DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER
CORPS OF ENGINEERS
550 MAIN STREET
CINCINNATI, OH 45202

APR 12 2013

CELRD-PDS-R

MEMORANDUM FOR Commander, U.S. Army Engineer District, Louisville, Attention, Amy Babey (CELRL-PM-P), Louisville District, U.S. Army Corps of Engineers, 600 Dr. Martin Luther King Jr. Place, Louisville, Kentucky

SUBJECT: Required Milestone for Federal Interest Determination for, Ohio River, Portland Wharf Park and Louisville River Walk, Jefferson County, Kentucky Continuing Authorities (CAP) Section 14 Project Fact Sheet

1. Reference.

a. CELRL Memorandum , Ohio River, Portland Wharf Park and Louisville River Walk, Jefferson County, Kentucky Section 14 CAP Fact Sheet Transmittal.

b. Ohio River, Portland Wharf Park and Louisville River Walk, Jefferson County, Kentucky Section 14 Fact Sheet, dated 19 March 2013.

2. The Feasibility Phase of all CAP authorities has an initial fully federal funded component of $100,000. Engineering Regulation(ER) 1105-2-100, Appendix F (F-10e.(1)page F-14) has a required milestone for determining the Federal Interest. This required milestone is to assure continuing work on the Feasibility Phase is consistent with the policies, constraints of CAP, prevents excessive expenditures on questionable projects, and that Feasibility Study efforts are likely to lead to project implementation.

3. The Fact Sheet submitted by the Louisville District for the above project (Ref 1.b) satisfies the required milestone. The District may proceed with the remaining portion of the Feasibility Study subject to the availability of funds. The POC for this action is Mr. Ron Sadri (513)-684-3008.

FOR THE COMMANDER:

JOHN C. ZIMMERMAN, P.E., L.S.
Chief, Planning and Policy Division
Director, Inland Navigation PCX

Date: 19 March 2013
Division: Great Lakes and Ohio River Division
District: Louisville District

CONTINUING AUTHORITIES PROJECT FACT SHEET

1. Project: Ohio River, Portland Wharf Park and Louisville River Walk, Jefferson County, Kentucky, Section 14, Project (P2# 335005).

2. Location of Project/Congressional District: The Ohio River, Portland Wharf Park, Jefferson County is located in the 3rd Congressional District of Representative John Yarmuth of Kentucky. The area of study is located between River Mile 607.4 and 610.6 on the banks of the Ohio River in Louisville, Kentucky, approximately two miles west of downtown. The fifty five acre site is owned by the Louisville/Jefferson County Metro Government Parks Department (Metro Parks), and is bordered on the north by the Ohio River, on the south by a flood levee and Interstate 64, on the east by the Kentucky and Indiana Railroad Bridge and the McAlpine Locks and Dam, and on the west by Shawnee Golf Course. The Portland site spans the riverfront area between 32nd Street and 36th Street in the existing Portland neighborhood. Existing on-site access to the park are for both vehicular and pedestrian traffic, by way of the River Walk trail entrance at the corner of 31st Street and Northwestern Parkway.

The Portland Wharf Park is bordered on the southeast by the Kentucky & Indiana Railroad Bridge which is displayed above.

3. Study Authority: The study is authorized by Section 14 of the 1946 Flood Control Act (P.L. 79-526) as amended. Section 14 allows the Corps to plan and construct emergency streambank and shoreline protection projects to protect highways, highway bridge approaches, public facilities such as water and sewer lines, hospitals, non-profit schools, churches and other public non-profit facilities. In this instance the portions of the park to be protected include the historic location of the Portland Wharf, the riverboat landing for the City of Portland founded in 1811. The Wharf is part of an archaeological site known as "Portland Proper" and designated by the state of Kentucky as site 15JF418. Portland Proper is listed on the National Register of Historic Places and it limits encompass the entirety of the Portland Wharf Park. The Federal expenditure limit at any one site is $1,500,000 and any project must be economically justified and environmentally sound.

4. Study Purpose: The purpose of this study is to evaluate streambank erosion problems along the Ohio River within the Portland Wharf Park boundary heading westward along the paved river walk trail. Two erosion locations were found within River Mile 607.4 and 607.6 (referred to as Section I in this report). An additional area of concern is located between River Miles 610.1 and 610.6 (referred to as Section II).

5. Discussion of Prior Studies, Reports and Existing Water Projects: Portland Proper (15JF418) was listed on the National Register of Historic Places in September 2006. The

Portland Wharf Park, Master Plan, Louisville, Kentucky, November 2002 was prepared by the City of Louisville, Kentucky. The master plan for Portland Wharf Park builds upon the visions of the community and the desire of the City to extend the benefits of the park out into the community. The master plan encompasses not only the existing boundaries of Portland Wharf Park (between Shawnee Golf Course and the K&I Bridge), but also a 31-acre "visitor orientation area" east of the park. The Portland Historic District, which is immediately south of the park and outside of the main entrance, is also included in the master plan.

