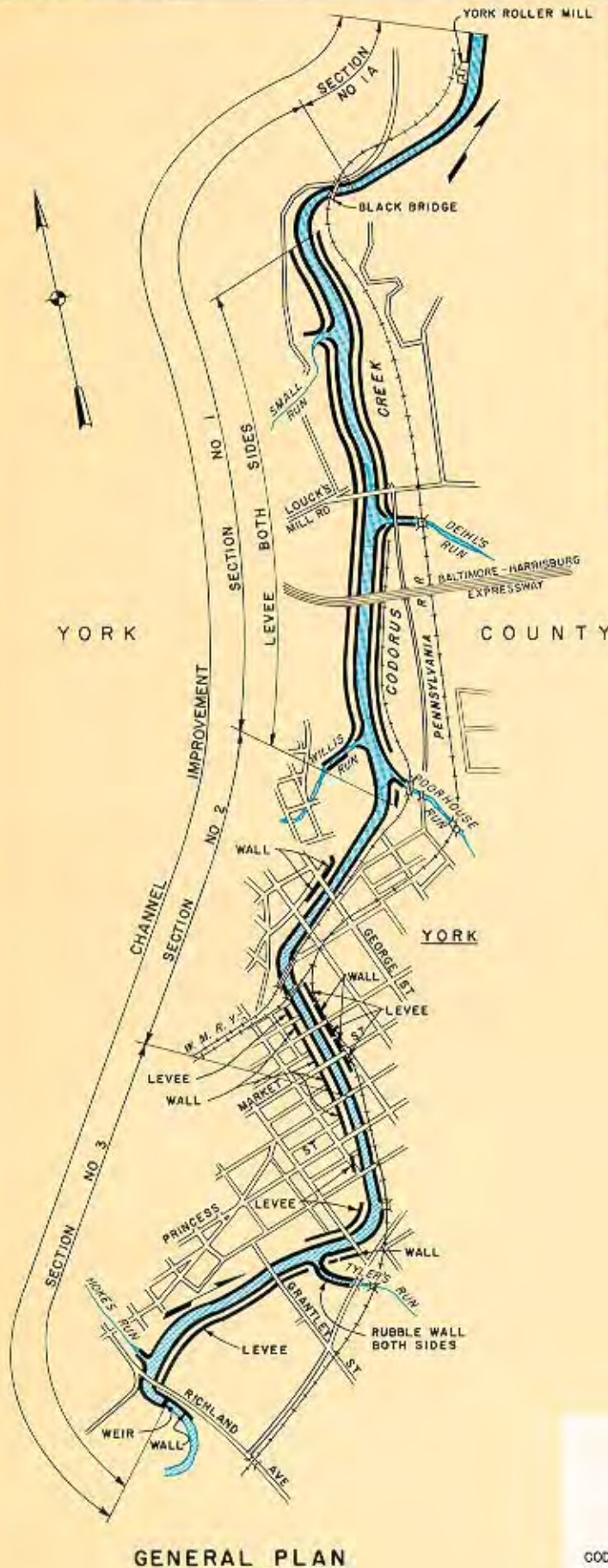
SECTION
CHANNEL AND LEVEE

NOT TO SCALE

STREAM	DRAINAGE AREA	DESIGN DISCHARGE	MINIMUM FREEBOARD
Godorus Creek	229 SqMi	24,000 CFS	3.0 Ft.

LEGEND

WORK COMPLETED



GENERAL PLAN

SCALE OF FEET



SUSQUEHANNA RIVER BASIN
YORK, PA.
GENERAL PLAN & SECTION

REVISED: SEPTEMBER 1985

CODORUS CREEK

PENNSYLVANIA

SCALE: AS SHOWN

BALTIMORE DISTRICT OFFICE

BALTIMORE, MARYLAND

Ostrofsky, Tarrie L CIV USARMY CENAB (US)

From: Glyn, Rebecca <GLYN.REBECCA@EPA.GOV>
Sent: Friday, April 20, 2018 1:35 PM
To: Ostrofsky, Tarrie L CIV USARMY CENAB (US)
Cc: Rudnick, Barbara; Okorn, Barbara; Okin, Sharon; jonathan.crum@dot.gov
Subject: [Non-DoD Source] EPA Scoping Comments - Corps Indian Rock Dam/Codorus Creek FRM Project - York County, PA

Dear Ms. Ostrofsky:

In accordance with the National Environmental Policy Act (NEPA) of 1969, Section 309 of the Clean Air Act, and the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1509), the U.S. Environmental Protection Agency (EPA) has reviewed your Public Notice (PN) dated March 12, 2018 requesting information pertinent to the implementation and future maintenance work for the U.S. Army Corps of Engineers' (Corps) proposed Indian Rock Dam/Codorus Creek Flood Risk Management (FRM) Project, in York County, Pennsylvania.

The Indian Rock Dam/Codorus Creek FRM project is 4.8 miles in length and proposes major repairs of aging infrastructure to ensure its continued proper functioning. The project is expected to entail rehabilitation of floodwall, levee, drainage structures, and bank protective works, with a draft Environmental Assessment (EA) for the project to be publicly released in summer 2018.

In response to the PN's request for information that may affect the implementation of future maintenance work within the project, EPA offers the following comments. Please note these comments are general in nature due to the limited information available at this time. Please keep us informed as the project progresses so that we may provide more specific input as appropriate.

1. **Purpose and Need.** We recommend the EA include a more detailed description of the purpose and need for the project, including how it will address specific flooding and infrastructure problems, alternatives considered, and a rationale for alternatives dismissed from the proposed action.
2. **Environmental Analysis.** The EA should describe potential impacts to the natural and human environment from the proposed action and its alternatives, including potential impacts to tributaries of Codorus Creek and other surrounding infrastructure. We also recommend the EA include a list of resource agencies and persons consulted and an outline of the environmental review schedule. EPA recommends early coordination with appropriate federal, state, and local agencies to minimize and avoid potential impacts to wetlands and streams, historic resources, and rare, threatened, and endangered species. For unavoidable resource impacts, EPA suggests the EA propose mitigation measures developed with resource agency input.

Please consider the following web-based tools to help assess potential resource impacts of the proposed project:

- a. NEPAssist: Blocked<https://www.epa.gov/nepa/nepassist>. NEPAssist facilitates the environmental review process and project planning, drawing environmental data from EPA Geographic Information System databases and web services to screen for environmental assessment indicators within a user-defined area of interest.
- b. EnviroMapper: Blocked<https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system> <Blocked<https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system>> . EnviroMapper accesses data for air, water, and land in the United States from several EPA databases.
- c. Envirofacts: Blocked<https://www3.epa.gov/enviro/>. Envirofacts allows the user to retrieve environmental data from multiple sources for a geographic area or facility, including information on air, land, water, waste, toxics, radiation, and compliance, and allows for multi-system searches.

3. Wetlands and Aquatic Resources. The EA should evaluate potential impacts to aquatic resources and functions within the study area, including impacts to hydrology, water quality, and wetlands and streams present on, or immediately surrounding, the area of the proposed action. We recommend the EA provide an outline and map of proposed measures to protect aquatic resources and mitigate for unavoidable impacts in accordance with the Clean Water Act (CWA) Section 404 permitting program.

Please consider using the following web-based tools to access environmental data on aquatic resources within the study area:

- a. Impaired Waters: Blocked<https://www.epa.gov/exposure-assessment-models/303d-listed-impaired-waters> <Blocked<https://www.epa.gov/exposure-assessment-models/303d-listed-impaired-waters>> . This link provides geospatial data on impaired waters listed under CWA Section 303(d).
- b. WATERS (Watershed Assessment, Tracking & Environmental Resources System): Blocked<https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system> <Blocked<https://www.epa.gov/waterdata/waters-watershed-assessment-tracking-environmental-results-system>> . This tool integrates information from various EPA water programs with the national surface water network, which includes such databases as the National Hydrography Dataset (Blocked<https://nhd.usgs.gov/>), the National Elevation Dataset (Blocked<https://nationalmap.gov/elevation.html>) and the Watershed Boundary Dataset (Blocked<https://nhd.usgs.gov/wbd.htm>).
- c. Watershed Resources Registry: Blocked<https://watershedresourcesregistry.org/index.html> <Blocked<https://watershedresourcesregistry.org/index.html>> . This newly released mapping and screening tool prioritizes areas for preservation and restoration of wetlands, riparian zones, terrestrial areas, and stormwater management across several states in the mid-Atlantic region, including Pennsylvania. This tool is useful for planners to access environmental data to avoid impacting natural areas and identify optimal mitigation areas.

4. Stormwater Management. We recommend considering best management practices for erosion and sediment control for any ground disturbances, as appropriate for the proposed action alternatives, to prevent release of sediment and other contaminants into stormwater runoff, and minimize or avoid potential adverse impacts to downstream water quality. Please refer to the National Pollutant Discharge Elimination System and state and local stormwater ordinances and requirements.

5. Biological and Terrestrial Resources. We recommend the EA describe potential adverse impacts to terrestrial habitat resources in the study area, as well as mitigation plans to compensate for unavoidable adverse impacts. It would

be helpful for the EA to describe and map existing biological resources, including a species list of mammals, birds, amphibians, reptiles, and plant species, and summarize composition and characteristics of community types and their functional values, total acreage, and surrounding land use. Additional helpful information would include: size of trees (dbh), percent canopy cover, understory and other components such as woody debris and snags, presence of invasive species, and soil type(s) as appropriate. We recommend the EA consider the effect of invasive species associated with alternatives, as well as potential impacts to bald and golden eagles and their habitat. Any potential impacts to threatened or endangered species or critical habitat within the study area should be identified in the EA, along with appropriate mitigation measures.

6. Community Impacts and Air Quality. An evaluation of air quality and community impacts, including noise, light, and possible traffic impacts, are recommended to be included in the EA. General conformity status, as well as attainment areas for National Ambient Air Quality Standards (NAAQS) and best management practices (BMPs) for controlling or minimizing temporary construction emissions are useful in environmental assessments.

7. Hazardous Materials, Solid Waste, and Pollution Prevention. We recommend the EA analyze any hazardous sites or materials and the status of any ongoing or past remediation efforts in the project area, including for groundwater contamination, as well as storage and disposal plans for any solid waste associated with the proposed action alternatives.

8. Environmental Justice. An evaluation of potential impacts to minority and low-income communities should be included in the EA, along with a description of proposals to provide for meaningful and timely community involvement, public outreach, and accessibility of public meetings, official documents, and notices to affected communities. Please consider using EJScreen, a screening and mapping tool developed by EPA that combines environmental and demographic data to help identify areas with potential Environmental Justice (EJ) concerns at: [Blockedhttps://epa.gov/ejscreen](https://epa.gov/ejscreen). Additionally, consider referring to “Promising Practices for EJ Methodologies in NEPA Reviews document for EJ analysis in NEPA reviews”, available at: [Blockedhttps://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews](https://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews) <[Blockedhttps://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews](https://www.epa.gov/environmentaljustice/ej-iwg-promising-practices-ej-methodologies-nepa-reviews)> . Our regional EJ expert would be pleased to discuss methodology for identifying communities with potential EJ concerns at your convenience.

9. Cumulative and Indirect Impacts. We suggest the EA evaluate potential indirect and cumulative impacts to environmental resources in the project area. This analysis may aid in identifying resources likely to be adversely affected by multiple projects, and sensitive resources that could require additional avoidance or mitigation measures. We suggest a secondary and cumulative effects analysis begin with defining the geographic and temporal limits of the study, which is generally broader than the study area of the project.

