

Environmental Assessment

**City of Paducah Riverfront Park Project
FEMA-DR-4428-KY and FEMA-DR-4540-KY
City of Paducah, McCracken County, Kentucky
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FEMA

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ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effect
BMP	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	U.S. Department of Transportation Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
IPaC	Information for Planning and Consultation
KHC	Kentucky Heritage Council
KYEM	Kentucky Emergency Management Division
KYDEP	Kentucky Department of Environmental Protection
KYTC	Kentucky Transportation Cabinet
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OSA	Kentucky Office of State Archaeology
PA	Public Assistance <i>or</i> Programmatic Agreement
PL	Public Law
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
8STEP	Eight Step Decision Making Process

1.0 INTRODUCTION

The Commonwealth of Kentucky experienced severe storms, straight-line winds, landslides, and mudslides from February 6, 2019 to March 10, 2019. President Donald Trump signed a disaster declaration (FEMA-4428-DR-KY) on April 17, 2019, authorizing federal assistance in Kentucky. The Commonwealth experienced another series of severe storms, flooding, landslides, and mudslides from February 3, 2020 to February 29, 2020. President Donald Trump signed a disaster declaration (FEMA-4540-DR-KY) on April 24, 2020, authorizing federal assistance in Kentucky. This assistance is provided pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), and Public Law (PL) 93-288, as amended. Section 406 of the Stafford Act authorizes FEMA's Public Assistance (PA) Program to repair, restore, and replace eligible state and local government, and certain private nonprofit, facilities damaged as a result of the event. The eight (8) sites referenced below are those identified in FEMA Project Number 104924 for DR-4428-KY and FEMA Project Number 138850 for DR-4540-KY.

The City of Paducah, Kentucky was designated as eligible to receive federal assistance for damages sustained during both events. The City of Paducah has applied through the PA Program to receive funding to conduct repairs to damaged features at the Riverfront Park, a recreational facility constructed by the city in 2013. The Riverfront Park is a man-made peninsula located along, and extending into, the Ohio River. The park's current shoreline design incorporates primarily riprap, filter stone, and unconsolidated fill to achieve embankment stabilization. An approximately 250 linear feet long section of the shoreline is stabilized with pre-cast revetment block steps leading directly into the Ohio River, over which park visitors may traverse.

Heavy rainfall and flooding of the Ohio River caused damages to features of the City of Paducah's Riverfront Park. High velocity water flows, attributed to both of the declared disaster events, caused the severe erosion of the park's shoreline and walking path, washing away embankment materials and rendering these features inoperable. The damages that occurred under FEMA-4428-DR-KY in 2019 had not been repaired prior to the storm event in 2020 (FEMA-4540-DR-KY). The existing damaged areas suffered additional damages by further eroding the embankment. An additional area, not previously damaged in 2019, was also damaged by flooding causing a washout. The areas of the park embankments which suffered scouring were those previously stabilized with riprap, filter stone, and unconsolidated fill. The section of the embankment stabilized with pre-cast revetment blocks, located immediately adjacent to the damaged areas, retained its structural integrity. For the purposes of this Environmental Assessment, the damages incurred under both disasters are being combined into one scope of work since the repairs to the damaged areas will all be completed in a singular construction repair project.

This draft Environmental Assessment (EA) has been conducted in accordance with NEPA, the President's Council on Environmental Quality regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and regulations adopted pursuant to Department of Homeland Security Directive 023-01, Rev 01, and FEMA Directive 108-1.

2.0 PURPOSE AND NEED

The damages sustained to the City of Paducah's Riverfront Park left affected park features inoperable and unprotected from future similar flooding events of the Ohio River. The purpose of the Proposed

Action is to restore this facility to its original designed function, which is to serve as a recreational space for the community. In its current state, the park is vulnerable to further embankment scouring from future high velocity water flows. Repairs to the City of Paducah's Riverside Park will restore the intended recreational function of the facility and ensure the retention of its structural integrity during future disasters. Therefore, the need for the Proposed Action is to restore the park's amenities and associated embankment to withstand future flooding events and minimize future flooding damages.

3.0 ALTERNATIVES

The alternatives considered in addressing the stated purpose and need are the No Action Alternative, Repair the Park to Pre-Disaster Condition Alternative, and the Repair the Park with Shore Stabilization Mitigation Alternative (Preferred Alternative).