6. Plan Formulation:

A. Identified Problems:

Existing Conditions: The area of concern is located within the Portland Wharf Park boundary, which is between Ohio River Mile 607.4 and 607.6 (Section I) and Ohio River Mile 610.1 and 610.6 (Section II).

Section I.

Section I contains remnants of streets that were part of the original Portland Wharf. There are historical artifacts, dating from the time period when this part of Portland was a vibrant part of the City of Louisville. Some of these artifacts were identified during archaeological excavations and interpretive efforts completed by Metro Parks using funding provided by the Louisville District as part of the mitigation efforts for the McAlpine Lock Replacement Project.

The picture above shows remants of streets that were part of the original Portland Wharf.

The area associated with Section I is listed on the National Register of Historic Places (NRHP) as Portland Proper (15Jf418). Sites are listed on the NRHP because they have demonstrated integrity and significance. In the case of Portland Proper, significance derives from its role as an important river port during the 19th century. [redacted].

The above caption shows the erosion along the Portland Wharf Park between Ohio River Mile 607.4 and 607.6.

It should also be noted that an impact to a portion of an NRHP-listed site affects the integrity of the whole site. The Section 14 project would protect the significance of Portland Proper in addition to the Wharf area closest to the river.

Based on both a field inspection and review of aerial photography over a 10 year period, the terrace area appears to be relatively stable. However, based on a review of aerial photography and discussions with the local sponsor, approximately 10 feet of river bank have been lost and some artifacts that have been identified by archaeological excavations and interpretive efforts completed by the Louisville District as part of the mitigation efforts for the McAlpine Lock Replacement Project since 2000. Enclosure 2-5 contains aerial photography from early 2000, 2006, 2007 and 2008 of the Portland Wharf area. Based on preliminary hydraulic data, sediment accumulation and erosion at the project site is likely caused by river flows and is not influenced by prop wash from the river traffic. If the erosion continues for another 10 year period another 10 feet of Portland Wharf Park will be lost.

Section II.

The second area of concern is located along the river bank of the Ohio River, between Mile 610.1 and 610.6 as shown on Enclosure 1 (Project Area Map). This area comprises a portion of the Louisville River Walk that is eroding.

The Louisville River Walk is one of the most significant recreational and open space resources in Louisville, and passes directly through Portland Wharf Park. This paved trail, which is seven miles long, begins downtown at Waterfront Park and continues west along the river to Chickasaw Park. Along the way, it provides walkers, bikers, skaters, and sightseers with scenic views and access to the McAlpine Locks and Dam, the Portland Canal, and Lannan Memorial Park, Portland Wharf Park, and Shawnee Park. In several areas in Portland, the trail moves away from the river edge and actually parallels Northwestern Parkway. This is the case where Louisville River Walk enters Portland Wharf Park from the east, at Northwestern Parkway and 31st Street.

Detour sign in Section II showing the rerouting of the Louisville Walk Trail.

Restriction signs are displayed along the Louisville River Walk Trail showing the danger of the trail along Ohio River Mile 610.1 and 610.6 in Section II.

Most significant is the fact that part of the River Walk as it passes through the eastern section of Portland Wharf Park, follows the old street grid pattern of Portland Wharf (where Fulton, Florida, and Commercial Streets used to be). Additionally, sections of the Louisville River Walk as it passes through the park have been inscribed with words, terms, and phrases that evoke the history and feeling of the wharf, the boats, and the people who lived and worked there. The city of Portland once thrived as an autonomous shipping port at the western end of the portage route around the Falls

of the Ohio River, and later the Louisville-Portland Canal. Its hotels, taverns, warehouses, and many businesses catered to the steamboats and their passengers for many years. Evidence of this historic occupation exists throughout the Portland Wharf Park and has been the focus of many archaeological excavations by the University of Louisville and University of Kentucky. [redacted] areas even today.

The city does have plans to create an extension of the Louisville River Walk east of the park, a loop that would allow users to stay close to the river in the vicinity of the McAlpine Locks, rather than having to come up to Northwestern Parkway to continue along the trail. This trail would tie in with the new McAlpine Locks Visitor's Center that is now being constructed outside the U.S. Army Corps of Engineers offices at the locks. Most importantly, the city's tentative plans include having this River Walk loop tie into Portland Wharf Park from the east, under the K&I Bridge.