We recommend the EA describe potential cumulative resource impacts of the Indian Rock Dam/Codorus Creek FRM and the North York Interstate 83 Widening Project proposed by the Federal Highway Administration (FHWA) and the Pennsylvania Department of Transportation (PennDOT). Given flooding concerns at this section of I-83, we recommend the Corps and FHWA/PennDOT coordinate on the planning of these two projects, including sharing technical reports, detailed studies, mitigation proposals, and other pertinent information to the extent possible.

Thank you for the opportunity to review this project. We look forward to working with you as more information becomes available. Please let me know if you have any questions on the topics above. When the EA is available for review, please provide a copy to me at glyn.rebecca@epa.gov <<mailto:glyn.rebecca@epa.gov>> .

Sincerely,

Rebecca Souto-Glyn

CWA §404 Enforcement/NEPA Review

Environmental Assessment & Innovation Division

U.S. EPA Region 3, Mailcode: 3EA30

1650 Arch Street Philadelphia, PA 19103

Phone: (215) 814-2795 glyn.rebecca@epa.gov <<mailto:glyn.rebecca@epa.gov>>



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201

Planning Division

March 8, 2018

Mr. Patrick McDonnell, Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

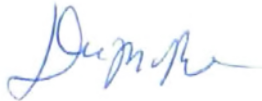
Dear Mr. McDonnell:

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is proposing to undertake major repairs to the Indian Rock Dam/Codorus Creek Flood Risk Management (FRM) Project on Codorus Creek. The Indian Rock Dam and the Codorus Creek FRM Project are components of one overall project; however, the proposed improvements are associated with the Codorus Creek FRM component of the overall project. The project passes through West Manchester Township, Spring Garden Township, York City, North York Borough, and Springettsbury Township, all located in York County, Pennsylvania (Enclosure). The USACE-Baltimore operates and maintains the FRM project, which was constructed in the 1930s and operational in the 1940s. The project consists of 4.8 miles of FRM improvements, including a widened and deepened creek channel, levees, floodwalls, and bank protective works. The project's infrastructure is aging and in need of major repairs to ensure it continues to properly perform its FRM functions. At this time, rehabilitation of floodwall, levee, drainage structures, and bank protective works is anticipated. The USACE-Baltimore is preparing an environmental assessment (EA) for the proposed repairs in accordance with the National Environmental Policy Act of 1969, as amended. The USACE-Baltimore is coordinating this action with federal, state, and local government agencies, as well as the public in order to acquire information that may affect and assist us with the preparation of the EA and the implementation of the future maintenance work within the project. The current schedule indicates that the draft EA would be circulated for public review and comment during the summer of 2018.

Please provide any information or concerns that your agency may have, that will assist us with proper planning of the repairs and establishment of the EA, within 30 days of the date of this letter. Also, please include a point of contact with your submittal. A public notice announcing the preparation of the EA is also being posted to the USACE-Baltimore website.

If you have any questions regarding this assessment, please contact Mrs. Tarrie Ostrofsky by telephone at (410) 962-4633, by email at Tarrie.L.Ostrofsky@usace.army.mil, or by mail at USACE, Planning Division (Attn: Ostrofsky), 2 Hopkins Plaza, Baltimore, Maryland 21201.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dan Bierly".

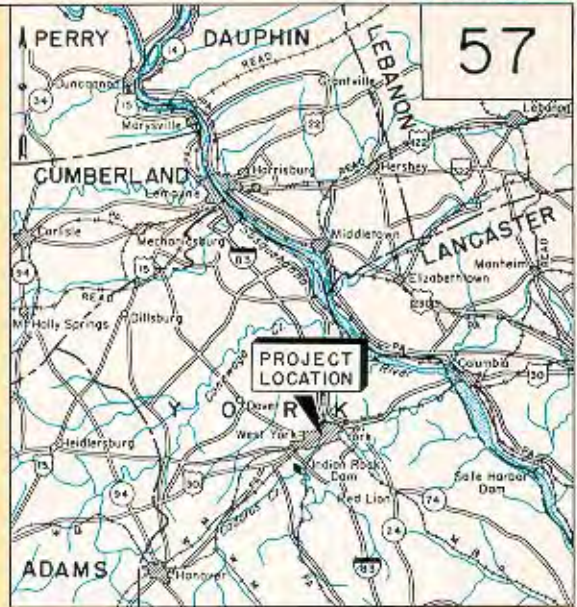
Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

Enclosure
(1: Project map)

CC:

Mr. Joseph Adams, Regional Director
Pennsylvania Department of Environmental Protection
South Central (Harrisburg) Regional Office
909 Elmerton Avenue
Harrisburg, Pennsylvania 17110

57



VICINITY MAP

SCALE OF MILES



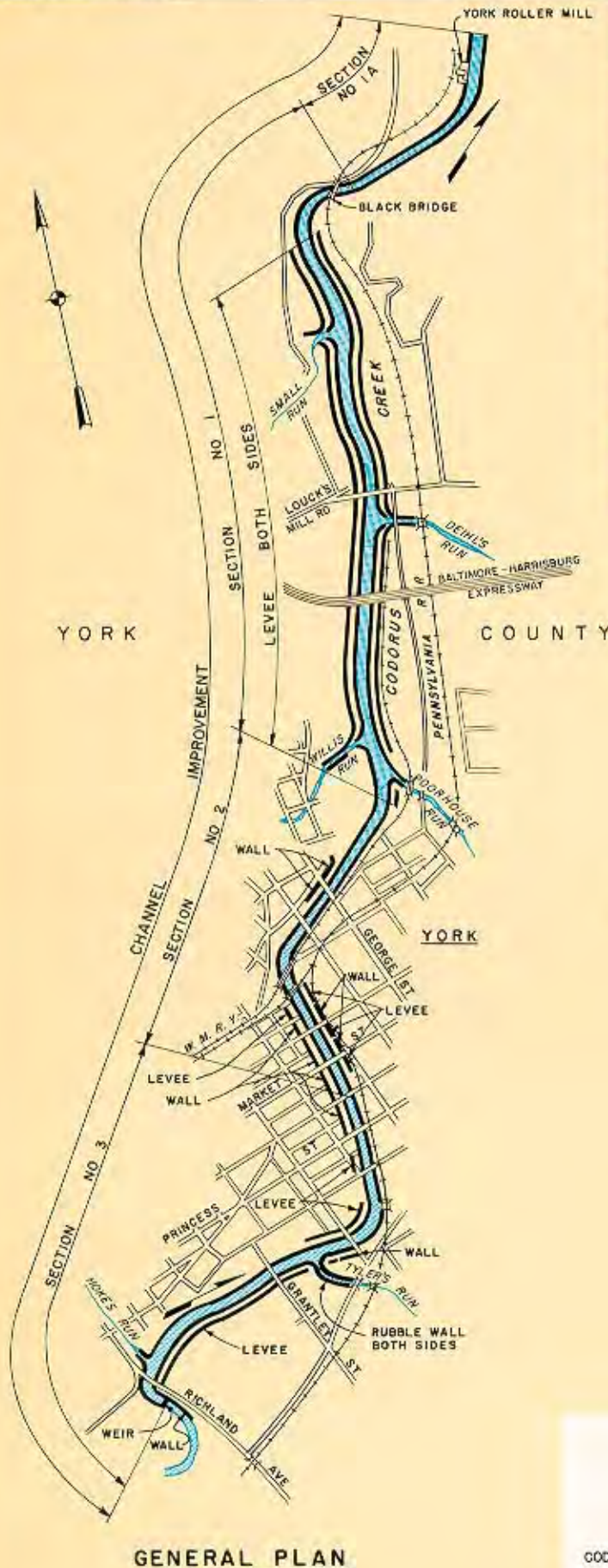
SECTION
CHANNEL AND LEVEE

NOT TO SCALE

STREAM	DRAINAGE AREA	DESIGN DISCHARGE	MINIMUM FREEBOARD
Godorus Creek	229 SqMi	24,000 CFS	3.0 Ft.

LEGEND

■ WORK COMPLETED / INDIAN ROCK DAM/
CODORUS CREEK FLOOD RISK
MANAGEMENT PROJECT STUDY AREA



GENERAL PLAN

SCALE OF FEET



SUSQUEHANNA RIVER BASIN
YORK, PA.
GENERAL PLAN & SECTION

REVISED: SEPTEMBER 1985

CODORUS CREEK

PENNSYLVANIA

SCALE: AS SHOWN

BALTIMORE DISTRICT OFFICE

BALTIMORE, MARYLAND



**DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLAZA
BALTIMORE, MARYLAND 21201**

Planning Division

March 8, 2018

Mr. Greg Podniesinski
Pennsylvania Natural Heritage Program
400 Market Street
Harrisburg, Pennsylvania 17105

Dear Mr. Podniesinski:

The U.S. Army Corps of Engineers, Baltimore District (USACE-Baltimore) is proposing to undertake major repairs to the Indian Rock Dam/Codorus Creek Flood Risk Management (FRM) Project on Codorus Creek. The project passes through West Manchester Township, Spring Garden Township, York City, North York Borough, and Springettsbury Township, all located in York County, Pennsylvania (Enclosure). The USACE-Baltimore operates and maintains the FRM project, which was constructed in the 1930s and operational in the 1940s. The project consists of 4.8 miles of FRM improvements, including a widened and deepened creek channel, levees, floodwalls, and bank protective works. The project's infrastructure is aging and in need of major repairs to ensure it continues to properly perform its FRM functions. At this time, rehabilitation of floodwall, levee, drainage structures, and bank protective works is anticipated. The USACE-Baltimore is preparing an environmental assessment (EA) for the proposed repairs in accordance with the National Environmental Policy Act of 1969, as amended. The USACE-Baltimore is coordinating this action with federal, state, and local government agencies, as well as the public in order to acquire information that may affect and assist us with the preparation of the EA and the implementation of the future maintenance work within the project. The current schedule indicates that the draft EA would be circulated for public review and comment during the Summer of 2018.

Please provide any information or concerns that your agency may have, that will assist us with proper planning of the repairs and establishment of the EA, within 30 days of the date of this letter. Also, please include a point of contact with your submittal. A public notice announcing the preparation of the EA is also being posted to the USACE-Baltimore website.