3.1 Alternative 1 – No Action Alternative

Under the No Action alternative, the lost riprap, filter stone, and unconsolidated fill would not be replaced and the recreational walking path would not be restored. The damaged embankment areas would only be stabilized through the establishment of volunteer vegetation. Consequently, adverse impacts to the existing park infrastructure and components would likely occur with increasing frequency and magnitude. Ongoing scouring of the peninsula's embankment would eventually undermine the transient dock and marina moorings and allow irreparable damage to stairs, sidewalks, and utilities. Additionally, downstream threatened and endangered mussels and their critical habitat would be potentially affected from inundation with silt, rock, and debris lost from the site due to continual erosion of the shore.

3.2 Alternative 2 –Repair the Park to Pre-Disaster Condition

Under the Repair the Park to Pre-Disaster Condition alternative, eight (8) damaged areas of Riverfront Park would be restored to pre-disaster condition by replacing the riprap and fill materials lost via the flood damages in-kind and would not include upgrades or expansion of the pre-existing embankment. The proposed action would replace large, cyclopean riprap (measuring less than or equal to 16 inches wide by 16 inches long) at five (5) areas along the embankment for a combined total length of 978 feet. The riprap replacement would vary in width from about 5 feet to 54 feet, and about 5 feet in depth. One (1) of these areas would also be repaired in-kind to pre-disaster condition through the placement of a lighter weight crushed filter stone (measuring less than or equal to 1.5 inches wide by 1.5 inches long), for a total area of 234 feet long by 54 feet wide, and a depth of 2.5 feet. Three (3) areas would be repaired in-kind to pre-disaster condition through the placement of unconsolidated fill and topsoil for a combined total length of 425 feet, varying in width from 24 feet to 66 feet, and a depth of 2 feet to 5 feet.

The re-establishment of the baseline construction design parameters would restore the area to pre-disaster condition, but the peninsula would be subject to similar scouring and erosion from high velocity flows during a future flood event at Riverfront Park. This would likely result in repeated similar damage to the constructed embankment and peninsula, requiring increasing maintenance and repair costs and requirements over time. The possibility of repeated damage and erosion of the embankment, potentially affecting downstream threatened and endangered species and their critical habitats, would continue unabated due to continual repeated erosion of the shore.

3.3 Alternative 3 – Repair the Park with Shore Stabilization Mitigation (Preferred Alternative)

Under the preferred alternative, to Repair the Park with Shore Stabilization Mitigation, some of the damaged areas would be repaired in-kind through the replacement of riprap and fill materials, some of the areas would be repaired with upgraded materials, and some of the areas would be expanded in order to armor the embankment against future flood flows from the Ohio River. Three (3) areas with previously existing cyclopean riprap would be repaired in-kind without additional mitigation, located near GPS coordinates (37.09079, -88.59618) to (37.09102, -88.59632), (37.09079, -88.59618), and (37.0924, -88.59698) to (37.09181, -88.5981). The proposed action at these areas would replace large, cyclopean riprap (measuring less than or equal to 16 inches wide by 16 inches long) along the embankment for a combined total length of 908 feet. The riprap replacement would vary in width from about 30 feet to 80 feet, and about 2.5 feet to 3.0 feet in depth. One (1) area located near GPS coordinates (37.09207, -88.59677), which previously consisted of cyclopean riprap, would be mitigated by replacing the riprap with a filter stone base material and precast revetment blocks placed on top to match and extend the area of existing revetment blocks adjacent to the area. The new additional area of revetment would measure approximately 8 feet by 120 feet. One (1) area located between GPS coordinates (37.09237, -88.59700) and (37.09187, -88.59756), which previously consisted of cyclopean riprap, would be mitigated by replacing the riprap and adding interlocking erosion control blocks for a length of about 300 feet, a width of about 48 feet, and a depth of about 2.5 feet. Three (3) areas where unconsolidated fill was lost to erosion on the embankment, located near GPS coordinates (37.09105, -88.59633) to (37.09160, -88.59650), (37.09190, -88.59668), and (37.09171, -88.59789), would be repaired by the replacement of the unconsolidated fill with in-kind materials with the exception of the portion adjacent to the existing sidewalk. All fill materials on the eight (8) foot slope, directly adjacent to and downslope of the lowermost existing sidewalk (approximately 742 linear feet), would be replaced with an interlocking system of pre-cast erosion control blocks. This erosion control system would further protect the sidewalk and serve to create a contiguous system of protection against future flooding events for the embankment as the blocks would connect to the other existing erosion control blocks, creating a seamless revetment design congruous with the other areas of mitigation repairs.