Based on the field inspection, the primary mechanism of erosion along the river bank is internal piping. Piping is subsurface erosion conveyed through an open "pipe" in soil or rock under a roof of natural or manmade materials. In this process the existing sand seams are removed by the flow out of the bank, resulting in the clay and silt material above the sand seam to be undermined. This process typically happens after a high water event but can occur if there is a source of water feeding the sand seam. With this method of erosion, the upper bank is undermined to a point where the driving forces (weight of the soil block) exceeds the resisting forces (cohesive strength of the soil). Typically, for this mechanism of erosion several feet of bank are lost at one time. Once failure occurs, the failed material remains at the toe of the failure plane until the river reworks it and eventually removes the material. After the initial failure, the failed material will either prevent or inhibit the flow of water in the sand seam such that sand cannot be removed, thereby stabilizing the bank. However, the bank will only remain stable until the river reworks the failed material block and the process begins again. At the location that is affecting the river walk, the rate of removal of the failed material would be low. However, with the erosion at one point in the affected reaching less than 2 feet from the edge of the bank and the potential to lose 3 to 5 feet of bank in one event,

Looking upstream along the bank. The primary cause of the loss of bank material is the failure of the trees along the top of the bank. The river contributes to the failure by scouring the bank as it flows around the trees during high water. The scour removes support material and eventually the tree will fall, likely as a result of high winds.

Above field inspection shows the primary mechanism of erosion along the river bank is internal piping.

there is imminent threat to the existing river bank.

Expected Future Without Project Conditions:

Section I.

If the Corps of Engineers takes no action to address the erosion along the Portland Wharf Park boundary, then Portland Proper (15Jf418) will continue to erode away. Previous archaeological investigations suggest that this erosion has been occurring since at least the early 1980s when wharf tie-off rings and other archaeological material was seen coming out of the bank of the Ohio River. Limited excavation determined the remaining portions of the site and its integrity. This and subsequent work led to the Portland Proper being listed to the NRHP.

B. Planning Constraints and Planning Objectives: The project provides the best opportunity to stabilize this portion of the Portland Wharf Park and insure the integrity of Portland Proper (15JF418). Preserving the archaeological site adds a new element to the City's vision to promote the benefits of the Portland Wharf Park: cultural heritage tourism. Loosely defined, it is the ability to travel and experience the places and activities that authentically represent the stories and people of the past and present. With this, the primary objective of this project will be to develop a fix to the erosion problem that minimizes its affect to the archaeological site. The greatest challenge to the project will be developing a plan that meets this objective, but is sensitive to budgetary and scheduling restraints. Consultation to mitigate the adverse affects on a historic property listed the National Register of Historic Place under Section 106 of the National Historic Preservation Act can be a lengthy and costly process. Therefore close coordination with the various Project Delivery Team members, particularly the Cultural Resource Expert, and local sponsor will be essential to its success.

C. Alternatives Plans Considered: Five alternatives plans were considered to address the eroding bank along the Ohio River at this location. The plan would be to leave most of the material in place. Part of the Park's mission is to interpret Portland's role as a river port and its affect/interaction with Louisville. There have been archaeological investigations undertaken and it is likely that other limited, research question directed, excavations to further interpretation of the site would occur in the future.

A. Alternative Plan 1 – No Action. This alternative plan would consist of taking no Federal action at this time. The high water flows will continue to threaten the safety and stability of the adjacent boundary which is parallel to the Ohio River. The natural erosive forces would continue to erode the stream bank and threaten the cultural resources located at the Portland Wharf Park.

B. Alternative Plan 2 – Riprap Protection. This alternative plan includes removing all debris and vegetation in the excavated area and placing material in a state approved landfill. Approximately 900 linear feet of bank would be excavated and graded to a slope no steeper than 2 horizontal to 1 vertical slope (2H:1V). End protection would be placed at the upstream and downstream limits and a toe trench would be excavated per contract drawings. This plan includes

placement of a minimum of 6 inches of bedding stone and a minimum of 24 inches of riprap. The cost for this alternative without Real Estate acquisition was estimated at $700,000.

C. Alternative Plan 3 – Relocation. An archaeological site can't be "Relocated" in the sense that other items such as roads or utilities can. Consider that an archaeological site is a non-renewable resource and that even archaeologically excavating a site causes loss of some data. Also part of the site's significance is tied to its specific location below the Falls of the Ohio so even the act of relocating it, were it possible, would destroy part of the site's context.

A better alternative/term might be "Data Recovery". Under this type of alternative a minimum of 15% to a maximum of 100% is archaeologically excavated. Given the size of the overall site at 55 acres the costs even to excavate a minimum of 15% (8.25 acres) of the site area would be cost prohibitive. For comparison, a much smaller site (3 acres or less) in a similar setting with cultural deposits at similar depths cost over 3 million dollars to excavate, analyze and produce a report of findings. The cost for 15% of site of Portland Proper size could easily approach around 9 million and you would still have data loss. A "Data Recovery" alternative doesn't do anything to stop the bank erosion, the loss of a NRHP listed site, or the loss of a public interpretive park.