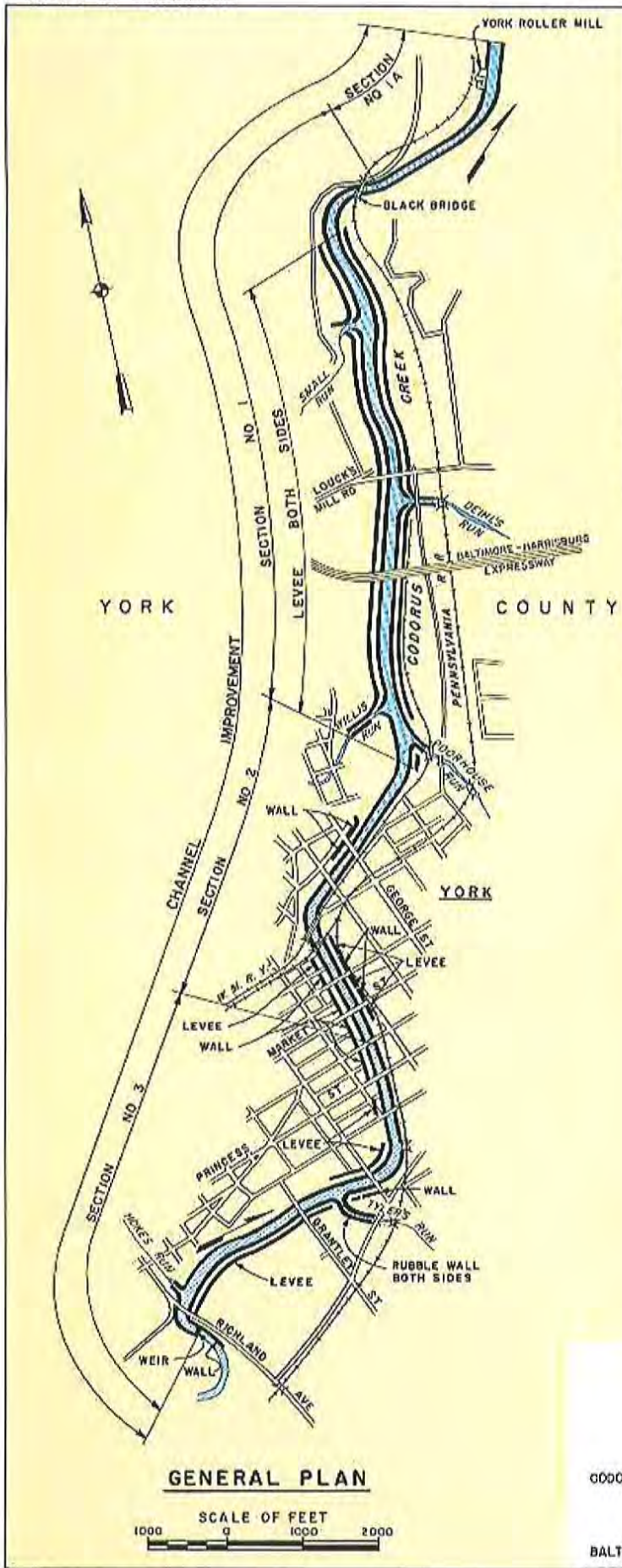
If you have any questions regarding this assessment, please contact Mrs. Tarrie Ostrofsky by telephone at (410) 962-4633, by email at Tarrie.L.Ostrofsky@usace.army.mil, or by mail at USACE, Planning Division (Attn: Ostrofsky), 2 Hopkins Plaza, Baltimore, Maryland 21201.

Sincerely,

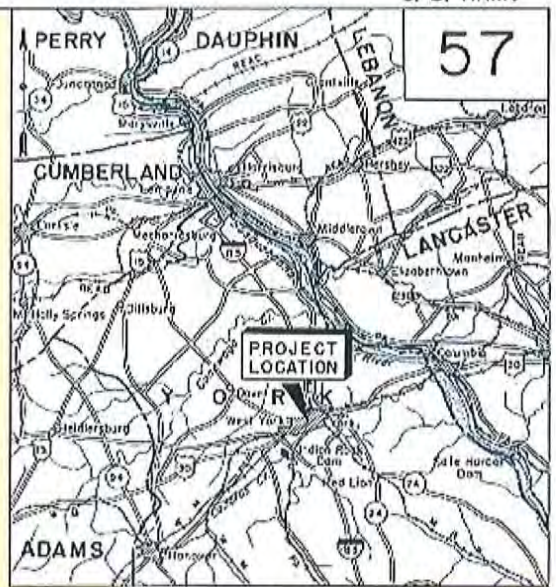
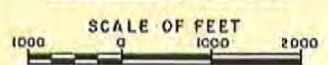
A handwritten signature in blue ink, appearing to read "Dan", written in a cursive style.

Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

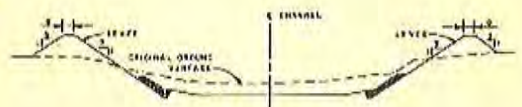
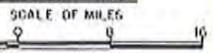
Enclosure
(1: Project map)



GENERAL PLAN



VICINITY MAP



SECTION CHANNEL AND LEVEE
NOT TO SCALE

STREAM	DRAINAGE AREA	DESIGN DISCHARGE	MINIMUM FREEBOARD
Codorus Creek	229 SqMi	24,000 CFS	3.0 Ft.

LEGEND

- WORK COMPLETED / INDIAN ROCK DAM / CODORUS CREEK FLOOD RISK MANAGEMENT PROJECT STUDY AREA

SUSQUEHANNA RIVER BASIN
YORK, PA.
GENERAL PLAN & SECTION

REVISED: SEPTEMBER 1985

CODORUS CREEK PENNSYLVANIA

SCALE: AS SHOWN

BALTIMORE DISTRICT OFFICE BALTIMORE, MARYLAND



COMMONWEALTH OF PENNSYLVANIA PENNSYLVANIA GAME COMMISSION

2001 Elmerton Avenue
Harrisburg, PA 17110-9797

Wildlife Habitat Management
(717) 787-6818

June 5, 2018

Ms. Tarrie Ostrofsky
US Army Corps of Engineers
2 Hopkins Plaza
Baltimore, Maryland 21201
tarrie.l.ostrofsky@usace.army.mil

PNDI Receipt File: *project_receipt_indian_rock_dam_codorus_c_655791_FINAL_1.pdf*
Re: Indian Rock Dam/Codorus Creek Flood Risk Management Project Repairs
Multiple Townships, York County, Pennsylvania

Dear Ms. Ostrofsky,

Thank you for submitting Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt *project_receipt_indian_rock_dam_codorus_c_655791_FINAL_1.pdf* for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

No Impact Anticipated

PNDI records indicate species or resources of concern are located within the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, the PGC has determined that no impact is likely. Therefore, no further coordination with the PGC will be necessary for this project at this time.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural

Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,



Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner



OAB/oab

cc: File



Pennsylvania Fish & Boat Commission

Division of Environmental Services
Natural Diversity Section
595 E Rolling Ridge Dr.
Bellefonte, PA 16823
814-359-5237

May 17, 2018

IN REPLY REFER TO
SIR# 49447

USACE - Baltimore
Tarrie Ostrofsky
2 Hopkins Plaza
Baltimore, Maryland 21201

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 655791_1
Indian Rock Dam/Codorus Creek Flood Risk Management Project Repairs
YORK County: Manchester Township**

Dear Tarrie Ostrofsky:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search “potential conflict” or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

An element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.

If you have any questions regarding this review, please contact Dave Lieb at 814-359-5234 and refer to the SIR # 49447. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Christopher A. Urban". The signature is written in a cursive style with a large, prominent initial "C".

Christopher A. Urban, Chief
Natural Diversity Section

CAU/DAL/dn



Pennsylvania Fish & Boat Commission

Division of Environmental Services

Centre Region Office
595 E. Rolling Ridge Drive
Bellefonte, PA 16823
(814)359-5147

April 18, 2018

Mr. Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch
ATTN: MS Tarrie L. Ostrofsky
U.S. Army Corps of Engineers, Baltimore District-Planning Division
2 Hopkins Plaza
Baltimore, MD 21201

RE: Indian Rock Dam/Codorus Creek Flood Risk Management Project
Public Notice

Dear Mr. Bierly:

The Pennsylvania Fish and Boat Commission (PFBC) appreciates the opportunity to comment on the Public Notice for the Indian Rock Dam/Codorus Creek Flood Risk Management Project. As stated in the Public Notice, the U.S. Army Corps of Engineers is proposing to undertake major repairs to the Codorus Creek Flood Risk Management (FRM) component of the overall Indian Rock Dam/Codorus Creek FRM. The proposed improvements will include repairs along approximately 4.8 miles of Codorus Creek.

The proposed project is located within Section 7 of Codorus Creek which begins at the confluence with South Branch Codorus Creek and continues northeast to the mouth at the Susquehanna River. A survey by the PFBC Area 6 Fisheries Manager was last conducted within the proposed project area on August 14, 2008. Results from the survey show that Codorus Creek supports limited population of warm water fish species including yellow bullhead, rock bass, redbreast sunfish, bluegill, walleye, smallmouth bass, and largemouth bass.

The PFBC's mission is to protect, conserve, and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities. In accordance with our mission, the PFBC recommends that the U.S. Army Corps of Engineers evaluate opportunities to improve fish habitat within the FRM zone and to assess the feasibility of providing access to the waterway.

It is our understanding that bedload deposition within the existing channel has been a recurring concern within the FRM and that routine maintenance dredging is required. The PFBC Habitat Division has been involved in similar projects in Pennsylvania and is willing to discuss "fish friendly" habitat structures that could also aid with bedload movement through the FRM zone. By incorporating proven habitat structures into the proposed design, the opportunity exists to not only improve the fishery for the local community but also reduce future maintenance costs.

The PFBC looks forward to and encourages continued cooperation with the U.S. Army Corps of Engineers as this project moves through development and design.

Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.

April 18, 2018

Please contact Tyler Neimond of our Stream Habitat Section at 814-359-5185 or at tneimond@pa.gov if you have any questions regarding habitat structures that could be incorporated in the Indian Rock Dam/Codorus Creek FRM design.

Sincerely,

A handwritten signature in cursive script that reads "Heather Smiles". The signature is written in black ink and is positioned above the printed name and title.

Heather Smiles, Chief
Division of Environmental Services

c: PFBC Andy Shiels, Tyler Neimond

Ostrofsky, Tarrie L CIV USARMY CENAB (US)

From: Braund, Jaclyn <c-jbraund@pa.gov>
Sent: Monday, March 26, 2018 10:22 AM
To: Ostrofsky, Tarrie L CIV USARMY CESAJ (US)
Subject: [Non-DoD Source] Indian Rock Dam/Codorus Creek Flood Risk Management Project

Hi Tarrie,

I have received the letter of notification for the Indian Rock Dam/Codorus Creek Flood Risk Management Project. We (DCNR) need to have more information for this in order to provide any comments or concerns. Please complete a PNDI through the Conservation Explorer Tool - conservationexplorer.dcnr.pa.gov to expedite this process.