The re-establishment of the baseline construction design parameters with the additional increased armoring of the embankment from the installation of upsized riprap, extension of the stone revetment, and installation of an interlocking erosion control system would minimize erosion of the Riverfront Park features during future flood events. The reduced or eliminated damages from such events would save on future maintenance costs and protect the recreational and economic benefits provided by the park and the adjacent transient dock and marina. The retention of on-site soils and infrastructure would reduce the potential adverse impacts to downstream threatened and endangered species and their critical habitats.

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The City of Paducah Riverfront Park is a man-made park extending into the Ohio River. It is located on the northern side of downtown Paducah. The entire facility was part of a riverfront development project that began development and construction in 2012. The project was developed with the intent

to help revitalize the downtown riverfront area for the citizens to use as well as bring in both commercial and recreational boating traffic into the city. The facility includes multiple boat ramps and a large marina. Fill material was brought in to expand the existing park over an estimated 5.5 acres to create a peninsula of land extending into the Ohio River for approximately 350 feet. The development project was a multi-year multi-phased effort, and the current area associated with this project was opened to the public in 2017. The project locations and relative positions on the man-made peninsula made are provided on the aerial photo (see Appendix A-1).

4.1 Potential Environmental Consequences

The potential environmental consequences and required measures and permits required as a result of Alternatives 1, 2, and 3 are summarized in Table 4.1.

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
Water Resources and Water Quality	Alternative 1 – Minor impact due to continued erosion. Alternative 2 and 3 – Minor impact due to erosion and sedimentation from construction activities.	Alternative 2 and 3 would require best management practices (BMPs) to be utilized to reduce sediment from going into the river.

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
<p>Floodplains See Section 4.2 for details</p>	<p>Alternative 1 – No impact. Risk to human life and improved property continues at current level.</p> <p>Alternative 2 – Facility is returned to operable capacity. The Facility may be subject to future damages in similar events. No impact is expected on the floodplain as it is returning to previous levels.</p> <p>Alternative 3 – Facility is returned to operable capacity with mitigation to protect from future damages, reduce risk to human life and improved property. Minor impacts expected on the floodplain, but not significant to alter floodplain levels or characteristics.</p>	<p>Project will be required to obtain all applicable floodplain permits from the Kentucky Division of Water Floodplain division or local floodplain administrator.</p>
<p>Wetlands (Executive Order 11990) See Section 4.3 for details</p>	<p>Alternative 1 – No impact.</p> <p>Alternatives 2 – Minor impacts due to erosion during construction. Impacts may also occur from future events.</p> <p>Alternative 3 – Minor impacts due to erosion during construction. Minimized with use of BMPs.</p>	<p>The applicant must apply BMPs such as erosion and sediment control measures. BMPs may include the installation of siltation fencing, upland sediment basins, or alternate measures to be designed and maintained by the Applicant.</p>

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
Geology, Seismicity and Soils	Alternative 1, 2 and 3 – No impact as park was created entirely of fill material.	Not Applicable
Air Quality	Alternative 1 – No impact Alternative 2 and 3 – Minor impacts due to construction equipment operations. Project is located in an Attainment area.	Not Applicable
Environmental Justice (Executive Order 12898) See Section 4.4 for details	Alternative 1, 2 and 3 – No impact.	Not applicable
Zoning and Land Use	Alternative 1, 2 and 3 – No impact. Facility was planned and zoned prior to its construction.	
Visual Resources	Alternative 1 – Minor impact from look of disrepair Alternative 2 and 3 No Impact	Not Applicable
Noise	Alternative 1 – No Impact Alternatives 2 and 3 – Minor impacts are expected during construction.	Not applicable

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
Public Services and Utilities	Alternative 1 – moderate impact as it removes the community recreational facility and protection of boat dock. Alternative 2 and 3 – No Impact.	Not applicable
Traffic and Circulation	Alternative 1 – No Impact Alternative 2 and 3 – minor impacts during construction.	
Safety and Security	Alternative 1, 2 and 3 No Impact.	Not applicable
Terrestrial and Aquatic Environment	Alternative 1, 2, and 3 No Impact.	Not applicable
Threatened and Endangered Species See Section 4.5 for details	Alternative 1 – No impact. Risk to threatened and endangered species continues at current level. Alternative 2 and 3 – No Impact. No Effect Notification was sent to USFWS and returned with no additional comments or concerns on 06/09/2020.	Under Alternative 2 and 3, the following measures would be implemented to reach a No Effect determination: <ul style="list-style-type: none"> • The applicant must apply best management practices such as erosion and sediment control measures. BMPs may include the installation of siltation fencing, upland sediment basins, or alternate measures to be designed and maintained by the Applicant.
Cultural Resources See Section 4.6 for details	Alternative 1, 2, and 3 – No impact. No consultation with SHPO and/or THPOs required.	Alternatives 2 and 3 would require the following conditions: <ul style="list-style-type: none"> • Embankment mitigation activities will not disturb soils below the depth where sand was previously placed to create a man-made peninsula. • Prior to conducting repairs, the Applicant must identify the source and location of fill material and provide this information to KYEM and FEMA. If