D. Alternative Plan 4 – Gabion Baskets. This alternative plan includes removing all debris and vegetation in the excavated area and placing material in a state approved landfill. Approximately 900 linear feet of bank would be excavated and graded to a slope no steeper than 1.5H:1V. Then Gabion Baskets would be placed along the stream bank starting at the river's edge and progressing up the bank. The cost of Gabion Baskets, estimated at $910,000 is around 30% more costly than riprap protection due to the extra man-hours involved in producing and placing the baskets.

E. Alternative Plan 5 – Bioengineering. This alternative plan, which will protect approximately 900 linear feet of bank includes the removal of all trees with the roots exposed and any unstable trees along the bank, which is estimated to be between 20-30 trees. Once the trees are removed the top 8 to 10 feet of bank would be graded to a 3H:1V and planted with suitable vegetation. This method of protection would require clearing and grubbing of approximately 0.6 acres, which would require removing between 20-30 trees, excavating approximately 5,000 cubic yards of bank material, placing 1,100 cubic yards of topsoil on the cut slope, and planting and grading the upper portion of the bank to stabilize the slope and planting approximately 0.6 acres with vegetation. The cost for this alternative without Real Estate acquisition was estimated at $202,000.

Existing site for Alternative Plan 5 – Bioengineering.

D. Preliminary Evaluation of Alternatives: Five Alternative Plan solutions were discussed regarding the area in question. Alternatives Plan 2, 3, 4 and 5 address the stability of the left bank. Alternative 3 was eliminated from further consideration as it did not result on the lessening of erosion and was cost prohibitive.

According to Appendix F of ER 1105-2-100, Section 3 Specific Guidance for Project Authorities (Section 14, Flood Control Act of 1946, as amended – Streambank and Shoreline Erosion Protection of Public Works and Non-Profit Public Services), economic evaluation must establish that the facilities to be protected provide economic benefits in excess of the project costs. To determine economic justification, a benefit to cost ratio (BCR) must be determined based on the costs of the alternative plan amortized at the current interest rate (3.75%) over the estimated economic life of the project (25 years). Given the narrow geographic focus, low cost, and impending threat to facilities, the evaluation should focus on the least cost alternative solution. The least cost alternative plan is considered to be justified if the costs of the proposed alternative are less than the costs associated with relocation of the threatened facility. For this project, the measure of project economic benefits is assumed to be the sum of the various types of damages prevented by the project. The streamlined justification procedures associated with this analysis are in recognition of the urgency of addressing such projects. A comparison of the No Action/Relocation Plan with the three aforementioned alternative plans associated with Section I is presented below:

Table 1
Ohio River, Portland Wharf Park - Section I
Section 14
Comparison of Alternative Plans
(FY13 Price Levels)

Alternative	Plan	First Cost	Annual Cost	Assumed Annual Benefits	Benefit Cost Ratio
1 & 3	No Action/Data Recovery	$3,628,851.55	$226,192.45	$226,192.45	1.00
2	Rip Rap Protection	$700,000.00	$43,632.18	$226,192.45	5.18
4	Gabion Baskets	$910,000.00	$56,721.84	$226,192.45	3.99
5	Bioengineering	$202,232.00	$12,605.46	$226,192.45	17.94

Based on the economic evaluation of alternative plans above, the most economically feasible plan to prevent the loss of these critical public facilities is Alternative Plan 5, Bioengineering. Bioengineering is the least cost alternative plan, provides a maximum net benefit for water resource planning, and is considered to be the National Economic Development (NED) Plan.

Section II.

B. Planning Constraints and Planning Objectives: The project provides the best opportunity to stabilize this portion of the Portland Wharf Park and insure the integrity of Portland Proper (15JF418). Preserving the archaeological site adds a new element to the City's vision to promote the benefits of the Portland Wharf Park: cultural heritage tourism. Loosely defined, it is the ability to travel and experience the places and activities that authentically represent the stories and people of the past and present. With this, the primary objective of this project will be to develop a fix to the erosion problem that minimizes its affect to the

archaeological site. The greatest challenge to the project will be developing a plan that meets this objective, but is sensitive to budgetary and scheduling restraints. Consultation to mitigate the adverse affects on a historic property listed the National Register of Historic Place under Section 106 of the National Historic Preservation Act can be a lengthy and costly process. Therefore close coordination with the various Project Delivery Team members, particularly the Cultural Resource Expert, and local sponsor will be essential to its success.