Thanks,
Jaci

Appendix 3.0 Public Coordination

Appendix 3.1 Public Notice



US Army Corps
of Engineers
Baltimore District

MAR 12 2018

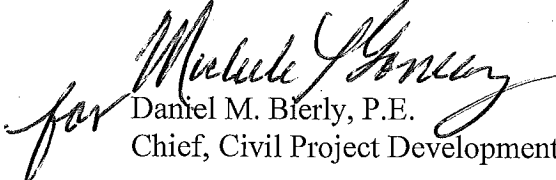
Planning Division
Public Notice

Indian Rock Dam/Codorus Creek Flood Risk Management Project, Pennsylvania

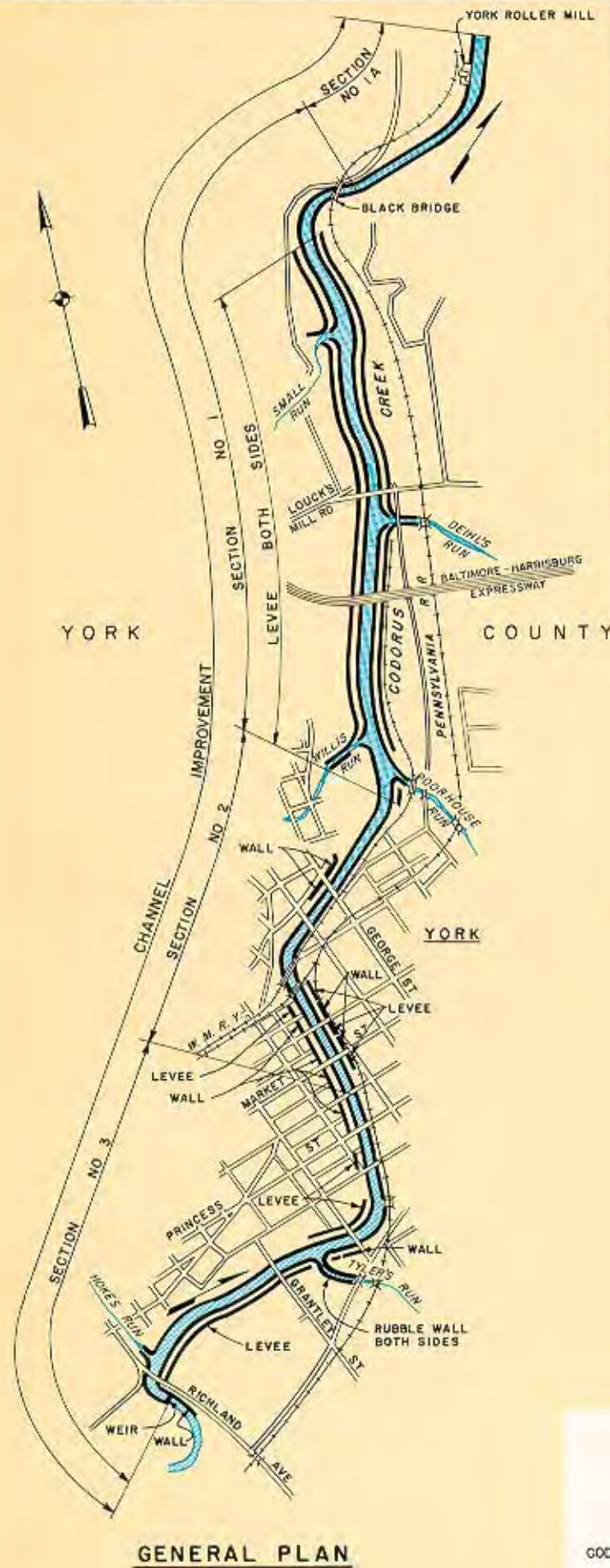
All Interested Parties: The U.S. Army Corps of Engineers, Baltimore District, (USACE-Baltimore) is proposing to undertake major repairs to the Codorus Creek Flood Risk Management (FRM) component of the overall Indian Rock Dam/Codorus Creek FRM Project on Codorus Creek. The project passes through West Manchester Township, Spring Garden Township, York City, North York Borough, and Springettsbury Township, all located in York County, Pennsylvania (Enclosure 1). USACE-Baltimore operates and maintains the FRM project, which was constructed in the 1930s and operational in the 1940s. The FRM project is 4.8 miles in length, and includes a widened and deepened creek channel, levees, floodwalls, and bank protective works. The project's infrastructure is aging and in need of major repairs to ensure it continues to properly perform its FRM functions. At this time, rehabilitation of floodwall, levee, drainage structures, and bank protective works is anticipated. USACE-Baltimore is preparing an environmental assessment (EA) for the proposed repairs in accordance with the National Environmental Policy Act of 1969, as amended. The current schedule calls for the draft EA to be publicly released in Summer 2018.

The purpose of this notice is to inform the public of the start of this assessment and to request any information that may affect the implementation of future maintenance work within the project. We request that federal and state agencies provide information concerning interests within your organization's area of responsibility or expertise, and the public provide information which may be pertinent to this project, within 30 days from the date of this notice to the address or listed below. A timely review of the enclosed information and a written response will be greatly appreciated and will assist us with preparation of the EA.

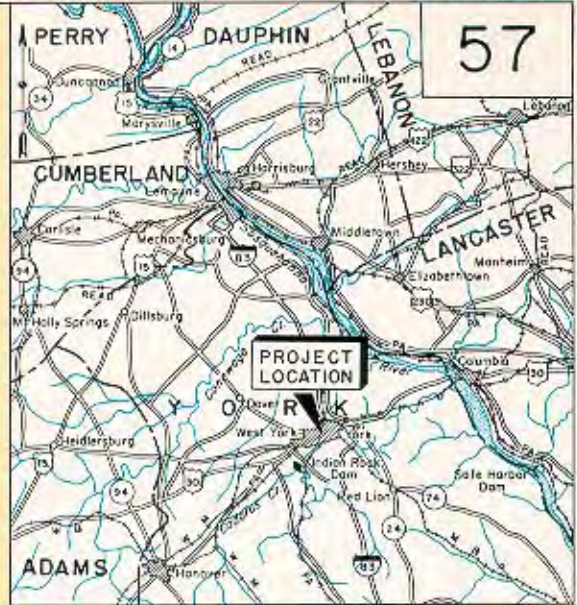
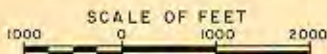
If you have any questions regarding this project, please contact Ms. Tarrie Ostrofsky by phone at (410) 962-4633, by e-mail at Tarrie.L.Ostrofsky@usace.army.mil or by mail at USACE, Planning Division (ATTN: Ostrofsky), 2 Hopkins Plaza, Baltimore, MD 21201.

for 
Daniel M. Bierly, P.E.
Chief, Civil Project Development Branch

57

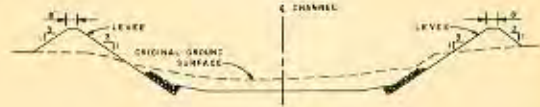


GENERAL PLAN



VICINITY MAP

SCALE OF MILES



SECTION CHANNEL AND LEVEE
NOT TO SCALE

STREAM	DRAINAGE AREA	DESIGN DISCHARGE	MINIMUM FREEBOARD
Codorus Creek	229 SqMi	24,000 CFS	3.0 Ft.

LEGEND

■ WORK COMPLETED / INDIAN ROCK DAM/
CODORUS CREEK FLOOD RISK
MANAGEMENT PROJECT STUDY AREA

**SUSQUEHANNA RIVER BASIN
YORK, PA.
GENERAL PLAN & SECTION**

REVISED: SEPTEMBER 1985

CODORUS CREEK

PENNSYLVANIA

SCALE: AS SHOWN

BALTIMORE DISTRICT OFFICE

BALTIMORE, MARYLAND

Appendix 4.0 Section 404(b)(1) Guidelines

Section 404(b) (1) Guidelines for Specification of Disposal Sites for Dredged and
Fill Material (40 CFR Part 230)
Section 404(b)(1) Evaluation
Clean Water Act

I. Project Description

a. Location - The Codorus Creek Flood Risk Management (FRM) System passes through West Manchester Township, Spring Garden Township, York City, North York Borough, and Springettsbury Township, all located in York County, Pennsylvania. The approximate coordinates of the levee system are as follows: Latitude: 39.947839, Longitude: -76.744812 to Latitude: 40.002382, Longitude: -76.720892. The levee system runs adjacent to approximately 4.8 miles of Codorus Creek and is along both banks of the Creek. Therefore, when considering both banks, the levee provides protection to nearly 10 miles of Creek bank (approximately 4.8 miles on each side). The levee construction consisted of approximately 23,000 feet of channel improvement, including channel widening and deepening, construction of flood walls and levees, protection of bank slopes, and removal of a mill dam which increased channel capacity to 24,000 cubic feet per second (cfs). The levee consists of eight hydraulically independent levee systems: York Northeast, York Northwest, York East Loucks Mill, York West Willis Run, York East Downtown, York West Downtown, York Southeast, and York Southwest. The U.S. Army Corps of Engineers (USACE) easement setback throughout the levee system varies, with some segments consisting of a USACE setback of up to approximately 30 feet and other segments where the USACE setback ends directly on the outside edge of the levee (i.e., floodwalls), approximately 5 feet. Codorus Creek is a perennial, nontidal, freshwater stream.

b. General Description - The project proposes multiple levee rehabilitation activities. The work tasks have been prioritized in accordance with those which have been identified through a periodic inspection as requiring repair/rehabilitation action at the present time. These work tasks include the following:

Proposed Current Work Tasks:

- (1) floodwall replacement near the Penn Street Bridge, including the removal of two small bridges and replacement and addition of riprap at the base of the new floodwall;
- (2) levee wall bulge repairs near the Market Street Bridge;
- (3) bank stabilization near the South Richland Avenue Bridge; and
- (4) cleaning, repair, replacement, and/or abandonment of drainage conduits along the length of the levee system.

Future rehabilitation work tasks to restore the project to the authorized design would also be covered by this document in the cumulative impacts evaluation.

c. Authority and Purpose

Authority: The project was authorized by the Flood Control Act of June 22, 1936, as amended by the Flood Control Act of June 28, 1938, and is described in House Document No. 702, 77th Congress, second session. The project contributes to Executive Order 13508 (Chesapeake Bay Restoration and Protection) goals to protect habitat and water quality within the Chesapeake Bay watershed by providing a stable levee system within a tributary of the Chesapeake Bay, thereby reducing erosion of the creek banks and sediment load from entering into the Chesapeake Bay watershed. The project is solely operational (i.e., not recreational).

Project Purpose: The Codorus Creek FRM levee system was authorized under the Flood Control Act of 1936 to provide flood protection to the City of York and downstream communities. The levee system has been in operation since the 1940s. During the USACE 2015 periodic inspection of the levee system, deficiencies were identified which need to be addressed. The overall purpose of this proposed action is to rehabilitate and repair the Codorus Creek FRM levee system and the overall reliability of the Indian Rock Dam/Codorus Creek FRM project. The proposed work tasks are intended to restore the levee system to its originally-authorized design flood control capacity and integrity. Absent repairs and rehabilitation of the Codorus Creek FRM levee system, the existing conditions of the levee would continue to deteriorate and become compromised. The fiscal 2018 President's Budget includes \$15.9 million for operation and maintenance of the aging Codorus Creek FRMS. The proposed rehabilitation and maintenance actions include four primary work tasks that the USACE identified as being the highest priorities, and which are proposed to occur in the near future. These work tasks are identified in Section I.b. under Proposed Current Work Tasks.

d. General Description of Dredged or Fill Material:

(1) General Characteristics of Material (grain size, soil type) – The fill materials that would be utilized for construction of the work tasks (e.g., bank stabilization) would include materials classified by ASTM D 2487 as GW, GM, GC, SW, SM, SP, SC, ML, or combinations thereof. These include fine and coarse grained gravels, sands, silts, and clays. 18 inch diameter riprap, or similar size, would be utilized along the levee banks. 12-inch diameter riprap and bedding stone would also be utilized along with the 18 inch diameter riprap and geotextile or bedding for stabilization. Temporary fill, to include cofferdams and in-water pump around devices, would be expected to be utilized. The cofferdams may consist of metal or fiberglass sheet piles.