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
		<p>the borrow pit is privately owned, or is located on previously undisturbed land, or if the fill is obtained by the horizontal expansion of a pre-existing borrow pit, FEMA consultation with the State Historic Preservation Officer (SHPO) will be required. Failure to comply with this condition may jeopardize FEMA funding; verification of compliance will be required at project closeout.</p> <ul style="list-style-type: none"> • If human remains or intact archaeological deposits are uncovered, work in the vicinity of the discovery will stop immediately and all reasonable measures to avoid or minimize harm to the finds will be taken. The Applicant will ensure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The Applicant's contractor will provide immediate notice of such discoveries to the applicant. The applicant shall contact the <i>Kentucky Heritage Council Site Protection Program</i> and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with SHPO, Tribes, and other consulting parties as necessary. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with <i>Kentucky Statutes, Section 72.02</i>. • Any changes to the approved scope of work will require submission to, and evaluation and approval by, the State and FEMA, prior to initiation of any work, for compliance with Section 106.

Resource	Environmental Consequences	Environmental Protection Measures and Required Permits
Socioeconomic	Alternative 1 – Impacts could result in future storm damages along the shoreline. Alternative 2 and 3 - Beneficial impacts due to risk reduction along the shoreline and increase in tourism and recreational value.	Not applicable
Cumulative Impacts See Section 5.0 for details	Alternatives 1, 2, and 3 are not expected to have significant adverse cumulative impacts on any resource.	Not applicable

4.2 Water Resources and Water Quality

The facility is a river front park along the Ohio River.

Alternative 1 – The facility would continue to experience erosion from similar flooding events which would could impact water quality.

Alternative 2 and 3 – Construction activities may cause some sedimentation, but use of BMPs should lessen any impacts to water quality.

4.3 Floodplain Management (Executive Order 11988)

Executive Order (EO) 11988 requires federal agencies to take action to minimize occupancy and modifications of the floodplain. Specifically, EO 11988 prohibits federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives. FEMA’s regulations for complying with EO 11988 are promulgated in 44 CFR Part 9. The City of Paducah project, as proposed, is located within a 100-year floodplain and regulatory floodway as indicated on the Flood Insurance Rate Map (FIRM) Panel #21145C0153F, dated November 11, 2011 (attached in Appendix A-2).

Due to the project’s location within a Special Flood Hazard Area (SFHA), an 8-Step Decision Making Process (8STEP) was required (attached in Appendix A-4). FEMA applies the 8STEP to ensure that the Agency funds projects consistent with EO 11988. During this process, the potential route of effects of both the action upon the floodplain and the floodplain upon the action are examined. Furthermore, a list of alternatives is considered for their practicability and feasibility compared to the preferred action. The outcome of this process helps determine what course of action is most beneficial for the floodplain, facility, and well-being of the community.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no work would take place within the floodplains, therefore, no impacts to the floodplain would be anticipated. Under this alternative, the floodplain would be allowed to revert to its natural values. However, the remainder of the damaged structure, as well as adjacent improved properties, would remain at risk of future flooding events.

Alternative 2 – Repair the Park to Pre-Disaster Condition

In-kind replacement of the embankment using the previous baseline construction design would allow continued scouring action to the facility during high velocity flows, as demonstrated by the previous flooding events. As explored in Step 5 of the 8STEP, which requires minimization of negative impacts to the structure due to occupancy within the floodplain by any practicable means, retaining the previously proven inadequate infrastructure in this flood prone area is not preferred due to its location in a regulatory floodway. Although it may be feasible to repair the facility in-kind, this is not the most practicable alternative explored in the 8STEP process.