If the Corps of Engineers takes no action to address the erosion along the river bank, between Ohio River Mile 610.1 and 610.6, the local sponsor would be obligated from a safety standpoint to attempt to stabilize the left bank in some manner or keep it closed off to pedestrian and bicycle traffic.

C. Alternatives Plans Considered: Five alternatives plans were considered to address the eroding bank along the Ohio River at this location.

A. Alternative Plan 1 – No Action. This alternative plan would consist of taking no Federal action at this time. The high water flows will continue to threaten the safety and stability of the adjacent boundary, which is parallel to the Ohio River, and the natural erosive forces would continue to erode the embankment and threaten the Louisville River Walk Trail.

Information signs are displayed in Section II showing the danger and closure of the Louisville River Walk Trail.

B. Alternative Plan 2 – Riprap Protection. This alternative plan would be to place a layer of granular fill overlaid by a layer of riprap. The granular fill would act as a filter, allowing the water to exit the bank through the sand seam but prevent the sand from being removed in the process. While the length of the erosion affecting the river bank is approximately 2,600 feet, there are sections where riprap protection has already been placed. Therefore, while the length of bank requiring protection is shown as 2,600 feet, it is estimated that only between 1,600 and 1,800 feet will actually need to be protected. A rough estimate of the material requirements to protect the river bank would be as follows: clearing and grubbing approximately 1.5 acres of bank, placement of 11,250 cubic yards of granular fill, 7,700 cubic yards of 86 pound maximum graded riprap and 5,400 square feet of filter fabric. The cost for this alternative without Real Estate acquisition was estimated at $1,228,936.

C. Alternative Plan 3 – Relocation. This alternative plan would consist of relocating the River Walk Trail which ties into the Louisville Metro Park 100 Mile Loop Trail. Because of the integral nature of this portion of the trail to the overall Metro Park 100-mile Loop Trail, the design depends on the trail being in this particular location in order to connect with other parts of the trail, it is integral to the entire system that the trail remain in this location. Several miles of the 100 mile trail would be disrupted from the original design and new engineering and design for the trail would have to be redesigned. The non-Federal sponsor has no interest in implementing this type of plan.

D. Alternative Plan 4 – Gabion Baskets. This alternative plan includes removing all debris and vegetation and placing material in a state approved landfill. Approximately 2600 linear feet of bank would be excavated and graded to a slope no steeper than 1.5H:1V. Then Gabion Baskets would be placed along the river bank starting at the river's edge and progressing up to the top of bank. The cost of Gabion Baskets, estimated at $1,597,617, is around 30% more costly than Riprap Protection due to the extra man-hours involved in producing and placing the baskets. Due to this fact, Alternative Plan 4 – Gabion Baskets cannot be the Least Cost Plan and therefore will not be further evaluated.

E. Alternative Plan 5 – Bioengineering. This alternative plan includes removing all debris and vegetation and placing material in a state approved landfill. Approximately 2600 linear feet of bank would be excavated and graded to a slope no steeper than 1H:4V. Rather than placing riprap as recommended in riprap protection, natural fiber coils will be placed on the bank and anchored accordingly. Dead tree roots would also be anchored into the bank to provide stability. Native plant species would be placed along the bank to encourage root development and promote stability. The cost of Bioengineering, estimated at $1,536,170, is around 25% more costly than riprap protection due to the human labor involved and the price of the bioengineering products. The non-Federal sponsor has no plans to implement this type of plan. Due to these facts, Plan 5 – Bioengineering – cannot be the Least Cost Plan and therefore will not be further evaluated.

D. **Preliminary Evaluation of Alternatives:** Five Alternative Plan solutions were discussed regarding the area in question. Alternatives Plans 2, 3, 4 and 5 address the stability of the left bank. According to Appendix F of ER 1105-2-100, Section 3 Specific Guidance for Project Authorities (Section 14, Flood Control Act of 1946, as amended – Streambank and Shoreline Erosion Protection of Public Works and Non-Profit Public Services), economic evaluation must establish that the facilities to be protected provide economic benefits in excess of the project costs. To determine economic justification, a benefit to cost ratio (BCR) must be determined based on the costs of the alternative plan amortized at the current interest rate (3.75%) over the estimated economic life of the project (25 years). Given the narrow geographic focus, low cost, and impending threat to facilities, the evaluation should focus on the least cost alternative solution. The least cost alternative plan is considered to be justified if the costs of the proposed alternative are less than the costs associated with relocation of the threatened facility. For this project, the measure of project economic benefits is assumed to be the sum of the various types of damages prevented by the project. The streamlined justification procedures associated with this analysis are in recognition of the urgency of addressing such projects. A comparison of the No Action/Relocation Plan with the three aforementioned alternative plans associated with Section II is presented below:

Table 2
Ohio River, Portland Wharf Park - Section II
Section 14
Comparison of Alternative Plans
(FY13 Price Levels)

Alternative	Plan	First Cost	Annual Cost	Assumed Annual Benefits	Benefit Cost Ratio
1 & 3	No Action/Relocation	$2,500,000.00	$155,829.22	$155,829.22	1.00
2	Rip Rap Protection	$1,228,936.00	$76,601.66	$155,829.22	2.03
4	Gabion Baskets	$1,597,617.00	$99,582.17	$155,829.22	1.56
5	Bioengineering	$1,536,170.00	$95,752.07	$155,829.22	1.63

Based on the economic evaluation of alternative plans above, the most economically feasible plan to prevent the loss of these critical public facilities is Alternative Plan 2, rip rap protection. Rip rap protection is the least cost alternative plan, provides a maximum net benefit for water resource planning, and is considered to be the National Economic Development (NED) Plan.

7. Federal Interest:

Section I.

Based on the initial site visit and preliminary evaluation, it did appear that the erosion along the Ohio River posed a threat to the Portland Proper (15Jf418) which is currently being impacted and has been since at least the early 1980s when wharf tie-off rings and other archaeological material was seen eroding out of the bank. From the field inspection the most likely cause of any bank loss that occurs was a combination of trees falling and taking a root mass with them and the saturation of soil and subsequent sloughing in the upper bank after high water events. The protection of the bank using bioengineering methods has a BCR well above unity indicating that there is a Federal Interest in continuing with a feasibility study.

Section II.

Based on the initial site visit and preliminary evaluation, it appeared that the erosion along the Ohio River posed an immediate threat to the safety and stability of the river bank, the Louisville River Walk Trail and impacts historic significance of the area. From the field inspection the primary mechanism is internal piping. The protection of the bank using rip rap has a BCR well above unity indicating that there is a Federal Interest in continuing with a feasibility study.

8. Project Schedule:

Execute FCSA	April 2013
Complete Draft Feasibility Study	August 2013
ATR of Feasibility Report	September 2013
Final Feasibility report	October 2013

9. Feasibility Phase Cost Estimate: The cost to complete the Feasibility Phase is estimated to be $100,000 - $150,000 and will require cost sharing with the Local Sponsor after deducting the Federal first $100,000 at 65% Federal and 35% Local Sponsor.

10. Recommendations: The recommended plan for Section I is the stabilization of the bank using bioengineering methods. This alternative plan will protect approximately 900 linear feet of bank and includes the removal of all trees (20-30) with the roots exposed and any unstable trees along the bank, grading to a 3 to 1, and revegetating the bank. The recommended plan for Section II is the stabilization of the bank using rip rap. Granular fill and rip rap would be placed along approximately 1,600-1,800 linear feet of bank. The granular fill would act as a filter, allowing the water to exit the bank through the sand seam but prevent the sand from being removed in the process.

11. Views of Sponsor: The Louisville/Jefferson County Metro Government, Louisville, Kentucky is the non-Federal Sponsor for this project. They are aware of their obligations to complete the feasibility study. Letters of Intent, one dated March 14, 2007 and two dated February 15, 2011 were received and Federal funds have been identified in the FY13 CAP work plan for the completion of the feasibility study.

12. Views of Federal, State, and Regional Agencies: Federal, state, and local agencies having an interest in the problem area have been and will be coordinated with on this study. To date, there have been no objections to this project. No significant effects are expected to be incurred through the implementation of the proposed project based on preliminary evaluations. A more thorough evaluation would be conducted during the feasibility phase of the project.

13. Supplemental Information: Enclosure 2-5 (aerial photography from 2000, 2006, 2007 & 2008 of the Portland Wharf area), photos shows bank erosion within Section I and Letters of Intent for each Section of the project are attached.

14. Project Map Area: See Enclosure 1.

Section I - Looking upstream along the bank.

Section I - Looking up the slope at a surface drainage channel.

Section I - Looking upslope at an area of trees with roots exposed. Note tree remnants lost to erosion.

OFFICE OF THE MAYOR
LOUISVILLE, KENTUCKY

GREG FISCHER
MAYOR

February 15, 2011

Ms. Sharon Bond
Chief, Planning Branch
U.S. Army Engineer District, Louisville
P.O. Box 59
Louisville, Kentucky 40201-0059

Dear Ms. Bond:

Louisville/Jefferson County Metro Government, hereinafter called the "Sponsor", is interested in obtaining Corps of Engineers assistance in addressing a stream bank erosion problem on the Ohio River along the Riverwalk/Louisville Loop shared use path at Shawnee Golf Course under authority of **Section 14 of the 1946 Flood Control Act.** There is a severe erosion and bank failure problem along the Riverwalk (Louisville Loop) shared use path, which is a facility constructed by the City of Louisville with federal Transportation Enhancement funding in 1996. There have been past instances of bank failure along Riverwalk since its construction, some of which have been previously repaired. The Riverwalk path is located within the Shawnee Golf Course at the point of bank failure, which is property owned by Louisville Metro Government and managed by Louisville Metro Parks. The Riverwalk path is managed/maintained by Louisville Metro Public Works & Assets.