(2) Quantity of Material (cubic yards) – The cubic yards of material would be the minimum amount necessary to perform the work tasks. Some of the work would occur above the ordinary high water mark of the stream (e.g., bulge repair), and would not result in a discharge of fill material into waters of the United States. The floodwall replacement near the Penn Street Bridge would occur within its approximate same footprint; therefore, it is not expected that additional permanent fill would be required. Riprap, which is currently located along the base of the floodwall, would be sorted and replaced with suitable sized riprap (e.g., 18 inch diameter riprap). Two bridge structures crossing Tyler's Run would also be removed. No design documentation has been identified which indicates the construction or age of the bridges. Visual observations indicate the bridges are of steel I-Beam type on each exterior span side with lateral and bracing support induced by welded steel girders. Contained within the girder shapes are concrete platforms. It appears a portion of the masonry wall on both banks was removed for placement of the bridges. Removal of the bridges is expected to occur from uplands using an excavator which would move bridge materials onto the adjacent uplands. Removal is not expected to result in the addition of permanent fill into waters of the United States. The bank stabilization work task at the South Richland Avenue Bridge would involve re-sloping of the levee banks and installation of new riprap along a 190 foot length of unprotected channel bank to stabilize the existing floodwall tie-in. The anticipated amount of riprap is approximately 1,700 cubic yards. Additionally, approximately 4,200 cubic yards of soil would be utilized for the re-sloping of the embankment. Temporary fill (e.g., sheet piles) would be necessary for in-water best management practices, to minimize the occurrence of construction related activities from affecting adjacent waters. The temporary fill would be limited to the footprint of individual project construction zones. However, there would be work (e.g., conduit maintenance) on both banks along the length of the levee system where temporary containment structures may be necessary. Estimating 10 miles (4.8 miles on each side), with an approximate 0.375-inch thickness of sheet piles, it is calculated that if cofferdams were to be installed at various times along the entire length of the levee system, the area of in-water containment would be approximately 7 acres, of which the temporary fill for sheet pile installation would be approximately 0.40 acre.

(3) Source of Material – The fill material would be obtained from a commercial source. The fill material would be free from items such as trash, debris, automotive parts, asphalt, construction materials, and concrete block with exposed reinforcement bars. Additionally, fill material would be free from soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act. Large riprap which is existing in the stream may also be used if size and condition is acceptable.

e. Description of the Proposed Discharge Sites

(1) Location – The location where the work would occur is within Codorus Creek which runs through the levee system, along the levee banks and floodwalls, and adjacent to the levee system. Codorus Creek is a perennial, nontidal, freshwater stream.

(2) Size (acres) – The work would occur within and adjacent to Codorus Creek. In-water work involves placement of temporary best management practices, such as turbidity barriers and potentially coffer dams. The size of the in-water temporary work zones would be the minimum necessary in order to sufficiently and effectively protect the quality of the waters. Permanent impacts to waters of the United States would also occur for some of the proposed work tasks. The approximate 600-linear-foot floodwall replacement near the Penn Street Bridge would be performed in-kind, thus not resulting in increased area of permanent discharges into waters of the United States. However, riprap would be replaced/installed at the base of the Penn Street Floodwall for stabilization. This would be the minimal necessary in order to stabilize the new floodwall and is anticipated to be within an area of approximately 0.30 acre. Two small bridges would also be removed as part of the Penn Street Floodwall replacement work task. The bridges span Tyler's Run and would not result in permanent impacts to waters of the United States. Additionally, no removal of material from Tyler's Run is proposed at this location. Temporary impacts during removal of the bridges may be within an approximate 0.25 acre area of waters for construction through use of in-water best management practices, if needed. Permanent impacts to waters of the United States would occur for the bank stabilization work task near the South Richland Avenue Bridge. The extent of stabilization work is approximately 690 linear feet adjacent to the existing floodwall upstream of South Richland Avenue Bridge along the east bank of Codorus Creek. This work includes (1) stabilization of existing riprap along a 500 foot length of channel bank starting from the South Richland Avenue Bridge to 500 feet upstream along the east bank of Codorus to where the existing riprap ends and (2) installation of new riprap along an approximately 190 linear foot length of eroded channel bank located immediately upstream of the existing riprap (proposed for stabilization as part of this work) and riverside of the existing floodwall. The installation of new riprap is anticipated to extend approximately 10 feet channelward with an area of approximately 1,880 square feet (0.04 acres) inside the channel to tie-in the riprap toe to the bottom of the channel. Temporary in-water containment structures (e.g., cofferdams) would be necessary in order to contain the construction zone for this work and is anticipated to comprise approximately 0.20 acre. Permanent fill is not anticipated for the conduit maintenance work task. However, temporary fill would be necessary for in-water containment structures at sporadic locations on both sides along the length of the approximate 4.8 mile levee project. The conduits are present at varied locations and along both sides of the levee system. Considering the total length of the levee (approximate length of 4.8 miles, with work along both banks, equals approximately 10 miles of levee bank), and an approximate 6-foot channelward extent for placement of in-water best management practices (e.g., sheet piles for cofferdams), an estimated

calculation of in-water temporary best management practices where waters would be contained is approximately 7 acres. Of the approximate 7 acres of contained waters, approximately 0.40 acre would consist of sheet piles. In-water work (e.g., containment) would not all occur at one time.

(3) Type of Site (confined, unconfined, open water) – The waters within the area of review are confined. Within the project area, Codorus Creek flows through an approximate 4.8 mile levee system. The width of the Creek within the levee system varies, from a base width of approximately 80 feet to approximately 200 feet. The average height from the Creek bed is approximately 25 feet. The channel has a design capacity of 24,000 cfs. The average depth of the stream is approximately 3 feet. The depth behind the City of York's Bascule Dam in a raised position is approximately 6 feet.

(4) Type of habitat – The waters within the project area of review are classified as supporting warm water and migratory fishes. There are numerous silt, sand, and gravel deposits throughout the project. These areas are frequented by local and transient wildlife.

(5) Timing and Duration of Discharge – The in-water work would occur over the course of approximately 24 months for the floodwall replacement project near the Penn Street Bridge, approximately 6 months for the bank stabilization work near South Richland Avenue, and 6 months for the drainage conduit maintenance work. If work tasks remain on the anticipated schedule, the bank stabilization and drainage conduit work tasks are anticipated to commence in the latter part of FY 2018, but more likely in FY 2019. The floodwall replacement work is anticipated to commence in FY 2019. The bulge repairs are anticipated to commence in FY 2019; however, this work task would not involve impacts to waters of the United States.

f. Description of Disposal Method – The method of the work would involve the use of heavy machinery both in the Creek and stationed at the top of the levee bank. The installation of turbidity curtains would likely occur by hand, and if cofferdams are utilized, this would occur through the use of machinery either within the Creek or from the top of the levee bank. Removal of riprap would occur primarily by machinery, likely stationed on the top of the levee bank. Excavation of materials would involve use of a front-end loaders, backhoes and trackhoes. All materials which would be generated from project activities, such as demolition, excavation, drainage pipe cleaning, etc., would be contained and disposed of at approved upland disposal sites. Potential disposal sites would include Construction and Demolition Waste Landfills in Pennsylvania. If materials tested at the Penn Street Floodwall location would contain any hazardous materials, the materials would be taken to an approved hazardous waste disposal site. Sites would need to be approved by regulatory authorities prior to disposal.

II. Factual Determinations

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope –The proposed work tasks primarily involve work along the walls and banks of the levee system. The replacement of the floodwall near the Penn Street Bridge would be within the approximate footprint of the existing floodwall, and the riprap at the base of the wall would be replaced with suitable sized stone (i.e., 18 inch diameter riprap) to protect the wall. The removal of the bridges would not permanently alter substrate elevation and slope, as the bridges span Tyler’s Run and would be removed via an excavator with bridge materials being placed on the adjacent uplands. No material is proposed to be removed from Tyler’s Run at this location. The bank stabilization near the South Richland Avenue Bridge would re-establish the slope to its authorized design of two feet horizontal to one foot vertical. New riprap placement is anticipated to be placed along 190 linear feet of the Creek, to a channelward distance of approximately 10 feet. The slope at the location of new riprap placement will be graded to one and a half feet horizontal to one foot vertical to reduce the steepness of the existing creek bank for riprap placement. The bulge repairs would not involve impacts to waters of the United States and would have no effect on substrate elevation and slope. Conduit maintenance activities would require temporary containment structures in waters of the United States in order to perform the work and collect sediments from the conduit pipes. This would temporarily alter substrate elevation and slope. However, upon removal of the temporary structures, the substrate conditions would be similar to the pre-construction conditions through natural stream current movement of substrate materials.

(2) Sediment Type – The substrate type near the Penn Street Bridge includes a stratum of random fill material over the entire project site to a depth of 20 feet composed primarily of gravel, sands, and silts as well as concrete and brick debris from previous demolitions at the site. Underlying this stratum is a sandy silt layer to a depth of 16-18 feet and below that a soft silt layer and silty gravel/sand layer resting on bedrock. Soil composition for the general FRM project area is included in the soil classification report included in the associated EA in Appendix 1.8. This soil classification survey identifies a majority of the area adjacent to the levee system as containing urban soil.

The proposed work task actions would not significantly alter the existing sediment type throughout the length of the levee system. The levee is a manmade structure which contains approximately 4.8 miles of Codorus Creek, and the levee system and Creek have been subjected to periodic maintenance activities, to include riprap placement, excavation of shoals, etc., necessary to ensure the integrity of the levee system. The proposed replacement of the existing floodwall near the Penn Street Bridge would occur within its approximate existing footprint, and existing riprap at the base would be replaced, with suitable

sized stone (i.e., 18 inch diameter riprap). The removal of the two bridges would not permanently alter substrate type, as the bridges span Tyler's Run, and no material is proposed to be removed from Tyler's Run at this location. The levee bank near the Market Street Bridge is eroding, and as a result, upland materials are entering into the Creek. Stabilization of the levee bank at this location would positively alter the sediment type by protecting the bank from further erosion and continued sedimentation of the Creek. The work within the drainage pipes would not alter the sediment type, as the sediments which would be ejected from the drainage pipes during the cleaning process would be contained and disposed of at an approved upland disposal site. The proposed bulge repairs would occur outside of waters of the United States. Construction zones would be protected through the use of best management practices in uplands to ensure sediments do not enter into the Creek, and in-water containment structures, to limit the occurrence of construction materials from entering into waters outside of the work zones. Upon removal of the temporary in-water containment structures, the substrate conditions of the Creek would be similar to the pre-construction conditions through natural stream current movement of substrate materials. Based on the above factors, the proposed project work tasks would result in minimal effects to the physical substrate.

(3) Dredged/Fill Material movement - There may be temporary adverse effects during in-water construction activities, such as increased erosion, transportation of sediments, changes to the bottom contours of the Creek, etc., during construction activities. However, this would be minimal due to the implementation of the use of best management practices to contain sediments within the construction zones. Upon completion of construction activities, the work zones would be stabilized. Given the above factors, it is expected that there would be short-term adverse effects on material movement. Long-term effects from slope stabilization would be beneficial due to the rehabilitated levee system.

(4) Physical Effects on Benthos (burial, changes in sediment type) - Permanent adverse effects would occur to any benthos present within the footprint of in-water discharge locations as a result of fill and excavation activities due to smothering and removal of existing organisms. Additionally, if heavy machinery within the Creek would be necessary, benthos that are present would also be adversely affected by compaction of substrate and smothering. Given that some of the proposed work tasks would occur within their approximate existing footprints, and some activities would occur solely above the limits of the ordinary high water mark, the adverse effects would be minimal. Additionally, repopulation of species within the disturbed areas once construction is completed is expected to occur as organisms recolonize within the impact locations. In-water work would occur within distinct locations (e.g., bank stabilization), as well as at sporadic locations (e.g., conduit maintenance) along the length of the levee system. Using an approximate calculation of the length of the levee, work along both banks, and 6-foot channelward, approximately 7 acres of temporary in-water

containment (not all direct fill) may occur over the course of the work tasks. In-water permanent riprap is anticipated to be replaced/installed within an approximate 0.30 acre area near the Penn Street Floodwall location and a 0.12 acre area at the South Richland Avenue Bridge bank stabilization location, which includes impact to a 0.04 acre area of channel previously undisturbed but affected by existing bank erosion. Based on the above factors, there would be minimal short-term and long-term adverse effects to benthos due to temporary and permanent fill. However, the long-term effects would be minimal.