Alternative 3 – Repair the Park with Shore Stabilization Mitigation (Preferred Alternative)

The facility is functionally dependent upon its location within the floodplain and facilitates open space use of the floodplain for recreational value. Step 5 of the 8STEP requires minimization of negative impacts to the structure due to occupancy within the floodplain by any practicable means. In order to achieve this minimization requirement, the Applicant, working with FEMA 406 Mitigation, has developed a hazard mitigation proposal. The preferred alternative proposes repairs to the existing embankment using upgraded materials and expansion of the riverbank armoring to protect against high velocity flows.

Relocation of the facility was considered and dismissed due to the park being functionally dependent upon its location in the Ohio River. Other practicable sites would also be located within the floodway, therefore, those alternative sites would be just as invasive to the SFHA as the current location. Furthermore, the Riverfront Park was designed to promote open space use in order to better preserve the natural and beneficial floodplain values. Based upon the conclusions of the 8STEP process, Alternative 3, the preferred alternative, would be the most practicable alternative. The current site within the floodway is the most logical location, and the action is still practicable in light of the exposure to flood risk and possible impacts upon the SFHA. There is no potential to limit the scope or size of the action to increase the practicability of previously rejected non-floodplain sites or alternative actions. Mitigation would be incorporated into the repairs which would minimize potential negative impacts sustained by the structure due to its occupancy within a floodway. The need for the proposed action in a floodplain clearly outweighs the requirements of Executive Order 11988, and minimization of harm to the floodplain, or resulting from occupancy within the floodplain, can be achieved using all practicable means.

4.4 Wetlands (Executive Order 11990)

Executive Order (EO) 11990, Protection of Wetlands, requires federal agencies to take action to minimize the loss of wetlands. The NEPA compliance process requires federal agencies to consider direct and indirect impacts to wetlands, which may result from federally funded actions. The impacts of the proposed work upon the wetlands at this site were explored further as part of the 8STEP, attached in Appendix A-4.

The project site most directly impacts an R2UBH wetland. This riverine wetland is characterized by having a low gradient and no tidal influence. The wetland's substrate mainly consists of sand and mud, generally lending to very unstable river bottoms. Natural dissolved oxygen concentration is normally near saturation, however, at times oxygen deficits may occur. Due to the lack of large stable surfaces for plant and animal attachment, most organisms reside burrowed within the substrate. This wetland is permanently flooded, and the surrounding floodplains are well developed.

Alternative 1 – No Action Alternative

Under the No Action Alternative, no impacts to wetlands are anticipated.

Alternative 2 – Repair the Park to Pre-Disaster Condition

Repairing the facility in-kind to pre-disaster design would have short-term, and possibly long-term, impacts upon wetlands. The action would involve working within close proximity to and within the riverine system. The placement of lost soils and gray infrastructure would likely increase turbidity around the work site throughout the construction process. These short-term impacts are expected to be negligible and would likely have minimal impacts on the wetland and the aquatic life found in the vicinity of the project. Without minimizing flood risk, loose soils would still be prone to erosion. This erosion potential would be especially likely during future flooding events similar to this past events, where large displacement of soils would occur, and the soils would be redeposited down-stream potentially having an adverse impact to down-stream wetlands.

Alternative 3 – Repair the Park with Shore Stabilization Mitigation (Preferred Alternative)

The Preferred Alternative would have short-term impacts upon the wetlands, however, due to the inclusion of hazard mitigation, potential long-term impacts upon wetlands would likely be minimized. Work within the riverine system, including placement of lost soils and gray infrastructure, would likely increase turbidity around the work site throughout the construction process. As with Alternative 2, these short-term impacts are expected to be negligible and would likely have minimal impacts on the wetland and the aquatic life found in the vicinity of the project. BMPs would be required and may include the installation of siltation fencing, upland sediment basins, or alternate measures to be designed and maintained by the Applicant. The proposed hazard mitigation is meant to strengthen weak points along the park shore and prevent further erosion or scour during periods of high velocity flow. The retention of on-site soils and infrastructure would reduce the potential adverse impacts to downstream wetlands.

4.5 Geology, Seismicity and Soils

The facility was created in 2015 by bringing in unconsolidated fill material. No impacts from the alternatives.

4.6 Air Quality

The project is located in an Attainment area. Under Alternatives 2 and 3, minor impacts are anticipated due to operating construction equipment.

4.7 Environmental Justice (Executive Order 12898)

On February 11, 1994, President Clinton signed EO 12898, entitled, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations". This EO directs federal agencies, "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 in the United States.”