We understand that the Corps will initiate Planning, Design and Analysis (PDA) after receipt of this letter of intent and subject to availability of funds. The costs of the PDA will be initially Federally financed. Cost sharing will depend upon the total cost of the PDA. The first $40,000 will be funded 100 percent Federal and are not considered part of project implementation costs. Any costs over $40,000 are considered part of project implementation costs and will be cost shared as described below. PDA tasks begin with the development of a solution to the problem and conclude with award of the construction contract. The Sponsor will be an active participant in the study process and will have the opportunity to review plans as they are developed.

The costs associated with project implementation for the purposes of cost sharing are: (1) PDA costs greater than $40,000; (2) Construction contract amount, (3) Construction management and administrative costs, and (4) Lands, easements, rights-of-way, relocations, and disposal costs (LERRD).

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LOUISVILLE METRO HALL 527 WEST JEFFERSON STREET LOUISVILLE, KENTUCKY 40202 502.574.2003

We understand that project implementation costs are cost shared up to 65 percent Federal and a minimum 35 percent non-federal.

The non-federal share of project implementation costs consists of provision of lands, easements, rights-of-way, relocations, and disposal areas necessary for the project (LERRD), plus a cash contribution of 5 percent of the total project implementation costs. In the event that the value of LERRD furnished, plus 5 percent, does not equal at least 35 percent of the total project implementation cost, the non-federal sponsor must contribute additional cash to equal 35 percent.

We are also aware that the local sponsor is responsible for operating and maintaining the project upon completion of construction and that the Corps will inspect the project periodically following construction.

This letter constitutes an expression of intent and not a contractual obligation and we understand that the Sponsor or the Corps may opt to discontinue the project development process prior to the execution of the Project Cooperation Agreement (PCA) which occurs at the end of the Planning, Design and Analysis, prior to award of a construction contract.

If you need additional information, please contact: Lisa Hite at (502) 456-8138

Sincerely,

Greg E. Fischer
Mayor

Mike O'Connell
Jefferson County Attorney

cc: Louisville District Corps of Engineers
ATTN: Ms. Amy K. Sharp; PM-P (Outreach Coordinator)
P.O. Box 59
Louisville, Kentucky 40201-0059

OFFICE OF THE MAYOR
LOUISVILLE, KENTUCKY

GREG FISCHER
MAYOR

February 15, 2011

Ms. Sharon Bond
Chief, Planning Branch
U.S. Army Engineer District, Louisville
P.O. Box 59
Louisville, Kentucky 40201-0059

Dear Ms. Bond:

Louisville/Jefferson County Metro Government, hereinafter called the "Sponsor", is interested in obtaining Corps of Engineers assistance in addressing a stream bank erosion problem on the Ohio River at Portland Wharf Park under authority of **Section 14 of the 1946 Flood Control Act.** There is a severe erosion problem at the site of the former Portland Wharf which was a thriving river port from the early 1800s until 1937 when it experienced major flooding.

This area is on the National Register of Historic Places and is rich in archeological resources, many of which have been documented by the Ky. Heritage Council. The area is part of the Portland Wharf Park which is owned by Louisville Metro Government and managed by Louisville Metro Parks. Among the resources already lost to erosion are parts of the old wharf including iron rings and cobblestones, all of which would have been invaluable for restoring and interpreting the site. Louisville Metro Parks and the Portland Museum were partners in the preparation of a master plan in 2002 and an interpretive master plan in 2008. Metro Parks and the Museum are also currently partners implementing a Preserve America grant from (the federal Advisory Council on Historic Preservation).

We understand that the Corps will initiate Planning, Design and Analysis (PDA) after receipt of this letter of intent and subject to availability of funds. The costs of the PDA will be initially Federally financed. Cost sharing will depend upon the total cost of the PDA. The first $40,000 will be funded 100 percent Federal and is not considered part of project implementation costs. Any costs over $40,000 are considered part of project implementation costs and will be cost shared as described below. PDA tasks begin with the development of a solution to the problem and conclude with award of the construction contract. The Sponsor will be an active participant in the study process and will have the opportunity to review plans as they are developed.