(5) Other Effects – Any adverse effects to resources are expected to be short-term and temporary. The rehabilitation and repair work tasks would address the existing conditions of the deteriorating floodwall and bank erosion. The work would result in a stable system and reduction of erosion.

(6) Actions Taken to Minimize Impacts – The proposed alternative for each work task has been designed to provide the required restoration of the levee system while resulting in the least amount and degree of impacts to aquatic resources and organisms. The floodwall near the Penn Street Bridge would be replaced within the approximate footprint of the existing floodwall, and the levee bank stabilization work task near the South Richland Avenue Bridge would reduce sedimentation of the Creek. Additionally, where feasible (e.g., where adjacent uplands provide suitable conditions), work would be performed through machinery stationed at the top of the levee. If machinery would be utilized within the Creek, this would occur in the dry or during low flow, when feasible to do so. Sediment erosion and control plans would be prepared and adhered to with best management practices implemented, for each proposed work task, to minimize the discharge and suspension of sediments during construction activities. This would include turbidity curtains; potentially cofferdams to protect the work zone; potentially water pump around techniques to dewater the work zones, if needed; silt fences; etc. Upon completion of the construction activities, the upland work sites would be stabilized to minimize the occurrence of erosion into waters of the United States.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water

(a) Salinity – N/A

(b) Water Chemistry – A marginal and short-term effect on water chemistry would occur from disturbance caused by construction activities in and adjacent to the creek. These changes may include temporary increases in suspended solids, soil particles, and organic materials in the creek near affected work areas. No long-term effects to water chemistry are expected.

(c) Clarity - There would be a minor and temporary change in water clarity during construction due to some of the proposed work tasks involving in-water activities. However, the in-water work areas would also be protected through the

utilization of best management practices, to include turbidity curtains, potentially cofferdams, etc. Additionally, the upland work areas would also be protected during construction activities through the use of best management practices, to include sediment barriers, which would contain sediments which would be generated by the project. Water clarity is expected to return to pre-construction conditions once construction is completed, as turbidity is reduced, suspended sediments settle out, and the water column is restored. Therefore, the effect on water clarity would be minor and short-term. No long-term effects to water clarity are expected.

(d) Color - Marginal and temporary changes to water color are expected to occur during construction due to increases in turbidity, suspended sediments, etc. However, the work zones would be protected through the utilization of best management practices, to include turbidity curtains, potentially cofferdams, silt fences, etc. Water pump around techniques may be utilized, if necessary. Water color is expected to return to pre-construction conditions once construction is completed as suspended turbidity is reduced, sediments settle out, and the water column is restored. Therefore, the effect on water color would be minor and short-term. No long-term effects to water color are expected.

(e) Odor – The proposed project activities are not expected to result in changes to water odor. All materials to be used for construction activities would be clean and free of pollutants. The proposed construction areas would be protected through the utilization of best management practices. Therefore, there would be no expected effects to water odor.

(f) Taste – There would be no effect to water taste, as the waters where work is proposed are not utilized as potable water resources. Therefore, effects to water taste are not applicable to this project.

(g) Dissolved Gas/Oxygen Levels – The proposed project activities may result in minor and temporary changes to the dissolved oxygen levels within the Creek during construction activities. No long-term adverse effects to dissolved oxygen levels are expected.

(h) Nutrients – The project work tasks may temporarily increase nutrient loads into the waterway during construction. However, this would be minimal due to the construction zones being protected by best management practice measures. Utilizing best management practices would minimize the release of construction materials from entering into the waters. If some materials do enter into the Creek, it is expected that the effects to the existing nutrient levels would be minor and short-term. No long-term adverse effects in regard to nutrient levels are expected.

(i) Eutrophication – The levee system runs through a multitude of adjacent land use classifications, to include residential, mixed use, institutional, commercial, industrial, transportation, and open space. As a result of the adjacent land uses, the waters are subjected to activities that routinely occur, including storm water runoff. The project work tasks are not expected to result in increases in dissolved nutrients (such as phosphates), as the construction zones would be protected and contained to minimize the transport of construction materials into the waters. However, if some materials were to enter into the

waters, it is expected that the effect to the existing eutrophication would be minor and short term. No long-term adverse effects are expected.

(j) Others as Appropriate – All work activities would be required to adhere to federal, State, and local conditions. This would likely include monitoring to ensure that temporarily disturbed upland areas utilized for site access, staging of equipment, etc., have been restored in order to minimize the potential of erosion of upland materials from entering into waters of the United States (i.e., replanting of uplands, etc.).

(2) Current Patterns and Circulation

(a) Current Patterns and Flow – Current patterns and water flow would be temporarily affected as a result of the use of in-water best management practices which would surround the construction zones (i.e., cofferdams). The flow would be redirected around the in-water best management practice features and would not be completely restricted. This would result in minor changes to current patterns. Upon completion of construction and removal of the best management practice features, the current patterns and flow would be restored. At completion of construction, the replacement of the floodwall near the Penn Street Bridge is not expected to alter flow, as the new wall is proposed to occur within the approximate footprint of the existing floodwall. Riprap would be replaced/added at the base of the wall for stabilization which would alter current patterns and flow during high water events. However, riprap does exist at this location. Installation of new riprap for bank stabilization near the South Richland Avenue Bridge would also alter current patterns and flow along the bank by deflecting and decelerating rapid currents, especially following heavy rain events. Given the above factors, there would be minor short-term and long-term adverse effects on current patterns and flow.

(b) Velocity – Water velocity would be temporarily affected by the placement of in-water best management practices, such as turbidity barriers, potentially cofferdams, water pump around techniques if utilized, etc. However, this would be minor, and velocity would naturally return to preconstruction conditions upon removal of temporary construction practices. Velocity of waters adjacent to where the floodwall near the Penn Street Bridge would be replaced would not be permanently affected from the floodwall replacement activity, as the floodwall would be replaced within the approximate footprint as the existing floodwall. Water velocity where riprap would be replaced and added at the base of the floodwall would be altered during high flows; however, riprap currently exists at this location. Additionally, velocity where the two small bridges would be removed may be affected during removal; however, there would be no change following removal, as the bridges completely span Tyler's Run, and no material is proposed to be removed from Tyler's Run at this location. The water velocity where bank stabilization work is proposed near the South Richland Avenue Bridge would be altered as a result of a slightly reduced channel width at this location. However, the velocity would be reduced through the addition of rough rock along the banks which would act to deflect rapid currents, thereby, reducing

the potential of erosion along the levee banks. Based on the above factors, there would be minor short-term and long-term adverse effects on water velocity. The long-term effects would be beneficial. There would be no long-term adverse effects to velocity.

(c) Stratification – The waters within the project area of review are nontidal freshwater tributaries and are not stratified. Therefore, stratification is not expected to be affected by the proposed work tasks.

(d) Hydrologic Regime – Codorus Creek within the levee system transports perennial flow. The hydrologic regime of the Creek adjusts as a result of storm events and seasonal changes. Some of the project work tasks would be expected to result in a minor and short-term change to the existing hydrologic regime due to the implementation of in-water best management practices, such as turbidity curtains, potentially cofferdams, and if water pump around techniques are utilized. Once construction is completed, the hydrologic regime is expected to return to pre-construction conditions throughout the levee system. Given the above factors, adverse effects on the hydrologic regime would be minor and short-term. No long-term adverse effects are expected, and the hydrologic regime would be improved.

(3) Normal Water Level Fluctuations – Water fluctuations would be temporarily altered within the in-water construction zones during work activities as a result of in-water construction best management practices. This would include the use of coffer dams and/or water pump around techniques. However, this would be minor and short-term, as water levels and fluctuations would naturally return to preconstruction conditions after the temporary best management practices are removed. The proposed work tasks are not expected to result in major permanent water level fluctuation changes, as the majority of work would occur outside of waters of the United States. Permanent fill includes fill material for bank stabilization and riprap, both of which would be the minimal amount necessary to achieve appropriate bank stabilization and erosion control results. Based on the above factors, there would be minor and short-term adverse effects on normal water fluctuation from installation of temporary containment structures. No adverse long-term effects are expected, and long-term effects would be beneficial.

(4) Salinity Gradients – N/A

(5) Actions that will be Taken to Minimize Impacts - The construction zones would be protected through the utilization of best management practice measures. These would include, but are not limited to, in-water turbidity curtains, potentially cofferdams, sediment control barriers, staging of equipment outside of waters of the United States, etc. The barriers would minimize the potential for release of construction materials entering into the waters. Additionally, water pump around techniques may be utilized during construction to minimize water level fluctuations within the vicinity and downstream. All work tasks would be required to adhere to federal, State, and local conditions. Monitoring of disturbed

upland locations would also be expected to occur to ensure stabilization of disturbed upland staging and access areas (e.g., replanting of disturbed uplands).

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site – It is expected that there would be a local increase in turbidity within the limits of disturbance of the project work tasks during construction. However, this would be minimal given the use of best management construction practices. Additionally, the completion of the levee bank stabilization work task near the South Richland Avenue Bridge would result in a reduction of suspended particulates within its vicinity and downstream. Given the above factors, it is expected that minor and short-term adverse effects to suspended particulates and turbidity levels would occur during construction. No adverse long-term effects are expected to occur, and the project is expected to result in beneficial long-term effects.

(2) Effects on Chemical and Physical Properties of the Water Column

(a) Light Penetration – The project work tasks would result in a minor and short-term adverse effect on light penetration as a result of turbidity and suspended sediments during in water construction activities. However, this would be minimal given the use of best management construction practices, and light penetration within the waters would return to preconstruction conditions upon completion of construction activities. The removal of the two bridges would result in additional light penetration to waters. However, this would be minimal, as the bridges are small in size, measuring approximately 40 feet long by 15 feet wide and approximately 30 feet long by 15 feet wide. No adverse long-term effects are expected to occur to light penetration.

(b) Dissolved Oxygen - The proposed project activities may result in minor and temporary changes to the dissolved oxygen levels within the Creek during construction activities. No adverse, long-term effects are expected.

(c) Toxic Metals and Organics – All materials to be used for construction activities would be clean and free of pollutants. Additionally, the proposed construction zones would be protected and contained through the utilization of best management practices. Testing and monitoring of soils near the Penn Street floodwall replacement site would also occur prior to and during construction activities given the findings of one test site resulting in lead content higher than the PADEP standard. This would minimize the potential of toxic metals and organics from entering into the waters. Based on these factors, it is expected that the project activities would not affect the water column in regard to toxic metals and organics.

(d) Pathogens – The waters within the project area of review are not utilized as a drinking source. However, they are accessible for recreational activities, such as fishing and boating. All materials to be used for construction activities

would be clean and free of pollutants, and the construction work zones would be contained and protected. Given these factors, the project work task activities are not expected to effect the levels of pathogens within the waters.

(e) Aesthetics – The levee system is currently showing signs of deficiencies along segments which are in need of rehabilitation, repair, or replacement. The existing conditions at these locations are that of deteriorating floodwalls, bulges within the floodwalls, eroding stream banks, etc. The project would result in the replacement of the floodwall near the Penn Street Bridge within its approximate footprint and dimensions. Additional riprap would be installed at the base of the new floodwall; however, riprap of varied sizes currently exists at this location, and replacement/addition of riprap would be a minimal change to the current conditions. Removal of the two small bridges would result in changes to the aesthetics; however, the bridges exhibit deterioration of the masonry wall with missing stones, cracking, displaced mortar, and spalling, and staining is present. Removal would be an improvement to aesthetics. The project would also result in repair of the bulges within the floodwalls near Market Street Bridge, and stabilization of the eroding stream bank near the South Richland Avenue Bridge. The conduit maintenance work would not result in major alterations to the aesthetics, as the conduits run through the levee banks. Aesthetics would be temporarily impacted during construction activities. However, upon completion of construction activities, the work would result in long-term beneficial affects to aesthetics. Based on the above factors, the project work tasks are expected to result in minor adverse short-term effects on aesthetics (e.g., during construction) and minor long-term beneficial effects to the aesthetics of the area.