Alternative 1 – No Action Alternative

Under the No Action Alternative, no disproportionate impacts on minority or low-income populations are anticipated.

Alternatives 2 and 3 – Construct the Shore Stabilization with Mitigation (Preferred Alternative) and Repair the Shore to Pre-Disaster Condition

Under the both the alternatives, no disproportionate impacts, adverse impacts to minority or low-income populations are anticipated. The park will be restored to its original design with extensions to existing riprap and concrete revetment as a form of mitigation. The project benefits would be to all members of the population.

4.8 Zoning and Land Use

The park facility was created for this specific function. All zoning and land use requirements were established specifically for this park. No Impacts.

4.9 Noise

During construction activities equipment will be brought in and operated during normal daytime hours. Minor impacts are expected and will be temporary.

4.10 Public Services and Utilities

The park was created for public use. By not repairing the facility, the public is left without this service.

4.11 Traffic and Circulation

During construction activities there will be minor impacts to traffic as equipment is brought in and removed.

4.12 Terrestrial and Aquatic Environment

The facility is man-made and was constructed in 2015 using unconsolidated fill material and seeding. There is no natural landmass or vegetation. The site was constructed in the Ohio River, but no construction activities will be conducted in the water.

4.13 Threatened and Endangered Species

In accordance with Section 7 of the Endangered Species Act (ESA) of 1973, this project was evaluated for the potential occurrences of federally listed threatened and endangered species. The ESA requires any federal agency that funds, authorizes, or carries out an action to ensure that their action is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitats.

4.13.1 Existing Conditions

Potential threatened and endangered species that may be present in McCracken County were identified by accessing the USFWS Information for Planning and Consultation (IPaC) database in June 2020.

Multiple clam species are likely to occur in the project area, including the Fat Pocketbook (*Potamilus capax*), Northern Riffleshell (*Epioblasma torulosa rangiana*), Orangefoot Pimpleback (*Plethobasus cooperianus*), Purple Cat's Paw (*Epioblasma obliquata obliquata*), Rabbitsfoot (*Quadrula cylindrica cylindrica*), Sheepnose Mussel (*Plethobasus cyphus*), and Spectaclecase (mussel) (*Cumberlandia monodonta*). A critical habitat for the Rabbitsfoot (*Quadrula cylindrica cylindrica*) has been designated in portions of the Ohio River, including in close proximity to the project site. A No Effect Notice was sent to the USFWS and returned with no additional comments or concerns on June 09, 2020.

Alternative 1 – No Action Alternative

The No Action Alternative would involve forgoing repairs to the damaged facility and no FEMA undertaking would occur. The lost riprap, filter stone, and unconsolidated fill material would not be replaced. Without embankment stabilization measures in place, further scouring of the peninsula would be expected during future similar events. Threatened and endangered species, and their critical habitats, would continue to experience adverse effects caused by the inundation of silt, rock, and debris lost from the unprotected project site.

Alternative 2 – Repair the Park to Pre-Disaster Condition

The in-kind replacement of the eroded features to the park shoreline and walking path would restore the Riverfront Park to its pre-disaster design and capacity. Under this alternative, the project area would remain vulnerable to similar damages during future high velocity flood events, as the embankments would be stabilized only to the degree that proved insufficient in the previous disasters. Threatened and endangered species, and their critical habitats, could potentially experience adverse effects from the increased siltation caused by the continued erosion of embankment materials. The project would be required to incorporate BMPs, such as erosion and sediment control measures, to ensure there is no take of species and their critical habitats. BMPs may include the installation of siltation fencing, upland sediment basins, or alternate measures to be designed and maintained by the Applicant.

Alternative 3 – Repair the Park with Shore Stabilization Mitigation (Preferred Alternative)

The Preferred Alternative would involve the incorporation of mitigation measures by increasing the armoring of the Riverfront Park's eroded shoreline and walking path. These actions would ensure the facility would be better equipped to withstand similar damages from future high velocity flooding events. Although these actions have the potential to result in increased sedimentation during installation in the short-term, the adverse effects to species in the area are anticipated to be minimal and may be mitigated by employing best construction practices. Further, the increased resistance to embankment erosion in the long-term, achieved through the proposed mitigation measures, would likely prevent further adverse effects to endangered and threatened species, and their critical habitats, in the surrounding area by reducing the likelihood of increased inundation from project area materials.

The project would be required to incorporate BMPs, such as erosion and sediment control measures, to ensure there is no take of species and their critical habitats. BMPs may include the installation of siltation fencing, upland sediment basins, or alternate measures to be designed and maintained by the Applicant.