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The costs associated with project implementation for the purposes of cost sharing are: (1) PDA costs greater than $40,000; (2) Construction contract amount, (3) Construction management and administrative costs, and (4) Lands, easements, rights-of-way, relocations, and disposal costs (LERRD).

We understand that project implementation costs are cost shared up to 65 percent Federal and a minimum 35 percent non-federal.

The non-federal share of project implementation costs consists of provision of lands, easements, rights-of-way, relocations, and disposal areas necessary for the project (LERRD), plus a cash contribution of 5 percent of the total project implementation costs. In the event that the value of LERRD furnished, plus 5 percent, does not equal at least 35 percent of the total project implementation cost, the non-federal sponsor must contribute additional cash to equal 35 percent.

We are also aware that the local sponsor is responsible for operating and maintaining the project upon completion of construction and that the Corps will inspect the project periodically following construction.

This letter constitutes an expression of intent and not a contractual obligation and we understand that the Sponsor or the Corps may opt to discontinue the project development process prior to the execution of the Project Cooperation Agreement (PCA) which occurs at the end of the Planning, Design and Analysis, prior to award of a construction contract.

If you need additional information, please contact: Lisa Hite at 502-456-8138.

Sincerely,

Greg E. Fischer
Mayor

Mike O'Connell
Jefferson County Attorney

cc: Louisville District Corps of Engineers
ATTN: Ms. Amy K. Sharp; PM-P (Outreach Coordinator)
P.O. Box 59
Louisville, Kentucky 40201-0059

OFFICE OF THE MAYOR

LOUISVILLE, KENTUCKY

JERRY E. ABRAMSON
MAYOR

March 14, 2007

Ms. Sharon Bond
Chief, Planning Branch
U.S. Army Engineer District, Louisville
P.O. Box 59
Louisville, Kentucky 40201-0059

Dear Ms. Bond:

Louisville/Jefferson County Metro Government, hereinafter called the "Sponsor", is interested in obtaining Corps of Engineers assistance in addressing a stream bank erosion problem on the Ohio River at Portland Wharf Park under authority of Section 14 of the 1946 Flood Control Act. Portland Wharf Park is a new park owned by Louisville Metro and recently listed on the National Register of Historic Places. The park is the former location of the thriving commercial wharf and downtown Portland. It was destroyed by the 1937 and 1945 floods, and construction of the levee isolated it from the rest of the town. The park still contains important historical and archeological resources, and the park master plan designates Portland Wharf as an historical, archeological and cultural park. Archeological investigations are on-going and an interpretive master plan is just beginning. The Portland Museum, the Portland neighborhood and Kentucky Archeological Service are partners in park development, archeology and creating educational programs at the park.

The Ohio River bank is severely eroded in the vicinity of the old wharf, and there are continuing losses of archeological resources every year. Stabilization of approximately 900 feet of the riverbank is critical for the salvage of this important part of Louisville's heritage.

The Portland Wharf Park master plan was completed in 2002 with extensive community involvement. Initial archaeological investigations were performed to definitively establish existence of archaeological remains. Subsequent implementation projects include the Ghost Streets project, which cleared the former street rights-of-way on the site, and opened up for general park use two square city blocks, which also retain the richest remaining archaeological resources. Smaller collateral projects have implemented woodland management and seeding; placement of historic sandstone blocks (from the McAlpine Locks project) to further define the old street edges; and site protection measures aimed at reducing vandalism and destruction of the site by all terrain vehicles and four wheel drive vehicles. Archaeological investigations are being conducted employing

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mitigation funds from the US Army Corps of Engineers' MOA with Louisville as part of the McAlpine Locks project. Portland Museum has also been awarded a Preserve America grant of $150,000 to create an interpretive master plan for the park. At the same time, Portland has been designated as one of the first five "Preserve America" communities in the US.

We understand that the Corps will initiate Planning, Design and Analysis (PDA) after receipt of this letter of intent and subject to availability of funds. The costs of the PDA will be initially federally financed. Cost sharing will depend upon the total cost of the PDA. The first $40,000 will be funded 100 percent Federal and are not considered part of project implementation costs. Any costs over $40,000 are considered part of project implementation costs and will be cost shared as described below. PDA tasks begin with the development of a solution to the problem and conclude with award of the construction contract. The Sponsor will be an active participant in the study process and will have the opportunity to review plans as they are developed.

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If you need additional information, please contact: Lisa Hite, senior planner for Louisville Metro Parks at 502-456-8138.

Sincerely,

Jerry E. Abramson
Mayor

Irv Maze
County Attorney

cc: Louisville District Corps of Engineers
ATTN: Ms. Amy K. Sharp; PM-P (Outreach Coordinator)
P.O. Box 59
Louisville, Kentucky 40201-0059