(f) Others as Appropriate - The work tasks would be required to adhere to all federal, State, and local special conditions, to include site monitoring.

(3) Effects on Biota

(a) Primary Production, Photosynthesis - It is expected that there would be an increase in turbidity within the limits of disturbance of the project work tasks during construction. This would affect photosynthesis, depending on the duration that these conditions occur. However, this would be minimal given the use of best management construction practices which would protect and contain the work zones. It is expected that adverse effects would be minor and short-term. Additionally, the proposed stabilization of the eroding levee bank near the South Richland Avenue Bridge would result in reduced suspended particulates upon completion of construction. Therefore, photosynthesis within the vicinity, and potentially downstream, would be improved due to reduced erosion. No expected long-term, adverse impacts are expected.

(b) Suspension/Filter Feeders - Minor, temporary, and localized adverse effects on suspension/filter feeders (e.g., freshwater mussels), if present, may occur due to turbidity and suspended particulates within the water column during construction. The degree of the effect would depend on the duration of the turbidity. However, it is expected that the effect would be minimal given the use of best management construction practices which would protect and contain the

work zones, minimizing the potential and extent of suspended sediments. Additionally, the proposed stabilization of the eroding levee bank near the South Richland Avenue Bridge would result in reduced suspended particulates upon completion of construction. A reduction of suspended particulates within the vicinity, and potentially downstream, would provide improved conditions for filter feeders. Short-term and temporary adverse effects would occur from this proposed project. No long term adverse impacts are expected. Beneficial long-term effects would occur.

(c) Sight Feeders – Given the expectation that there would be an increase in turbidity within the limits of disturbance of the project work tasks during construction, there would be a minor and short-term adverse effect on sight feeders. Upon completion of construction activities, areas where erosion and suspended particulates are present would be reduced due to the bank stabilization activities. No long-term, adverse effects to sight feeders are expected. Beneficial effects would occur as a result of reduced sedimentation of waters.

(4) Actions taken to Minimize Impacts: The proposed alternative for each work task has been designed to provide the required restoration of the levee system while resulting in the least amount and degree of impacts to aquatic resources and organisms. The floodwall near the Penn Street Bridge would be replaced within the approximate footprint of the existing floodwall, and the levee bank stabilization work task near the South Richland Avenue Bridge would reduce sedimentation of the Creek. Additionally, where feasible, work would be performed through machinery stationed at the top of the levee. If machinery would be utilized within the Creek, this would occur in the dry or during low flow, when feasible to do so. Sediment erosion and control plans would be prepared and adhered to with best management practices implemented, for each proposed work task, to minimize the discharge and suspension of sediments during construction activities. This would include turbidity curtains; potentially cofferdams to protect the work zone; potentially water pump around techniques to dewater the work zones, if needed; silt fences; etc. Upon completion of the construction activities, the work sites would be stabilized to minimize the occurrence of erosion.

d. Contaminant Determinations – There are no properties which are listed on the Toxic Release Inventory; generators, transporters, treaters, storers, or disposers of hazardous waste; or Brownfield sites located within the levee system area of review. The area adjacent to the floodwall near the Penn Street Bridge was previously the property of a paper mill with a history of cardboard manufacturing. The property and structures are currently under the ownership of York College. The USACE performed a groundwater evaluation in 2011 and soils evaluation in 2012. The evaluation consisted of four soil borings drilled to 25-feet below ground surface or bedrock, whichever was shallower, two test pits; two existing monitoring wells, and one surface water sample. The findings of the soil sample results were below the PADEP Act 2 non-residential surface soil criteria, except

for an isolated occurrence with a lead concentration of 2800 mg/kg. The findings of the groundwater survey indicated that groundwater was encountered at a depth of 15.3 to 19.5 feet below ground surface, and the groundwater samples were below the PADEP Act 2 MSC for non-use aquifers; and the surface water had no exceedance of the PADEP surface water quality standards. Additionally, construction and fill material would be free from items such as trash, debris, automotive parts, asphalt, construction materials, and concrete block with exposed reinforcement bars. Construction and fill material would be free from soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act. Given the above factors, the project would not result in contaminants entering into the waters of the United States.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton - Impacts from turbidity generated during construction are anticipated to be minor and localized to the immediate construction area. No long-term adverse effects are expected.

(2) Effects on Benthos - Permanent impacts would occur to any benthos living in the footprint of the proposed in-water discharge locations as a result of discharges of fill smothering existing benthos and excavation removing benthos. Heavy machinery working in the Creek may be necessary. This would directly impact benthos due to compaction and smothering. Repopulation of the disturbed areas to pre-project levels is expected to occur as species repopulate within the work zones. Therefore, the adverse effects to benthos would be minimal and short-term. No long-term adverse effects are expected to occur.

(3) Effects on Nekton – It is expected that adverse effects on nekton would occur during construction due to the implementation of the in-water best management practice construction measures. The presence of in-water barriers would result in actively swimming aquatic organisms being blocked from entering into the work zones, thereby, altering their path. There would be sufficient area of waters outside of the work zones where aquatic organisms could travel. Therefore, it is expected that the adverse effects on nekton would be minor and short-term. No long-term adverse effects are expected.

(4) Effects on Aquatic Food Web – No change to the aquatic food web is expected as a result of the proposed project work tasks. Best management practices would be implemented and adhered to during construction, and the work zones would be stabilized post construction to minimize erosion and sedimentation of the waters.

(5) Effects on Special Aquatic Sites

(a) Sanctuaries and Refuges – N/A. The proposed project work tasks are not located within any areas determined to be sanctuaries or refuges.

(b) Wetlands – N/A. The proposed project work tasks are not located within any areas determined to contain wetlands.

(c) Mud Flats – N/A. The proposed project work tasks are not located within any areas determined to contain mud flats.

(d) Vegetated Shallows – N/A. The proposed project work tasks are not located within an area determined to contain vegetated shallows.

(e) Coral Reefs – N/A. The proposed project work tasks are not located within any areas determined to contain coral reefs.

(f) Riffle and Pool Complexes – The waters within the project area of review flow along a relatively low gradient. Therefore, riffle and pool complexes would be minimal. Additionally, the project work tasks would result in the rehabilitation and repair of the existing levee system floodwalls and earthen banks. Periodic dredging of the Creek has occurred where deposits have formed. However, no dredging is proposed under the current work tasks. Given the above factors, it is expected that the project would have no adverse effects on riffle and pool complexes.

(6) Threatened and Endangered Species: Two federally listed threatened species and one endangered species were evaluated as potentially occurring within the project area of review. The federally listed species include the threatened Northern long-eared bat (*Myotis septentrionalis*), threatened bog turtle (*Clemmys muhlenbergii*), and endangered Indiana bat (*Myotis sodalis*). No critical habitat for any federally listed threatened or endangered species was identified within the project area of review. Additionally, the two migratory bird species were identified as potentially utilizing the area of review. These species include the bald eagle (*Haliaeetus leucocephalus*) and wood thrush (*Hylocichla mustelina*). State listed species were also identified and include the endangered great egret (*Ardea alba*), endangered yellow-crowned night-heron (*Nyctanassa violacea*), endangered black-crowned night-heron (*Nycticorax nycticorax*), and special concern species great blue heron (*Ardea Herodias*). The USFWS provided an avoidance measure which must be adhered to due to the proximity of the project to a bald eagle nest. No other species conditions were identified. The USACE would adhere to the avoidance measure. Therefore, through adherence to the USFWS avoidance measures, the project would result in no adverse effects to threatened and endangered species.

(7) Other Wildlife - Construction would result in noise disruption of some species of wildlife during periods of work. Any urban-tolerant species in the area will easily relocate to adjacent areas. Additionally, several species are active between dusk to dawn, and work would occur during daylight hours (dawn to dusk). Therefore, the proposed project would minimally impact wildlife.

(8) Actions to Minimize Impacts: The proposed alternative for each work task has been designed to provide the required restoration of the levee system while resulting in the least amount and degree of impacts to aquatic resources and organisms. The floodwall near the Penn Street Bridge would be replaced within

the approximate footprint of the existing floodwall, and the levee bank stabilization work task near the South Richland Avenue Bridge would reduce sedimentation of the Creek. Additionally, where feasible, work would be performed through machinery stationed at the top of the levee. If machinery would be utilized within the Creek, this would occur in the dry or during low flow, when feasible to do so. Sediment erosion and control plans would be prepared and adhered to with best management practices implemented, for each proposed work task, to minimize the discharge and suspension of sediments during construction activities. This would include turbidity curtains; potentially cofferdams to protect the work zone; potentially water pump around techniques to dewater the work zones, if needed; silt fences; etc. Upon completion of the construction activities, the upland work sites would be stabilized to minimize the occurrence of erosion from entering into the aquatic environment.

f. Proposed Disposal site Determinations

(1) Mixing Zone Determination – The project does not propose to discharge additional flow into the waters within the levee system.

(2) Determination of Compliance with Applicable Water Quality Standards – The project work tasks and construction methods would comply with the applicable water quality standards as identified by the PADEP.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private water Supply – The project proposes rehabilitation and repairs of the existing manmade flood control levee system. The project work tasks would have no effect on municipal and private water supply.

(b) Recreational and Commercial Fisheries – The waters within the project area of review are utilized for public recreational fisheries. The utilization of in-water best management practices would block public recreational fishing from occurring within the work zones during construction. However, upon completion of construction, the conditions would be similar to pre-construction conditions, and improved in some locations. The replacement and addition of riprap would provide for areas where aquatic organisms could find refuge and habitat, thereby improving the fishing opportunities within the Creek. Given the above factors, the project is expected to have a short-term, adverse impact, but provide long-term benefits to recreational fisheries. The waters within the project area of review are not suitable for commercial fisheries. Therefore, there would be no effect on commercial fisheries.

(c) Water Related Recreation – The waters within the project area of review are utilized for public water related recreation, such as kayaking and canoeing. There is currently an access point within the City of York where boaters may gain access to Codorus Creek. There would be temporary impacts to water recreation during construction; however, it is not expected that recreational

boating would be significantly adversely affected during construction activities, as there would be sufficient water surface area between the construction zones and opposite levee banks/floodwalls where boaters could safely and effectively navigate along the Creek. At completion of construction, the aesthetics of the levee system would be improved; thereby providing a recreational boater with visible benefits. Given the above factors, it is expected that the project would result in minor and short-term adverse effects by a slightly reduced navigable area during construction and ultimately long-term beneficial effects to water related recreation.