4.14 Cultural Resources

Consideration of impacts to cultural resources is mandated by Section 106 of the National Historic Preservation Act (NHPA) as implemented by 36 CFR Part 800. Requirements include identifying historic properties that may be impacted by the proposed action or alternatives within the Area of Potential Effect (APE). Historic properties may be archaeological sites, structures, historic districts, or other historic resources listed in or determined eligible for listing in the National Register of Historic Places (NRHP). If adverse effects on historic, archaeological, or cultural properties are identified, federal agencies must attempt to avoid, minimize, or mitigate the impacts to these resources.

FEMA, the Kentucky State Historic Preservation Office (SHPO), the Kentucky Emergency Management, the Choctaw Nation of Oklahoma, and the Advisory Council on Historic Preservation have executed a Statewide Programmatic Agreement (PA) titled, *Programmatic Agreement Among the Federal Emergency Management Agency, the Kentucky State Historic Preservation Office, Kentucky Emergency Management, and Tribes Participating as Invited Signatories*, dated June 24, 2014, to streamline the Section 106 review process. The PA was created to streamline the Section 106 review process. The Section 106 process outlined in the PA requires the identification of historic properties that may be affected by the proposed action or alternatives within the project's APE. Historic properties, defined in Section 101(a)(1)(A) of the NHPA, include districts, sites (archaeological and religious/cultural), buildings, structures, and objects that are listed in or determined eligible for listing in the NRHP. Historic properties are identified by qualified agency representatives in consultation with interested parties.

4.14.1 Existing Conditions

FEMA Historic Preservation Staff evaluated potential resources within the APE utilizing the NRHP database and the Kentucky Office of State Archaeology (OSA) GIS archaeological site and survey files. The proposed Undertaking is not located within a listed or eligible NRHP historic district nor is it located within viewshed of a property individually listed in the NRHP. There are no documented archaeological sites within the APE of the Riverfront Park. There are four (4) recorded archaeological sites within a one half (½)-mile radius from the APE. These archaeological sites are not located within the APE and would not be affected by any of the Alternatives.

American Resources Group, Ltd. previously conducted a Phase I Archaeological Survey in 2008 for the project location. No cultural resources were identified within the project area. On January 11, 2012, the Kentucky Heritage Council (KHC/SHPO) concurred by letter the marina/transient dock installation would have no archaeological or architectural impacts on properties within, or within viewshed of, the APE defined in the March 2012 EA. Additionally, the EA states, "there are no known cumulative and/or indirect impacts to historic resources that would result from the proposed boat launch and marina/transient dock projects."

Alternative 1 – No Action Alternative

The No Action Alternative would not include a federal undertaking and no construction would occur, therefore, there would be no impact to cultural resource or further responsibility under Section 106.

Alternative 2 – Repair the Park to Pre-Disaster Condition

Alternative 2 would repair the damaged embankments in-kind to pre-disaster condition. It is not anticipated the work along the peninsula would have an impact to cultural resources or any known historic or archeological sites located outside of the APE. Furthermore, the shoreline hardening

activities had already occurred in this area previously during the original construction of the park beginning in 2012. Due to the APE's original construction as a man-made peninsula, Alternative 2 would not impact previously undisturbed soils.

FEMA has determined Alternative 2 meets the criteria outlined in Appendix B: Programmatic Allowances of FEMA's PA. In accordance with Stipulation II.A.1 of this PA, FEMA is not required to determine the NRHP eligibility of properties, nor initiate consultation with the SHPO, where work to be performed meets such allowances. The applicable allowance for Alternative 3 are as follows: II.A.1.a for embankment slope stabilization repairs and reinforcement. The Applicant must comply with the NHPA conditions set forth in this EA.

Alternative 3 – Repair the Park with Shore Stabilization Mitigation (Preferred Alternative)

Due to the APE's original construction as a man-made peninsula, the Preferred Alternative would not impact previously undisturbed soils. Therefore, FEMA determined the scope of work meets the criteria outlined in Appendix B: Programmatic Allowances of FEMA's PA. In accordance with Stipulation II.A.1 of this PA, FEMA is not required to determine the NRHP eligibility of properties, nor initiate consultation with the SHPO, where work to be performed meets such allowances. The applicable allowances for Alternative 2 are as follows: II.A.1.a for embankment slope stabilization repairs and reinforcement, II.A.2.a for minor upgrades to recreational facilities, II.A.2.b for minor upgrades to landscaping elements, and II.A.3.a for minor upgrade around pier's crossover and/or approaches. The Applicant must comply with the NHPA conditions set forth in this EA.