(d) Aesthetics - The levee system is currently showing signs of deficiencies along segments which are in need of rehabilitation, repair, or replacement. The existing conditions at these locations are that of deteriorating floodwalls, bulges within the floodwalls, eroding stream banks, etc. The project would result in the replacement of the floodwall near the Penn Street Bridge within its approximate footprint and dimensions, replacement/addition of riprap at the base of the new floodwall, and removal of two small bridges which cross Tyler's Run. The project would also result in repair of the bulges within the floodwalls near Market Street Bridge. The removal of the deteriorating floodwall and two small bridges, as well as repairs to the bulges would result in beneficial effects to aesthetics by restoring the site to its approximate original visual design. Additionally, the project would provide riprap stabilization of the eroding stream bank near the South Richland Avenue Bridge. Placement of riprap at this location would not adversely alter the aesthetics given the current conditions consist of continuously eroding bank. The additional work tasks involving conduit cleaning, repair, replacement, or abandonment would be less visible in regard to aesthetics, other than during construction. Based on the above factors, the project work tasks are expected to result in minor benefits to the aesthetics of the area.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves – There are multiple parks and trails within the City of York, some of which are within and adjacent to the levee system area of review. The parks are owned and managed by the City of York and the trails are managed by the Rail Trail Authority. The proposed work tasks would not adversely affect the parks and trails, as the USACE and local stakeholders would work together to ensure synergy of activities. There are no National or Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves within the project area.

g. Determination of Cumulative Effects on the Aquatic Ecosystem – The lands and waters within the area of review and vicinity of the Codorus Creek FRM levee system have been altered by various activities following settlement along the creek in the 1700s and canal construction in early 1800s. Activities included land disturbance as a result of commercial, educational, residential, and industrial development as settlement occurred; canal alterations for the transport of materials to the Susquehanna River, etc. Much of the development occurred prior to environmental regulations, such as Clean Water Act of 1972. Therefore, impacts to aquatic resources would have likely occurred as a result of the

construction activities prior to environmental regulation. The federal work activities involved for the construction of the levee system included channel widening and deepening, flood walls, levees, protection of bank slopes, and removal of a mill dam. These activities were authorized, and construction practices were in accordance with required best management practices at the time of construction.

The current proposed work tasks to rehabilitate the Codorus Creek FRM levee system would result in permanent and temporary impacts to waters of the United States. The purpose of performing the work tasks is to restore the levee system to its authorized conditions and capacity. Temporary impacts would be the result of the use of best management practices to contain construction generated materials within the construction work zones. Permanent impacts would be the result of the addition of riprap and materials for bank stabilization. The permanent fill would provide the necessary rehabilitation of the levee system; thereby, resulting in improved floodwater protection for the community and downstream locations.

The proposed future work tasks which are dependent on federal funding have been identified as a result of periodic inspection. Some of the work tasks would require work in waters of the United States, such as removal of shoaling and vegetation from the Creek, repair and replacement of riprap throughout the levee system, removal of rubble from the west downtown levee, and removal of the South Richland Avenue dam, if the USACE determines that this dam is not necessary for the integrity of the levee system. Dredging of the shoals would likely occur from the banks using a long arm excavator, and all dredged materials would be disposed of at an approved upland location, such as the County landfill or other upland disposal site suitable for such materials. Replacement and addition of riprap at varied locations along the levee system would be performed in order to install the appropriate size of riprap for proper bank stabilization and would be the minimal necessary. Removal of the rubble would occur from uplands; however, in-water containment structures and re-sloping and stabilization of the levee banks at this location would be necessary. If the USACE determines that the removal of the dam near the South Richland Avenue Bridge would not interfere with the integrity of the levee system, removal may occur. This would likely occur from uplands. However, waters would be disturbed as dam materials are lifted out of the Creek. The area would be protected to minimize adverse effects to waters outside of the construction footprint. Upon removal, the banks would be restored, and the channel depth would be consistent with the adjacent parameters. Removal would provide for unobstructed fish passage and recreational navigation. The remaining proposed future USACE work tasks may also result in minor and/or temporary impacts to waters of the United States. However, the ultimate results of carrying out these tasks would be improvements to the existing levee system which, in turn, would provide benefits to the watershed.

New development, such as residential, commercial, and industrial, is expected to occur by others within the watershed in the future as communities continue to grow. Some projects may be large scale, such as new and expanded developments and roadway construction. Other activities would be small scale, to include additions of boating access points into waters, such as identified by the City of York as being potential actions. Direct impacts to aquatic resources would be necessary in order to perform some of the actions within the watershed. However, all projects proposing to impact waters of the United States would be required to adhere to federal, State, and local regulations, to include Water Quality Certification requirements, thereby ensuring that avoidance, minimization, and mitigation of unavoidable impacted aquatic resources would occur. The current regulations also require that only minimal impacts to aquatic resources be authorized, and mitigation would be required to fully offset unavoidable impacts.

Given the above factors, the USACE has determined that the work tasks proposed for the Codorus Creek FRM levee system project, in conjunction with the past, present, and projects which are anticipated to occur within the foreseeable future, are not expected to result in adverse cumulative direct or indirect impacts within the vicinity of the levee system or in the watershed. The site is a previously disturbed area which is primarily surrounded by development. Deterioration of segments along the levee system have been identified, which is contributing to the sediment load and debris within the Creek. Implementation of the project work tasks will have a positive effect on the environment, as it will stabilize the levee bank, remove the potential for future sedimentation of the Creek, and promote the integrity and capacity of the FRM project, thereby resulting in benefits to the human and natural environment.

h. Determination of Secondary Effects on the Aquatic Ecosystem - Indirect impacts may occur as a result of construction activities, such as removal of vegetation within the upland work zones which may result in erosional conditions, disturbance to and displacement of aquatic organisms due to containment of waters from installation of cofferdams, and wildlife avoidance of using areas within construction zones for foraging. However, projects would be required to adhere to best management practices, such as containing and protecting the work zones to minimize the occurrence of construction activities resulting in materials entering into the waterway. Additionally, aquatic resources would be clearly identified in the field to ensure the authorized limits of disturbance are visible to contractors. There are no wetlands that were identified as being within close proximity to the work zones which would be affected indirectly by the project activities. The current conditions include a deteriorating levee system with floodwall debris falling into the Creek and eroding soils along the bank of the levee system. This results in materials flowing to downstream tributaries, resulting in added sediment within the watershed tributaries. The rehabilitation work along the levee system would result in beneficial effects to receiving tributaries through reduced erosional conditions. Given the above factors, indirect

effects to the downstream waters would be beneficial through reduced sedimentation of the receiving waters, thereby, benefiting the watershed.

III. Findings of Compliance or Non-Compliance with Restrictions on Discharge

a. Adaptation of the Section 404(b) (1) Guidelines to this Evaluation - No adaptations of the Guidelines were made relative to this Evaluation.

b. Evaluation of Availability of practicable Alternatives to the Proposed Discharge Site Which would have Less Adverse impact on the Aquatic Ecosystem – Levee rehabilitation and repair design alternatives, as identified within the Environmental Assessment, were evaluated for minimizing impacts to and encroachments of Codorus Creek without compromising the stability of the work task designs and ultimate integrity of the levee system. Two additional alternatives were evaluated for the replacement of the Penn Street Floodwall but were eliminated due to high costs and inability to carry out the tasks in the near future as a result of additional funding necessary for the alternatives. Due to the identified need for additional funding, the alternatives were not pursued further given the need for the floodwall repairs at the current time. The selected alternatives were determined to be the most practicable and available alternatives with the least amount of adverse impacts on the aquatic ecosystem.

c. Compliance With Applicable State Water Quality Standards – The proposed work task activities and construction techniques would comply with the applicable state water quality standards and any conditions which were identified by the State agency. The USACE would coordinate with PADEP to ensure project compliance with Water Quality Certification requirements prior to commencement of work on the project.

d. Compliance with Applicable Toxic Effluent Standard or Prohibition under Section 307 of the Clean Water Act – N/A

e. Compliance with Endangered Species Act of 1973 – The USFWS has provided a minimization measure to protect Bald Eagles, and the USACE would adhere to the measures prior to the commencement of, and during project activities. Given the above factors, the proposed project work tasks are in full compliance with the Endangered Species Act of 1973.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972 – N/A.

g. Evaluation of the Extent of Degradation of the Waters of the United States - No significant permanent adverse impacts to the aquatic ecosystem diversity, productivity and stability, and recreation, aesthetics and economic values

would occur as a result of this project. Codorus Creek is identified as a warm water and migratory fishery, and temporary adverse impacts would occur during construction activities. However, the species would have ample area to utilize waters outside of the construction zones. Permanent impacts to waters of the United States would be beneficial through the rehabilitated Codorus Creek FRM levee system.

(1) Significant Adverse Effects on Human Health and Welfare

(a) Municipal and Private Water Supplies – There would be no effect to municipal and private water supplies, as the waters within the project area of review are not utilized for these purposes.

(b) Recreation and Commercial Fisheries – The project area of review does not contain waters which are suitable for commercial fisheries. Therefore, there would be no effect on commercial fisheries. Waters within the project area of review are utilized as public recreation fisheries. However, any adverse effect from the project activities would not be significant, as identified under section II.f.(3)(b) of this document.

(c) Plankton/Macroinvertebrates – There would be a minor and short-term adverse effect. No long-term adverse effects are expected.

(d) Fish – The waters within the area of review are classified as supporting warm water and migratory fisheries. Species would be expected to avoid the in-water construction zones and return upon completion of work activities. Given these factors, the adverse effects on fish would be short-term and minimal.

(e) Shellfish – Shellfish (freshwater molluscs) may be present at some locations within the waters. If individuals are present, they would be directly impacted as a result of direct fill (e.g., riprap, temporary in-water best management practices). However, species would be expected to recolonize shortly after construction. No long-term adverse effects are expected, and short-term and temporary adverse effects would be minimal.

(f) Wildlife – Minor and short-term adverse effects on wildlife would occur during construction. No long-term adverse effects are expected.

(g) Special Aquatic Sites - The proposed project work tasks are not located within any areas determined to be special aquatic sites, as identified under section II.e.(5) of this document.

(2) Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife - The project area does not contain critical habitat for aquatic or wildlife species. Work tasks include replacement in kind, addition of riprap, temporary in-water best management practices, potential dam removal, etc. The work tasks may interfere with life stages of aquatic and other wildlife temporarily and in the short-term (e.g., during construction). However, this would be minimal, as species which would be directly impacted by construction activities, as well as those which avoid the area during construction, would be expected to recolonize/return to the sites shortly after construction. Given these factors, there would no significant adverse effects on life stages of aquatic and other wildlife.

(3) Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity, and Stability – There would be no significant adverse effects on Aquatic Ecosystem Diversity, Productivity, and Stability.

(4) Significant Adverse Effects on Recreational, Aesthetic, and Economic Values –The proposed project activities are not recreation directed. However, the public does utilize waters within the levee system for recreational boating and fishing. Aesthetics would be improved as a result of the rehabilitation actions, as current conditions include deteriorating floodwalls and eroding levee banks. There would be temporary adverse effects on recreation and aesthetics due to reduced waterway widths during some project construction activities and presence of construction equipment, to include noise, additional light emissions, etc. However, this would be temporary. The community would benefit economically in regard to repairs to the deficiencies within the aging levee system which would provide the continued support of flood protection for the community. Given the above factors, there would be no significant adverse effects on recreational, aesthetic, and economic values, but instead the project would result in beneficial effects to these values.

h. Appropriate and Practicable Steps taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem – All appropriate and practicable steps would be taken to minimize potential adverse impacts. These include the use of best management practices; adherence to federal, State, and local special conditions, to include Water Quality Certificate requirements; and designing all work tasks to the minimum footprint and duration within waters of the United States feasible to meet the project purpose.

i. On the Basis of the Guidelines the proposed Disposal Site(s) for the Discharge of Dredged or Fill Material is/are: Specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.