The following conditions would be applied to the project:

- Embankment mitigation activities will not disturb soils below the depth where sand was previously placed to create a man-made peninsula.
- Prior to conducting repairs, applicant must identify the source and location of fill material and provide this information to the Kentucky Emergency Management Division (KYEM) and FEMA. If the borrow pit is privately owned, or is located on previously undisturbed land, or if the fill is obtained by the horizontal expansion of a pre-existing borrow pit, FEMA consultation with the State Historic Preservation Officer will be required. Failure to comply with this condition may jeopardize FEMA funding; verification of compliance will be required at project closeout.
- If human remains or intact archaeological deposits are uncovered, work in the vicinity of the discovery will stop immediately and all reasonable measures to avoid or minimize harm to the finds will be taken. The applicant will ensure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The applicant's contractor will provide immediate notice of such discoveries to the applicant. The applicant shall contact the Kentucky Heritage Council Site Protection Program and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with SHPO, Tribes, and other consulting parties as necessary. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Kentucky Statutes, Section 72.02.

- Any changes to the approved scope of work will require submission to, and evaluation and approval by, the State and FEMA, prior to initiation of any work, for compliance with Section 106.

5.0 CUMULATIVE IMPACTS

Per the Council on Environmental Quality (CEQ) regulations, cumulative impacts are the impacts on the environment that “results from the incremental impact 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). In accordance with NEPA, this EA considered the combined effects of the preferred alternative and other actions occurring or proposed in the vicinity of the proposed project site.

The City of Paducah Riverfront Park is an engineered structure extending into the Ohio River. It is expected to be subjected to damages over time from flooding events and will require routine maintenance. Damages sustained during the most recent flooding events can be repaired and the probability of future damages can be reduced using all practicable means. Minimizing future damages will assist in reducing the need for future repair work within the area, thus reducing potential impacts resulting from further construction.

The Riverfront Park is located within close proximity to the City of Paducah’s downtown district. The intended initiative of the original design and construction of the area in 2012 was to redevelop the City’s riverfront area for its citizens as well as potential commercial and tourism business. It is not anticipated that the proposed project, or future maintenance actions, would have an impact on further development due to the maturely developed nature of the area. Additionally, the Riverfront Park is intended as a community park with open space and would prevent any future development within the park.

The repairs and mitigations outlined in the Preferred Alternative scope of work are not expected to have any immediate impacts upon cultural or natural features within the vicinity of the facility. This conclusion has been verified through consideration of potential impacts of the practicable alternatives. Any unforeseen impacts or outcomes can be mitigated through the application of appropriate conditions. By mitigating the damages to withstand future flooding events, the Riverfront Park will likely require less maintenance and construction activities to sustain the project area and its intended function as a recreational open space serving the adjacent marina and associated boat dock. Further development within the area as a result of the facility is unlikely, as the surrounding district of the City of Paducah is highly developed. As noted in the 2012 EA (See Part 9), no significant impacts are expected from the existence and ongoing maintenance of the City of Paducah Riverfront Park.

In consideration of the overall impact of the proposed project in relation to impacts from past, present, and reasonably foreseeable future activities, the proposed action is not expected to have significant adverse cumulative impacts on any resource.

6.0 PUBLIC INVOLVEMENT

FEMA issued a disaster-wide initial public notice for FEMA-4428-DR-KY on June 19, 2019 to notify the public of projects under the PA program that may be occurring within floodplains. A similar disaster-wide initial public notice was issued for FEMA-4540-DR-KY on April 24, 2020.

The public will be notified of the availability of this EA for review and comment by posting of the public notice on TBD. The EA will be posted on FEMA’s website, the applicant’s website, and a hardcopy made available at the public library. The public comment period ends after 30 days on TBD.

7.0 AGENCY COORDINATION

The following agencies and organizations were contacted during the preparation of this EA:

- U.S. Fish and Wildlife Service (Frankfort Field Office)

8.0 LIST OF PREPARERS

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9.0 REFERENCES

FHWA, 2012. Paducah Waterfront Development Project (Phase 1). Accessed online May 5, 2020 at <http://paducahky.gov/~paducahky/sites/default/files/2012-07-27%20Appvd%20FONSI-optimized.pdf>